

THE INDEPENDENT TOOL AUTHORITY

Professional **TOOL & EQUIPMENT** News

TOOL BRIEFING New technologies make A/C diagnostics quicker and more accurate than ever. **PAGE 10**

FAILURE-PROOF A/C diagnostics



Test fuel pumps



Balance wheels more quickly



Keep diagnostic tools organized

TOOLS of the MONTH

PAGE 18



Install underdrive or oversized pulleys



Service 6.7L fuel injectors

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10 Tool Briefing: Failure-proof A/C diagnostics

New technologies make A/C diagnostics quicker and more accurate than ever.

► EXCLUSIVE!

24 Exclusive: 2013 Innovation Awards

Check out PTEN's annual Innovation Award winners!



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Only online: Read detailed product descriptions and see the full list of winners online at VehicleServicePros.com/2013IAwinners

► FEATURES

16 Top 10 Tools

Auto Craftsmen in Montpelier, VT handles a lot of tire and wheel repair under the direction of owner Amy Mattinat.



18 Tools of the Month

New tools from Snap-on Diagnostics, Cal-Van Tools, SP Tools, Innovative Products of America and Ranger Products.

44 Tool Reviews

Technicians give their takes on tools. This month:

- *SP Air 3/8" Super Fast Mini Impact Ratchet*
- *Spec Tools Overdriver*
- *Gear Wrench 120XP Flex Head Ratchet*



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Resources: Tech Tips and Ask the Expert Q&As

Throughout the month of June, we'll be featuring Tech Tips on scan tools, and answering questions about oil, lubricants and other fluids. Go to VehicleServicePros.com/ask-the-expert to see the most recent Tech Tips and Ask the Expert Q&As.

Video: Industry Insights newscasts

Catch up on the latest news, and get a sneak peek on products before they're in the magazine, on our new Industry Insights video newscast. To see recent episodes, go to VehicleServicePros.com/media-center/newscasts

Blog: Was a recent recall due to uproven fuel-saving technology?

Assistant Editor Craig Truglia discusses issues with government regulations affecting technical problems and direct-injection-related driveability issues in vehicles, highlighted by the recent recall of the Ford EcoBoost. To read the blog and join the conversation, go to VehicleServicePros.com/10946303.

Webinar: How to diagnose air / fuel sensors

Get a background on how these sensors work, what the scan tool data is telling you and how to know when you have a bad sensor. On-car demonstrations feature Honda and Toyota, using equipment and techniques to find the problem quickly. Access this free, on-demand webinar now, by visiting VehicleServicePros.com/10927108.



Sarah Shelstrom, publisher of Professional Tool & Equipment News, talks with IPA about electrical system maintenance and aftermarket trends reports. Watch now by visiting VehicleServicePros.com/10949189.



This pre-recorded webinar gives you a background on how air/fuel sensors work, and how to diagnose when you have a bad sensor.

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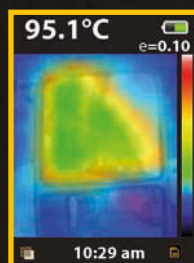
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By Elliot Maras, Editor

Innovation Awards: Techs and shop owners recognize the best new tools

The votes are in and the results have been announced! Beginning on page 24, the *PTEN* Innovation Awards recognize the most innovative products introduced in the last year to the automotive aftermarket.

The purpose of the Innovation Awards, now in its 10th year, is to recognize what veteran techs and shop owners consider the best new tools to make the technician's job easier and make shops more productive.

Technicians want tools that help them get jobs done right the first time in an efficient manner. The process of gathering nominations, judging the nominees and selecting the winners for the Innovation Awards is a very exciting time for the automotive aftermarket industry. It begins in the spring when nominations are announced and concludes at the fall AAPEX show where the winners are honored on the trade show floor.

Tool and equipment manufacturers submit

products every year, hoping to win the recognition from *PTEN's* panel of judges.


The judges work tirelessly on these evaluations. *PTEN* compensates them for their time, but the main reason the judges get involved in this project is their love of tools and the excitement they share finding out how manufacturers are helping them do their jobs better and faster. This much is obvious from the numerous comments the judges make about the tools in the evaluation forms.

Here's one judge's comment about Lock Technology's LT1800 4-piece impact drivers, the winner in the air tool category: "This tool is a great idea. This would surely eliminate the use of heat, which cuts down on possible safety issues."

A comment on Automotive Electronics Service's uActivate circuit breakout box, the winner in the diagnostic test equipment category: "I can report first-hand that this tool saves a ton of time and makes it simple to attach test connections and load control circuits."

A comment on Matco Tools TH209 professional circuit and parasitic drain tester, winner in the electrical systems category: "I really like the idea that it can measure current draw on a circuit without removing the fuse (which can wake up a module, giving false information and requiring a long wait before it goes back to sleep)."

A special thanks is in order to the judges.

If you're planning to attend this year's AAPEX show in Las Vegas, be sure to congratulate the winners. They'll be displaying their trophies in their booths. 



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TOOL BRIEFING PTEN

Cover Exclusive



▲ An example of a real-world A/C hose repair with the S.U.R.&R. AC1387 Deluxe A/C Line Repair Kit. For more information on this product check out VehicleServicePros.com/10237246.



Failure-proof A/C diagnostics

New technologies make A/C diagnostics quicker and more accurate than ever.

By Craig Truglia, Assistant Editor and Elliot Maras, Editor

Air conditioning is not the most difficult field of repair, but it often requires patience and the right tools. Most A/C problems roll into the shop coupled with the same exact customer complaint: "The air conditioning doesn't work!" Generally, there are two reasons: the refrigerant is low (either because of a tiny, long-term leak,

or a leak that needs to be repaired) or the system itself is not operating properly. In this case, a bad compressor, internal restriction or something of the like may be the cause.

In Fig. 1, we can see a fairly standard plan of attack for the first five minutes of any A/C diagnosis. Even though it is a GM TSB, it would be good for pretty much any vehicle, but with a couple additions that are covered below.

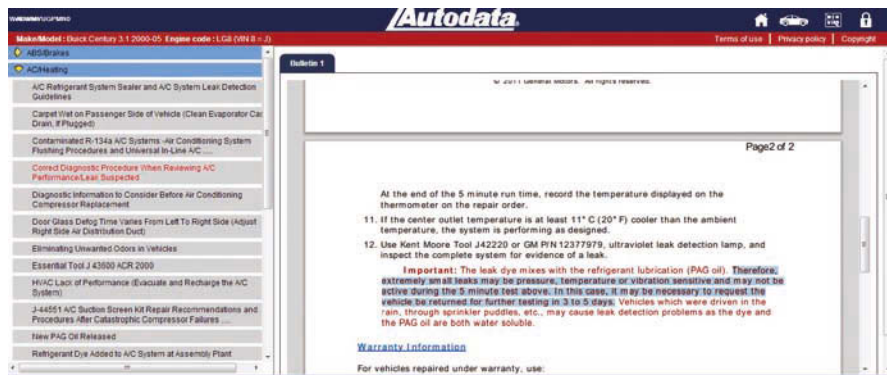
the compressor itself often will automatically be shut off, which will throw low, side-gauge pressures high. Furthermore, dye will often not properly circulate and find its way out of the leak point without proper system pressure acting to force it out.

▼ Fig. 1: Autodata's Quick Reference Pro makes looking up TSBs an almost instant process, thanks to it separating TSBs by topic. Here, a TSB on A/C service gives what GM recommends. For more information on this product, go to: VehicleServicePros.com/10715269.

FOOLPROOF APPROACH TO A/C

First, an A/C system always needs to be full on refrigerant. If for whatever reason it is low, this will complicate diagnosis because

▼ Fig. 5: Here, Identifix Direct-Hit informs the user that on this GM, hot air from one vent and cold air out of the other might not simply be a blend door issue. For more information on this product, go to VehicleServicePros.com/10284722.



2001 Buick Century Custom 3.1L, USA/Canada	
Hotline Archive	With OEM Direct diagrams, components, TSBs
Number:	274502
Vehicle Application:	1996 Century 3.1 1997 Century 3.1 1998 Century 3.1 1999 Century 3.1
Customer Concern:	The climate control is not blowing equal
Average Reported Mileage:	93991
Tests/Procedures:	1. Check the Air Conditioning (A/C) system 2. Check the voltage on the White/Black
Author:	Lester Bentley
Potential Causes	With OEM Direct diagrams, components Climate Control Panel (CCP) Refrigerant Pressure Temperature Door Actuator
Confirmed Fix Summary	With OEM Direct diagrams, components
Confirmed Fix	7 - Temperature Door Actuator 1 - Air Conditioning (A/C) Refrigerant 1 - Climate Control Panel (CCP) 1 - Refrigerant Lines
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▲ Fig. 4: The PowerProbe Hook, here jumped to the power side of the A/C compressor, can quickly turn the compressor on in order to confirm the it is in working condition. This Toyota 4Runner compressor pulls a about 2.5 amps even though it has a 10-amp fuse. For more information on this tool, go to VehicleServicePros.com/10727921.

So, in plain English, every vehicle should be sold on a recharge and dye injection for the sake of a better diagnosis (See Fig. 2). The customer should be informed there may be a big or small leak, and the only way to find it is to charge the vehicle up and let the vehicle run with refrigerant in it. Most A/C machines when they do a leak test will only find a gross leak. It is not uncommon for an A/C system to pass a leak test, get charged with refrigerant and then have no A/C again only a day or two later.

▼ Fig. 2: After a leak test, the vehicle will quickly suck up refrigerant from the machine. After doing this, many machines, like the Robinair Cooltech 34788, will inject oil into the vehicle. An oil with dye already in it will assist in diagnosing any possible future A/C leaks.

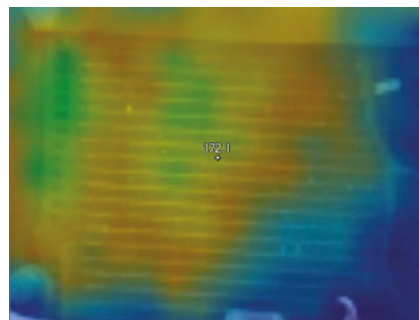


TOOLS USED:

- Information system
- Flash dye
- A/C machine
- Black light
- Smoke machine
- Power Probe

With a full charge, at 70 degrees F ambient temperature, pressures should be about 35 to 40 psi on the low side and 145 to 160 psi on the high side. For every 5 degrees F it is warmer out, pressures should be 5 psi higher and vice versa.

If low side pressures are low and high side pressures high, there might be an internal restriction in the A/C system. Expansion valves and receiver driers are the common culprits, due to water vapor in the system that freezes and blocks the flow of refrigerant.



▲ Fig. 3: Thanks to a Fluke VT02 Thermal Imager, a restriction in the A/C condenser is visible as a temperature difference. For more information on this tool visit VehicleServicePros.com/10889982.

ant. However, system contamination, such as sealant, can also cause blockages in strange places. Oftentimes the blockage causes an

CONTINUED PAGE 12

BS, and R&R procedures

« Back

- 2000 Century 3.1
- 2001 Century 3.1
- 2002 Century 3.1
- 2003 Century 3.1

temperatures from the passenger and driver side vents when the temperature levers are in the same position.

em for low freon.

wire. When the selector lever is in the full hot position, then move it full cold. Voltage should change from 5 volts to 0 volts or from 0 to 5 volts. If this is what is happening, the actuator is at fault.

onents, TSBS, and R&R procedures

onents, TSBS, and R&R procedures



◀ **Fig. 6:** Flash dye gives technicians a means to check for A/C leaks without waiting for a lot of refrigerant to leave the A/C system. For more information on this product check out VehicleServicePros.com/10106960.

such as with a 1997 Toyota 4Runner that came into one shop. If they don't want to wait for the refrigerant to leak out, or if the price of refrigerant skyrockets again and you don't want to lose the stuff to the atmosphere, you can try using "flash dye." Cliplight's Flash High Resolution Dye, No. 980, injects dye as an aerosol into the A/C system when it is running, as seen in Fig. 6. This allows the dye to instantly circulate in the system. Here, dye was found on an A/C line before the vehicle was sent out (See Figs. 7 and 8).

extreme temperature difference on an A/C component, such as in Fig. 3.

If low side pressures are high and high side pressures low, the compressor is not running. The quick way to see if the compressor works is to command it on with a Power Probe or jumping its relay, if the compressor has one (See Fig. 4). If the compressor still does not turn on, the vehicle needs one.

But how about more complicated issues?

ATYPICAL A/C PROBLEMS

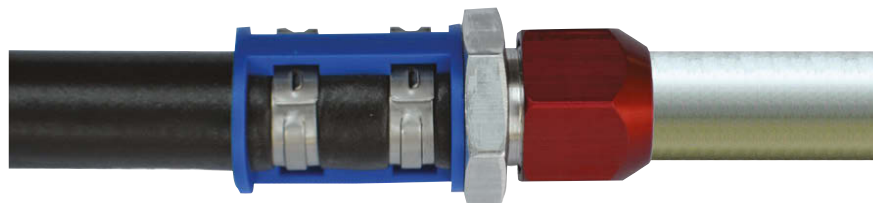
On a 2001 Buick Century 3.1L, the A/C blew cold on one side and warm on the other. These vehicles are known to have blend door problems, but before we begin doing an electrical diagnostic instead of an A/C diagnostic, a quick search on Identifix

shows us that a common problem that creates this symptom is low refrigerant (See Fig. 5). Otherwise, with a multimeter we can test if the blend door actuator is getting 5V, but is not moving. If this is the case, a system reset can be done by removing the system's fuse for a minute. A recalibration will take place in many cases, but if it does not, the actuator needs to be replaced.

Some customers might come to you "knowing" their vehicle has an A/C leak,

For more tools used in addressing A/C issues, read an online version of this article at VehicleServicePros.com/10925924.

▼ **An example of an A/C hose to line repair, made possible with AirSept's Smart Splice Line-to-Hose Connector.** For more information on this product go to VehicleServicePros.com/10915490.



▼ **Fig. 7:** Dye was found on this high side A/C line with a UView Phazer Black. For more information on this tool go to VehicleServicePros.com/10843246.



▼ **Fig. 8:** Here, the Cliplight Vector 7 shines light on the same A/C leak. An interesting feature of this tool is that it does not shine brightly, yet the dye does. For more information on this tool go to VehicleServicePros.com/10125895.



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Subaru Version 22.00

2012 WRX

2012 Subaru Forester/WRX/STI: ABS Sequence Control Mode, Vehicle Dynamic Control (VDC) Inspection Mode, set the Steering Angle Sensor Neutral Point Mode & Lateral Acceleration Sensor Zero Point Function, Longitudinal Acceleration Sensor Neutral Point Setting & ABS Freeze Frame Data.



Chrysler Version 28.07

2011 300

Current CAN protocol vehicles: ABS, ACC, AHBM, AHLM, AMP, DDM, DMRL, DMRR, ESM, HSM, HVAC, ITM, MSMD, PDM, PEM, PLGM, PTS, RADIO, SAS, TCM, and TPM Systems. Transmission Control Module: CVT Initialization and for PCM: DPF regeneration/replacement function



Audi Version 26.33

2012 S4

UDS Protocol & B8 Chassis: Headlight Range Control, Self Leveling Suspension, Parking Assist System, Lane Departure Assistance System, Tire Pressure Monitor II & Lane Keeping Assistance System.



GM Version 42.90

2012 Malibu

2012 Chevy Cobalt/Colorado/Malibu/Sonic: EVAP Maintenance Bench Test Function and the following special functions: Oil Lamp Reset, Crankshaft Learning and ABS Automatic Bleeding. Cadillac: Brake Pedal Position Sensor Relearn.



KIA Version 42.20

2011 Optima

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Porsche Version 20.24

2012 Panamera

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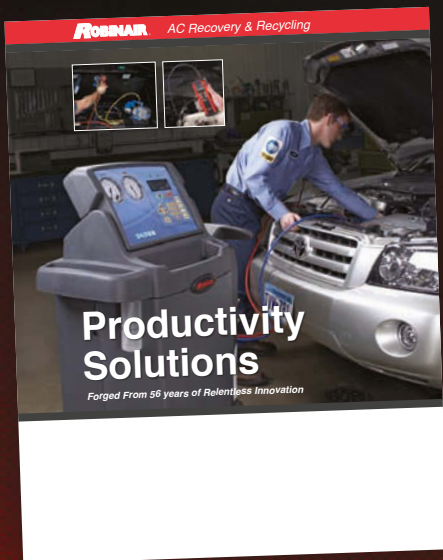
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<i>Fuel</i>	<i>Battery</i>	<i>General Purpose</i>	<i>Cranes</i>
<i>Oil</i>	<i>Electrical</i>	<i>General Pressing</i>	<i>Lifts</i>
<i>Coolant</i>	<i>A/C</i>	<i>Mechanical Puller</i>	<i>Ramps</i>
<i>Transmission</i>	<i>Body Mechanical</i>	<i>Hydraulic Pullers</i>	<i>Presses</i>
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TOP TEN 10 PTEN TOOLS

Tools that help a shop succeed

Amy Mattinat focuses on networking and marketing.

SHOP: Auto Craftsmen

LOCATION: Montpelier, VT

OWNER: Amy Mattinat

Amy Mattinat, president of Auto Craftsmen, attributes her success to continual education, networking with shops from around the country and becoming a marketing expert. Besides managing her business, she teaches women car care clinics and other classes. She writes an automotive car care blog, a newsletter and a newspaper column. Tire and wheel repair is a big part of this business in hilly Vermont.

By Elliot Maras, Editor



1

CEMB 915 tire machine

Auto Craftsmen uses the tire machine mainly on passenger cars. The machine features an air tank in tower, dual clamping cylinders, semi-automatic swing arm, inflator jets on each clamp, adjustable bead breaker, low-profile mounting helper, bead suppressing tool and the ability to work on 14" to 26" tires. "I just got a good, overall all-purpose workhorse," Amy Mattinat says of the machine. For information on this tool, go to: VehicleServicePros.com/10926529.

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2

CEMB K8 wheel balancer

Mattinat notes this wheel balancer has as much automatic setup as possible and she also calls it a "workhorse." The balancer features self-diagnosis and self-calibration, menus for quick selection of units of measurement, optimization program for compensation of rim and tire unbalance, programs for "static" balancing and the balancing of different types of rims, standard quick-nut mounting, one-button split and hidden weight program, and a 10-compartment weight tray. For information on this tool, go to: VehicleServicePros.com/10926336.

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3

Snap-on wheel balancer

The Snap-on Motorized Wheel Balancer (No. EEWB304D) can be used on passenger cars, light trucks and light commercial vehicles. Mattinat says this wheel balancer saves time by automatically entering wheel sizes and is more convenient since it is 1.5' higher than other balancers. "It makes it a little bit easier," she says, noting that tire work is very laborious. For information on this tool, go to: VehicleServicePros.com/10940720.

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4

Snap-on Verdict scan tool

This scan tool does especially well with European cars, and Mattinat notes, "My shop predominantly works on imports." Snap-on's Verdict uses a wireless scanner, wireless scope and touchscreen display tablet to let technicians be in more places at once. A keyless scan module simplifies vehicle connection. For information on this tool, go to: VehicleServicePros.com/10166833.

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5

Lincoln Electric Arc welder SP100

The Lincoln Electric arc welder SP100 can be used for sheet metal welding, light-frame auto body work, and farm and small shop applications. Mattinat says this welder controls the flame well and is easy to use. The SP100 has been replaced by the Lincoln Electric Power MIG 180 dual welder. For information on this tool, go to: VehicleServicePros.com/10937718.

Enter 27 at "e-inquiry" on VehicleServicePros.com



6**Snap-on sand blaster**

The Snap-on Abrasive Blast Cabinet (No. YA3825) effectively cleans metal parts right down to the bare substrate. The applications vary from automotive, manufacturing, restoration, tool and die shops, marine repair and electric motor rebuilders. "They (the sandblasters) are extra long," Mattinat notes, allowing the techs to get into a lot of different spaces. "Even with enormous gloves on, he (the tech) can still use it," she notes. For information on this tool, go to:

VehicleServicePros.com/10940691.

Enter 28 at "e-inquiry" on VehicleServicePros.com

**7****Snap-on CT44 10A 3/8" electric impact gun**

The heat-treated alloy gears in this tool provide strength and durability, meaning less chance of breakage. A one-handed forward/reverse switch lets a user easily switch directions, getting the job done quicker. "It does all the small stuff and it's battery-operated, so it's easy to move around," Mattinat notes. For information on this tool, go to:

VehicleServicePros.com/10102617.

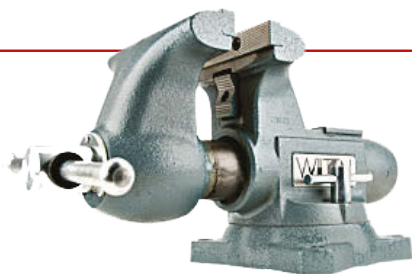
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**8****Wilton 1755 vise**

"It's heavy duty," Mattinat says of this vise. "You can get new teeth for it right off the truck; eventually, the teeth wear off." Unlike most vises that have a fixed center nut, this one has a round channel vise nut anchored at the rear.

For information on this tool, go to: VehicleServicePros.com/10926544.

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**10****Balcrank reel hose**

The reel hose is available in sizes up to 60' (50' with 10' hanging) hose. Mattinat has a hose positioned next to each bay. "You don't have to be carrying oil around," she says. "It's convenient having good shop flow, and good production is a key ingredient in making money." For information on this tool, go to: VehicleServicePros.com/10658465.

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Amy Mattinat has established a strong service reputation for all types of cars in Montpelier, VT.

9**GearWrench ratchet wrench**

GearWrench ratcheting wrenches are available in larger sizes in both SAE and metric measurements. "They (the ratchet wrenches) are extra long," says Mattinat, who notes that the shop mainly uses 10mm, 14mm and 17mm size wrenches. "They (the techs) can get into a lot of different spaces." For information on this tool, go to: VehicleServicePros.com/10126245.

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TOOLS of the MONTH



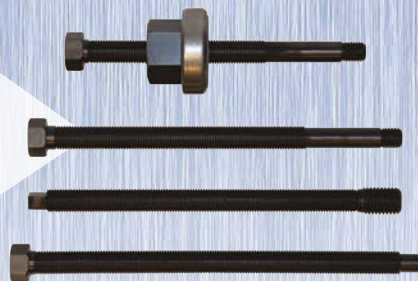
5



1



3



2



4



1 Keep diagnostic tools organized

Snap-on's Diagnostic WorkStations, Nos. KRSC2476PBO and KRSC2407PC, combine key diagnostic equipment into one convenient location. Available in 55" (No. KRSC2476PBO) and 36" (No. KRSC2407PC) sizes, these mobile units help service technicians improve performance, productivity and profits. The 55" Diagnostic WorkStation Plus features five 32" wide drawers, including an extra-deep printer drawer and offers cord routing throughout with convenient access to the rear powerstrip. The 36" version features the similar setup with five drawers, a printer drawer, cord routing system, stainless steel work top and an adjustable monitor bracket.

2 Install underdrive or oversized pulleys

Use the Cal-Van Tools Long Reach Harmonic Balancer Installer, No. 38700, for the installation of underdrive or oversized pulleys, and applications with recessed threads on the crankshaft. The Long Reach Balancer/Pulley Installer is a kit for installing harmonic balancer pulleys on many popular, late-model Ford, GM, Dodge and Chrysler vehicles with V6 and V8 engines that have recessed threads for the crank pulley bolt, utilize an underdrive pulley, or both. Traditional-type balancer pulley installers will not work in many of these applications. This convenient kit features four high-quality, long-reach threaded adapters and a universal nut that enables technicians to install these pulleys with ease.

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3 Service 6.7L fuel injectors

The Ford Power Stroke 6.7L Diesel Injector Socket, No. 11400, from SP Tools comes as a 17mm, 12-point flare nut socket that gives the technician the ability to remove various injector lines. With the geometry of this tool, injectors can be removed without

breaking and damaging the electrical connections. The crows foot can be spun by hand under the bent lines and the long socket has the clearance required and linear shape to properly torque the fuel lines. This allows the user to torque the fittings without complex mathematical equations when using torque adapters.

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4 Test fuel pumps quickly

Innovative Products of America's Master Relay Bypass Set, No. 9038, plugs in place of a vehicle's fuel pump (or any other) relay providing direct control over the fuel pump circuit. When testing fuel injection systems, the Relay Bypass allows actuation of the fuel pump when the engine is not running. The six-piece set combines the No. 9036 (Relay Bypass Set) and No. 9037 (Relay Bypass Set II) into one convenient master kit, providing coverage of the most popular relay styles. This set covers most domestic, Japanese, Korean and German applications.

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5 Balance wheels more quickly

Ranger Products' DST64T wheel balancer comes equipped with revolutionary DataWand and an inner data set arm allowing operators to quickly and automatically enter wheel parameter settings in less than three seconds, for exact balancing every time. A soft-touch key pad and display panel includes dynamic, static and variable alloy settings and features dynamic tire and wheel graphics to help guide technicians through balancing procedures. The weight optimization feature automatically calculates the minimum amount of weight needed to achieve an optimal balance so shops use less weight and increase profits.

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FLEET Maintenance



*Prizes listed are for example only. Actual prizes will be available in the month of September.

Tire service tips

Information on purchasing new equipment, plugging versus patching tires and more.



The ingredients to a no-comeback tire job on a Ford Explorer with aluminum rims: sanding the rim down, painting on bead sealer, lubing the new valve stem and the tire itself with non-corrosive tire lubricant and, on this vehicle, properly replacing the broken TPMS sensor.

Q: What equipment do I need to get into the business of low-profile tires?

A: Generally, you will need a right-hand assist arm (which is on the left-hand side of the machine, depending on where you are standing, of course). It depends on the configuration of your machine. Your tire machine company might make add-ons that will enable you to lift the tire over the rim. If you have an "old school" machine, there are ways around it, such as using a second guy or using certain tools like a bead depressor tool. It might be necessary to update



A bead depress tool from Bosch, No. SM103264 assists in pulling the tire over the rim.

equipment. To do tires quickly and prevent the rim from being scratched, you might want to consider a "touchless" machine that removes the tire from the rim without the use of a tire iron.

Q: Should I plug or patch tires?

A: Always do what is best for you and your customer. If your clientele do not want to pay too much for a tire repair, plugging is a viable option for fixing a tire, even though tire companies do not recommend it. They work on the majority of tire leaks and they tend to last until the point the tread wears too low. Just make sure that the customer understands that the plug

is a "quick fix," and is not the highest quality of repairs.

To properly plug a tire, the technician should remember a few things. One would be to never use more than one plug. Another is to remember to use rubber cement to lubricate the plug and help seal the plug on the inside. A rumor has sprung up that rubber cement is counter-productive. In reality, rubber cement solidifies into a rubber and it helps fill in gaps in the plug. So do not skimp on the rubber cement.

The benefit of patching is that it's

a more comprehensive repair. A tire with a nail or screw in it cannot be plugged if the puncture exists at more than a 25-degree angle. Oftentimes, a plug at a high angle will just expand the puncture, so it cannot be sealed. Furthermore, no tire company actually recommends the plug for liability reasons. In fact, companies that sell the plugs will not go on the record to recommend a plug over a patch.

No one questions whether a plug works in general. It does. The patch is just better for liability reasons and it is technically a better repair.

Q: Why does my balancer zero out, but the tires come back with shaking complaints?

A: Rims are getting bigger these days and the older and less advanced equipment will balance out, but shake at higher speeds. Generally, such equipment calls for more weight and just does not cut it in the "accuracy department."

What can you do about it? You can



The old school way of balancing a tire: here, a tech lines up the tire with the naked eye and cleans off a spot to put on "sticky weights."

make sure there is no dirt under your machine and that it is tightly bolted to the shop floor. Lastly, the cheaper and older machines might need to be calibrated frequently in order to get their maximum accuracy. If you are still having comebacks, it is time to assess whether it is worth upgrading your machine.

CONTINUED PAGE 22



The new Snap-on® BK8000 Wireless Borescope provides a 40% larger screen than anyone else. It doesn't just give you bragging rights, it lets you see deep, hidden areas better than ever before — thanks to the straight and 90-degree viewers on the scope and a crystal clear digital display. So you can complete fast, accurate evaluations without costly and time consuming tear downs. Get the big picture by contacting your Snap-on representative. Or visit snapon.com/bigscreen



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Q: What's the benefit of premier tire equipment over economy equipment?

A: This would depend upon the volume you do in your shop. Economy equipment might be sufficient if you do a low volume of tires, but even under light use they can have problems in as few as a couple of years.



New high-end tire balancers use a laser to guide you where to position the weight, even moving the tire into position for weight placement.

Hunter Engineering



The Hunter Auto34 removes the bottom bead of the tire from the rim without the use of a tire bar. For more information on this product, go to VehicleServicePros.com/10101463.

Hunter Engineering

Also, no matter how good and accommodating the tech support is for some of this equipment (such as that of the higher-end imported tool distributors), because the machines are inexpensive there are not a lot of repairmen out there that work on them. This can mean long wait times for repairs for your tire equipment.

Basic equipment aside, rims on normal vehicles are all becoming low-profile and some quite big. Oftentimes, they won't balance right (or come back with a shaking issue) unless they are done on a high-end balancer. If your balancer calls for a lot of weight and the wheel shows no obvious defects, your machine likely has issues balancing that rim.



Using a standard tire machine, a tire bar must be wedged between the top front part of the mount/demount head and the tire itself when removing the tire from the rim.

There are many amenities that a top-of-the-line balancer offers. Advanced wheel balancers have a laser sight, so you don't have to bend over and "guesstimate" where to put the weights. Many will automatically measure all of the elements of tire size in one automatic movement and on a digital screen walk you through the balance. Some machines even spin the tire into position to put on the weight. Others apply load to the tire to simulate real-world driving conditions and check to see if the tire itself was mounted in the best possible position to prevent balancing issues. Unlike in the past, the newest "diagnostic balancers" can be operated as quickly as standard balancers, with literally a second or two difference at most.

Q: Do the more advanced tire changers need training to use?

A: Yes. The simple ones have been known to crush fingers and break arms. Now the really advanced machines come with video cameras and several assist arms that are controlled with joysticks. Pete Liebetreu of Hunter observes that the least expensive machines require the least training, the middle machines the



The Ranger RX3040 can pull the bead over the wheel without ever touching the rim. For more information on this product go to VehicleServicePros.com/10106963.

Ranger

most, and then the most expensive are so automated the need for training begins to drop off. Of particular importance is the fact that "much of

the training is really more related to the tire being serviced than the tire changer. In other words, run-flats need more training than a standard tire, no matter what equipment you use," according to Liebetreu.

Have questions? Need answers? Email craig@pten.com to have your questions answered in this column.



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2013 PTEN Innovation Awards Winners

May we present to you: the 2013 PTEN Innovation Award product winners! This year competition was fierce, as we received over 80 product nominations, spanning 25 different product categories. Throughout the next few pages, you'll find the product that took top honors in each category.

To review all of the nominees, check out the April and May issues of *Professional Tool & Equipment News*, or go online to VehicleServicePros.com/2013IANominees. We'll be holding the annual awards ceremony on the show floor of the AAPEX Show in Las Vegas this November. Look for more coverage of the 2013 PTEN Innovation Awards and the AAPEX Show this fall.



COMPANY: LINCOLN INDUSTRIAL
PRODUCT: 18V LITHIUM-ION POWERLUBER GREASE GUN
CATEGORY: OIL & LUBE
 Enter 42 at "e-inquiry" on VehicleServicePros.com



COMPANY: ACDELCO
PRODUCT: ARI2044B LI-ION 18V 3/8" ANGLE IMPACT WRENCH WITH DIGITAL CLUTCH
CATEGORY: POWER TOOLS
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COMPANY: AESWAVE
PRODUCT: UACTIVATE ULTIMATE CIRCUIT BREAKOUT BOX
CATEGORY: DIAGNOSTIC TEST EQUIPMENT
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COMPANY: MATCO TOOLS
PRODUCT: TH209 PROFESSIONAL CIRCUIT AND PARASITIC DRAIN TESTER
CATEGORY: ELECTRICAL SYSTEMS
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COMPANY: ROTARY LIFT
PRODUCT: SPOTLINE LASER VEHICLE SPOTTING GUIDE
CATEGORY: LIFTS
 Enter 41 at "e-inquiry" on VehicleServicePros.com



COMPANY: MIDTRONICS
PRODUCT: GRX-5100 EV/HEV BATTERY SERVICE TOOL
CATEGORY: BATTERY STARTING/CHARGING
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WINNERS



COMPANY: LOCK TECHNOLOGY
PRODUCT: LT1800 4-PC OFFSET IMPACT DRIVER SET
CATEGORY: AIR TOOLS
Enter 46 at "e-inquiry" on VehicleServicePros.com



COMPANY: INSPECTION CONNECTION
PRODUCT: PROSPEC
CATEGORY: COMPUTERS & SOFTWARE
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COMPANY: SNAP-ON EQUIPMENT
PRODUCT: INTEGRITY TEST DRIVE
CATEGORY: SHOP EQUIPMENT
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COMPANY: SNAP-ON EQUIPMENT
PRODUCT: JOHN BEAN AC400 TOUCHLESS ALIGNMENT WHEEL CLAMP
CATEGORY: TIRE, WHEEL SERVICE
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COMPANY: KNIPEX TOOLS
PRODUCT: TWINFORCE
CATEGORY: HAND TOOLS
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COMPANY: NEW PIG CORP.
PRODUCT: PIG BATTERY ACID SPILL KIT IN SEE-THRU BIN
CATEGORY: SAFETY EQUIPMENT
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COMPANY: SNAP-ON
PRODUCT: WIRELESS DIGITAL INSPECTION SCOPE
CATEGORY: INSPECTION TOOLS, LAB SCOPES



COMPANY:
DREW TECHNOLOGIES
PRODUCT: MONGOOSEPRO GM II
CATEGORY: SCAN TOOLS
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COMPANY: SNAP-ON
PRODUCT: DIAGNOSTIC MOBILE WORKSTATION
CATEGORY: TOOL STORAGE

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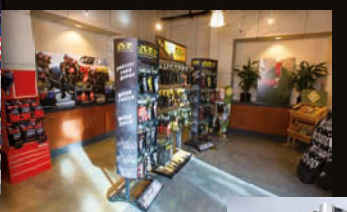
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COMPANY: LOCK TECHNOLOGY
PRODUCT: LT991 HOLLOW END LINE TAPS
CATEGORY: AIR CONDITIONING
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COMPANY: LINK NEW TECH
PRODUCT: PXA9 TRANSMISSION FLUSH
CATEGORY: FLUID EXCHANGE
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COMPANY: INNOVA
PRODUCT: DIGITAL COMPRESSION TESTER
CATEGORY: SPECIALTY TOOLS
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COMPANY: THEXTON MFG.
PRODUCT: DEF CHEK TESTER
CATEGORY: HEAVY DUTY
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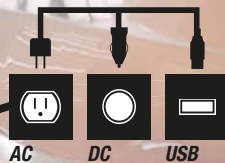
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**PRODUCT: PROGEAR TOPSIDE
CREEPER**

CATEGORY: JACKS & STANDS
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COMPANY:
GLOBAL LEAK DETECTION
**PRODUCT: SMOKE WIZARD
POP-IT CAPLESS DOUBLE DOOR
FUEL NECK ADAPTER**
CATEGORY: LEAK DETECTION
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COMPANY: SNAP-ON
PRODUCT: RECHARGEABLE LITHIUM-ION WORK LIGHT
CATEGORY: LIGHTING



COMPANY: BIG GATOR TOOLS
PRODUCT: V-DRILL AND V-TAP GUIDES
CATEGORY: TOOL ACCESSORIES
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Die grinder set

Genius Tools offers a 16-pc **Air Micro Die Grinder Set**, No. DG-1516. This set is designed for high-speed porting and finishing of small parts, and can be used on tight spots with limited access. The set includes an Air Micro Die Grinder with a free speed of 5,600 rpm and 90 psi of air pressure. It also comes with 10 mounted points, a 1/4" air oil lubricator, 1/4" coupler fitting plug, oil pot, two wrenches and comes packaged in a locking, plastic blow-molded case.

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Retap threads

The American-made, two-piece **Split Rethreading Dies** from JME Innovations can repair damaged threads on studs, drive shafts, struts and more without having to remove the part. The user can use a die stock, socket or a "gear wrench" to get the job done. This two-piece die can be placed anywhere there are good threads, and repair the threads from the bottom up, or the traditional way from the top down. The tool offers the fastest, easiest thread repair available without the fear of cross threading or further damaging the threads, according to the company.

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10-drawer tool storage

The Craftsman 10-drawer flat black ball-bearing combo includes a six-drawer top chest and a four-drawer bottom chest. The top chest has gas struts and bail side hands and the bottom chest includes I-frame construction, side handle and mat. Ball-bearing drawer slides allow for smooth operation under heavy loads and fully extend for easy tool access. This box features a 1,000-lb load rating. Parts of the toolbox can be purchased as separate items or all together.

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Liquid Eyewear sunglasses come machined with durable aircraft aluminum and offer a full range of comfort that "flex-to-fit" all sizes. The frames can be custom-fitted to any individual and maintain the same feel throughout the life of the product. They offer 100-percent

UV protection and come with a microfiber cleaning sock. These sunglasses have a 1-year manufacturer's warranty and benefits from being RX compatible. They are made in the U.S.A.

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NEW TOOLS



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53460 HARMONIC BALANCER INSTALLER

Installs harmonic balancers or drive pulleys that are pressed on the crankshaft. Includes ten threaded adapters to work on many domestic and some import harmonic balancers. Two long adapters for use on Dodge Hemi and Generation III GM motors. The 1.75" spacer allows the tool to work more effectively on deep harmonic balancers.



63100 SPARK PLUG STARTER SET

Used to start and remove spark plugs in recessed holes. The 9" flexible shaft allows technicians to obtain the desired angle to install most spark plugs, without cross threading. A 3/8" square drive with strong neodymium magnet holds the spark plug in the socket. Can also be used as a magnetic pickup tool with a weight capacity of 1.56 lbs. Includes four spark plug sockets, 9/16", 5/8", 3/4" and 13/16" in a vinyl holder. The 3/8" Flexible Driver is available individually.



63200 1/4" FLEXIBLE DRIVER

A 9" flexible shaft with 1/4" square drive for starting and removing fasteners in hard-to-reach locations. Strong neodymium magnet in the square drive tip can also be used as a magnetic pickup tool with a 12 oz. wt. capacity.

69250 TERMINAL LEADS WITH POWER/SWITCH/FUSE

- Terminal leads with switch/fuse/power provide several ways to check circuits from the fuse or relay box.
- Different sized ends on the wires give flexibility to plug directly in the relay base or to fit other relay sizes not covered by the relay test jumpers (like VW & BMW).
- Five wire sets (pairs) fit many vehicle fuses including: Female-Pal, JK, LJK, Male-L-mini, Mini ATO and Maxi.
- Use the on/off switch to control a circuit. Test before or after the switch by using the stacking Banana plugs.
- Power lead with alligator clip can apply external 12v power to only the circuit that is being worked on.
- Two 3.5 foot extension lead wires can be used if you are controlling a circuit while the vehicle is on a hoist.
- The in-line fuse holder (common ATO fuse style) protects the circuit and multimeter during testing.
- Allows testing without piercing wires.



37300 FUEL AND AC DISCONNECT PLIERS

Provides extra leverage when disconnecting quick connect coupling air conditioning and fuel lines. Use with 5/16", 3/8" or 1/2" adapters from the Lisle 37000 or 39400. The forks have different sized openings so the tool can be turned around to fit single or two step collars. Can also be used to reconnect stubborn lines in hard-to-reach areas.



54500 LARGE INNER TIE ROD TOOL

Works on inner tie rods with inaccessible wrench flats on many trucks and SUVs. Includes five crows feet, sizes 1-7/16", 33.6mm, 38.4mm, 40mm and 42mm, to fit many Toyota, Nissan, Ford, Lincoln, Mercury and Chevrolet applications. Also fits some Cadillac Escalade, Hummer H2, Honda Passport and Jeep Liberty applications.

34900



34910



34900 WATER SENSOR WRENCH, LATE MODEL 34910 WATER SENSOR WRENCH, AFTERMARKET

For use when replacing the fuel filter or when servicing the water sensor. The plastic sensor is easily damaged by tools, like pliers, that do not specifically fit the sensor. 34900 fits the water sensor located on the fuel filter on 2012 and newer 6.6L Duramax diesel engines. 34910 fits the aftermarket water sensor on 2001 through 2011 6.6L Duramax diesel engines.

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We pay royalties!



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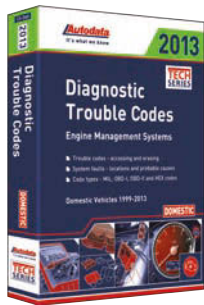
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Look up DTCs

The **2013 Domestic Diagnostic Trouble Codes Manual**, No. 13-340, from **Autodata** provides concise text and clear illustrations for domestic vehicles on code retrieval techniques in separate sections for each model. This manual includes trouble code, fault locations and probable causes researched from OEM diagnostic flow charts for vehicles from 1999 to 2013. The book also covers how to delete DTCs on different modulators and DLC locations.

Enter 74 at "e-inquiry" on VehicleServicePros.com



Cut copper and aluminum cable

Knipex's 8" Cable Shear with a twin cutting edge can cut through copper and aluminum cables. This tool features precision-ground, hardened blades that can accomplish a clean and smooth cut without crushing and deformation. The user does not need to exert as much effort, because the tool features a favorable lever ratio and optimized cutting-edge geometry. It has a guard that prevents pinching the user's finger and its twin cutting edge allows a comfortable handle position in all cutting situations within its specified cutting capacity.

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Designed for use on round objects

The **SK Hand Tool Wide Capacity Tongue and Groove Pliers** are designed for use on round objects like pipes, rods and hoses, providing three points of contact for a more positive grip on the object than a traditional tongue and groove pliers. The wide capacity, ranging from 1/2" to 4", eliminates the need to carry multiple tools to cover the full range of work surface sizes. Other features include an angled, narrow head design for access to tighter spaces, a flush rivet design for access in tight work spaces and a textured cushion grip for positive hold.

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Brilliance Is At Hand!

Budget Friendly!

TRACERLINE[®]
OPTIMAX[™] 400
Leak Detection Flashlight

This new, economical inspection flashlight features a high-output true UV LED that causes dyes to fluoresce far more brilliantly and with greater contrast compared to conventional inspection lamps. It makes all automotive leaks easier to spot, slashes diagnostic time and puts money where it belongs — *in your wallet!*

- Power comparable to high-intensity 150-watt lamps!
- Inspection range of up to 25 feet (7.6 m) or more!
- Works with all universal/ester and PAG A/C dyes, as well as green-colored fluid dyes
- Compact design easily gets into tight, cramped areas
- Rugged, corrosion-resistant anodized lamp body stands up to years of heavy use
- 100,000-hour LED service life

The **OPTIMAX[™] 400 (P/N TP-8610CS)** comes complete with a lanyard, belt holster, three "AAA" batteries and fluorescence-enhancing glasses.

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call **1-800-641-1133**
or visit **www.tracerline.com**



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Produce shop air

Campbell Hausfeld Tire and Lube Series of fully-packaged, two-stage compressors provide the "right-sized" air power for every business, according to the manufacturer. The compressor can be used in tire stores, quick lubes and collision repair shops that need dependable, high-performing air power. These compressors feature a durable, cast-iron, two-stage compressor pump; an ASME code tank certified for 200 psi maximum pressure; a starter for quick electrical hook up; an aftercooler to remove moisture from the air stream; a low oil guard shut-off; a fully-enclosed metal belt guard and a digital hour meter to monitor maintenance intervals.

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Lift vehicles more quickly

Challenger Lifts' Quick Cycle technology has increased the rise and descent speed of its CL10V3 two-post and EV1020 in-ground lifts. Quick Cycle lifts have reduced lifting time from 48 seconds to 27 seconds, equating to a 42 percent time savings and a lowering speed to a constant 17 seconds (approximately), regardless of the weight of the vehicle. Quick Cycle technology was engineered as a solution for the expanding need for quick service bays, and has proven to be a simple and inexpensive way to add express services to shops everywhere, according to the company.

Enter 79 at "e-inquiry" on VehicleServicePros.com

Work on suspension and reach tight spots

GearWrench's XL Pass-Thru Ratchet and Socket System eliminates the need for two sets of sockets. With 11 locking head positions and a head profile up to 50 percent thinner than conventional ratchet systems, it provides unprecedented access in tight applications, according to the company. The ratcheting box end requires as little as five degrees of swing arc to move fasteners to increase productivity. The XL Pass Thru System can lower costs because technicians no longer need deep sockets. Additionally, these sockets work where even deep sockets won't, such as providing access to a nut halfway down a threaded rod.

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Access fasteners in tight spots

The **Open End Ratcheting Wrenches** from **Westward** features a ratcheting open end that lets the user quickly tighten or loosen fasteners that cannot be accessed from top or bottom, such as hydraulic fittings. They are made of chrome vanadium steel with a full-polish finish and meet ASME B107.100.

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Versatile transmission jack

The American-made, **Hein-Werner 1 Ton Floor Style Transmission Jack**, No. HW93718, with its strong, steel-built frame, was designed for the heavy duty transmission shop, according to the company. Combining its strength with its design features, like the 360-degree swivel casters and adjustable head for pan configurations, it comes as a very versatile jack. It has a minimum height of 10" and a maximum height of 44," giving it the lifting range needed to complete transmission work on the lowest and highest trucks on the road. The convenient wishbone design gives easy access to the most difficult transmissions. An optional fuller adapter can also be purchased.

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Inspect front ends on any surface

The **Mueller-Kueps Suspension Wear Indicator**, No. 432 910, can be applied onto the steel with a special injection technique, allowing for the inspection of moving parts in the lower suspension of a car on any surface. It eliminates known struggles such as moving wheels in the unloaded condition, specially-shaped tire irons, wood blocks, pry bars and more. It also helps increase workplace efficiency, eliminating the need for a second mechanic to check for other moving parts of the suspension, according to the company.

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Diesel and gasoline engine tachometer

General Technologies Corp.

TA303

Diesel & gasoline engine tachometer

Easy and quick:

- Uses the alternator ripples to measure engine RPM
- Only requires a connection to the vehicle or engine electrical system
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Lift vehicles with "Volumetric" control

Kar Lift Solutions by Omer's KAR Pantograph lifts come with "Volumetric" control, so it can be controlled without electronic sensors and programmable logic control (PLC). Four "master cylinders" inside the control come tied to a large, 5" "torsion bar." Each of these cylinders feed a matching "slave cylinder" on the lift, maintaining exact coplanarity through even extreme uneven loading, according to the company.

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Self-retracting compressed air hose reel

The Prevost self-retracting compressed air hose reel ensures optimum safety during use and when storing the hose after use. The easy-to-operate ratchet automatically locks the hose at the desired length, and the ceiling or wall-mounting bracket swings 180 degrees. Tools are quickly and safely connected with a prevoS1 quick release safety coupling. After the ratchet is released by the operator, a control system in the reel returns the hose gradually. The operator can safely let go of the hose, thanks to a brake system. Other features include a maximum pressure of 174 psi and a maximum temperature of 158 degrees F. This unit is constructed of epoxy-coated steel and stainless steel.

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Remove delicate fasteners

Snap-on's 6-Piece Non-Marring Metric Socket Inserts, No. PSCM600, can be used with Snap-on metric sockets and help prevent scuffing decorative fasteners. This tool's glass-reinforced nylon construction prevents damaging soft metals, plated fasteners and powdercoated surfaces. The set comes with a metal storage ring that helps avoid losing inserts.



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New PRODUCTS



Keep air ratchet accessories organized

King Tony America's Mighty-Seven 57 Piece Hybrid 3/8" Drive Air Ratchet Set, No. NE-0357, comes as an almost five dozen air ratchet set that acts as a 3/8" drive and a 1/4" drive ratchet. The set also includes a built-in bit holder head for 1/4" bits. The set totals 57 pieces - one air ratchet, seven 1/4" drive sockets, six 3/8" drive sockets, 40 1/4" bits, one 3/8" extension bar, one 1/4" hex size shank driver and one 1/4" NPT air adapter. This entire set is encased in a portable and rugged hard plastic case.

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VehicleServicePros.com



Test electrical components

Lang Tools' CAT IV rated Digital Multimeter, No. 13808, is a high-performance, automotive clamp-on DMM, which includes CAT IV 600V/CAT III 1000V compatibility for safe use with hybrid vehicles. It can measure up to 1000V DC, 750V AC, and 600A DC/AC. For automotive applications this product can work for various diagnostic testing such as alternator current output, starter current draw, as well as CAT IV rated testing on HEV and EV. The display features a backlit LCD.

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VehicleServicePros.com

Wheel Weight Hammer

The Nupla Wheel Weight Hammer provides users an easy way to mount wheel weights without marring the wheel surface, according to the company. This soft-face, 13-oz hammer has a replaceable hook assembly that easily attaches into the hole in the metal weight clip to easily remove it from aluminum or steel wheels. The hammer features a chemical-resistant cushion-grip handle that provides a non-slip grip surface to prevent it from getting dirty and slipping out of the user's hand.

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VehicleServicePros.com



S6810

Semi-Deep Flip Sockets, No. S6810

Snap-on's Semi-Deep Flip Sockets, No. S6810, come as a 1/4" drive 8mm and 10mm socket that makes removing and installing BMW belly pans a much quicker process. They can also be used on other vehicles such as Lexus, Infiniti and Mercedes that utilize 8mm or 10mm fasteners to secure undercar covers. The double hex (12-point) allows the socket to engage a single hex fastener every 30 degrees rather than every 60 degrees, providing better access in restricted areas.





Test antifreeze

**Clore Automotive's
Viper Automotive**

Refractometer, No. 5026, features a variety of enhancements to make antifreeze/coolant assessment faster and easier, including an adjustable viewfinder with separate scales per fluid, easy-to-read graphics and a high-contrast lens for clear, accurate viewing. It features separate scales for ethylene glycol, propylene glycol and battery acid-specific gravity. The tool also features automatic temperature compensation, which enables a quick, accurate reading regardless of ambient temperature. The automotive refractometer remains the only OEM-approved method for testing the freeze point of antifreeze and coolant, according to the company.

**Enter 93 at "e-inquiry" on
VehicleServicePros.com**



"High Performance" ankle socks

Blue Tongue Footwear "High Performance" ankle socks, from **Redback Boots**, offer users super soft cotton socks that cushion feet at every step. Made in the U.S.A., these socks feature knit wicking fibers to keep feet dry all day long. The reinforced heel and toe areas have added durability so they don't prematurely wear when being used with work boots. The composition of the socks includes 74 percent cotton, 15 percent nylon, 10 percent polyester and 1 percent Spandex. Sold in packs of three, these socks fit shoe sizes 6.5 to 12.

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Installs harmonic balancers

The American-made **Harmonic Balancer Installer**, No. 53460, from **Lisle** includes a driving screw, thrust bearing and threaded adapters necessary to work on a wide range of domestic and some import harmonic balancers. The set includes two long adapters for use on Dodge Hemi and Generation III GM motors. Its 1.75" spacer allows the tool to work more effectively on deep harmonic balancers.

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Fast, convenient access to reset procedures...



Part # 13-450

This manual is:

- Spiral bound which lays flat or folds in half for easy handling within the vehicle
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It includes:

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TOOL STORAGE



Easy wrench storage

Hansen Global Quik-Pik wrench racks organize wrenches while the clear labeling makes sizes easy to grab and go. Empty slots quickly show which wrenches are missing, and patented spring tabs in each slot keep wrenches in place. These low-profile racks fits 2" deep toolbox drawers, are made in the U.S.A., of tough polypropylene plastic and come with a lifetime warranty. Two sizes available: metric (gray) and SAE (red).

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Slide-top service cart

The **Homak 35" Pro Series Slide-Top Service Cart** features dual HMC high security tubular locks, full-length brushed aluminum drawer pulls and four sturdy 5" by 2" polypropylene swivel casters. Quality rubber mats provide a protected work surface, while hard-formed bumpers keep this cart's legs safe from damage. The sliding top opens to reveal an ample storage compartment. This cart also includes four drawers equipped with 416mm, ball-bearing slides and a bottom shelf for additional storage.

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Sturdy design without added weight

Beta Tools credits its **C39 tool cart** with unparalleled functionality, sturdiness and design due to its die-cast aluminum alloy base to enhance sturdiness without adding more weight. The C39 incorporates many unique features such as aluminum drawer lifts, bottle-holder trays on three sides and a molded top which provides a usable worktop plus places for tools and fasteners. The aluminum frame gives the C39 a top weight load rating of more than 2,500 lbs. Beta Tools of Italy first introduced this C39 roller cabinet in Europe; now it's available in the U.S.A.

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Magnetic Tool Storage Solutions

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Swiveling Magnetic Hook

Holds up to 65 lbs.

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- 36"W x 17 3/8"D x 21 1/2"H
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Mobile service cart

The Craftline Storage Systems **Mobile Service Cart** measures 20.5" wide by 12.5" deep by 36" high. Two storage drawers are 6" deep and are equipped with ball bearing drawer slides. The bottom storage area is 18" high and has two shelves. This mobile cart has four heavy duty casters, front casters are fixed and rear casters swivel for easy maneuverability and lock in place. The toolbox comes finished in a black-textured, powdercoat finish.

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Store more tools



International's **Professional Series Toolbox** offers technicians an industry-leading tool storage solution. The toolbox includes full extension, ball-bearing slides (100-lb load rated) on all drawers; heavy duty, "U support"

inner-wall construction for better rigidity; double slides on all drawers deeper than 4"; reinforced, bottom support rails and an integrated latch security system; heavy duty casters with double-layer ball bearing and chrome hub caps. Gas struts reinforce the top lid, which also features high security locks. Anti-skid drawer liners are in all drawers and in top lid and clam shell top lid. The toolbox comes in 54", 42" and 27" sizes.

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AWARD WINNING PRODUCTS

OFFSET IMPACT DRIVER SET

- Offset 15° angle for greater access in tight areas
- Recessed non-turning head well prevents driver slipping off stud or fastener
- Extra-long extra heavy non-turning straight hammer won't rotate off stud
- Great for strut work, hub work, front end, exhaust, spring and suspension repair
- Comes packaged in a heavy duty cordura nylon roll-up storage bag
- 4 piece set includes:
 - 410 - Offset Shaft Impact Driver
 - 530 - Offset Shaft Impact Driver
 - 725 - Offset Shaft Impact Driver
 - 990 - Straight Shaft Impact Driver
- Patent Pending



(Impact hammer chisel not included)

HOLLOW END LINE TAPS

PROBLEM: A/C and hydraulic line fitting threads become corroded over time and are damaged in disconnect process requiring complete line removal to repair.

SOLUTION: Hollow End Line Taps rethread female fittings without line removal. Hollow End Line Tap slides over flared end of line easily, rethreading female connector.

Use on A/C - Brake - Oil - Transmission - Power Steering and heater lines and coils.

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SP-1764 (1/4")

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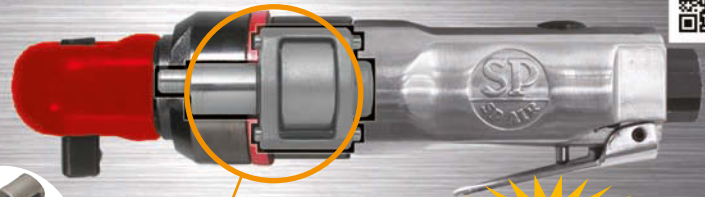


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Single Dog Clutch

IMPACT MECHANISM
PATENTED

500rpm/55ft-lbs.

MADE IN JAPAN

Model: SP-1764(1/4") / SP-1765(3/8") SPECIFICATION

Sq. Drive	Bolt Capacity	Maximum Torque Range	Free Speed
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Overall Length	Net Weight	Vibration Level	Sound Level
6-7/8" (175 mm)	1.4 lbs. (0.63 kg)	2.9 m/s ² 2.4 m/s ²	84.4 dB 83.6 dB

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SIX GREAT BENCH PLAYERS

Part No. 1201
1/2" Drive, Regular and Deep Well 3/8" to 1-1/4"

Part No. 1401
1/4" Drive, Regular and Deep Well 1/8" to 5/8"

Part No. 1202
1/2" Drive, Regular and Deep Well 10 to 27mm

Part No. 3802
3/8" Drive, Regular and Deep Well 6 to 20mm

Part No. 1402
1/4" Drive, Regular and Deep Well 4 to 15mm

Part No. 3801 3/8" Drive, Regular and Deep Well 1/4" to 1"

Hansen has six slick ways to straighten out toolbox clutter and chaos. Socket trays come in six sizes, two each in 1/2", 3/8" and 1/4" drives for both SAE and Metric sockets. The best selling 3/8" drive SAE socket tray holds 26 sockets from 1/4" to 1" while the Metric version holds sockets from 6mm to 20mm. SAE trays are red, Metric are gray. Ask for Hansen Socket Trays at your nearby tool distributor or retailer, or contact Hansen Global for the name of your nearest dealer.

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Product SPOTLIGHT VIEW TOOL STORAGE

Multiple layout options

Rousseau Metal Inc. offers the **Specialized Technicians**



Work Center, No. R5XHG-4005, giving shops a multitude of possible layout options for any workspace. The specialized

structure for technicians allows users to store a number of accessories, from the simplest of tools to a computer

with LCD monitor, while being easy to access. The component layout is easy to change with a minimal number of tools. Users can easily change and expand the structure. All screws are hidden from view for an overall aesthetically appealing look.

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Store more tools without sacrificing mobility

The **Snap-on heavy duty shop cart**, No. KRSC246, features deeper storage space, a durable flip lid and an extra-deep top compartment to safely secure more tools and equipment. This mobile tool storage unit can be moved around the bay quickly and efficiently. It comes 24" deep for extra storage capacity. The top section provides openings to vertically store pry bars and extensions up to 36". Techs have a choice of two durable flip lid materials: stainless steel or truck bed liner. This unit features six drawers: two (2" deep), two (4" deep) and two (6" deep).



Cart with access to power outlets

The **Mac Tools Utility Cart**, No.

MB199UC, split top shelf work surface accommodates a laptop computer and other electronic devices such as a cell phone or tablet with access to a power outlet and power at the rear of the cart. A sliding lower partitioned shelf allows easier access to the lower storage area and a reinforced lower panel, and casters create a durable platform. Other features include more space for deep sockets, slots for pry bars, screwdrivers and extensions, a durable work surface and an accessory-driven platform that will allow for expansion, adjustability and specialization.

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Store tools securely

Borroughs' Impact line of workstations offer a durable and sharp-looking storage solution. This durable toolbox features a 100-year warranty, a reinforced steel frame and a 16-gauge stainless steel top with polished surface. The toolbox also comes with a maplewood top. It has a large aluminum handle for increased maneuverability and the box itself comes in seven different powdercoat painted finishes. The ball-bearing drawers can hold 400 lbs of tools. Heavy duty keyed barrel locks coupled with an anti-tilt locking mechanism ensure the security of its contents.

Enter 109 at "e-inquiry" on VehicleServicePros.com



Secure sockets

The **Ernst Socket Boss**, a universal twist-lock socket tray, can have individual rails removed or switched for customization. The user can add or remove socket clips, label socket sizes with ID stickers, trade colors, swap out drive sizes and add ratchet and extension holders. Twist-lock clips keep sockets secured for transport and prevent tool loss, even upside down. Socket rails are locked in the tray for security and unlock with the push of a button. It includes one socket tray, two universal socket rails and 30 twist lock socket clips. It is made in the U.S.A. with a lifetime guarantee.

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Combo cart and oil waste storage locker

The **Shure combo cart and oil waste equipment locker** allows shops to store a mini-technician cart and oil waste cart while providing much needed storage space. This locker features a lower locker with locking swing-out door, upper storage enclosures with a lockable swing-out door and leg levelers. It comes in 22 signature powdercoat paint colors.



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Quickly access tools

The **Magnetic Knife and Tool Holder** from **Master Magnetics** holds up to 30 lbs per inch and helps organize garages by storing frequently used tools for quick and convenient access. The magnet comes in screw-mount or magnetic-mount style, and in black or stainless-steel color.

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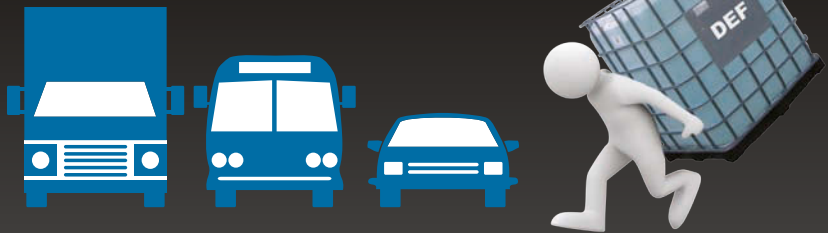
The **Extreme Tools 41" Deluxe Portable Workstation**, built to be versatile and portable, helps organize hand tools, charge power tools, store and charge a computer and provide a spot for work on its pull-out shelf, all in one convenient place. Two big drawers provide extra space. Plus it comes with an extra storage tray on the front of each drawer to hold screws, nuts, small hand tools and whatever small items that the user does not want to lose. Pair it with the 41", 11-drawer Deluxe Roller Cabinet which is a full 24" deep, and the tools have improved portability, according to the company.



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TOOL REVIEW PTEN

By Craig Truglia, Assistant Editor

SP Air 3/8" Super Fast Mini Impact Ratchet

Reviewer surprised by the amount of torque it packs for its size.

Tom Karagianis, owner of Tarkus Automotive in Milwaukee, WI, is no stranger to working in tight spots. His shop specializes in machine work and European vehicles. Even though he is a shop owner, he and his brother do all the shop's work. So, that means he has to get his hands dirty and appreciates a tool that helps him get the job done.

Karagianis was impressed by the brute power the tool has for its size.

"It's hard to explain this tool, unless you use it. It's kind of neat," he says. "It's one of the fastest I have ever used."

So fast that it intuitively feels too fast for its size. "It is so fast I'm afraid of breaking the head off. I don't use it to reverse something that is stuck," Karagianis says. "It's a mini 3/8" air ratchet that is the size of a 1/4" air ratchet. It's about 7" long, 8" with an air fitting. Yet, it has a 3/8" head."

When asked whether he thought he actually could break bolts with it, he replied that he didn't doubt it's ability. Rather, he liked the tool and was not used to something of that size packing that much power, so he did not want to use it as rough as one would use a bigger tool.

"Once you loosen the fastener, watch out, it is coming out!" Karagianis says.

He also likes that the tool offers quiet operation and feels comfortable in his hand.

When asked to give his final comments on the tool, Karagianis said that "it looks and functions like the 1/4" Matco tool; it has the same handle and everything, but it has a 3/8" head. I like it just the way it is; there's nothing I'd change."

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The SP Air 3/8" Super Fast Mini Impact Ratchet provides a maximum speed of 500 rpm, and a maximum torque of 55 ft/lbs.



PRODUCT DESCRIPTION:

The SP Air Corp. 3/8" Super Fast Mini Impact Ratchet, No. SP-1765, provides a maximum speed of 500 rpm and a maximum torque of 55 ft/lbs. A patented, reaction-free impact mechanism helps minimize damage to the user's wrist and knuckles. This tool comes in a compact size to safely and efficiently reach tight, space-restricted areas. This product has an overall length of 6-7/8" and weigh 1-3/8 lbs. SP Air also offers the 1/4" Super Fast Mini Impact Wrench, No. SP-1764, with the same power and torque as the SP-1765.

By Craig Truglia, Assistant Editor

Spec Tools Overdriver

Reviewer appreciates quick ratcheting action, and accessibility to interior areas.

Alex Portillo, head technician at Car Clinic, an auto repair facility in Mahopac, NY, tested the Spec Tools RGO-5412 Overdriver and found some key advantages.

"It saves you time, it spins quicker than a screwdriver," he says. "It gives you ratcheting action and it has a lot of teeth, which helps me work more quickly. In a quarter of a turn of the handle, the screwdriver head turns about two thirds a revolution. I don't know how it does it, but that's a big deal. If only all my tools did that."

The handle of the tool allows technicians to store different screwdriver heads of varying sizes.

"The Spec Tools ratchet is for interior work, so you can pull dashboards apart quicker," he observes. "You can keep common heads in the top."

Such a tool is not only beneficial for interior specialists, but can be quite helpful in situations where the location of the car does not lend itself to going back to the toolbox each time a



Overdriver, No. RGO-5412

different tool is used.

"As someone that started out doing a lot of work outside on the weekends, I can see how this is great for side jobs," Portillo says. "I didn't have a toolbox outside in those days, of course."

He did have some suggestions on how to improve the tool.

"I'd like to see it less fat and less long, so it can fit in certain extremely tight spots," says Portillo. "I didn't run into that issue, but it just feels ... big. A smaller handle would go a long way."

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PRODUCT DESCRIPTION:

Spec Tools, offers the professional quality RGO-5412 Overdriver. This 1/4" hex screwdriver provides direct silent ratchet action, or the gear knob can be held for four times speed without batteries. This allows the tool to "turn quicker" than a screwdriver.

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GearWrench 120XP Flex Head Ratchet

Reviewer finds tool makes work quicker and easier in tight spots.

Maverick Mejia, a technician at Car Clinic, an auto repair facility in Mahopac, NY, gets to do the brake jobs and radiators while his co-worker diagnoses all the vehicles. This means he gets to use wrenches and ratchets all day.

When he received the GearWrench 120XP Flex Head Ratchet, he saw it as an upgrade over the flex head ratchet he already had.

"It is quicker than my other name brand ratchet," says Mejia. "You can hear the difference.

"I really like the flex head, it's stiff and stays in place when I try to put a socket on a bolt in a tight spot. It does not flop around."

Mejia was impressed that the tool felt like other name brand ratchets. "Its handle is real nice, it is like one you'd see on a much more expensive ratchet."

This was not Mejia's first exposure to GearWrench either.

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Average Customer Review

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★★★★★ By Ernest Abel

- I was blowing away my boss at how quick I could bleed ABS.

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★★★★★ By Kurt G.

- I just did in 5 minutes what I couldn't do in 5 hours!



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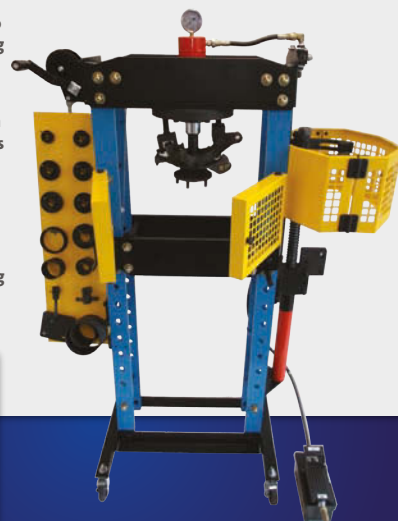
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His boss handed him the original 120XP back in October 2012. He noticed a lot of things in common between the two tools. "I have a lot of experience using the older 120XP and even though it uses a snap ring to hold the ratcheting mechanism in place, it has held up to the work I do with it, like brakes," he says. "The new one also uses a snap ring instead of the mechanism being screwed into place."

"I don't anticipate long-term reliability issues, but it helps that the parts store two minutes away carries GearWrench. I should not have issues getting them to warranty the tool ... And to be honest, I never broke a ratchet before so I just do not see it as a very likely situation."

Mejia, with his experience using several different brand ratchets, did have one idea to improve the tool. "The one thing I'd like to improve is the amount of positions the flex head can go to," he says. "My co-workers' flexhead ratchet can go in an infinite number of positions because it works on friction. The GearWrench can go into six hard positions and then it can flex a little bit when you pop it onto the bolt in a tight spot."

When asked to rate the tool on a scale of one to 10, Mejia said the ratchet was "definitely a nine."

"GearWrench gives technicians a superior ratchet at a reasonable price," he says. "I'd definitely recommend it." **ET**
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PRODUCT DESCRIPTION:

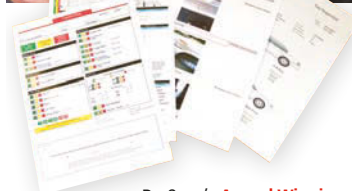
GearWrench's 120XP Flex Head Ratchet includes all the features of the standard 120XP Ratchet plus an adjustable flex head with six positions, giving the end-user additional clearance and improved access. The tool features a longer reach handle than the standard 120XP, providing unprecedented access for hard-to-reach fasteners. The tool accomplishes such quick ratcheting by employing a 60-tooth gear that alternately engages double-stacked pawls to produce 120 positions and three-degree swing arc. The ratchet comes available in both full polish and cushion grip in 1/4" and 3/8" drive sizes, allowing for greater comfort and ease of use for technicians.

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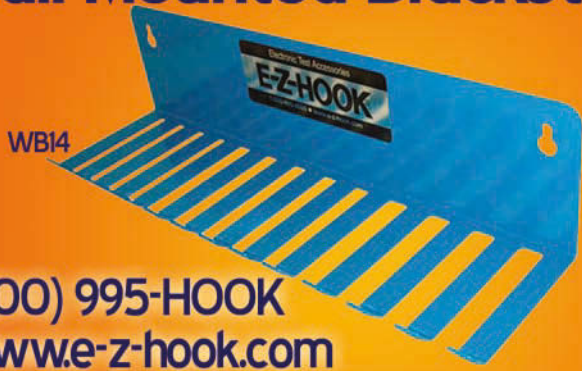
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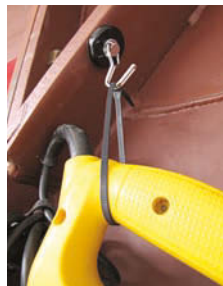
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▲ Bob Arlotta stores 35 years worth of tools in his Big-Time Box

This isn't Bob Arlotta's first entry in Big-Time Boxes. However, his massive Snap-on toolbox just keeps getting bigger.

"It is so big because with new cars there comes the need for new tools and when my box gets too full, I like to expand so things aren't too cramped," says Arlotta.

Yet the acquiring of tools (and ultimately somewhere to store them) had humble beginnings. Arlotta recounts how it all began: "When I was 15, I had a Snap-on dealer come to my house every Thursday and I started to buy tools so I could restore a GTO and some day become a mechanic. When I was 16, people in the neighborhood started to ask me to fix their cars at my house as they saw me restore this GTO. I was done with the GTO when I was 17 and it was my first car. This collection of all Snap-on tools took about 35 years to collect, and I cannot even begin to track its value. I am almost 50 now and still have the same passion for Snap-on tools and the industry that I had when I was 15."

Arlotta now owns his own shop,

Long Hill Auto Service, where he "works on basically any car that comes in and needs work."


This is not some sort of shallow boasting, either. When questioned how serious he was about that, he started listing his factory scan tools: "We use all factory tools that are laptop-based, including Nissan, Honda, Land Rover, Jaguar, GM, BMW, Porsche, Toyota, Chrysler, Ford, Hyundai, etc.," Arlotta notes. "For handheld tools we use the Tech II, the Snap-On Solus Ultra, Starmobile, Chrysler DRB III, the Honda tool and Hickok for Ford."

Arlotta does not believe in compromising his repairs by not using the right tools, so he purchases whatever tool he needs to do a job right, quickly filling up his box. "Do I need all of the space? I would say yes, because as of right now it is full and every addition I make to the box seems to fill up pretty quickly," he says.

This colossal box also features distinct modifications. "We put LEDs in the top section of the box and a magnetic strip to hold up some large

ratchets, for quicker and neat access to them," Arlotta boasts.

When asked why, he mentioned that the evolving nature of automobiles forces him to keep pace. The box keeps growing, including recent additions such as three top cabinets and additional tool drawers. Arlotta notes that his Snap-on box includes two side cabinets (No. KRL1012A), three top cabinets (No. KRL5445APBO), the bottom middle section (No. KRL1003B), top middle (No. KRL1203A), the right of the middle on the bottom section (No. KRL1011A), and on top of that, and on the left side of the center section are No. KRL1221 boxes.

It seems easy enough to misplace the tool numbers of the box, let alone the tools it carries. According to Arlotta, he has "a very organized box." After all, with 35 years worth of tools is one place, organization — and size — are important. 

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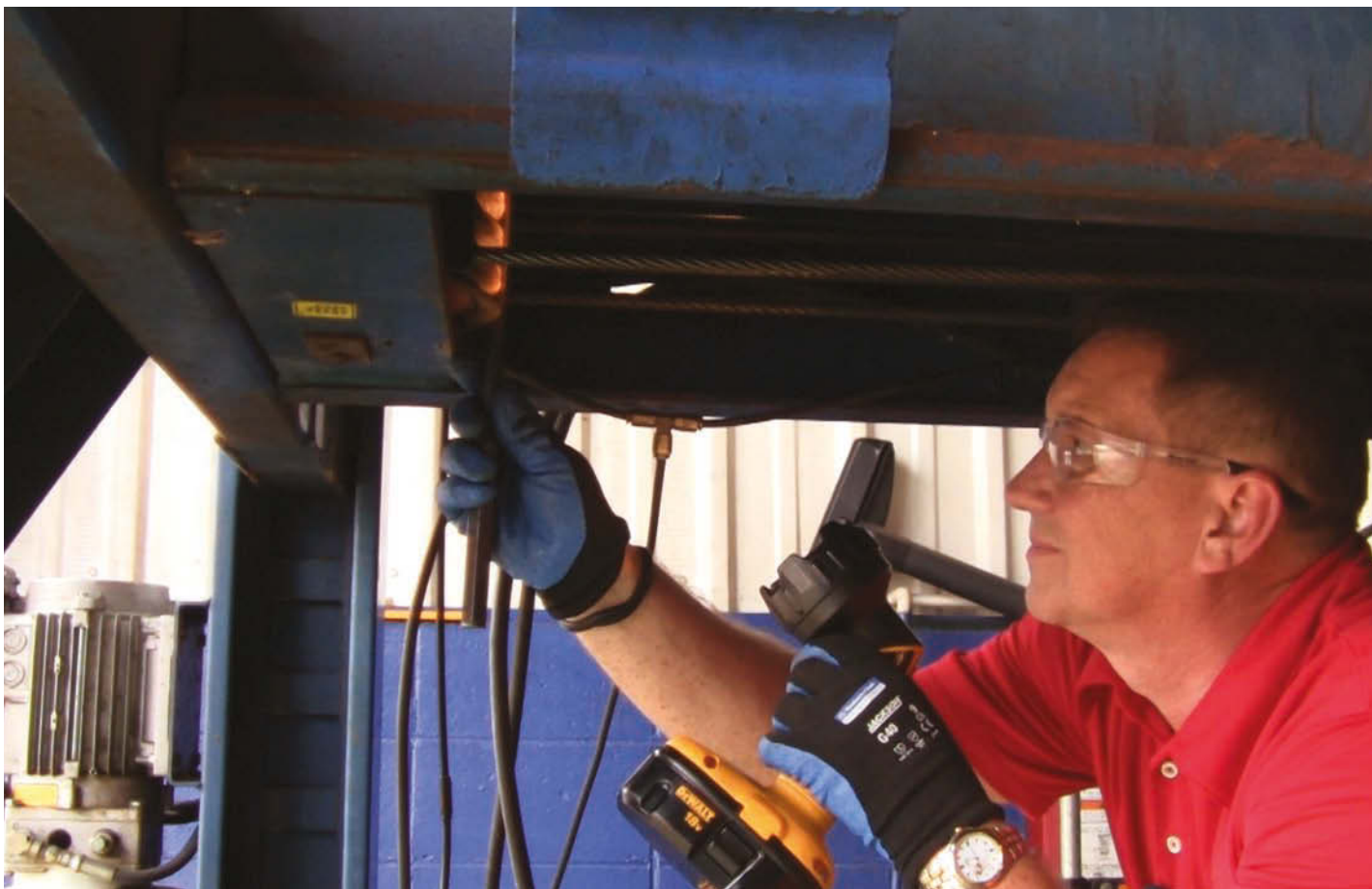


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In fact, there is an entire American National Standard outlining the safety requirements for proper vehicle lift operation, inspection and maintenance. This standard, ANSI/ALI ALOIM (current edi-

tion), covers lift operator qualifications, training and responsibilities; maintenance procedures, documentation and frequency; and periodic qualified lift inspection.

In addition to regular in-house inspections, the standard requires that all vehicle lifts be inspected at least annually by a "qualified lift inspector." A lift inspection

is a thorough evaluation of the operating mechanism(s), safety system(s), maintenance, structural integrity and field modifications of a particular lift in order to identify any risks which may affect the ability of that lift to operate in a safe and reliable manner.

So what is a "qualified lift inspector," how do you find one and what takes place

REGULAR inspection and maintenance is the best way to maximize ROI and to extend the life of the vehicle lift.

An annual lift inspection includes a thorough evaluation of the entire vehicle lift.

during a lift inspection? To get the answers to these questions, we turned to representatives and members of the Automotive Lift Institute (ALI), a trade association of North American-based vehicle lift manufacturers. ALI's mission is to promote the safe design, construction, installation, service, inspection and use of vehicle lifts.

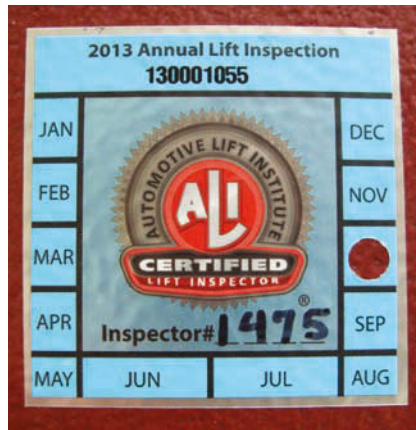
"When buying a vehicle lift, you are making an investment," explains Radu Pop, market research analyst for lift manufacturer MAHA USA. "Regular inspection and maintenance is the best way to maximize ROI and to extend the life of the vehicle lift. A properly operating vehicle lift not only

makes the mechanic's job easier, it will also improve performance, revenue and, foremost, safety."

From "Qualified" to "Certified"

For some shop owners, finding a qualified lift inspector to inspect their lifts has been a challenge. Although the ANSI Standard outlines some lift inspector qualifications, for many years there was no national resource for finding qualified inspectors. In this buyer-beware environment, the best option lift owners had was to get recommendations from the manufacturers of their lifts. That all changed with the launch of the Automotive Lift Institute Lift Inspector Certification Program in October 2012.

"OSHA and other health and safety officers have really stepped up enforcement of lift safety and inspection standards in recent years, leading to growing demand for qualified lift inspectors," says



Certified Lift Inspectors apply an ALI Annual Lift Inspection Label to each lift that passes inspection.

R.W. "Bob" O'Gorman, ALI president. "In response, ALI invested several years and more than \$700,000 to develop the ALI Lift Inspector Certification Program. This program is the first in North America to independently test and certify vehicle lift inspectors. As a result, when lift owners hire an ALI Certified Lift Inspector, they have third-party assurance that the inspector has been proven competent to thoroughly inspect any vehicle lift."

The ALI Lift Inspector Certification Program is an extension of the association's other safety-related undertakings, including lift standards development, its third-party lift certification program and the development of safety and training materials for the industry.

The first group of lift inspectors to achieve certification was announced in May 2013. To find a local company with Certified Lift Inspectors on staff, visit ALI's online database at www.autolift.org/certified-inspectors.php. The database is searchable by ZIP code and will be continuously updated as additional inspectors achieve certification.

"The Inspector Certification Program provides the end-user with confidence that the inspection completed on their lifts is complete and thorough," says Todd Michalski, vice president sales and marketing for lift manufacturer Gray Manufacturing Co., Inc. "There are a lot of companies in the market that currently inspect lifts that may or may not have the

expertise needed. This helps the marketplace easily identify those that do."

Becoming certified requires commitment. Candidates must attend an orientation workshop, study the candidate handbook and pass a pre-course exam; study extensive course training materials and pass the course examination; perform 12 practical experience (i.e., real world) lift inspections using approved forms; and submit appropriate paperwork. The inspection company also must establish quality assurance procedures and successfully complete an Initial Compliance Audit of this system. After certification is achieved, participation in continuing education webinars and quality audits is required to maintain Certified Lift Inspector status.

The end result is a pool of lift inspectors that shop owners can trust.

"The ALI Lift Inspector Certification Program provides peace of mind to shop owners, reduces accidents and improves employee confidence in their equipment," says Harold Yeo, president of lift manufacturer Total Lifting Solutions. "Ultimately, this should result in increased throughput of vehicles being serviced."

Inspection Points

What are Certified Lift Inspectors looking for when examining car and truck lifts? The ANSI standard provides five pages of inspection points, including:

- **Examining all accessible structural components**, including welds, for any evidence of overloading, misuse or abuse.
- **Examining electrical** components and wiring.
- **Checking the lift controls** to ensure accessibility, an unobstructed view of the lift and an automatic return to the neutral or "off" position when released.
- **Locating appropriate lift documentation**, safety instructions, vehicle lifting information, lift safety labeling and capacity labeling.
- **Confirming adequate clearances** around the lift.
- **Checking all fastening devices** for tightness and proper fit.

- **Checking the lowering speed** over the full down travel of the lift.
- **Operating the lift through its full cycle** and checking the operation of the positive stop. Checking to see if the lift locks engage in the fully extended position.
- **Checking all lubrication points** for cleanliness, integrity of fitting and presence of lubricant.
- **Checking all chains and cables** for excessive slack.
- **Checking all potential pinch points.**

The standard is just the starting point. Every lift manufacturer should provide specific directions for inspecting each of its lifts. ALI Certified Lift Inspectors are qualified to inspect any brand or model of vehicle lift.

“During the inspection, the inspector is looking to confirm that all of the lift’s components are in place and in working order,” explains Bob Ford, customer service manager for lift manufacturer Rotary Lift. “The inspector is looking at more than just the lift, though. The inspector will survey the lift bay and shop to look for any potential hazards. He or she might make recommendations for other areas of the shop, even though the focus is on the lift.”

At the conclusion of the inspection, the lift inspector should provide a written inspection certificate for each lift to the shop owner or manager. This report documents the results of the inspection, including any recommendations for repair. Certified Lift Inspectors will apply an ALI Annual Lift Inspection Label to each lift that passes inspection. This label includes the inspector’s unique identification number and the date, making it easy for code enforcement officials to quickly ascertain when a lift was last inspected successfully. The labels also serve as a convenient reminder of when a lift is due for its annual inspection.

Safety Starts with You

In addition to annual lift inspections conducted by qualified lift inspectors, most lift manufacturers recommend that lift operators themselves inspect



ALI Certified Lift Inspectors are qualified to inspect any brand or model of vehicle lift.

IT IS essential to inspect vehicle lifts regularly.

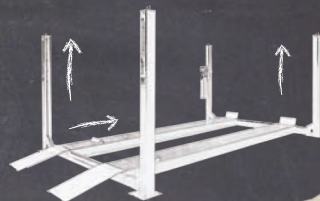
their lifts on a more frequent basis. Recommendations vary from daily to monthly to quarterly, depending on lift style, frequency of use and environment.

Check the owner’s manual for the manufacturer’s recommendations.

“It is essential to inspect vehicle lifts regularly for three principle reasons,” sums up Keith Bunn, service manager for lift manufacturer Stertil-Koni. “First, to make absolutely certain that the lift is functioning within its safe design limits. Second, to preserve and protect the longevity of the equipment. And third, to maximize the service life of the equipment and minimize the possibility of facility downtime.” ■

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- C - Certified
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Two-post lifts provide for good under-vehicle access.



Frame-cradling adapters are recommended for two-post lifts.

Go Big — But Go Safely

LIFT MANUFACTURERS OFFER RECOMMENDATIONS FOR SHOPS.

To generate additional revenue, a growing number of light duty shops are expanding their businesses to service medium duty vehicles. Properly equipping their facilities and training their technicians to handle larger vehicles enables the shops to pursue maintenance and service contracts for local vocational (work truck) fleets.

Servicing larger vehicles requires the right equipment, starting with a heavy duty vehicle lift. Check the rated capacity of the lifts in most light duty shops and you won't find many that can pick up vehicles weighing more than 10,000 lbs. That means they are not adequate for vehicles larger than a Class 2 pickup truck like the Ford F-150. To service the Class 4 through 6 trucks that most vocational fleets rely on, shops need lifts that are rated for vehicles weighing up to 26,000 lbs.

There are a number of heavy duty lift styles to consider. Recognizing that this is the first time many shop owners have looked into buying a heavy duty lift, we contacted a number of lift manufacturers to gather recommendations. Interestingly, each representative recommended a different lift style. This means there are a number of potential solutions depending on the shop and the mix of vehicles to be serviced.

Since two-post surface lifts are so prevalent in North American light duty shops today, many shop owners may initially consider a higher-capacity version of this familiar lift style.

“Medium duty, two-post, above-ground lifts are popular because they give technicians the most under-vehicle access and leave wheels hanging free for tire and brake service,” explains Steve Perlstein, president of Mohawk Lifts.

Four-post lifts are also available with

greater capacity than those often found in light duty shops.

“Medium duty four-post lifts offer the versatility to handle varying wheelbases and accommodate different weight distributions more easily, and they can disperse that weight throughout the runway,” says Ryan Bentley, marketing director for Challenger Lifts.

Another lift style to consider is the double scissor lift.

“The advantages are clear in its space-saving design and excellent efficiency,” says

Responsible Lift Manufacturers

In support of the Automotive Lift Institute (ALI) mission of promoting the safe design, construction, installation, inspection and use of vehicle lifts, members of ALI are required to third-party certify at least 75 percent of the lifts they sell. Additionally, ALI member manufacturers proudly provide a copy of ALI's *Lifting It Right* safety manual, *Vehicle Lifting Points Guide*, ANSI/ALI ALOIM (current edition), safety tips card and warning label kits with each lift they distribute.

Current ALI member companies are:

ARI-HETRA
BendPak/Ranger
Challenger Lifts, Inc.
Danmar Worldwide, Inc.

Gray Manufacturing Company, Inc.
Hunter Engineering Co.
Launch Tech USA, Inc.
MAHA USA, LLC
Mohawk Resources Ltd.
OMER N.A., Inc.
PKS Equipment & Engineering, Inc.
Quest/Ben Pearson
RAV Equipment USA, Inc.
Vehicle Service Group dba
Rotary Lift Consolidated
Sefac, Inc.
Stertil-Koni USA, Inc.
Total Automotive Lifting Solutions, Inc.
Wheeltronic Ltd.

For a full directory of members with contact information, visit:
www.autolift.org/members.php.

Radu Pop, market research analyst, MAHA USA. "Up to five double scissor lifts install flush or surface mounted in the same space that would normally only accommodate four two-post lifts."

Similar options include parallelogram, scissor and pantograph platform lifts. These lift styles offer additional stability and are "more forgiving" than some other lift styles, according to Harold Yeo, president, Total Lifting Solutions.

Manufacturers also point out the flexibility of the mobile column lift.

"Mobile column lifts are the most cost-effective heavy duty lifts," explains Doug Spiller, heavy duty product manager at Rotary Lift. "Battery-operated models are compact, portable and easy to use. Just set them up when they're needed, and clear them out of the bay when they're not. That makes them perfect for shops that may not need the lifts for every job."

Talk to your lift supplier about which style(s) of lift would work best for your business today and into the future. When considering a new lift, remember to look for the Gold Label that signifies it has been third-party tested and certified to meet ANSI/ALI ALCTV:2011 standards.

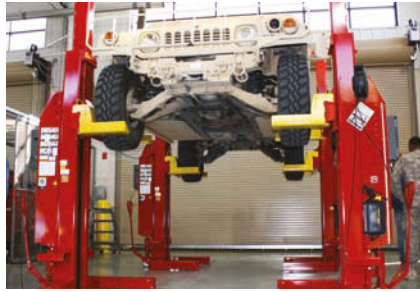
"The Gold Label is your ONLY assurance that the lift you're buying meets industry safety and performance standards," says R.W. "Bob" O'Gorman, president, Automotive Lift Institute (ALI). "Remember, your safety is riding on that lift. Why risk your livelihood on an uncertified lift?"

It's also important to choose the right accessories and adapters for a higher-capacity lift. Make sure the shop has the necessary adapters to reach the manufacturers' recommended pick-up points for the vehicles to be serviced. Never use homemade adapters.

"Explore how many different types of options and adapters can be added to the lift to speed a shop's efficiency," Perlstein suggests.

Bentley reminds shops that most medium duty vehicles are built on a frame. These vehicles have different lifting requirements than unibody vehicles.

"If a shop is adamant about purchas-



Mobile column lifts offer flexibility.

ing a two-post lift, we require the use of frame-engaging adapters when lifting a vehicle with a frame construction," he says. "Frame-cradling adapters reduce the risk of the vehicle's frame sliding off the lift's pads."

Also remember that lifting many work trucks is not as straightforward as it may initially appear. Take time to examine how the truck is equipped, especially in terms of weight distribution, before lifting it. ■



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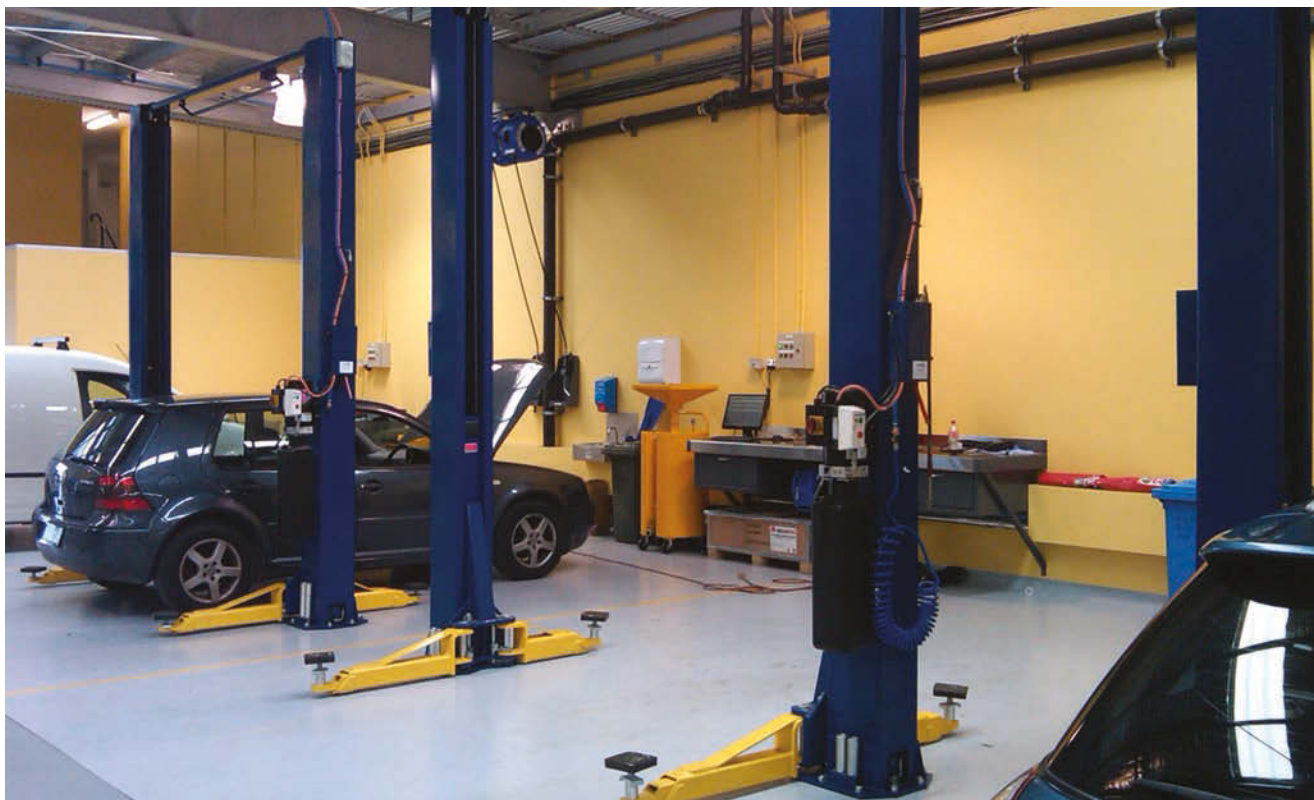
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Technicians can't afford to be complacent about the proper use of any vehicle lifts.

Don't Be an Accident Statistic: Lift It Right

By Rick Heath

TAKE SAFETY PRECAUTIONS BEFORE LIFTING ANY VEHICLE

If you believe you haven't seen a vehicle you don't know how to lift or that spotting is just common sense, you're destined for an accident. Don't assume that lifting is the same from vehicle to vehicle or from lift to lift.

Have you ever seen a vehicle slide off of a lift? They can and do fall off of all kinds of lifts. It's not a pretty sight, especially if the service technician is under the falling vehicle. Don't be an accident statistic. Learn how to properly spot vehicles on the lifts in your shop. Take time to examine each vehicle and the lift you're going to go under before starting a job. Exercise your own discretion and judgment.

Here are a few questions you should ask yourself before lifting any vehicle on any lift:

- **Where is the center of gravity for this specific vehicle?**
- **What are the contents of the vehicle and how does this impact balance?** For example, what's in the truck box? What's in the pickup with the camper cover? What's in the trunk? Is the bus engine in front of the front axle? Are the water tanks on the fire engine empty?
- **Does the work you're going to perform have the potential to shift the**

weight of the vehicle? Will you be removing heavy components from the vehicle? Should you use vehicle support stands to stabilize the lifted load?

- **What type of lift are you going to use?**
- **Does the lift have a fall prevention system or a fall arrest system?** Is the load prevented from falling because it is structurally supported or is the load suspended and then arrested after it begins to fall? If the lift uses a fall arrest system, you should inspect the suspension chains or wire rope(s) prior to lifting.

Drive-On Lifts

Drive-on lifts seem so straightforward that it may appear that there's nothing to worry about when using them.

Wait a minute:

- Do the runways slope when they are loaded?
- How about when the load is placed at one end of the runway?
- Does the lift have a dedicated set of chocks for the vehicle wheels?
- Does the lift have front and rear runway stops in case the chocks get overdriven?
- Have you ever left the engine running on a raised vehicle? Do you think the vehicle could drop into gear if it gets bumped?

DON'T assume that lifting is the same from vehicle to vehicle or lift to lift.

Wheel-Engaging Mobile Lifts

- Are the tire forks making full contact with the tires?
- Are the forks wet or oily?
- Should you use high-reach fixed stands to totally support the load?
- Do you really know exactly where to place the stand adapters? Lifting information for heavy duty vehicles is sparse at best.
- Do you know the weight distribution? Is the column capacity adequate for each lifting point?
- Do you really need the lifting columns somewhere else right now? If not, then do not transfer the load to stands.
- What if the stands are not "certified" to ASME PALD? How can you be sure of the rated capacity?

- Are the column connecting cables a tripping hazard?
- Is the lift's wireless control signal getting interference from other systems?

Frame-Engaging Lifts

It's easy to get complacent and think that all you have to do when using a frame-engaging lift is find a hard spot like the frame or the jack points on a unibody

car. This is a risky assumption and one likely to lead to an accident.

The first step in making a proper lift is to find the vehicle manufacturer recommended lifting points for that vehicle. Here are a few common sources of reliable lift point information:

- If you work in an automobile dealership, you can go to the internal vehicle manufacturer website to find lift-



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ing and jacking information. You can also consult the vehicle service manuals.

- **If you work in an independent shop, franchise store or fleet maintenance operation**, you may or may not have the service manuals for the vehicle. If your employer subscribes to one of the independent vehicle information services, you may be able to access lifting information there.
- **The Automotive Lift Institute publishes an annual *Quick Reference Guide to Vehicle Lifting Points for Frame-Engaging Lifts*** that is provided by ALI member companies with every new, frame-engaging lift they sell. The Lifting Point Guide is developed from information obtained directly from the vehicle manufacturers. It is also sold on the ALI website, www.autolift.org, for \$10 per copy.

Since frame-engaging lifts are the most popular style in light duty shops, here are some additional tips regarding their use:

- **Never assume the lift swing arm restraints will keep the arms from coming out from under the vehicle.** If the adapters aren't placed on a flat, level surface, the horizontal force developed on the adapter pad can be greater than the vertical force applied to it. Swing arm restraints are only designed to resist 150 pounds of horizontal force.
- **Take the adapter design into consideration.** Does your lift have



flip-up adapters, screw-type adapters or stacking adapters? Are the adapter surfaces steel or rubber? Are there features

Ask yourself some key questions when preparing to use wheel-engaging mobile lifts.


on the adapters that would inhibit lateral movement? Do you need to use extenders to prevent swing arm contact with sills, rocker panels, pipes, dams, steps or running boards?

- **What about lifting on the spring hangers?** Some vehicle manufacturers approve this in some cases. If you place the adapter on the spring hanger, does the spring rest on part of the adapter pad? If the leaf spring is on the adapter, the vehicle can walk right off of the adapter if it is rocked up and down. Due to the upsweep of the frame forward of the rear suspension on some long wheelbase vehicles, the front-most rear spring hanger may be your only practical choice, even though it is not ideal. If you select the spring hanger as the lift point, be sure the adapter is not supporting the vehicle on the spring itself and always use vehicle support stands.
- **Never use blocks (wood or other materials) between the adapters and the vehicle lift points**, even if the vehicle manufacturer recommends them. The use of blocks can only lead to instability.
- **Never lift one end of a vehicle using only two swing arms of a swing arm style lift.**
- **If the adapter pads on the lift won't reach the recommended vehicle lift points, use a different lift.**


Axle-Engaging Lifts

Let's talk a little bit about vehicles lifted on the two-post, fore-and-aft, movable piston, wheel- and axle-engaging lifts. Some strange things are attempted on these lifts.

For example, a technician may lift only the rear of the vehicle to provide greater access to the front engine compartment. The concern here is that if the front wheels are free to roll on the floor, the horizontal forces applied to the rear jack are equal and opposite to the breakaway friction and rolling friction of the front wheels – which means the rear jack will be damaged. Chocking the front wheels only makes the situation worse. As the rear axle



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With the exception of screw drive lifts, it is recommended that all lifts, including axle-engaging models like the one shown, be lowered onto the load-holding devices (locks or latches) before the technician goes under the vehicle.

is lifted with axle adapters or, as the rear wheels are lifted with wheel adapters, vehicle stability becomes solely dependent upon the security of the engagement between the vehicle rear lift

points and the rear lift adapters.

Another concern is when the front jack and the rear jack are set at different levels while supporting the lifted vehicle. This

condition is potentially damaging to both the front jack and the rear jack. The out-of-level condition should be limited on any two-post, fore-and-aft, movable-jack, axle- or wheel-engaging lift to 3 degrees front to rear or, rear to front. In any case, the lifted vehicle should always be lowered onto the lift locks before the technician goes under the vehicle. As always, additional confidence may be gained by placement of vehicle support stands to enhance stability.

Your Safety Is Riding On It

If you think about what you're doing and think several steps ahead, you'll be your own best safety advocate. A little time spent thinking about the lift and the vehicle to be lifted can save your life.

ALI offers a number of lift safety materials. Member companies provide many of these materials with every new lift sold. They can also be purchased at the ALI Store at www.autolift.org. One popular resource is the *Lifting It Right* safety kit that includes a DVD hosted by Richard and Kyle Petty, the *Lifting It Right* safety manual and a safety tips card to be posted on or near a lift. ■



Rick Heath is an industry safety consultant specializing in automotive service facilities. He may be contacted through his web site at www.heathandassociates.com or by e-mail at fgheath@bellsouth.net.

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Behind the Gold Label

By Bart Patton

WHAT DOES CERTIFICATION MEAN?

You may have noticed a gold label on the lifts you use, but do you know what that label represents and what it means to you?

In basic terms, a certified lift is one whose design has been tested and continuously inspected by a Nationally Recognized Testing Laboratory, or NRTL, as defined by the Occupational Safety and Health Administration (OSHA). The gold label certification mark on your lift, whether it is a heavy duty in-ground model used to service a fleet of buses or a modest four-post product built for the “weekend wrencher,” means the lift meets a consensus standard for safety.

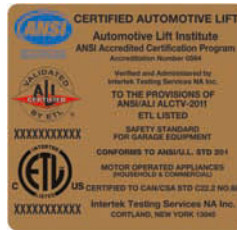
The standard used by all prudent lift manufacturers to design and construct their lifts is ANSI/ALI ALCTV (Standard for Automotive Lifts – Safety Requirements for Construction, Testing, and Validation) current edition-2011. That’s a lot of letters, but each is an important part of the whole that ensures a certified lift meets minimum requirements. Let’s break it down:

ANSI

ANSI stands for the American National Standards Institute, which oversees the issuance of more than 35,000 standards in the U.S. ANSI standards cover everything from abbreviation to zinc-plating and address safety, performance, materials, procedures and testing. ANSI also grants accreditation to certification programs like those offered by the Automotive Lift Institute (ALI) and administered by Intertek, which is an NRTL for hundreds of different safety standards.

ALI

ALI is a trade association of North American-based lift manufacturers. Its



The vast majority of building code enforcement agencies now require all vehicle lifts installed within their jurisdictions to be certified.

mission is to promote the safe design, construction, installation, inspection and use of vehicle lifts. In doing so, ALI aims to reduce lift-related accidents, damage and injuries. ALI developed the first commercial standard covering vehicle lifts in 1947. Today, ALI sponsors several national lift safety standards and offers third-party certification programs for vehicle lifts and lift inspectors.

ALCTV-2011

ALCTV is the standard for Automotive Lift Construction, Testing and Validation. The consensus body that oversees the standard is composed of lift manufacturers, users, testing laboratories, regulatory agencies and insurers. Any changes to the standard must be approved by the consensus body to ensure that no group’s agenda takes precedence. The number following “ALCTV” indicates the year the edition went into effect.

Why buy certified?

Even though you now know the details behind the certification label, you might still wonder why it is needed. With premiums on the rise, insurance companies and health and safety officials are increasingly requiring all products, including automotive lifts, to be certified for new construction installation or for continued use during insurance walk-throughs. Sadly, accidents do happen, the overwhelming majority related to operator misuse, lack

of training or poor maintenance. The vast majority of building code enforcement agencies across the U.S. and Canada now require all vehicle lifts installed within their jurisdictions to be certified to reduce the potential for workplace injuries.

When you purchase a certified lift, you can rely not only on its structural integrity but also on the lift manufacturer’s many years of design expertise and the NRTL’s inspection experience. A manufacturer that makes certified lifts is required to have a quality system in place to ensure each model is made the same way time after time.

The manufacturer cannot simply pay the NRTL to apply a certification mark. Manufacturers must earn the label by proving the lift’s designers and welders are qualified, the manufacturing process is consistent, and by allowing NRTL inspectors to perform factory audits at least twice a year to ensure program procedures are being followed. All lifts certified to ANSI/ALI ALCTV are required to have ultimate material strengths at least equal to three times — and for some components, five times — the stress they will be subjected to under normal rated use. Don’t misunderstand this last point: it is never safe to load any vehicle lift beyond the manufacturer’s rated capacity.

A certified lift is the culmination of hundreds of hours spent designing a structure and testing it for normal and abnormal use to ensure its suitability for lifting and holding a vehicle safely. Don’t sell yourself short by skimping on a lift that is not certified. ■



Bart Patton is a senior project engineer at Intertek, a leading international provider of quality and safety services to a wide range of global and local industries. For more information, visit www.intertek.com.

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When it's time for your next annual lift inspection, trust an ALI Certified Lift Inspector.

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