

PTEN

Professional Tool & Equipment News

The Independent Tool Authority



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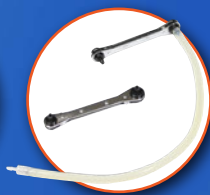
C.A.R.T.

CAMERA ASSISTED RETRIEVAL TOOL

by Ullman Devices



▲ Rated capacity
of 900 lbs



▲ One-way
check valve
prevents spillage



▲ Heats large
fasteners and
components

Details on the cover products
and other new tools **Page 10**

EXCLUSIVE:
AAPEX & SEMA
Editor's Picks:
Check out some of the
newest tools and
equipment showcased
at this year's shows.
Page 34

Tool Briefing:
Avoid brake
service
come-backs
Page 30



KNIPEX

THE NEW AND IMPROVED PLIERS WRENCH TO BUST ANY NUT UP TO 2"

KNIPEX – Tools Designed With Your Hand in Mind

Just when you thought the original Pliers Wrench couldn't get any better...it just did! The jaw capacity has been increased to 2 inches and we changed the pinch guard to help protect you even more from nasty blood blisters. A laser-etched scale has been added so you can set the jaw position before you get to work. In addition to all these great new features, we are now offering the Pliers Wrench in our popular black atramentized finish for the first time. Get your hands on the newest design!

From the feature focused family of KNIPEX pliers wrenches.
See a video of this tool: <https://goo.gl/E6uZqs>



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KNIPEX Quality – Made in Germany

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X-431 THROTTLE

ADVANCED DIAGNOSTIC FUNCTIONS

Bi-directional Function
16 PIDs Shows in One Page

POWERFUL SCANNER

Android 7.1
10.1" IPS Touchscreen
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Compatible with
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Solution for Heavy Duty
Trucks (Class 4-12)

X-431 ADAS PRO'S **NEW** CARTS

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EXCLUSIVE

34 AAPEX/SEMA EDITOR'S PICKS

Our editorial staff got the scoop on a number of items released during the AAPEX and SEMA shows. Check out some of the latest and most innovative products.

36 2019 TOP 100 PRODUCTS

Every year we determine the list of most requested products in the pages of *PTEN*. You can find the top 25 of that list here.

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10 FEATURED NEW PRODUCTS

Check out the new tools from Ullman Devices, Mechanic's Time Savers, Induction Innovations, and Lang Tools. Then, read about all the other new products beginning on page 12.

30 TOOL BRIEFING

Avoid come-backs after brake maintenance and service.

40 TOOL REVIEWS

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- SP Air Low Profile Hex Bit Driver
- Hunter CodeLink
- Oasis Scientific Vivida ME-610C Automotive Articulating Borescope
- Lumax Fluid Extractor LX-1314
- Clore Automotive PRO-LOGIX PL6100 from SOLAR



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58 BIG-TIME BOXES

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Shop: Rod's Repair
Location: St. James, Minn.

ON OUR COVER

C.A.R.T. Camera Assisted Retrieval Tool by Ullman Devices



IN THE NEXT ISSUE

Look for our Hand Tool Supplement, mailing with the February 2020 issue of *Professional Tool & Equipment News*.

TARGET

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MA600

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ASK THE EXPERT



Pros and cons of different tire storage methods

Whether it's tires on the tread, barrel stacked, or laced, shop managers have their own preferences for storing tires. To read more, visit: VehicleServicePros.com/21109280

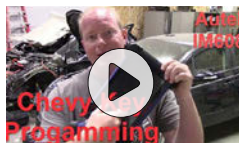
TECH TIP



Freeze frame data is data produced by a vehicle component – often an Engine Control Module – that is automatically stored based on the occurrence of a fault. Basically, if an active fault occurs from the engine, it triggers a freeze frame event which saves date and time information for the first and, when applicable, last occurrence of the fault.

To read more, visit: VehicleServicePros.com/21105870

VIDEO



In this video, Chad of Flash Performance demonstrates a key learn for a 2015 Chevy Volt using the IM608 from Autel.

To watch the video review, visit: VehicleServicePros.com/21106396

GUEST BLOG



Ask an automotive collision repair shop owner about how to increase their productivity and chances are you will hear about the need to reduce pre-paint wait times. After using body filler on a repair, a technician might apply a glaze, followed by a urethane-based primer that must dry fully before painting.

To read more, visit: VehicleServicePros.com/21106077

FEATURED PRODUCTS



5-pc Oil Pan Drain Plug Kit

CTA Manufacturing Corp.
VehicleServicePros.com/21113334



MaxiVideo MV480

Autel
VehicleServicePros.com/21114186



Rechargeable Compact Work Light

GEARWRENCH
VehicleServicePros.com/21114071



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Professional Tool & Equipment News
PTEN
The Independent Tool Authority

Published by Endeavor Business Media, LLC

ENDEAVOR 1233 Janesville Ave
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Printed in the U.S. Volume 30, Number 10; December 2019

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Professional Tool & Equipment News (USPS 012-426, ISSN 1081-4485 print; ISSN 2150-2072) is published ten times a year in February, March, April, May, June, July, August, September, October, and December by Endeavor Business Media, LLC, 1233 Janesville Avenue, Fort Atkinson, WI 53538. Periodicals postage paid at Fort Atkinson, WI 53538 and additional mailing offices. POSTMASTER: Send address changes to Professional Tool & Equipment News, PO Box 3257, Northbrook, IL 60065-3257, Canada Post PM40612608. Return undeliverable Canadian addresses to: Professional Tool & Equipment News, PO Box 25542, London, ON N6C 6B2.

Subscriptions: Individual subscriptions are available without charge in the U.S. to qualified subscribers. Publisher reserves the right to reject non-qualified subscriptions. Subscription prices: U.S. \$47 per year, \$91 two year; Canada/Mexico \$69 per year, \$128 two year; All other countries \$101 per year, \$191 two year. All subscriptions payable in U.S. funds, drawn on U.S. bank. Canadian GST#842773848. Back issue \$10 prepaid, if available. Printed in the USA. Copyright 2019 Endeavor Business Media, LLC.

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10,000 mAh Lithium-polymer	8MP Camera	4.4.2 Android OS

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11,000 mAh Lithium-polymer	8MP Camera	4.4.2 Android OS

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+ MAINTENANCE SERVICE

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2848x1536 LED Touchscreen	1.8GHz Processor	32G Memory 2G RAM
13,600 mAh Lithium-polymer	8MP Camera	4.4.4 Android OS

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+ SERVICE

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1920x1200 LED Touchscreen	1.3GHz 1.7GHz Processor	64G Memory 2G RAM
15,000 mAh Lithium-polymer	8MP Camera	4.4.2 Android OS

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+ PROGRAMMING + SERVICE

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1024x768 LED Touchscreen	1.4GHz Processor	32G Memory 2G RAM
11,000 mAh Lithium-polymer	5MP Camera	4.0.4 Android OS

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AUTEL



Making adjustments and minding the dollars

A recent survey on salary and job satisfaction urges us to take stock of industry growing pains.

By Sara Scullin, Editor
Sara@VehicleServicePros.com

How have time, technology, and pricing impacted your career?

Professional Tool & Equipment News recently surveyed a sample of its readers to get an update on the reality of shop owners and technicians servicing and repairing vehicles today. Most respondents in this survey (just over half) are shop owners. More than 50 percent work at general automotive repair shops, and others labor at specialty repair shops. The vast majority have worked in this industry for 16 years or more.

This survey focused on salary and hours worked, and most of these technicians (85 percent) were independent shop owners.

Of this group, the highest percentage of respondents (33 percent) earned \$25,000 to \$50,000 last year, and the next highest group (25 percent) earned \$50,000 to \$75,000 annually.

When these professionals were asked to rate "How satisfied are you with your overall compensation?" on a scale of 1 to 10, the average figure given was a 7.

While a "7" is not terrible ... it's not the best score, either. Of course, a person's satisfaction with their compensation on the job depends on a lot of things. That "comfort zone" is not always an easy thing to come by while riding the road to job security and a profitable shop.

The reality is, for many technicians and technicians-turned-shop owners, those years of training, learning, doing, and managing are often fraught with up-front costs and investments, staffing hurdles, and market uncertainties.

"I work very hard, and cars are getting more complicated to fix," one technician says.

"Underpriced services to customers have left this shop struggling ... and opportunities for efficiency and improvement have been ignored," says another.

Every profession has its growing pains. For independent shop owners, it can be difficult to reconcile customer-friendly service rates with the reality (time, tools, expertise) of a modern repair. But lots of shops are forging ahead, taking stock of their market, maybe adding services like TPMS and ADAS, and investing in new training and tooling. For some ideas on ways to freshen up your shop's offerings for the new year, see Gonzo's column on p. 46.

Even with so many uncertainties at play, more than one shop owner/technician responded to the effect of: "I love what I do!"

It's an interesting and exciting time for the automotive aftermarket. New technology is helping technicians diagnose vehicles more thoroughly and quicker than ever. There are even ways to train – and learn – that ten years ago would have been unheard of in a professional shop (hello remote diagnostics, YouTube videos, professional groups on social media).

There's a lot to be gained from rolling with the changes, including (hopefully) a healthy paycheck. When service pricing and technician skill begin to move forward in tandem and align, consumers, shop owners, and technicians all have much to gain. **PTEN**



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FEATURED NEW PRODUCTS

Rated capacity of 900 lbs



The **Mechanic's Time Savers 42" Massive Tool Service Cart** features a deep 10" top storage compartment with a power strip including four plugs and two USB ports for charging items such as an iPad, phone, or speakers. The top and second drawer have a 3.5" depth, the third drawer has a 5.5" depth, and the bottom drawer has a 12.5" depth. Overall, the cart is 42" by 23" by 46". It also offers a locking 7" vertical tool holder drawer and battery shelf that holds up to six tools and has an additional power strip. The cart has a rated capacity of 900 lbs.

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Heats large fasteners and components

The **Induction Innovations Mini-Ductor Venom HP** is part of the Mini-Ductor series that allows users to release hardware from corrosion or thread lock compounds in a matter of seconds, without the dangers of an open flame. The Venom HP is the fourth generation of the Mini-Ductor handheld induction heaters and offers more power than the other Mini-Ductors, the company says. It is ideal for applications including ABS sensors, bearings, brake bleeder nuts, corroded exhaust, fuel tank straps, tie rods sleeves/ends, inline connectors, manifold bolts, O2 sensors, steering/suspension components, truck bed bolts, and u-bolts. The kit includes the Mini-Ductor Venom HP, three basic coils (7/8" pre-formed coil, u-form coil, and bearing buddy coil), rugged plastic carrying case, and an operator manual.



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One-way check valve prevents spillage

The **Lang Tools Brake Line Wrench Set**, No. 5455, is a 2-pc brake bleeder set that includes a 1/4" by 3/8" and a 8mm by 10mm ratcheting wrench for use on most common brake systems. The ratchet allows for continuous loosening and tightening without having to remove from bleeder. The set also includes an 18" silicone hose in which the inserts will withstand brake fluids. It features a one-way check valve to prevent spillage.

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Kicking off the New Products section each month, our Featured New Products page includes brand new products showcased on the cover that are available to the automotive market.



Identifies and retrieves dropped items in tight areas

The **Ullman Devices Camera Assisted Retrieval Tool (C.A.R.T.)** is designed to provide technicians the ability to navigate, identify, and retrieve dropped items in tight, dark, and hard-to-reach areas in real time. At the end of the bendable shaft, the tip features LED lights, camera, magnet, and a fully functioning claw grabber. Once in position on the screen, simply pull the trigger to operate the retrieval claw on any item, or use the magnet to easily pick up metal objects.

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- ANTHONY ANIELLO

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Allows for optimal viewing in hard-to-reach areas

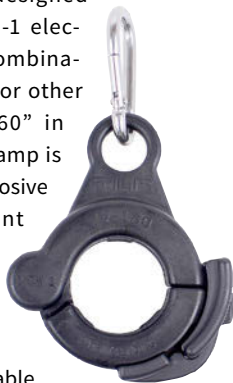
The **Actron Wi-Fi Borescope Camera**, No. CP7670, is designed to allow users the ability to view and play back photos and videos from vehicle inspections with the download of an app on their smart device. The CP7670 is compatible with iPhone, iPad, and Android smartphone and tablet devices. The flexible 3.3' tube can be shaped into any viewing condition, allowing for optimal viewing in hard-to-reach areas. The camera comes with a mirror, magnet, and hook.

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Secure, robust, and corrosion resistant cable clamp

The **Phillips Industries QWIK-CLAMP**, No. 17-181, is designed for Phillips 3-IN-1 electrical and air combination assemblies or other applications 1.60" in diameter. The clamp is made of non-corrosive and UV resistant durable nylon for extreme weather, corrosion, and impact resistance. The cable clamp features a stainless steel snap-on clip for quick installation onto a tender spring or pogo stick. The clamp stays connected at over 100 lbs of pull force and has a secure draw latch that remains secure and tightly locked.

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Telescoping pole and rotating head extends 84"

Streamlight, Inc.'s Portable Scene Light EXT features a pole and rotating head that extends to a full 84" high. With its 5,300 lm output, the rechargeable light allows for complete scene light coverage, improving worker visibility. The light has a 90 degree swivel neck that enables users to aim the light beam to where it is needed, and can be deployed in less than 30 seconds, the company says. The Portable Scene Light EXT uses six power LEDs and offers three levels of light intensity. Its thermoplastic casing offers weatherproof construction that is designed for dust-tight and waterproof operation up to 1m for 30 minutes, and can withstand 40 mph winds.

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Features a 50 second set time

The **SEM Products, Inc. Dual-Mix Quick Set 50 - Clear** is a transparent, two-component urethane adhesive designed for plastic repair and general bonding for virtually any substrate. Dual-Mix Quick Set 50 is for technicians seeking increased versatility, speed, and convenience when mounting emblems and trim components, or completing tab repairs and other general purpose bonding. It offers transparent color, a 45 second working time, and fast cure that is ready to sand in five minutes, according to the company.

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Features sliding storage drawers with rollers

The **Ascot Heavy Duty Tire Repair Cabinet** is built to withstand heavy use. The cabinet has three storage levels and features two convenient sliding storage drawers inside with rollers for ease of use. An optional shelf is available for an additional storage level. The two inside doors are equipped with two tool hook sets for easy and quick access to tools. The cabinet also features a convenient switch-to-open handle on the front. The cabinet is 19.6" by 10" by 26" in size and weighs 36 lbs.

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Available in four patterns

The **Exair 1/2" NPT No-Drip Internal Mix Atomizing Spray Nozzles** mix liquid and air inside the nozzle. When the compressed air supply is shut off, the no-drip nozzle seals off the flow of liquid, eliminating the possibility of drips. The nozzles are available in four patterns: narrow-angle round, wide-angle round, flat fan, and 360-degree hollow circular pattern. They are for pressure fed applications that don't require independent air and liquid control. The nozzles are fully adjustable to minimize air and liquid consumption and have interchangeable liquid and air caps. They are also available in 1/8" NPT and 1/4" NPT, and are CE compliant.

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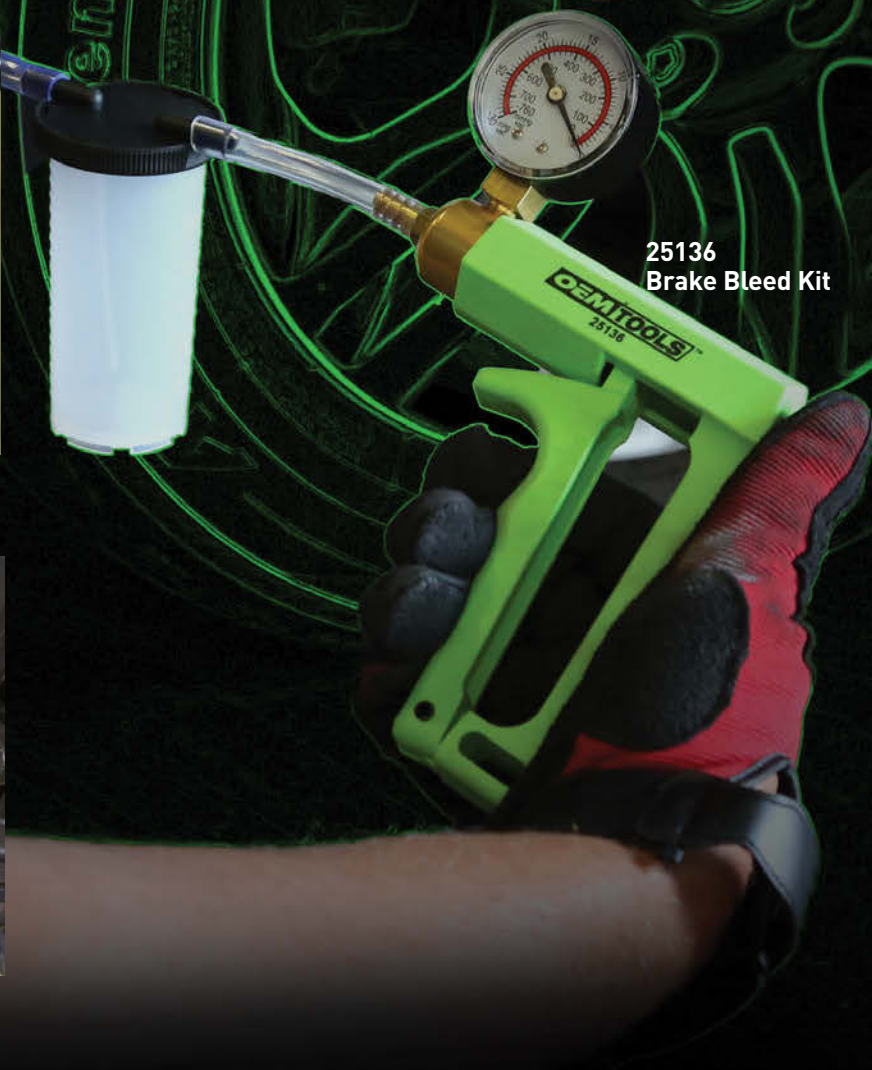
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Durable magnetic handle for handsfree use

The **Sunex Tools REDLFLOOD Flood Light** features a dual COB LED setting: high (1000 lm) and low (500 lm). The flood light is rechargeable, has a magnetic handle for handsfree use, and a 300-degree flexible arm to allow users to direct the light where it is needed. It also has an IP68 rating allowing the light to be submerged in water for up to 30 minutes.

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Servicing tires from 10" to 28" in diameter

The **Coats 9028E Rim Clamp Tire Changer** uses a tilt-back design to allow technicians more room to operate on large, delicate applications. The machine is capable of servicing tires from 10" to 28" in diameter. The 9028E features bead presser discs to maintain tire placement, and powered taper roller for bead exercise and ease of mounting/demounting. It also features Coats Robo-Arm to maintain placement in the drop center, and an offset bead loosener with foot pedal that provides more room to loosen beads on large applications.

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Ideal for when space is limited

The **AMGO SL-6 Single Post Lift** is ideal when technicians need to lift a vehicle quickly in limited space. The SL-6 is permanently affixed, and can be used in commercial service shops, home garages, or any area where space is at a premium. The lift uses a standard 110V outlet and doesn't require any electrical conversions.

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Designed for low-profile heavy duty equipment

The **JohnDow Industries 17 Gallon Poly Low-Profile Oil Drain with Foot Pump**, No. JDI-17FPLP, is designed for use with heavy duty trucks, buses, RVs, and other low-profile heavy duty equipment. It is ideal for use with oil and engine coolants. The high-impact polyethylene tank is durable, dent-resistant, and lightweight for easy handling. The oil drain has a 7-3/4" ground clearance and an expanded metal shield to reduce splash. The General Fluid Transfer Foot Pump is ideal for transferring used oil and other nonflammable fluids in the shop from the low-profile drain into a waste oil containment system.

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Features tech-to-tech live remote diagnostics

The **Launch Tech USA X-431 Pad III V2.0** features an open Android operating system and tech-to-tech live remote diagnostics. Other notable features include: 8-core processor, Bluetooth VCI with high performance data refresh, Auto-ID available on all vehicle systems and modules, graphs live data stream, 2GB RAM memory, 64GB ROM storage, and a high resolution front and rear camera with still and video capabilities. The diagnostic tool provides OE-level access to Asian, European, and domestic applications for module coding, resets, relearns, and bidirectional capabilities.

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Multipurpose tool for added functionality

The **Klein Tools Forged Crimper with Stripper/Cutter**, No. 2005N, combines commonly used wire stripping sizes with a crimper and two cutters into one convenient tool. The hand tool strips 10-18 AWG stranded wire, and crimps 10-22 AWG insulated and non-insulated terminals and connectors. The 2005N is manufactured from Klein Tools' U.S.-made proprietary steel to provide durability. The handles have textured grips for enhanced dexterity and integrated hang holes.

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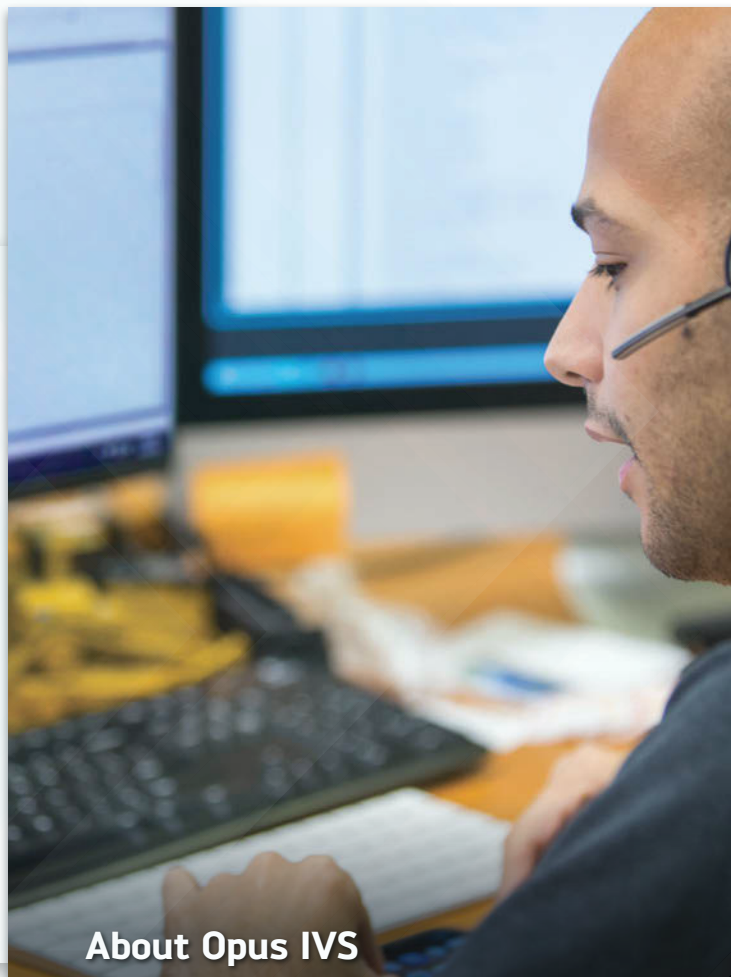
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About Opus IVS

Drew Technologies and **Autologic** have joined together as one business and will be known as **Opus IVS** moving forward. Our teams have worked closely together since 2017, combining our expertise and technologies, finding new ways to support independent shops servicing complex modern vehicles.

Opus IVS offers a unique combination of licensed OEM software with live expert guidance from OEM-trained master technicians to help shops get the job done. We're confident that our customers will see more benefits from our union in future, as we focus on delivering high-quality diagnostic solutions to service shops around the world.

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Wireless charging worklight

The **SP Tools SMD LED Work Light and Torch** is an ultra-bright worklight with a high powered LED torch 150 lm top light. The worklight has an adjustable dimmer ranging from 75 lm to 500 lm. It features a flexible magnetic base and a 160-degree fold-out hook. The worklight will run for three to three-and-a-half hours on full brightness and 12 to 15 hours on the dimmest setting. The battery is rechargeable and can be charged wirelessly using SP Tools' Dual Zone Wireless Charging Pad. The worklight has a two-year-warranty.

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Able to align a tractor and trailer up to 62' in length

The **Pinnacle Automotive Systems JUMBO 3D Heavy-Duty Aligner**, No. J3DHDA, is an imaging aligner designed to accurately and efficiently align a tractor and trailer up to 62' in length. The aligner features a drawbar gauge that aligns a full trailer fitted with a swiveling tow bar at the front, drive through capability, a bushing calculator that makes adjustments on the wheel in free mode, and a frame-based axle alignment that allows technicians to align the frame. It also has a steering lock, a safety feature that locks the steering wheel against the floor instead of the driver seat.

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Features a 14,000-lb lifting capacity

The **AMGO PRO-14 Four Post Lift** offers a 14,000-lb lifting capacity and is built to commercial grade standards. The PRO-14 also features 1/2" aircraft quality cable, skid proof diamond platform to prevent slippage, and high quality cylinders to ensure no leakage. The lift can also fit the company's RJ-8A Rolling Jack in case technicians need to lift the vehicle to do wheel work.

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For late model GM direct injection engines

The **Lisle Injection Pump Gauge Kit for GM**, No. 70080, allows correct installation of the high-pressure fuel pump by ensuring the fuel pump camshaft lobe is on the base circle. Before installing the new fuel pump, insert the correct gauge into the engine. If the lip of the gauge does not sit flush to the engine, turn the camshaft until the gap is gone. Misalignment and improper torquing of the bolts could lead to damage to the fuel pump or engine camshaft. This kit is for late model GM direct injection engines including 2.5L, 3.6L VVT, 5.3L, and 6.2L.

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Features an adjustable trigger mode

The **Mac Tools Digital Multimeter**, EM721, is designed to offer accurate automotive electronics tests and advanced measurements with DC/AC volts, DC/AC amps, and resistance. The handheld, battery-operated multimeter also provides accurate frequency and pulse measurements with 20,000 count on the high resolution 4,000 count display. It performs diode and continuity tests, has an advanced measure for sensor and actuators, and a temperature measurement up to 2,498 degrees F for catalytic converters, fan switches, and more. The multimeter features an adjustable trigger mode, analog bar graph, USB communication, and a backlit display.

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Creates a seal with minimal curing time

Permatex's The Right Stuff 90 Minute Black Gasket Maker is formulated to create a quick, reliable seal with minimal curing time, enabling parts to be put back in service without delay, the company says. The Right Stuff 90 Minute Black Gasket Maker allows technicians to make leak-proof gaskets by delivering a strong and highly flexible silicone seal that offers durability and reliability. It is blow-out resistant and can be used on valve covers, intake manifolds, coolant, flanges, oil pans, and timing covers. It works on applications in all types of passenger and commercial vehicles, including medium and heavy duty trucks. It has an operating temperature range from -65 degrees F to 500 degrees F.

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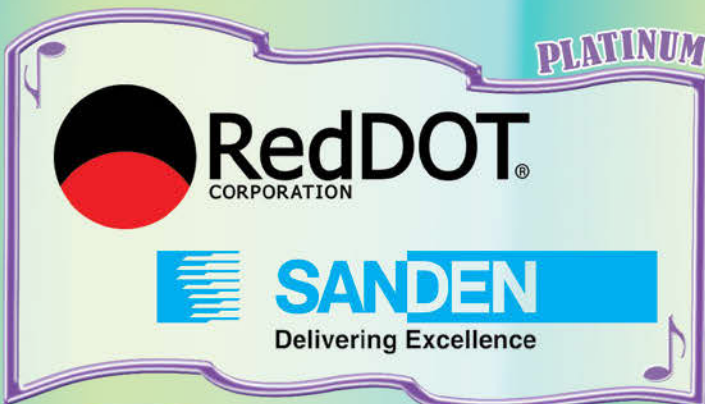


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Offers maximum torque of 88.5 ft-lbs

The **Hazel HiPer Fine-Tooth Reversible Ratchet**, No. 863HP, features a small operating angle of four degrees, enabling use in tight spaces. The 863HP is easy to clean and corrosion-resistant. It offers 50,000 load changes at 22.13 ft-lbs, twice the ISO specification for 1/4", says the company. It also features an engaging function of the respective shift levers to provide protection against unwanted switching and an integrated hanging option in the handle. The tool is 116mm in length, weighs 2.82 oz, and is made in Germany.

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Features a scissors-type design

The **OTC 2,500 lb. Air/Hydraulic Powertrain Lift**, No. 1595A, is designed to handle heavy loads such as engine and transmission assemblies, gas tanks, drive axle assemblies, electric bus batteries, and more. The scissor-type design allows technicians access to all four sides of the project for ease of work. The lift is powered by an air over hydraulic foot pump to enable precise lifting and lowering control. The table at the top of the lift is adjustable up to 15 degrees side-to-side or fore-and-aft. The OTC 1595A meets ASME PASE standards.

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Easily interchange between Dodge and Ford truck applications

The **Cal-Van Quick-Change, Front Hub Removal Tool for Dodge and Ford 3/4 and 1-Ton Trucks**, No. 90700, is designed to utilize force provided by the vehicle's power steering to effortlessly and safely free front wheel hub assemblies without damage. This tool is able to easily interchange between Dodge and Ford truck applications, allowing technicians to handle two jobs with one tool.

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Congratulations!

To our 2019 Contest Winners

READ MORE AT VehicleServicePros.com/20984215

Bartec TPMS Prize Pack

Jason Driskill
Anchorage, AK

Beta Tools Collapsible Mobile Tool Cart

Ralph Skinner
Glen Park, NY

Coats HTS Inflation Tool

David Souza
San Juan Bautista, CA

Cojoli Jaltest RP1210

Benjamin Owens
Sauquoit, NY

CPS Products Smoke Wizard

GLD-40
Todd Brandt
Bowdle, SD

E-Z Red Worklight and

Tool Prize Pack

Ronald Daniewicz
Keyport, NJ

Gray Manufacturing Floor Jack and Stands

Ruth Yerman
Milford, MI

Hansen Global Tool Box Organizing

Prize Pack
Michael Ballard
Nixa, MO

Hansen Global Tool Box Organizing

Prize Pack
Michael Gonser
Kalamazoo, MI

Knipex 17-Piece Hand Tool

Prize Pack
David Classens
Traverse City, MI

KT PRO Hand Tool and Storage

Prize Pack
Thomas Rosenthal
Albertson, NY

Launch X-431 Torque Scan Tool

Jon Lehrke
Gibson, MN

Legacy Flexzilla Air Compressor

with Silencer
Bobby Hicks
Lebanon, MO

Lincoln & Mityvac Mechanic's Tool

Prize Pack
Raymond Ciriako
Kailua-Kona, Hawaii

Milwaukee Tool Power Tool,

Ratchet, and Radio Prize Pack
Patrick Padisak
Snow Shoe, PA

Monster Mobile 55" Tool Box

and Tools Prize Pack
John Baumgardt III
Fillmore, IN

Oasis Scientific Vividia Automotive

BoreScope Inspection Camera
Troy Holtkamp
New London, MN

OEMTools 156-Piece Tool Set and

Service Cart Prize Pack
Kevin Rohr
Sturgeon Bay, WI

OTC 3896 Evolve and 6575 Hub

Grappler Prize Pack
Scott Maige
Springfield, MO

SP Air Air Tools and

Air Hose Prize Pack
Joshua Fix
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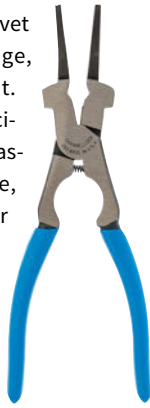
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6-in-1 pliers for welders

The **Channellock 360 Welders' Pliers** are 6-in-1 pliers designed for welders. The pliers offer XLT cutting technology which positions the rivet closer to the cutting edge, requiring less force to cut. Crosshatch teeth and precision machined grooves easily grip and draw out wire, as well as allow for spatter removal. An added spring makes for one-handed use, while 90-degree teeth allow for easy tip installation and removal. The pliers are made in the U.S.A. and are forged from high carbon steel that is coated for rust prevention.

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Offers four screwdriver sizes and two nut driver sizes

The **Tekton 6-in-1 Phillips/Slotted Driver**, No. DMS14001, features one compact and versatile tool that gives the user access to four screwdriver sizes and two nut driver sizes. The handle is durable and is resistant to extreme temperatures, high impacts, cracks, scratches, grease, and cleaners. The nut driver bit tube is chrome-plated steel and serves as both a double-ended nut driver and a screwdriver bit holder. The double-ended screwdriver bits have two sizes per bit with engraved size markings on each end. The tips are milled 21mm down the shank, allowing for clearance into tight spaces. The tool includes the 6-in-1 Driver handle, 1/4" by 5/16" nut driver bit tube, 1/4" shank Phillips/slotted bit (#1 by 3/16"), and 5/16" shank Phillips/slotted bit (#2 by 1/4").

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Offering four lighting options



The **Streamlight FlipMate**, No. 61500, is a USB-rechargeable flash-light with a light blade that rotates 270 degrees on its body to provide area lighting and color matching. Offering four lighting options, it delivers up to 500 lm. It includes cool white LEDs for bright task lighting and 90 CRI LEDs to identify color differences in wiring or paint colors. The light can stand on its tail end with the light bar angled in any position. Its weighted base includes magnets for attachment to metal surfaces. The light also features a folding hook for hanging as a cordless drop light. Also available in red (No. 61501) and blue (No. 61502).

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Provides three operational modes

The **SOLAR Pro-Logix 12/24V Wheeled Battery Charger**, No. PL3760, from **Clore Automotive** provides three operational modes for comprehensive service: auto charging mode, stable power mode, and engine start assistance mode. The PL3760 features multiple charge rates for versatile fleet service: 60/40/10A 12V rates and 20/10A 24V rates. It supports system voltage maintenance from 13.1-14.9V, selectable in 0.1V increments, allowing the operator to dial system voltage in exactly as needed. Engine start assistance mode provides extra amperage to start vehicles with dead batteries or other starting problems caused by a lack of power.

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For use on tires up to 24-1/2" diameter

The **Ken-Tool Mega AirBlast Bead Seater**, No. 31445, features push-button technology to allow for quicker release of air, along with a digital gauge with backlight capability. Its 5-gal aluminum tank is CE certified and is easy to handle. The bead seater has an operating maximum pressure of 120 psi and is nitrogen compatible. It weighs 11 lbs and has dimensions of 25-1/2" length by 17" width by 11-1/2" height.

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Available with a manual or air operated pump

The **JohnDow Industries Pro 30 Gallon UL Listed Steel Diesel Caddies** are designed with the professional technician in mind. These cart-style caddies are compact, easy to move, and are available with a manual (No. FC-P30-UL-D) or air operated (No. FC-P30A-UL-D) pump. They have been tested, certified, and listed by Underwriters Laboratories (UL) and built to meet OSHA standards. The caddies have also been tested for leakage, rupture, stability, abuse, and endurance. In addition, the caddies feature a fill level gauge, internal filter system, four-way directional valve, heavy duty 10" locking rear wheels and front casters, ground wire and clamp, and an 8' PVC suction/discharge hose with internal grounding wire.

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LONG-REACH ARMS PROVIDE BETTER CENTER-OF-GRAVITY LOADING

When servicing trucks and vans with extremely long wheelbases, longer-reach arms deliver a more stable lifting solution. The lengthy triple-telescoping arms on BendPak's new **ALI Certified XPR-12CL-LTA** extend to 72" long – that's six feet in length and over one foot longer than almost any other lift or brand in its class. And with rugged BendPak dependability combined with a 16-piece adapter set, you'll realize that balancing safety* and worker productivity has never been so perfectly matched. For more information visit www.bendpak.com/LTA or call **1-800-253-2363**.

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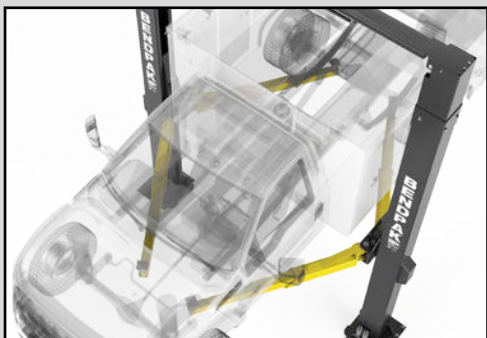
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*Always read and follow all safety warnings that accompanied your lifting equipment at the time of purchase. More information regarding vehicle lift safety is available directly from BendPak or from the Automotive Lift Institute.



NEW PRODUCTS



Features a 1,000V insulation rating

The Klein Tools 2-in-1 Insulated Flip-Blade Screwdriver, #2 Ph, 1/4" SL, No. 32293, features interchangeable blades with both a #2 Phillips end and a 1/4" slot end. It securely and easily releases the blade with a quick twist of the lock collar. Both the handle and blade have a 1,000V insulation rating and meet ASTM F1505 standards for insulation. The screwdriver also features cushion-grip handles for greater torque and comfort. A layer of orange impact and flame resistant insulation protects the user from electric shock. The double-ended blades have a 3.5" shaft length from the handle.

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Features a speed-fit button

The OEMTOOLS Pro Three-Piece Speed-Fit Pliers Set, No. 22646, features a rapid adjustment mechanism to quickly resize and engage a range of fasteners and other applications. There is no need to remove the pliers from the work area to readjust, simply position the jaws over the fastener and press the speed-fit button to adjust the jaw capacity to fit the application. The set includes three sizes (8", 10", and 12") made with a slim head to fit into hard-to-reach spaces, hardened teeth for a sure grip and wear resistance, and an electro-plated finish to resist rust and corrosion.

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For high torque applications

The DD2 Dual Drive Ratchet 1/4" Square Drive from VIM Tools features a 2" long dual drive ratchet with removable 1/4" square drive and 1/4" offset square in handle. It is ideal for use with extensions and other tools to access hard-to-reach fasteners. It also features a thumb wheel for fingertip control in tight areas and a 60-degree fine tooth ratchet for high torque applications. It has a limited lifetime warranty. The tool is also available in 3/8" (DD3).

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Expanded Porsche and Audi/VW support

The **AutoEnginuity Giotto Version 17.3** introduces expanded Porsche and Audi/VW enhanced support. Included in this release are more Drive Links, model coverage, and added VIN pulling for the pre-OBD-II vehicles (except the 993 and first generation Cayenne). It also includes added sensors and some basic actuations support for 911 (991) '12-'19, Boxster and Cayman (981 and 982) '12-'18, and Panamera (G1) '10-'16; DTC retrieval and clearing for new UDS-based systems found on the Panamera (G2) and third generation Cayenne (9YA); Window Normalization test for the driver and passenger door modules; and Drive Link system test for some CAN TP2.0 systems.

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Commercial grade design

The **Tuxedo Distributors iDEAL Paint Spray Booths** are designed to be in accordance with NFPA 33, available in Side and Semi Downdraft and Cross Flow models. The iDEAL Paint Spray Booths include commercial grade, hip panel designs with precision punched 18 gauge panels and standard tube-axial fans, nut and bolt assembly, white powder coat finish inside and out, control panel, all electrical components, filters, bulbs, and doors with viewing windows.

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NEW TOOLS



35800 ALUMINUM DISCONNECT SET, 6PC

Durable aluminum disconnects work on air conditioning lines and quick connect fuel lines. Disconnect spring lock couplings on Ford and Chrysler air conditioning lines. Also works on fuel line quick connect couplings on GM, Ford, and Chrysler. Easy to use in confined spaces. Set includes six sizes: 5/16", 3/8", 1/2", 5/8", 3/4" and 7/8".



40600 OFFSET FILTER WRENCH SET, 7PC

Low profile, 6 point 24mm, 25mm, 27mm, 28mm, 29mm, 32mm and 36mm wrenches with offset 3/8" square drive for clearance in hard-to-reach spaces. Use on oil and fuel filter canisters when replacing the element. Blow-molded case for storage.



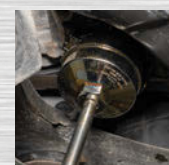
12200 STUBBY TORQUE STICK SET, 3PC

Designed to prevent over tightening lug nuts with a torque rating of 80 ft lbs. Kit comes with 3 sizes: 17, 19 & 21mm. Color coded for easy identification. Short, 4-3/4" design for easy use. Plastic coating to help protect wheel finish. Molded case for storage.



31920 O-RING REMOVER TOOL SET, 4PC

Rounded tips for easy, damage-free removal of seals and O-rings. Two tip configurations and two blade lengths to work on most applications including oil pump drive shaft seals, injectors and fuel rail O-rings. Also removes inner tie rod rack boot, CV boot, heater and vacuum hoses. Dual material grip handle.



61160 65MM 14 FLUTE END CAP WRENCH FOR TOYOTA 4 CYLINDER

Allows for easy removal of 4 cylinder Toyota, Lexus and Scion cartridge oil filters. Securely engages ribs and flutes. Forged steel with a bright chrome plated finish. Use with 3/8" square drive or 1-1/16" wrench.



49700 49750 AIR HOSE HOLDERS

Strong magnet attaches to ferrous metal surfaces to keep most 3/8" to 1/2" shop air hoses off the floor, clean and accessible. Bright powder coat finish for visibility and durability. The tool can also be permanently mounted with screws.



42810 PLASTIC CLIP REMOVAL PLIERS

For easy removal of plastic push pin type panel fasteners with center pins. Needle nose pliers design fits into recessed pin locations found on some GM vehicles. Integrated spring makes tool easier to use. Pliers can also be used to remove automotive fuses from panel. The narrow tip design works great on ATO, Micro, Mini Blade, Maxi and Pal type fuses.



81950 MOLDING STRIP TOOL

3" wide sharp edge allows the technician to easily get under door moldings and emblems. The wedge angle makes it easy to separate the double-sided tape from the door and the vehicle body. The high-impact acetal construction allows use with a mallet on stubborn applications. The plastic construction won't mark or scratch vehicle finish.



17972 4.5 GALLON OVAL DRAIN PAN - BLACK 17982 4.5 GALLON OVAL DRAIN PAN - GREEN

New design provides 60% larger catch area for easier fluid draining. Smooth pan design is easy to wipe out and clean. 6.25" pan height to fit tight spaces. 1.125" outer diameter spout for quick and easy pouring of used fluids into most jugs. The anti-splash lip helps prevent spilling when carrying or pouring. Multiple hand positions for carrying. High-density polyethylene material resistant to chemicals and solvents.



70080 INJECTION PUMP GAUGE KIT FOR GM

Allows correct installation of the high-pressure fuel pump by ensuring the fuel pump camshaft lobe is on the base circle. Before installing the new fuel pump, insert the correct gauge into the engine. If the lip of the gauge does not sit flush to the engine, turn the camshaft until the gap is gone. Misalignment and improper torquing of the bolts could lead to damage to the fuel pump or engine camshaft. Used on late model GM Direct Injection engines including 2.5L, 3.6L VVT, 5.3L and 6.2L.

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Available in lengths from 4" to 50"

The **Bondhus Steel Clamping Tools** are available in a variety of styles, sizes, and handles. They include woodworking, malleable cast iron screw clamps, and all steel bar clamps. The clamps come in lengths from 4" to 50" and throat depths from 2"



to 7". The clamps are available in a variety of handle styles such as wood, two-component, T-handle, and self-locking. Each clamp comes with a lifetime warranty.

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Dust- and water-resistant construction

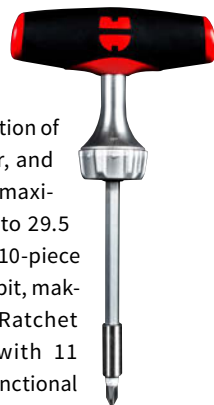
The **Makita 18V LXT/12V max CXT Cordless Bluetooth Radio** delivers ideal sound in a compact size and is equipped with Bluetooth to wirelessly connect to mobile devices to play music. It has one auxiliary port for MP3 compatibility and delivers stereo sound from two 3.5" side-firing speakers. It is engineered to stand up against harsh job site conditions with protective bumpers and features dust- and water-resistant construction for increased durability. The radio can be powered by Makita 12V max CXT, 14.4V, and 18V LXT Li-ion batteries (all sold separately).



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Features a three-position adjustment wheel

The **Wurth ZEBRA T-Handle Ratchet Screwdriver Set with 11 Piece Bits**, No. 061363040, features a three-position adjustment wheel for an easy, one-handed change of direction while working. The tool's rugged design provides the user with a combination of comfort and power, and the 45 teeth give a maximum torque of up to 29.5 ft-lbs. Included is a 10-piece bit strip plus a PH2 bit, making the T-Handle Ratchet Screwdriver Set with 11 Piece Bits a multi-functional use tool. The tool is backed by a limited lifetime warranty.



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Available in four packages

The **Launch Tech Millennium TSAP Pro** is a professional diagnostic tool that integrates TPMS sensor activation, reading, learning, and programming. It uses high and low frequency to activate and read tire pressure sensor information and uses the OBD interface to reset the TPMS module. It can program Launch sensors, covering all major OE sensors. The Millennium TSAP Pro displays the status of four wheels graphically and features wireless programming. It comes with four metal and four rubber dual-frequency (315 MHz and 433 MHz) RF sensors.

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Machined hammer heads

The **KTI 7-pc Body and Fender Hammer Set**, No. KTI70511, is designed for pounding auto sheet metal before finishing. The set can be used on both flat and curved surfaces. The body and fender hammer set features red fiberglass handles with comfort grips and machined hammer heads. The set includes a bumping hammer, pick hammer, chisel end hammer, heel dolly, shrinking dolly, double end dolly, and a curve dolly. They come in a convenient carry and storage case.

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Features a JAWSFIT mechanism

The **Vessel Megadora 8-pc Tang-Thru Screwdriver Set**, No. 9308EVA features a JAWSFIT mechanism that allows the blades of the Phillips screwdriver to bite into the screw allowing for easy removal. The Tang-Thru screwdrivers have blades that go all the way through the handle with a metal cap for tapping to remove tough-to-remove screws. They also feature a hexagonal bolster for additional wrenching when needed. The JAWSFIT mechanism reduces cam-out of the screws and can remove already damaged screws. The Megadora Tang-Tru #2 Phillips removes weather damaged screws and plastic screws that hold in plastic panels.

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Handles higher torque applications

The **Snap-on 1/2" Drive Electronic Torque Wrench**, No. ATECH3FR300B, is designed to handle higher torque applications such as pitman arms, air shocks/shock absorbers, control arms, steering gears, spindle nuts, leaf spring shackles, drive axle hub nuts, and caliper mounting bracket bolts. The torque wrench has a 15 to 300 ft-lb range and 30" length. The tool's yoke design provides clearance and overall strength, and its yoke-to-ratchet tang engagement offers superior torque stress distribution. Four measurement modes (ft-lb, in-lb, N-m, kg-m) are offered and Power Interruption Technology prevents intermittent power loss if the tool is dropped or impacted.

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Includes adjustable spanner wrench

The **Snap-on A/C Clutch Remover Set**, No. ACT1300B, is designed to simplify the removal and installation of an A/C compressor clutch and clutch plates. The set comes with an adjustable spanner wrench and makes access to shaft seals easier on Ford, Chrysler, and GM vehicle A/C compressors.

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Slim profile design for confined areas

The **Milwaukee Tool 1/2" Drive 22-pc Ratchet and Socket Set - SAE**, No. 48-22-9410, features a Four Flat side design that prevents rolling and allows the sockets to be used with a wrench. The 90-tooth ratchet tool delivers four degrees of arc swing and a slim profile design, allowing the user to work in tighter, more confined spaces. All sockets are engraved with sizing for lasting readability, and the set is arranged in a removable inner tray for easy storage. The ratchet and socket set comes with a lifetime guarantee.

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Technical specifications for vehicle repairs

Topdon ArtiPAD PRO Quick-Fix powered by MOTOR features technical specifications for vehicle repairs and software for wiring diagrams, chassis diagrams, wheel alignment procedures, and brake repair information and instructions. Quick-Fix includes maintenance schedules that allow technicians to estimate maintenance and service schedules as well as expenses with repair time estimates for labor operations. Quick-Fix service procedures provide standard OEM maintenance and repair information that lets the technician complete the repair with step-by-step instructions and access the data via an app within the ArtiPAD interface. Illustrations in the software educate technicians on part locations, electrical problems, and troubleshoot the repair.

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Offers a 120-degree wide beam angle

The **Capri Tools Handheld Rechargeable 620 Lumen LED Work Light** allows users to freely adjust light output with a dimmer switch that can easily switch between cool white light and UV leak detection modes. The 10mm thin design lets the user to navigate tough-to-light narrow spots with ease and a magnetic base secures the worklight to any flat steel surface in any orientation with a 360 degree swivel to provide maximum handsfree coverage. The worklight is rechargeable and offers three hours of battery life on maximum brightness.

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All tools 10,000V tested and 1,000V rated

The **Wiha Tools Insulated 80 Piece Set In Rolling Tool Case**, No. 32800, features a lockable, water-tight rolling case with dedicated positions for each tool for easy storage and retrieval. All tools are 10,000V tested and 1,000V rated, and are individually tested for insulation integrity. The set includes ten pliers, ten slotted screwdrivers, four Phillips screwdrivers, five standard nut drivers, seven metric nut drivers, six hex standard T-handles, four hex metric T-handles, nine Torx screwdrivers, two square screwdrivers, two terminal block screwdrivers, seven standard sockets, and seven metric sockets. It also includes accessories such as a voltage detector, cable knife, ruler, and L-keys.

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Automatic shut off protection

The **Saber 300 Lumen Wireless Charging LED Pocket Light**, No. 80203, offers a high and low light setting to provide varied brightness and run-times. The pocket light features a heavy duty anodized aluminum housing, a swivel hook with a magnet to allow handsfree use, and a SMD LED top light to offer an additional 150 lm flashlight function. The pocket light emits 300 lm on high and 150 lm on low. It has a run-time of two hours on high and four hours on low. It also features an automatic shut off and overcharge protection to prolong battery life. It is capable of charging wirelessly (wireless charger not included).

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Features a modern aesthetic design

The **Kershaw Parsec Knife** features a stonewashed, brown PVD finish on both blade and handle for an industrial look. The slim blade offers versatile cutting and the slightly dropped point strengthens the tip for strong and efficient piercing. The blade steel opens one-handed with its KVT ball-bearings and a flipper. To minimize snags in your pocket, the flipper is low profile, yet with enough leverage for quick and easy opening. Extra jimping on the lockbar provides traction and makes it easier to close the blade when the work is done. For convenient pocket carry, the pocketclip is left/right reversible.

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Car repair tool assortment

The **Beta Tool 6 Drawer Mobile Tool Cabinet + 170-pc Car Repair Tool Set**, No. C39/6-5904VG/2M, keeps tools organized and in place by utilizing foam trays fitted to the tool cabinet's six drawers. The tool set includes combination wrenches (6-22, 24, 27, 30, and 32mm), 3-pc plier set, metric hex key set, T-handle Torx drivers (T10, T15, T20, T25, and T30), 10-pc Phillips and slotted screwdrivers, 4-pc circlip plier set, two flat chisels, engineer hammer, soft face hammer, 1/2" drive socket set (including two wobble extension bars 125 & 250mm), 1/2" universal joint, 1/2" sliding T-handle, 1/2" reversible ratchet, 19 hex-sockets (10-24, 26-27, 30, and 32mm), and a 46-pc drive bit set (for hex, Torx, and XZN bits).

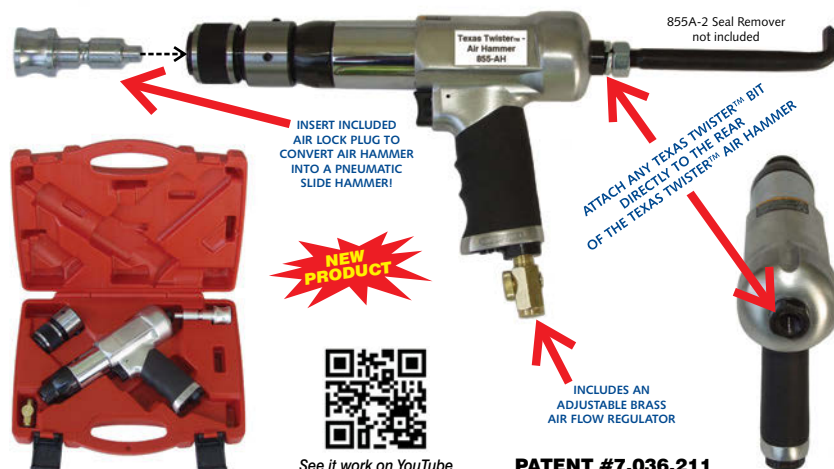
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Break away from self-inflicted brake problems

Tips and tools to avoid come-backs after brake maintenance and service.

By Barry Hoyland, Contributing Editor

It seems like the simpler, or more routine a repair is, the easier it is to make errors that affect the outcome of, or outright prevent, a quality repair. These errors, mostly due to technician complacency or poor quality control, will influence your customer's perception of your shop and, just as important, your bottom line.

In this month's Tool Briefing, we will discuss how you can take a little extra time (and use the right tools) to help ensure vehicles are being repaired correctly. With this in mind, you are more likely to reduce customer come-backs while maintaining productivity and profitability.

COMMON ISSUE 1: IMPROPER BRAKE INSPECTION PRACTICES

Any complete repair begins with a proper diagnosis, and brake work is no exception. Many technicians will inspect brakes by using a wear gauge such as the GEARWRENCH 3962 wear indicator set. These gauges will give the technician an accurate measurement of the brake pad thickness.

A common problem with using these tools is many technicians do not remove the wheels or the calipers from the vehicle before taking the measurement. Even though the technician can measure the brake pad thickness with the wheels on, removing the wheels and the calipers will allow the technician to identify any additional faults present in the brakes.

When a technician removes the wheels and calipers, he or she can then visually check for uneven wear, measure the rotor thickness, and/or determine if the pads or rotors have any cracking or

TOOLS USED:

- Brake wear gauge
- Scan tool
- Vehicle information
- Brake fluid tester or test strips
- Dial indicator
- Torque wrench
- Torque stick or socket
- Brake hub polisher
- Brake bleeder screw repair kit

heat related issues. They can also determine if any leaks are present.

Another error I have seen technicians make is to not remove the rear wheels and check the rear brake system, especially with vehicles that use drum brakes in the rear. This is mainly due to the technician's experience that rear brakes do not wear at the same rate as the fronts.

Even though that is true, rear brakes still wear and require periodic inspection and adjustment. Additionally, rear parking brakes will wear and require service, including rear disc systems which may need both a caliper/pad adjustment and an inspection of the rear parking brake shoes, which will necessitate removing the rear rotors.

Another often overlooked part of a brake inspection is to connect a scan tool to determine if any codes are present in the ABS or traction control system. Any codes you receive will indicate an issue that needs further inspection. Along with scanning the system, use

your vehicle information database to check for TSBs and for updated service maintenance procedures.

It is also critical to check the brake fluid with either a test strip or an electronic tester such as the OTC 4598 DOT 3 tester, or the Cal-Van Tools No. 66 tester which tests all brake fluids for contamination.

Each of the above steps is necessary to provide both you and your customer with an accurate analysis of their brake system.

COMMON ISSUE 2: VEHICLE HAS VIBRATION AFTER BRAKE SERVICE

This complaint is very common in recent years since many shops routinely replace brake rotors rather than use a brake lathe to surface them. The cost of replacement rotors has dropped significantly ever since imported parts became readily available, so many shops choose to replace, rather than surface, rotors.

One potential issue with these rotors is that during shipping they may have been stored on their side, rather than flat, which can cause them to warp. Other possible defects of new rotors include imperfections in the surface that meets the hub, or variations in the thickness of the rotor.

A technician can detect such conditions by spending a few moments during the installation process using a dial indicator, like the Steelman 60378, to test for run-out. Many shops go on to install rotors without checking the run-out, or might even fail to measure the rotor to ensure it meets size specifications. We have even seen some instances where a

rotor met the run-out and size specifications, but the offset of the hub flange was incorrect, which would cause the caliper to rub on the rotor.

At our shop, the easy fix for these issues was to switch to purchasing only high quality rotors. Even then, we make sure to spend a few extra moments during the installation process to measure tolerances. Although it takes a few minutes, the likelihood of having a come-back, which will take significantly longer to correct, is greatly reduced.

It is important to remember that with many of today's vehicles, brake vibrations are not only a nuisance, but may also cause other issues. Vibrations caused by brake rotors, wheel hubs, or tires can cause both stability control and ABS issues and, in some cases, cause false misfire codes. Yes, a misfire code. The strategy some vehicle manufacturers use is to monitor wheel speed sensors for variations (skipping) when the torque converter is locked. Unless the vehicle is on a rough road, these variations could be signs of the engine misfiring.

Other common errors that can cause brake vibration but are easily remedied

by spending a few minutes with the right tools, are:

Wheels not torqued properly — Use vehicle information to obtain the correct torque specification, then use a torque wrench or torque stick, such as the Ken-Tool 30180, to tighten correctly. You should also tighten wheels in a cross pattern rather than a circular pattern.

Hub and/or rotor surfaces not cleaned — Use a hub polishing kit such as the Steelman 99905 polisher to clean both surfaces, allowing the rotor to sit flush to the hub face.

COMMON ISSUE 3: BRAKES ARE NOISY AFTER BRAKE SERVICE

This is another somewhat common issue that can occur after replacing brake pads, and again there are quite a few causes of this problem that could be avoided.

A poor-quality brake pad is one of the more common causes of a noise complaint, but technicians can also inadvertently contribute to noise complaints with incorrect installation procedures.

Reusing worn or bent pad shims is one

way this happens, but the most common source of this type of noise occurs when the technician does not clean and lubricate components like brake rotors, caliper slides, mounting pins, pad mounting surfaces, and retaining bolts. The best method to clean rotors is with hot soapy water, and other components with a soft bristle brush and brake cleaner. Be sure to use appropriate hand and eye protection when cleaning.

COMMON ISSUE 4: LOW OR SOFT BRAKE PEDAL

Potential causes of either a low or soft brake pedal are also a little trickier to determine. For one, pads may need to be “burnished” or broken in with a few heat cycles for the pad material to work properly. If the technician completes this process during a road test after a brake repair, the pedal should feel normal to the customer.

You might also check whether rear brakes are out of adjustment, if there's air in the lines, and one of the most common errors I have found — whether a technician inadvertently “bruised” the brake hoses. Damaged brake hoses can ➔



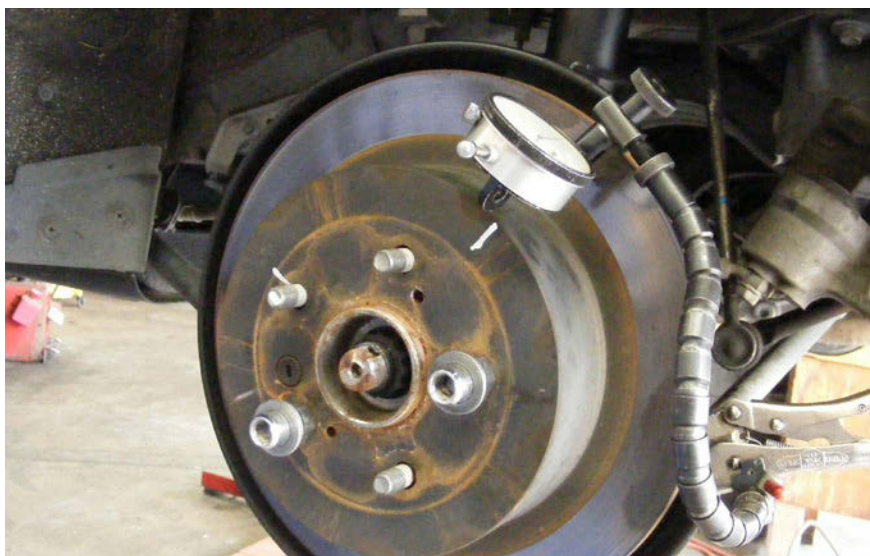
▲ Using a brake fluid tester such as the Cal-Van Tools Brake Fluid Tester, No. 66, allows the technician to verify there are no contaminants in the fluid.



▲ The OTC Brake Pressure Test Kit, No. 7488A, allows the technician to test the pressure at individual wheels.



▲ The Ken-Tool Torque Starter Kit, No. 30180, is designed to help technicians easily tighten wheels to the correct torque.



▲ *The use of a dial indicator to check run-out can prevent come-backs.*

expand when pressure is applied, reducing the pressure to the caliper. This is typically caused by using vice grips to prevent brake fluid leaking while removing a caliper.

Damage may also occur when a technician allows the caliper to hang from the vehicle by only the hose. Using wire, wire ties, or a strap to hold the caliper will not allow the hose to stretch, thereby preventing damage.

Speaking of preventable errors, it's best to open the bleeder screw prior to collapsing the caliper when replacing pads. Failure to open the bleeder will allow dirty fluid to return to the master cylinder reservoir or ABS module where it can contaminate the entire system. Opening the bleeder screw will allow fluid to escape rather than return throughout the system.

In order to test for faulty hoses, master cylinders, restrictions in brake lines, or faulty proportioning valves, the best tool to use is a brake pressure gauge set such as the OTC 7488A. Using a pressure tester will provide you with an accurate measurement of the fluid pressure that is available at each point in the brake system, allowing you to determine where an issue lies.

Another issue that frequently comes up in brake servicing is broken, stripped, or plugged bleeder screws. Removal of a broken screw can be challenging, but

there are quite a few tools on the market that work, including just using a hack saw to cut the top off of the bleeder, then using a high-quality screw extractor to remove the rest of the bleeder screw.

I have also seen instances where a technician, trying to save a few minutes, will only replace the copper washer on the caliper side when installing a new caliper. This practice can lead to a high likelihood of fluid leaking at the caliper.

CASE STUDY: UNCOMMON ISSUE

We recently had a 2007 Rav4 come to us after its brake work was done at another shop. The customer said they had the front brakes replaced and a master cylinder and booster replaced about three months earlier at this other shop. She returned to them complaining of a harder pedal when she was stopping.

The initial shop rechecked the car, then returned it to her after finding nothing wrong. She took it back again complaining about the same issue, and this shop returned it to her saying they bled the brakes, but still did not find any issues.

The customer had the vehicle towed in to our shop after she needed to make a panic stop with extreme pedal effort (the brake, ABS, and traction control warning lights all came on). Thankfully she was able to avoid a collision, but feeling it was



▲ *Note in this image the arm is bent, which prevented the brake pedal pressure sensor from sensing changes.*

unsafe she had the car towed in.

We performed a visual inspection, checked for codes and TSBs, and found nothing. When we drove the vehicle, we also did not feel anything abnormal during normal driving. When we did a hard stop requiring an ABS activation though, we did notice it took substantial effort to push the pedal down.

We looked closely at the other repairs that had been done to this vehicle and found that the other shop had bent the brake pedal position sensor when they installed the brake booster. The switch, as seen in the image, was bent to the side and was not able to send a signal to the ABS system when the pedal was depressed.

We looked up the system diagram and operation in Mitchell 1 and found that the system uses a brake pedal position sensor as part of the Electronic Brake Force Distribution (EBD) function of the ABS system. We replaced the switch and bracket, which is only serviced as part of the complete pedal assembly. After replacing the part, we drove the vehicle and noticed a very slight change in the pedal feel during normal braking, but a significant difference during a hard stop. We then returned the vehicle to the customer, who stated the brakes finally felt normal.

RELATED TOOLS FOR THIS REPAIR



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CTA Manufacturing

Brake Bleeder Bottle, No. 7786

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I understand that all of the above issues and suggested fixes might seem like common sense, but the reality is, quite a few technicians are interested in a quick repair and then moving on to the next one, so they will take every shortcut they can think of.

These shortcuts will cause problems,

so provide your technicians with the correct tools for the repair, and remind them of how jobs should be performed. Not only will this practice improve the quality of their work, but it will enhance your bottom line (and in many cases their paycheck) because less time is wasted on re-work. **PTEN**

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We saw a number of products introduced at the AAPEX and SEMA shows again this year. Take a look at some of the tools and equipment selected by our editorial staff that piqued our interest. For details on more products from the show, visit: VehicleServicePros.com/AAPEXSEMA2019

SP Tools

Duramax Fuel Pressure Release Wrench

The SP Tools Duramax Fuel Pressure Release Wrench, No. 14400, is designed to remove the fuel rail pressure release valve sensor on 2011 and later Duramax LML engines. According to the company, technicians need only unbolt the AC compressor and front EGR valve to access the fuel pressure release valve, eliminating the need to remove the EGR cooler and fuel rail in the process.

Editor's Note: The two-piece wrench design is intended to help remove fuel rail pressure valve sensors in a little as 1.5 hours. A potential 8-hour time-save is a big deal in the aftermarket.

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Robinair

Connected R-134a ACS Machine

The Robinair Connected R-134a ACS Machine, No. 34998, recovers, recycles, evacuates, leak-tests, and recharges R-134a with improved 98.5 percent efficiency, the company says. The new design features a large 10" capacitive touch LCD display and automated features, including automatic internal refrigerant refill, oil drain and inject, and UV dye inject. It has full wireless capabilities for Wi-Fi or Bluetooth communication. The ACS can effectively manage and store machine metrics and data related to services performed for more detailed vehicle service reports.

Editor's Note: An A/C service machine packed with features: 10" touchscreen with speakers, training videos included on machine, and Bluetooth and Wi-Fi wireless capability.

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CTEK

D250SE Dual Input 20A charger

The CTEK D250SE delivers 20A of power to charge, condition, and maintain any 12V service battery whilst on the move. It's compatible with smart alternators, and its dual input capability allows it to draw power from a solar source. The D250SE features a built-in temperature sensor that compensates for hot or cold conditions and has three charging modes: normal (14.4V), AGM (14.7V), and lithium (12V LiFePO4). The D250SE will still operate when there is low alternator output and maintain a stable output of up to 20A to charge the battery.

Editor's Note: The features on this small unit are many. The DC/DC battery charger is compatible with smart alternators, it delivers 20A of power, and has direct connection for solar power. The product's mobility allows technicians to get around the shop without worrying about power loss.

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XToolUSA

Nitro LT Diagnostic Tablet

The XToolUSA Nitro LT Diagnostic Tablet features full diagnostic bidirectional capabilities along with the ability to code modules and perform relearn procedures. It is based on the Android operating system and offers OEM level coverage. The tablet is built tough and durable to withstand repair shop environments. The Nitro LT features an 8" touchscreen display, rugged shock proof metal case, and auto-focusing eight-megapixel rear camera. It also supports all 10 global OBD-II modes.

Editor's Note: A new player in scan tools, the Nitro LT was designed with input from ASE-certified technicians and offers pre- and post-scan reporting, domestic, import, European, and exotic coverage, as well as full-function key programming.

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OMER USA, Inc.

Able to lift electric vehicles

The OMER Elektrum Lift is an electric two-post lift designed to lift electric vehicles. Traditional two-post swing-arms interfere with the battery location on electric vehicles, giving operators limited options for safe lifting, the company says. The Elektrum utilizes twin-hydraulic cylinders and a patented swing-arm assembly which remains parallel to the rocker panels, allowing operators uninhibited access. It has a 10,000-lb weight capacity and is able to service any vehicle, electric or traditional.

Editor's Note: The Elektrum is the first of its kind we've seen that is specific to electric vehicles. Its C-shaped arms allow for different contact on vehicles relative to the location of the battery pack.

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CanDo LD Mobile

The CanDo LD Mobile is designed to transform an iOS or Android smart device into a code scanner and DPF tool for light duty trucks. The LD Mobile is a single connector with Bluetooth connectivity that offers full bidirectional controls and coverage for GM, Ford, Chrysler, Toyota, Honda, and Nissan pickup trucks. It features access to engine, transmission, ABS, SRS, and body control modules. It is also able to read and clear codes, present live data with graphing, perform DPF resets and regeneration, and more. The LD Mobile covers SAE J1850PWM and VPW, ISO 14230-4, 9141-2, 15765-4, and CAN protocols. *Editor's Note: Building on the back of the company's HD Mobile, which covers heavy duty trucks, the LD Mobile offers similar capabilities for light duty trucks. Bluetooth connectivity for Android and iOS devices makes this product versatile, and free Wi-Fi updates ensures it will stay up-to-date with the latest information.*

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Milwaukee Tool

M18 FUEL 1/2" Ext. Anvil Controlled Torque Impact Wrench

The Milwaukee Tool M18 FUEL 1/2" Ext. Anvil Controlled Torque Impact Wrench with ONE-KEY is designed to deliver controlled torque output for fastening, and up to 1,100 ft-lbs of nut-busting torque. Four customizable modes help prevent over-tightening by delivering fastening torque outputs for tire service on several types of vehicles. It also features the company's proprietary Powerstate brushless motor, Redlithium XC5.0 battery pack, and Redlink Plus Intelligence hardware and software.

Editor's Note: This is a fairly all-encompassing tool for tire service. Four customizable modes allowing technicians to set ft-lb ranges for fastening lugs speeds up tire servicing, adds accountability and removes liability, speeds up torque wrench process, and helps avoid over-tightening lugs.

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AUTEL

MaxiVideo MV160

The Autel MaxiVideo MV160 videoscope is designed for smartphones and features a two-megapixel high-resolution camera, semi-rigid flexible cable, and a 10-level adjustable LED light.

With a powerful wireless module that provides a stable Wi-Fi connection, the MV160 works with both Android and iOS smartphones via the Autel MaxiVideo app.

Editor's Note: The MV160 caught our eye as it works with both Android and iOS, can take and edit photos and videos, and has the ability to add text or voice comments for technicians to share. It's a feature-packed solution for inspection in tight places.

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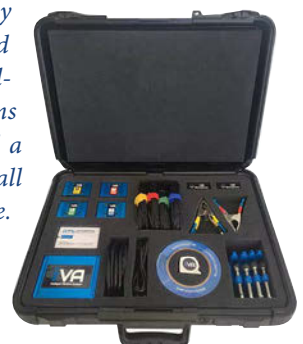
Automotive Test Solutions

iVA Intelligent Vibration Analyzer

The Automotive Test Solutions iVA Intelligent Vibration Analyzer uses Quad Vibration Technology (QVT). This technology can locate and identify vibration, then rate the vibration severity with advanced color coding. The iVA can locate multiple vehicle vibrations simultaneously and connects to most vehicles in under five minutes, the company says.

Editor's Note: This tool is handy in that it identifies vibration and severity (noted through color coding) and locates multiple vibrations at once. Technicians don't need a scan tool and oscilloscope to get all the data, making this tool all-in-one.

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Every year, *PTEN* readers send in requests for more information on products featured in the magazine. At the end of the year, we compile a list of the Top 100 Products sought out by readers. The next few pages feature the top 25 products of the 2019 Top 100 Products. For the full list of the 2019 Top 100 Products, visit: VehicleServicePros.com/2019Top100



FULL COLOR OE SYSTEM WIRING DIAGRAMS

Bosch

ADS 625 Scan Tool

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HELPS DRILL BROKEN BOLTS ON-CENTER

Summit Racing
Bust-N-Out Bolt
Removal Tool Kits
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INDICATOR LIGHTS SHOW CONDITION OF BATTERY

OEMTOOLS

Digital Battery Analyzer

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GLOBAL OBD-II VEHICLE COVERAGE

Zurich

ZR-PRO Professional
OBD-II Scanner

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PRECISION GROUND SCRAPING ENDS

Lang Tools

Gasket Scrapers

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ACCURACY OF +/- 0.05 PERCENT

Milton Industries

580e Series Precision Digital
Inflator Gauge

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STAINLESS STEEL AND ABRASIVE NYLON BRUSH HEADS

**Innovative Products
of America**

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Brush and Venturi

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FOR USE IN TIGHT AREAS TO WORK AROUND OBSTRUCTIONS

Tekton

Angle Head Open End
Wrenches

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THERMAL IMAGING ATTACHMENT FOR SMARTPHONES

FLIR

ONE Pro LT

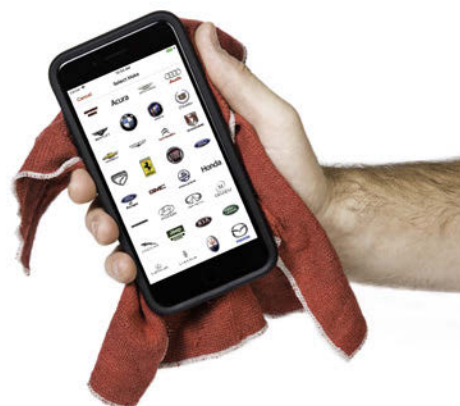
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OE-LEVEL SCAN TOOL ON APPLE IOS AND ANDROID PLATFORMS

AutoEnginuity

Mobile Giotto

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HEAVY DUTY SLIDE HAMMER

MechTech Innovations

Bearing Bulldog

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LIFT CAPACITY RANGES FROM 1-1/2 LB TO 10 LBS

Mayhew Tools

Magnetic Pick-up Tools

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ROLLS UP FOR EASY TRANSPORT

CAY Industries

Socket Roll Pro

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OFFERS A FAST, SECURE-CLAMPING ONE-FINGER RELEASE

Malco Products

Weld-Bonding Axial Pliers

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REMOVES CARBON FROM HEV FUEL SYSTEM AND ENGINE

BG Products, Inc.

Hybrid Performance Service Kit

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CHARGES ALMOST ALL 12V BATTERY TYPES, INCLUDING AGM AND LITHIUM

Associated Equipment

Intellamatic Smart Battery Chargers and Analyzers

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Vedder Knife

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KNIPEX

10" Pliers Wrench

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DESIGNED FOR HANDS-FREE GREASING

Big Gator Tools

Original G. Coupler Long Series

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SP Air Low Profile Hex Bit Driver

With its low-profile head and quiet operation, the reviewer says this tool is a winner.

by Kayla Oschmann, Assistant Editor

PRODUCT DESCRIPTION:

The **SP Air Low Profile Hex Bit Driver**, No. SP-7250H, features a sealed flat head with low profile for use in tight areas. The driver can be used with any 1/4" drive bit and has an easy-to-use thumb lever for forward and reverse, allowing for one-handed operation. It also features a patented 360-degree rotating rear air exhaust deflector and 360-degree swivel air inlet. The hex bit driver has an overall length of 8" and weighs 1.5 lbs. It uses 2.5 cfm, and has a free speed of 290 rpm and a maximum of 25 ft-lbs of torque.

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THE REVIEW:

Being able to fit an air ratchet into tight spaces where one would normally have to use a hand ratchet is a huge time saver, says tool reviewer Phil Fournier, owner of Phil's Auto Clinic in Hemet, California. Fournier tested out the SP Air Low Profile Hex Bit Driver, No. SP-7250H, and said that with the head of the ratchet being so flat, "you can't beat the fact that it will fit in spots no other [air] ratchet fits."

In addition to the low-profile head, Fournier also liked the tool's speed adjustment mechanism, reverse lever, and quiet noise level, especially for being an air tool.

"I have never seen a speed adjustment that works as well as this one does," Fournier says. "It is way better than trying to use the trigger as a throttle. You can dial it down to a very slow speed, which is really useful when driving screws."

The position of the reverse lever is often a compromise between ease of use and the tendency to accidentally change

the direction while trying to get into a tight place — a situation that is highly frustrating, Fournier notes.

"The design of this ratchet is a good compromise," he says. "It is easy to actuate, but [the lever is] placed well enough that accidental reversal is fairly unlikely."

As for noise, Fournier found the SP-7250H to be "extremely quiet." The California-based shop owner adds he has reviewed other ratchets, including SP Air ratchets, and places this one "at the complete other end of the spectrum for noise." Fournier mentions that while he was expecting the tool to have an ear-splitting noise that is common of air tools, the Low Profile Hex Bit Driver was actually "a world apart, almost equaling the noise level of a battery powered unit."

At Phil's Auto Clinic, Fournier and his team of technicians work a lot on hybrid vehicles. One case where the SP-7250H Low Profile Hex Bit Driver came in handy was during the service of a third generation Toyota Prius. The vehicle had failed head gaskets at unprec-

edented levels. Instead of having to pull the engine out to get to the head gasket, this tool allowed the team to keep the engine in place and still access what they needed.

Fournier notes the "skinny head" of the tool really helps when working in tight spaces, such as in the case above where they would have otherwise had to have taken the engine out, saving technicians time.

The tool comes with a small manual with simple instructions, though Fournier notes it is very easy to use and has self-explanatory controls.

He also added the price of the tool is in the ballpark of pricing for other air ratchets; plus, it has a high-quality external appearance and good life expectancy, making it an excellent deal.

Fournier enjoyed the SP Air Low Profile Hex Bit Driver, especially its small profile.

"This tool is just about perfect as is," he says. "I can't think of a single thing that I would change." **PTEN**

Hunter CodeLink

The reviewer appreciates the versatility of coverage that this tool offers.

by Tyler Fussner, Assistant Editor

THE REVIEW:

Having one tool that is compatible with multiple vehicle manufacturers is always a benefit in the shop, especially for the shop that services a variety of vehicle types. Hank Levesque, fleet manager for APG Electric in Clearwater, Florida, said the Hunter CodeLink offers that versatility in coverage.

“The CodeLink simplifies the whole [alignment] process because it recognizes the car we are working on, and then goes through the steps per that manufacturer’s standards,” he says.

APG Electric purchased the Hunter Hawkeye Elite, and the CodeLink came along with it; the entire unit was delivered in one big package, Levesque says. Getting familiar with the tool was simple, he claims, as a Hunter service technician and sales representative went through the application when the Hawkeye Elite was installed in Levesque’s shop.

“The way I look at it is, if I were to bring my nine-year-old in, I could probably walk her through the process, and she could do it herself,” Levesque says. “That’s how easy it is. It simplifies everything for us when it really comes down to it.”

APG Electric uses the CodeLink for alignment services and initial vehicle

inspections.

“You plug the CodeLink in [to the vehicle’s OBD-II] and it scans the vehicle for you and tells you if there are any codes,” Levesque says. “If you are doing an alignment, anything to do with an ABS reset, steering angle, recalibrations, cruise control – all of the sensors – it will walk you through each piece of that and tell you exactly how to do it.

“You can do a whole check of the vehicle if a vehicle just pulled into the shop for an oil change,” he adds. “You can plug the CodeLink in and run it through the diagnostics.”

The CodeLink relays the information to the alignment system, displaying the codes present on the vehicle. However, certain steps of the diagnostic process can be completed from the CodeLink itself.

“I can do a vehicle’s mileage or tire pressure sensors on the keypad [of the CodeLink],” Levesque says.

APG Electric has been using the

PRODUCT DESCRIPTION:

The **Hunter CodeLink** provides a simple, integrated solution that addresses reset requirements per specific OEM. CodeLink links the vehicle OBD-II system to the aligner to align safety system related sensors to the vehicle’s alignment geometry. After the vehicle is entered into the system, the software identifies the vehicle as a candidate for reset. CodeLink integrates with Hunter’s WinAlign software.

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CodeLink for quite some time, and Levesque attests to the tool’s ability to stay up-to-date and relevant throughout the years.

“[Hunter] updates on the regular for us,” Levesque says. “When you get to that time period [for an update], they call you ahead of time and let you know [what update is] coming up. The process is stupid smooth – they usually come in and update it for us. We’ve had this thing for at least four years now and its been the same for us since the day we bought and installed it.”

Levesque gave the Hunter CodeLink high praise, appreciative of Hunter’s customer service, the versatility of coverage that the tool offers, and the long-lasting capability it possesses in its servicing applications. **PTEN**

Oasis Scientific

Vividia ME-610 Automotive Articulating Borescope

The 360-degree articulation offers visual confirmation into enclosed and not-so-easily accessed areas.

by Sara Scullin, Editor

THE REVIEW:

When it comes to a thorough inspection, it doesn't get much better than full articulation and a clear picture. Matt Fanslow of Riverside Automotive in Red Wing, Minnesota, was impressed with the span of the Vividia ME-610's 360-degree articulation, which helped him to see into the heater core from the heater box, among other uses.

"You can whip [the borescope] around in every direction, not (having to) twist on the cable or try to orient it right," Fanslow says. "I really liked that. It articulates in every direction and points back to you, which is ... really nice, especially when you're trying to wind your way through something and watching as you go."

Setup for the tool consisted of a simple plug in and charge. Fanslow added, the ME-610 comes well packaged in a "very nice, sturdy plastic blow molded case with its charging adapter and cleaning cloths."

The Automatic Articulating Borescope allowed Fanslow to get an inside look into places and parts he could not see

into otherwise, like a burnt spark plug, or to confirm a suspected leak coming from the intake. Not only does seeing the problem help technicians confirm a diagnosis – they can take this visual back to the customer.

"Before [this product], you would have no visual confirmation something was wrong," Fanslow says. "You could be looking at [performing] some hefty disassembly to verify a problem, and [in some cases] you still end up using your imagination. This is visual proof. Take a picture and send it to the client."

Fanslow was impressed with the image quality, too, compared with borescopes he's used in the past which seemed to lack focus at a couple of inches away.

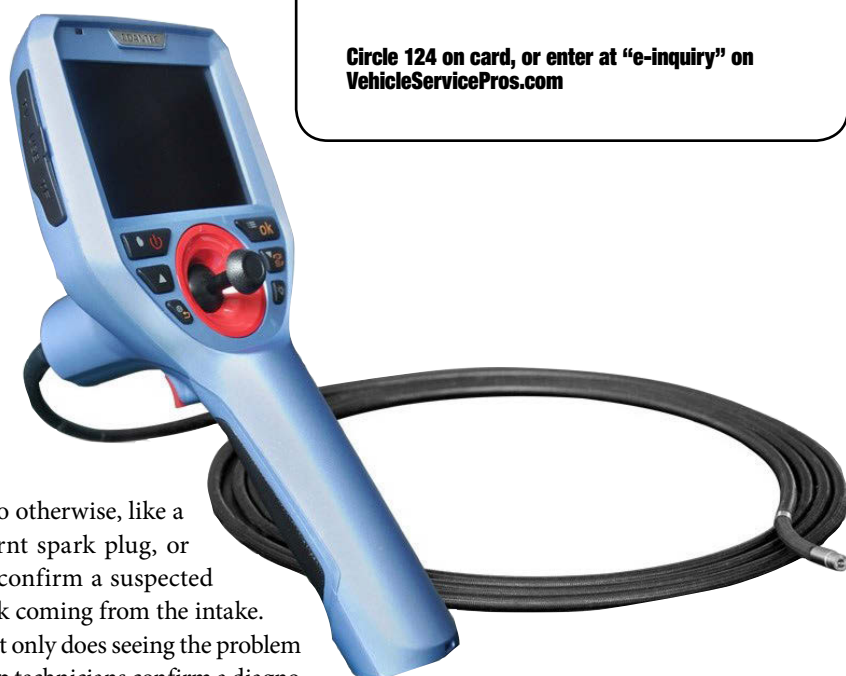
"The [Vividia cameras] seem to do much better up close – they remain clear," he says. "I was very happy with that."

Fanslow says he would like to see a

PRODUCT DESCRIPTION:

The Oasis Scientific Vividia ME-610 Automotive Articulating Borescope is designed for quick inspection of hot car engines and diagnostics with special air cooling channels. The ME-610 has a 1m long, 6.5mm diameter waterproof probe with 360 degrees of articulation controlled by a joystick. The Vividia ME-610 provides high quality images with high illuminance LEDs. The insertion tube and camera probe are cooled with compressed air, so it can be used at temperatures as high as 572 degrees F.

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bigger screen on a future iteration of this product (the current screen is 3.5 inches) or have an output to his cellphone, and possibly a narrower probe – 4 or 5mm versus the current 6mm.

At the shop, Fanslow said "this was the first grab" for him and his fellow technicians.

"You could look into those enclosed or hard-to-reach areas without taking a lot of stuff apart, like in the case of a dropped bolt – you could quick run the borescope in there and sneak [the bolt] out with a retriever tool," he says.

Overall, Fanslow found the ME-610 to be a powerful diagnostic tool for visual confirmation in several scenarios, saying "this is the one to get." **PTEN**

Lumax Fluid Extractor LX-1314

The reviewer is pleased with this unit's flexible and fast fluid extraction.

by Sara Scullin, Editor

PRODUCT DESCRIPTION:

The Lumax Manual/Pneumatic 2-in-1 Fluid Extractor, No. LX-1314, is designed for brake fluid, engine oil, gear oil, transmission fluid, water, and more. This fluid extractor is ideal for extracting engine oils or lubricants for a variety of applications. This product offers durable, oil- and chemical-resistant polypropylene construction, automatic overflow prevention, a quick-drain pour spout, decompression/exhaust valve for releasing negative pressure, and a valve and safety cup for automatic cut-off extraction. This fluid extractor has a maximum fluid temperature of 176 degrees F.

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THE REVIEW:

Because it offers both manual and pneumatic operation for a quicker, easier fluid extraction process, capacity just shy of three gallons, and has its own storage, Technician Aaron Miller was impressed with Lumax's 2-in-1 Fluid Extractor LX-1314.

Miller is a mobile diesel technician specializing in electrical and diagnostic work, currently working with ACME Lift Company in Houston, Texas. He says the Lumax unit saved him some time on the job, as it helped him to drain fluids quickly, adding, "The ability to use either air assistance or operate with the manual pump adds a lot of flexibility."

When he first received the unit, Miller noted it came with four different sized hose adapters and is constructed of oil- and chemical-resistant polypropylene. Right away, the Houston-area technician found setting up and using the LX-1314 fluid extractor was a pretty straightforward endeavor.



He also appreciated the fact that he could store the additional hose adapters right inside the tool.

In his time using and evaluating the 2-in-1 Fluid Extractor at work, Miller found the product to be extremely efficient at evacuating oil drain pans for oil

changes through the dipstick tube.

He also used it to drain oil reservoirs for vehicle components like power steering, brake fluid, and transmission fluids. While Miller and his team used the fluid extractor primarily for trucks, he notes the LX-1314 would perform a seamless fluid extraction process for "just about any vehicle."

After using the LX-1314 Lumax Fluid Extractor in day-to-day operations Miller said this fluid extractor was "near perfect."

"It made working with fluids clean and efficient. We didn't have to spend a lot of time cleaning up," Miller says.

He was also impressed with the unit's streamlined design and built-in storage for additional hose adapters. Moreover, the ability to use air is a feature which he says, "sets this unit apart from and ahead of competitor versions [of fluid evacuation tools]."

The LX-1314's clear tank design was the icing on the cake – as Miller could easily see the tank fluid level at a glance. **PTEN**

Clore PRO-LOGIX PL6100 from SOLAR

A battery maintainer that sustains voltage levels and rehabilitates sulfated batteries.

by Sara Scullin, Editor

THE REVIEW:

Programming operations require clean signals and a robust power supply. When these two boxes are checked, additional features and a solid build are icing on the cake, explains Matt Fanslow of Riverside Automotive in Red Wing, Minnesota.

At Riverside Automotive, Fanslow is tasked with diagnosing several drivability and electrical issues that come through the door.

"This means I possess many different pieces of equipment to accomplish the goal of accurately troubleshooting, then repairing, those concerns," Fanslow says.

Whenever a module is replaced or a firmware update is available for a symptom, the vehicle requires programming. This veteran technician says he enjoys fixing problems with firmware updates, and to do this with little headache he needs the proper tools, including the right scan tools, hardware, and software. Another "too-often overlooked" piece of equipment in his bays, he says, is the battery maintainer.

Fanslow says clean voltage is impor-

tant when working with battery maintainers, but it's also extremely important to be able to maintain the voltage level throughout the process.

"During programming, some vehicles can pull some major current," he says. "A good maintainer will not only meet that demand, but will maintain it over the entire required period of time."

Upon receiving the PRO-LOGIX PL6100, Fanslow was impressed with the look and feel of the tool.

"This thing is heavy," he says. "Not 'strain-your-back' heavy, but it feels up to the task of surviving years of professional use. It's a fair bit larger than my other maintainers, but this is also a full-blown battery charger as well."

Other standout features and capabilities for Fanslow were the unit's cables: "heavy cables with twist-lock connections to the charger/maintainer and spring tension in the clamps," he says. In addition, the power output did not disappoint.

"This thing puts out a legit 100 amps and stays there ... no dropping off," Fanslow says.

PRODUCT DESCRIPTION:

The Clore Automotive PRO-LOGIX PL6100, from SOLAR, is a 12V 100A flashing power supply and 60/40/10A battery charger. The PL6100 is designed to provide stable power on demand, up to 100A, to a vehicle electrical system to support module reprogramming. It also provides a full-service battery charging capability from 10A to 60A to service everything from small vehicle batteries to Group 31 batteries.

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The busy technician appreciated that the unit is a true battery charger as well.

"The PL6100 has algorithms to potentially save sulfated batteries and actually puts batteries through a charging process, rather than just hitting the battery with the steady voltage I select," he explains.

Lastly, Fanslow was impressed with Clore's "fast and friendly" support. Though the equipment was intuitive and the provided instructions were informative, Fanslow said he called the company "for fun" and was pleasantly surprised.

"They answered all my questions and offered tips and tricks," he says. "They seemed like they really cared – that goes a long way in my book."

To watch a video of the Clore PRO-LOGIX PL6100 from SOLAR in action, visit: VehicleServicePros.com/21091659 PTEN

Share your story and you could be featured with your toolbox in *PTEN's* Big-Time Box column!



READERS OFFER A PEEK INSIDE AT THEIR AWESOME TOOL STORAGE SYSTEMS



A custom built toolbox for a state-of-the-art facility.

by Stefanie Van Breden, Assistant Editor

OWNER:
Boris Said
BMW of America
Merced, California

"The milling craft is the heart of the bus and looks no different. All the other bays I didn't have the same quality. The toolbox is well organized like tools grouped in a craftsman's case. Tools found everything you need. And, the floor is the same as the rest of the shop."

For Solid, this toolbox choice really came down to quality and functionality. "We liked the look, the efficiency, and the amount of storage we could get with this toolbox," said Sells. "It's state-of-the-art with rolling carts, and there's a place for everything."

"You really can't expand it," he says. "You don't need to expand it."

Sonic Tools recently redesigned and rebuilt their automotive toolboxes, Said says. "Now that they've bought into the auto dealer big toolboxes, I think they've built, first pass, the best one," he says. "And they were really easy to deal with, nice people."

For Sord, upgrading his tool storage while upgrading his facility made sense, and he appreciates the organization and overall aesthetic his Sonic Tools box offers. **17004**

Want to see more photos of Sord's box?
[Visit: VetInfo@VetInfoPress.com/21026020](mailto:VetInfo@VetInfoPress.com)

 **Want to share all YOUR Big Time Box?**
 For more information, email
Editor@VetInfoPress.com.

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READERS NEED A BRIGHTER LOOK AT THEIR ANNUAL TREE STORAGE SYSTEMS

RECEIVED 2011 JAN 17; REVISED 2011 APR 17; ACCEPTED 2011 APR 17; FIRST PUBLISHED 2011 MAY 17



Starting from scratch and heading towards big-time.

By Frank Ruggiero, Assistant Editor

When John Wyatt retired from the Army, he became the lead installer and tech technician at a performance-focused shop in North Carolina called *Watt's Performance*. At the time he had a full set of tech, with enough extras to fill a whole toolbox and then some.

That's where he accepted a contract to work in the United States Special Operations Command in Afghanistan five years ago. Wyatt says, "Not wanting to be fired and without having any tools, Wyatt left his entire tool setup as a parting gift for leaving the job suddenly."

While in An American, knowing he had to replace everything once back in the States in order to start his own shop, Wyatt used this downtime over the last six months to research tools, but organizers aren't quite as importantly for his Big-Time fixer background.

Replacing everything was no small task, either. Wyatt was on the search for quality and affordability. That's when he came across an online video review of Homak's "72" HD Pro from The YouTube.

Wyatt loved the box, but needed different drawer configurations. He ended up choosing the Homak 72" RS Pro Combo, which has deeper drawers and a

librarian.

He says his Homak rival "big tool truck brands."

"On some other boxes, or slides, even if they're single, they just lost out on the quality of the drawers," he explains. "These are absolutely fine. You pull them out, it's smooth, even with the rollers. And they're full-depth drawers when you pull them out of the drawer is even with the top of the box. There are some when you pull them out, it's a stiff movement into the box, but the other thing that's great

OWNER:
John Wyatt
Production Designers, Inc.

Homest. box. When you pull the drawer open, it's all the way down.

All together, his new tool tray has 37 drawers and a flip-top. He says he is happy with the product.

"Even though it's like a *Hammer*, where *else* are you going to get a quality box like this for the price?" Wyld says.

He says he's not planning on purchasing this product. They had him in purchasing SK Professional Tool, which he says he couldn't happen with. He uses SK's tools to build his magazine and organizes his chrome and impact sockets with U.S. made Westing Machine socket organizers. There are made using billet aluminum and steel magazine and tool trays have debris from sticking to the organizers.

This is just the start for Wyld, as he continues to build his tool organization and get his performance-based shop. Performance One Style Motorsports in Fairview, Pennsylvania, up and coming.

www.sktools.com
info@sktools.com
800-451-5555

Want to know more about SK? Visit our website, email, or call today.

READERS OFFER A PROUD LOOK AT THEIR AWESOME TECH, STORAGE SYSTEMS



A shop owner shares his "ungodly big" toolbox setup.

by Stefanie Van Runden, Contributing Editor

Curtis Detweiler is the owner of **Reds Auto Body**, and he bought his 66' long Snap-on Mr. Big Toolbox about six months ago to provide more space for his tools.

"I'm not sure what made me want to upgrade," Detweiler jokes. "I've got

His upgraded toolbox attracts a lot of attention due to its massive size. The toolbox is set up in an L-shape in Detwiler's mechanic's bay and features lockers on each side, four hammers, and two top boxes. He also recently added an additional top piece. Each of the stainless steel top boxes has a built-in pencil holder.

Detwiler keeps his toolbox meticulously organized in what he calls a "border-free OCD" schematic. He keeps sockets and ratchets in one drawer, pliers in another, diagnostic tools kept together, and conflict tools kept together. The tools he uses most often are the top-drawer of the center cabinet, which he has quick and easy access to. "That's one advantage to having a toolbox," he says. "You're not much like it's own place."

For Detwiler, the deciding factor in choosing a toolbox was the number of drawers available.

"I like the efficiency of having multiple sizes in the box for selection such as PCB tools, diagnostic

"My favorite part of the box is the computer area," he adds. "I have three monitors set up, and that's where I do all of my ordering, diagnostic materials, and that kind of stuff. I like the simple

of being able to access everything I need right then."

"The toolbox tends to get a lot of attention," Debeton says. "It's just ungodly big. When you walk into the shop it's the first thing that sticks out to you. I get a lot of reactions to my toolbox." **PTEN**

Want to see more photos of Debeton's boat?
Visit bit.ly/DebetonPOT.com or 212.693.9330

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bit.ly/GoToDebeton.com.

READERS OFFER A PROUD LOOK AT THEIR AWESOME TOOL STORAGE SYSTEM



From a new box every month to the best-of-the-best

by Vesna Bradjkovic, Assistant Editor

Before Michael Capozzi settled on his 127' long Snap-on Epic setup, his wife referred to him as a member of the 'Toolbox of the Meath Club.'

Capozzi worked out of just about every brand of toolbox sold.

71 years, he's seen four more than a

OWNER:
Michael Capozzi
Classic Corvette Restorations
Chardon, Ohio

Capozzi months ago and they're in line with another one, and I'd say it," he says. That was until *Step-on* released their *Epic* line and he never looked back.

After purchasing his 68" double bank main box six years ago, Capozzi bank since added a work bench, two-side lockers and a top chest. He's even thinking he'll add a couple more lockers on for additional built storage.

To Capozzi, a long-time technician, previous tool dealer and current shop owner of Classic Corvett Restorations, the investment was worth it for how well

in their place and so forth.

"Everybody makes fun of everything I laid out for me," Capozzi says of his spending.

"All the customer handles the bank with the label up. I'll be hanging label, not just put up a drawing I can visually see when a misser."

At more than 74" high, the storage space in the top chest is out of reach. Capozzi says it's easy to pry him and other's lower in this setup than a two-mover for work space. Instead, this

The toolbox features 23 drawers organized neatly by category, starting with sockets and ratchets in one, wrenches in another, and then screwdrivers and pliers

what would happen is by the end of the day you keep setting things up there instead of putting them in the drawers, and you'd have this big pile of tools laying on top," Caporaso explains. "So now ... the workbench is for working and I don't have to worry about setting things on the bench. To figure out how to set

Caprazio uses the two side lockers for bulk storage. The eight drawers, four in each side, store things like spray guns, Sanders, gaskets and gasket sealants. In addition, the doors feature a peg board which Caprazio uses to hold products like spray cleaners, chrome polish and lubricants.

For power, Caprazio has added battery chargers in the left-hand locker, and installed an outlet strip on the back of the box for additional power. **PTEN**

Want to show off YOUR Big Tree Box?
For more information, email
Editor@littleboxservice.com.

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TO SUBMIT YOUR “BIG-TIME BOX”:
Send an image and brief description of your
“Big-Time Box” to **editor@vehicleservicepros.com.**



New Year's goals: Increase your shop's ROI in 2020

Small changes can mean increased profits and a rock-solid reputation for a new year.

By **Scott Weaver** and **PTEN staff**,
Contributing Editor gonzosae@aol.com

We've reached the end of another year. While December is traditionally a time of reflection, it also offers us a good chance to look ahead. As you move into 2020, now is the time to consider ways you might change up your business practices or even use technology to your advantage, to not only improve service, but to let customers know what you are capable of.

The fact is, our customers are moving further and further away from understanding the complexities of the very machines they drive. It's up to us, the mechanics and technicians of the world, to keep up with these changes and customer demands.

In this year's columns, I talked about various new diagnostic products and scenarios coming on the scene that are available to our market. This month, let's review a few tech-related ideas you might consider to help increase your ROI numbers for 2020, as well as ways to help business by connecting with the community you serve.

Some tips may work better for you than others, or one of them may spark an idea of your own. Consider the possibilities and give it a try.

CONSIDER ADDING SERVICES

Customers and vehicles are always changing. As you head into 2020 consider adding services that weren't part of your business model in the past. For example, the percentage of cars and trucks with TPMS is on the rise. Sales of replacement sensors are on the rise, too.

Ask yourself whether TPMS would be a sound business investment, then investigate the right tools for your shop.

Decide whether you will require something that provides complete

Consider adding services that weren't part of your business model in the past. For example, the percentage of cars and trucks with TPMS is on the rise. Sales of replacement sensors are on the rise, too.

TPMS coverage, including OE sensor cloning, and remember that additional ROI opportunities also include things like sensor sales and services, alignment and rotation services, and TPMS reset (relearn).

Services for vehicles with Advanced Driver Assist Systems (ADAS) are another talked-about revenue generator for some businesses. If you have the floor

space, and there's a lack of this service in your area, it may be time to consider the possibilities of performing ADAS calibrations in-house.

While some newer cars can self-calibrate, most vehicles hitting shops now require an in-house (static) camera alignment and diagnostics by a certified shop. Even seemingly straightforward jobs like wheel alignments, tire changes, or changed suspension angles may affect the vehicle's ability to see through its cameras and sensors.

ADAS calibration tools are sold in various kit sizes, and floor space should always be considered. ADAS systems today utilize radar, infrared LIDAR, computer images and analysis, as well as sensors for motion, heat, and sound. They often come with expert support to help technicians along the way. The investment could be as little as \$3,000 or as high as \$20,000; it's important to consider what your shop may be getting for the investment.

MAKE LIFE EASIER FOR CUSTOMERS

There are a few ways you can use technology to your advantage to polish up your current customer service practices. First things first: if you don't have a website, set one up. Create a virtual 'electronic' waiting room for your customers. Any

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information that would be valuable to your customer could be presented on the website. For example, your scan results could show the technology involved in their vehicle's repair and how you arrived at the solutions. This might lead to your customers having a better understanding of the complexities involved in a seemingly 'straightforward' maintenance or repair situation.

Even though the phone is still an essential, many customers now find it preferable to communicate with you via text. Having a dedicated message service where your customers can leave messages or converse with other patrons could become your version of an electronic waiting room.

Many of today's shop management software companies are also incorporating text functionality in their products.

With an organized communication

platform and practice in play, you can create a scheduling format that includes a calendar showing your hours and perhaps days off or any special occasions that you are going to be out of the shop. Post routine maintenance schedules for vehicles and any discounts you might be running.

Turn your website into a community. Post your customers' birthdays, special occasions, graduations, etc. Encourage customers to leave comments or post their own personal events. Post available carhops with other patrons that might be arriving or leaving at the same time. Basically, create a family of friends and neighbors that share your place of business.

SHOW AND TELL

Most curious people are fascinated by things they don't understand. They love

to explore and learn how this new 'widget' works. Even though they may never intend on repairing it themselves, they still are eager to learn how it all operates.

You can be transparent about the repair process (and win customers) by creating short videos and posting them on your website, taking the time to explain a certain aspect of auto repair.

Think back to the 1950s and '60s when most hot rod or general improvements meant changing mechanical parts such as a cam, changing the carburetor, adding a high rise intake manifold, beefing up the suspension, tacking on some traction bars, or updating to a tuned exhaust system. It didn't matter what method was used to increase the horsepower, but what it did do was create a gang of onlookers under the hood to see what made it all tick.

These days there isn't a whole lot to

see under the hood of the modern car. However, there's a lot more technology stuffed under there than just a double roller cam or a gigantic 4-barrel carburetor. Computer software is the focus these days. Don't get me wrong, mechanical parts still make some enormous changes. However, to make all that work it takes a pretty solid level of understanding in the software and the electronic side of things.

It would be to your advantage to show the tools that accomplish all this high-tech magic in use on your website, message board, or blog. If you purchase a new tool or scanner, display it on your website for your customers to see. Explain the capabilities and how it can benefit them.

Showing what can be done at your place of business can increase your sales and the number of RO's. And don't forget to share the pre- and post-scans: seldom do shop owners and technicians incorporate pre- and post-scanning into every job. The technology is in place and all we need to do is utilize it.

GET THE COMMUNITY INVOLVED

No matter how much we talk about the technical side of things, an automotive repair shop is still a community-based business. We service our neighbors', friends', and local businesses' vehicles, and do our part to keep our little corner of the world on the road. With that said, getting your name out into the community is an essential part of running your business.

There are a lot of things you can do to bring awareness to your shop that doesn't take much investment on your part. Here are a few ideas I've used in the past:

A business-to-business block party: Throw a few burgers on the grill and invite neighboring businesses over for a free lunch that could turn into a meet-and-greet. This might be just the thing to draw some extra business your way.

Office or business discount: Consider posting a lunch hour oil change discount for an entire office staff at a local business as an incentive to shop your establishment. Pick a different business the next

time you do it.

Holiday canned food runs: Usually, local radio stations will help sponsor holiday events like this or at least allow a free plug for your shop in the process. Use a call-in local radio show to make the announcement. Toss in a discount on some service you provide, and you've created a seasonal income source that you didn't know existed before.

Toy runs: What a great time I had being involved with these. It's a super way of getting to know the people in your community and at the same time doing something worthwhile. If nothing else, you'll feel a whole lot better about yourself for being a part of it all.

Community groups and clubs: Getting involved in a community business group, car club, or volunteer work are just a few things that come to mind. Anything that is going on in the community that you could get involved with that doesn't require an initial investment, just yourself and/or your business, is likely to raise your local respectability and confidence in your business.

Diagnostic day: Schedule a free diagnostic day in a school parking lot. Be a helper in a community event or create your own. The possibilities are endless.

Donate a car: Got an old dilapidated car sitting around that needs a good home? Fix it up a bit and donate the car to a local church group or organization that supports single parents.

Skills fair or event at a school: Show off some of your skills and promote the world of automotive repair at your local school. Sometimes the simplest thing to you, such as reading an ohm meter or using a test light, is a huge wow-factor to the kids.

Remember: you're a part of the community, not just another face in the crowd. The more you're involved locally, the more you'll find your name popping up around town. And, don't forget to post all of this activity on your website. **PTEN**

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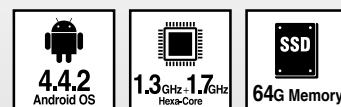


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RAPID MATERIAL REMOVAL

The **AIRCAT 2.3 HP 5" Heavy Duty Angle Grinder**, No. 6380, features a 2.3hp motor, patented "silencing technology" and a spindle lock feature. This tool offers 12,000 rpm with a governed motor to help prevent overspeeding. Other notable features include a spindle lock feature designed to eliminate the need for multiple wrenches for quick and convenient wheel changes; rotational rear exhaust with internal silencing to reduce the noise level to 87 dBA; vibration damped side assist handle for improved operator comfort; and a light unit weight of 3.97 lbs.

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INTERNAL OVER-TORQUE PROTECTION MECHANISM

The **OEMTOOLS R2 Rechargeable Speed Ratchets**, Nos. 24493 and 24494, are designed to speed up work for quick and easy fastening. They are rechargeable and include two 2,000 mAh Li-ion batteries for continuous use for less work interruptions to re-charge. With an internal over-torque protection mechanism, there is less worry about over-tightening of fasteners. The R2 Speed Ratchets are lightweight and have a low profile design for tight work areas. The two ratchets are available in 1/2" drive, No. 24493, and 3/8" drive, No. 24494.

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REACHES 15,000 RPM OF FREE SPEED

The **Ingersoll Rand 3/8" Impact Wrench**, No. 2115QXPA, is designed to help technicians complete everyday jobs in tough environments. The 2115QXPA is ideal for work on passenger vehicles including interior car bolting applications, side panel repairs, and engine work. The impact wrench reaches 15,000 rpm of free speed and 300 ft-lbs of maximum reverse torque. It also features chemical-resistant composite housing, swivel hose connection to prevent tangling, steel twin hammer mechanism, and a steel-lined hammer case. The tool weighs 2.5 lbs.

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OFFERS A REACTION-FREE BEHAVIOR FOR SAFETY

The **Hazet 3/8" Pneumatic Impact Ratchet**, No. 9021SR-1, is equipped with a non-rebound striking mechanism for low-impact work. The reaction-free behavior of the high performance twin hammer mechanism ensures maximum occupational safety. The tool is suitable for manual re-tightening for torques up to 191 ft-lbs and, due to its short total length of 6.2", it can be used in constricted spaces. The head is equipped with a rubber protective cover to protect from scratches and dirt. The tool also offers a cold insulated handle that makes work with cold compressed air more comfortable. The impact ratchet works at speeds up to 500 rpm.

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OFFERS UP TO 0.3HP PERFORMANCE

The **Milwaukee M12 FUEL 1/4" Right Angle Die Grinder**, No. 2485-22, is designed to offer up to 0.3hp performance, four-mode rpm control, and the mobility to fit in tight spaces. As with all M12 FUEL products, the die grinder features Milwaukee's Powerstate brushless motor, Redlithium battery pack, and Redlink Plus Intelligence hardware and software. Without the constraints of hoses or compressors, users can utilize this tool almost anywhere they can fit it. The kit includes the 1/4" Right Angle Die Grinder, two M12 Redlithium CP2.0 battery packs, M12 charger, two wrenches, and a contractor bag. It is also available as a bare tool (No. 2485-20).

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ALSO AVAILABLE IN A 2" EXTENDED ANVIL VERSION

The **Mac Tools 1/2" Drive Aluminum Impact Wrench**, No. MPF970501, features 1,100 ft-lbs of reverse breakaway torque and a twin-hammer mechanism for power and longevity. The tool also features a variable-speed trigger for speed control, reverse-bias motor for more reverse torque to remove stubborn bolts, and a variable-valve design for dialed in speed control. The impact wrench is also available in a 2" extended anvil version, No. MPF970501. The tools are textured with an anti-slip comfort grip.

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ALLOWS FOR PORTABILITY AND ONE-PERSON OPERATION

The **AME International TorqIT** torque gun series is made in the U.S., and was designed to provide high-precision battery-operated torque. Available in four models ranging from 120-3,000 ft-lbs in torque, the TorqIT torque guns are ideal in tire service applications on equipment and vehicles in the commercial and OTR industries. Battery-powered and lightweight, the TorqIT torque gun series allows for portability and one-person operation in the shop and field. The TorqIT batteries are equipped to last approximately 300-500 sequences on a full charge, and once the batteries run low, can be fully recharged within 60 minutes. The digital programmable screen on each model provides consistent and accurate torque with every use. The TorqIT also features a built-in speaker that emits an audible beeping indicator and additionally provides a visual indicator as the reaction arm backs off the wheel nut as the desired torque is met. Each torque gun is outfitted with a standard reactionary arm, and other styles are available to accommodate a variety of applications.

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COMPACT SIZE TO WORK IN CONFINED AREAS

The **Mighty Seven Mini 90 Degree Air Die Grinder** features a compact size at 4-3/4" in total length to work in confined areas. The unit has a running free speed of 22,000 rpm and a sound level of 84 dBA. It also features a grease port that allows the user to extend life of gears and restore power, as well as a safety lever to prevent premature startup. It is backed by a three year warranty.

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BUILT-IN LED AND BATTERY POWER INDICATOR

The **Li-Ion 20V Brushless 1/2" Impact Wrench**, No. ARI20156, from **ACDelco**, offers an advanced brushless motor that delivers 320 ft-lbs of reverse torque and 205 ft-lbs of tightening torque. The entire tool weighs 2.86 lbs, allowing users to sustain daily work efficiently without becoming fatigued. The ARI20156 features metal gearbox housing, variable speed with reversible and electronic brake control precision, rubber boots, built-in LED and battery power indicator.

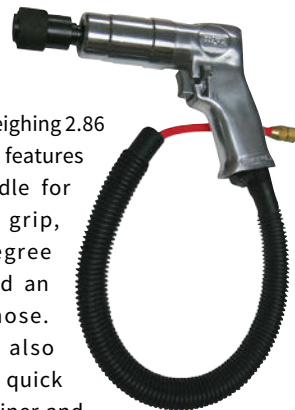
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SIDE HANDLE FOR IMPROVED GRIP

The **RPG 1/2" Air Drill** is compact and powerful, weighing 2.86 lbs. This drill features a side handle for improved grip, a 360 degree air inlet and an exhaust hose. The tool also includes a quick change retainer and a durable, heavy duty, quick-change chuck that delivers a tight, secure clamp. The tool has a chuck size of 1/2", a free speed of 500 rpm, an average air consumption of 4 cfm, an air pressure of 90 psi and an overall length of 7.5".

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DESIGNED FOR 90 PSI COMPRESSED AIR LINES

The **Capri Tools High-Performance Air Blow Gun** utilizes venturi nozzles to deliver airflow at 72 cfm. During normal operation, the venturi nozzle draws in air and multiplies airflow. Should the nozzle tip become blocked, air pressure is released to lower than 30 psi, meeting OSHA's output pressure safety standards. Airflow level is controlled by turning the flow control knob, conveniently located above the handle. The air blow gun is constructed with a durable aluminum body, premium matte finish, and features an easy-to-operate ergonomic contour soft grip and heavy duty trigger.

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CLEAN INSIDE OPENINGS AS SMALL AS 1/4" AND UP TO 1"

The **Exair Soft Grip Back Blow Safety Air Gun** uses a small back blow nozzle to deliver a blast of air to blow debris and liquids from inside small pipe or hose diameters, channels, bores, holes, internal threads, and more. The ergonomic design helps keep the operator's hand in a comfortable position to reduce fatigue. An array of holes provides a forceful back-facing 360-degree airflow. The nozzle prevents blowing chips further into a part by blowing debris out the far end of a pipe or tube. Air consumption is 4.5 scfm at 80 psig, with a low level sound of 75 dBA. The nozzle is manufactured to clean inside openings as small as 1/4" and up to 1". It is constructed of type 316 stainless steel for durability and corrosion resistance.

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USE AS AIR HAMMER OR PNEUMATIC SLIDE HAMMER

The **Lock Technology Texas Twister Bidirectional Air Hammer Starter Kit**, No. LT855-AH-SK, allows technicians to convert their air hammer into a pneumatic slide hammer by installing the included air lock plug and quick release chuck. The kit includes the 7" Seal Remover (855-2A), 7" Universal Flat Blade Puller (855-5A), and 6" Double Male 1/2-20 to 5/8-18 Thread Connector (855-12A). It also includes a 1/4" NPT adjustable brass air flow regulator and has a vibration dampening system for reduced user discomfort and fatigue. The starter kit is ideal for unlimited applications in automotive, aircraft, marine, farm implement maintenance, and manufacturing industries.

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TAPERED FRONT END FOR GREATER ACCESS IN TIGHT SPACES

The **Ingersoll Rand W5133 IQV20 Series 3/8" Compact Impact Wrench** is designed to deliver 550 ft-lbs of nut-busting torque and 365 ft-lbs of maximum torque. It is 7" in length, weighs 5.3 lbs, and has a tapered front end for greater access in tight spaces. The tool includes a variable-speed switch and electronic brake to increase control while using the tool, four forward power modes that always operate at max reverse torque to avoid the need to switch tools for different tasks. Other features include spark-free brushless technology, and a reinforced bushing that increases the lifespan of the motor.

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OFFERS 480 FT-LBS OF MAXIMUM TORQUE

The **Puma 1/2" Air Impact Wrench**, No. AT-5641, offers 480 ft-lbs of maximum torque and reaches 10,000 rpm of free speed. The tool features a stubby design and variable-speed trigger for compactness and speed control. The air impact wrench also offers high durability and performance in production, manufacturing, or assembly environments. It weighs 3.31 lbs.

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BUILT FOR RUGGED PERFORMANCE

The **Equalizer Extractor 28V Kit** is built for rugged performance and strength. The heavy duty extractor runs on 28V Li-ion batteries that deliver both power and long run time. The kit includes two 28V Li-ion batteries rated at 3A hours each, 120V battery charger, two delta blades, safety glasses, spray bottle, and a plastic carrying case.

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FLEXIBLE 59" HOSE

The **SP Air 1/8" Micro Grinder**, No. SP-1900, features a soft grip, a rear exhaust, and a flexible 59" hose. The Micro Grinder can reach a free speed of 70,000 rpm and has an air consumption rate of 0.7 cfm. The dimensions are 5.5" long (without the hose) and 0.67" wide, with a weight of 0.77 lbs.

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OFFERS SPEED CONTROL FOR POWER ADJUSTMENT

The **Wurth 3" Air Composite Polisher Kit**, No. 0703999012, features a compact, lightweight tool to polish in hard-to-reach areas. The composite body is durable and resistant to chemicals. It offers a speed control to give the user power adjustments on demand without the need of an air regulator. The polisher has a low rpm start to ensure there are no surprise starts and an exhaust valve at the base of the handle to ensure a disturbance-free work area. The kit includes the 3" air composite polisher, 3" hook and loop fastener backing pad with female threads, spanner wrench, and a blow molded case for easy storage. Polishing pads are not included.

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FOUR MODELS TO MEET USER'S PREFERENCES AND BUDGETS

The **Chicago Pneumatic CP7755 1/2" Impact Wrench Series** is designed to provide accurate power control with greater ergonomics and comfort. The series offers four models that feature the patent pending power selection system in which power can be set to 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, or 100 percent of the tool's maximum torque for a precise match with each job's requirements. The series also feature a flat-topped body shape, allowing the operator to conveniently pick each tool up from the floor by the hose without having to bend. The wrenches are lightweight, compact, and have low levels of vibrations.

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CATEGORY SPOTLIGHT

Power Tools & Air Tools

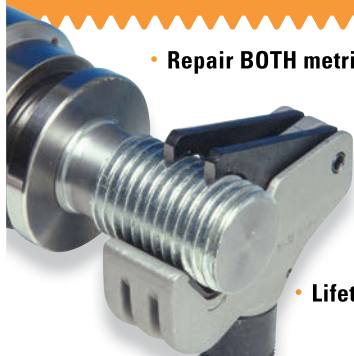
RECYCLABLE AND ENVIRONMENTALLY FRIENDLY

The **Airboss Air Tools Twin Hammer Impact Wrench**, No. AW-140P, offers 1,253 ft-lbs of maximum torque, weighs 4.9 lbs, and is 6.54" long. The motor is designed to offer a longer life. This impact is lightweight and helps reduce the hand pressure needed during use to improve work efficiency. The tool is ergonomically designed, able to sustain high pressure, and is made from green materials that are recyclable and environmentally friendly.

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COUPLER AND BLOW GUN COMBO

The **Coilhose CoBlo** is a combination quick coupling and blow gun in one. The unit is convenient for metalworking or wood-working operations, which often produce shavings or sawdust making it difficult to view the work surface. A quick burst or two from the CoBlo allows the operator to get back to work quickly without having to disconnect the tool, connect a dedicated blowgun, and then reconnect the tool. The CoBlo can be used with an air tool connected or disconnected and is currently available in 1/4" industrial, automotive, and ARO interchanges.

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OFFERS TORQUE RANGE OF 180 TO 1,400 FT-LBS

The **Michigan Pneumatic Tool Venom Impact Wrenches** were engineered for performance and designed for durability. The line includes 1/2", 3/4", and 1" drive pistol impacts, in addition to a 1/2" drive angle impact, and offers torque ranges from 180 to 1,400 ft-lbs. The lightweight composite design and aluminum clutch housing provide a balance of power and durability. Additional features include quiet handle exhaust, textured grip, and single-handed slide forward/reverse.

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BUILT-IN BRAKE PREVENTS ANVIL FROM SPINNING

The **Snap-on 14.4V 1/4" Drive MicroLithium Cordless Impact Wrench Kit**, No. CT725, features 70 ft-lbs of torque output and a variable-speed digital toggle-style trigger. The unit has a built-in brake to prevent the anvil from spinning and a built-in fuel gauge. It has a 70 minute charge time and twin-beam LEDs. The kit includes two batteries and a charger.

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REMOVE STUBBORN BOLTS IN HARD-TO-REACH AREAS

The **Astro Tools 1/2" and 3/8" ONYX Nano Angle Impact Wrenches**, Nos. 1832 and 1838, are designed to offer the power to remove stubborn bolts in difficult to reach areas. With a full head length of 3.46" and a long reach handle, these tools fit into confined spaces with a slim profile. These tools offer 415 ft-lbs of maximum torque and offer enough power for a variety of applications.

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ABLE TO BE HELD FROM DIFFERENT ANGLES AND POSITIONS

The **DeWalt 20V MAX XR 7" Variable Speed Rotary Polisher**, No. DCM849, features a high-efficiency brushless motor and achieves a no-load speed of 800-2200 rpm with a variable speed trigger and dial. It can be held either by its side or bail handle, allowing it to be held at a variety of angles and positions. The tool also features rubber molding, including in key areas to protect work surfaces. The battery housing is oriented horizontally so that the foot of the tool doesn't interfere with polishing, and to allow the user to get as close to the surface as possible. The tool weighs 4.7 lbs and is 16" long.

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LOWER WEIGHT AND COMPACT SIZE REDUCES OPERATOR FATIGUE

The **Makita 18V LXT Lithium-Ion Brushless Cordless 2-pc Combo Kit**, No. XT284SX1, includes an impact driver and impact wrench as well as two batteries, a charger, and a tool bag. The 18V LXT Brushless Impact Driver (No. XDT13Z) delivers 125 ft-lbs of maximum torque and 0 to 3,400 rpm. It has a compact design at 5" long and weighs 3.3 lbs. The 18V LXT Sub-Compact Brushless 1/2" Square Drive Impact Wrench (No. XWT13Z) delivers 155 ft-lbs of maximum torque and 245 ft-lbs of nut-busting torque. It is ideal for working in tight spaces and for overhead applications with its compact size and reduced weight.

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FEATURES AN OVERALL LENGTH OF 13.8"

The **SP Air 4" Extended Reach Cut Off Tool**, No. SP-7234, has an overall length of 13.8" and weighs 3.3 lbs. The SP-7234 uses a disc size of 4", can reach a free speed of 14,000 rpm, and has an air consumption rate of 0.85m³ per minute. Features include a rear exhaust, a wheel cover, and a safety lever on the handle. Accessories included are a one wheel wrench, one hex wrench, and one No. SP-7234-100 cutting wheel.

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EASY TOUCH TEASING TRIGGER

The **Jet 1" Pistol Grip Aluminum Impact Wrench**, No. JAT-108, is designed to offer 200 to 1,300 ft-lbs working torque, 1,500 ft-lbs maximum torque, and a free speed of 5,500 rpm. The impact wrench features lightweight aluminum housing, a torque regulator switch, a forward/reverse switch, and an easy touch teasing trigger for control throughout the torque range. It also has a non-slip molded rubber grip for comfort and a twin hammer clutch. The impact wrench weighs 11 lbs.

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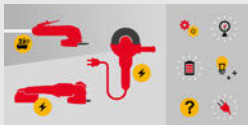
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A space for every tool

The extra-large top drawer is the only drawer Rushing has found to fit all his sockets and ratchets in one place.

by Emily Markham, Assistant Editor

Having the space to store every ratchet, wrench, and screwdriver is a challenge every technician faces. About four years ago, Zach Rushing, a technician of seven years, found the tool storage solution for him: a Snap-on KRL 1033.

Over the years, Rushing has gone through four other toolboxes. Starting from when he was 16 and purchased his first toolbox from a local NAPA store, which he quickly outgrew, and fast-forward through the last eight years as he began steadily trading up for bigger and better toolboxes with Snap-on to finally find a toolbox that can grow with him as time passes.

Rushing's custom toolbox certainly stands out with its vibrant, orange paint job, and the technician does his best to keep it in top condition.

"It's probably the only toolbox to have a constant layer of Killerwaxx on it," Rushing says.

OWNER:

Zach Rushing

Rod's Repair
St. James, Minnesota

Other unique features of the Snap-on toolbox include the custom drawer configuration and stainless-steel drawer protectors.

The toolbox measures about 73" wide by itself and around 97" wide when including the width of the side cabinet. The overall height of the toolbox is 72" with a depth of 29".

The extra-large top drawer is Rushing's favorite part of the toolbox.

"It's the only drawer I've found big enough to hold all my sockets and ratchets in one drawer," he says.

In the side cabinet, Rushing stores all his detailing supplies and has plenty of space to keep them neat and organized.



▲ Each of Rushing's drawers feature a stainless-steel drawer protector.

Of all the tools stored in his toolbox, the technician claims his Snap-on ratchets are his favorite as they come in a wide variety, which is useful while doing repairs. Rushing also notes the Snap-on Tech Angle Torque Wrenches are very handy due to their versatility.

Rushing works at Rod's Repairs, a small family-owned business in St. James, Minnesota. As one of the four technicians in the shop, Rushing performs repairs on auto and light trucks.

In the future, Rushing looks forward to adding to this toolbox.

"Ideally," he says, "I would add another side [cabinet] and overhead storage on top of my work center." **PTEN**

Want to see more photos of Rushing's box?
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