



## Step-by-Step **TIRE DEMOUNTING/ MOUNTING**

*This article on Basic Tire Demounting and Mounting is the second in TIRE REVIEW's four-part Back2Basics series covering the basic tire-related tasks performed in today's tire shops. The first in this series was on Basic Tire Repair and appeared in our February 2012 issue.*

*This article on the basic process of demounting a tire from a wheel and mounting a new tire should be helpful not only to newly trained tire technicians, but also veterans who want to brush up on their techniques.*

*The information presented here is a compilation of*

*recommended industry procedures with information provided by major tire changer manufacturers and marketers. We have attempted to simplify the procedures for this article, but readers should understand that each equipment maker has its own equipment-specific procedures and instructions. These usually are based on the unique attributes of each piece of equipment.*

*The photos for this article were shot in the Automotive Technology Center of Stark State College in North Canton, Ohio, with the cooperation and assistance of Jim Olszewski of Hunter Engineering Co.*



*Typical tabletop tire changer with pedal and button controls.*



*This automated center-post style changer will handle wheels up to 34 inches in diameter.*



*This top-of-the-line changer accommodates virtually any wheel and tire assembly.*

## HOW THE SIMPLE HAS BECOME COMPLEX

With this installment, our Back2-Basics series looks at an essential part of the tire sales and service process: demounting an old tire and mounting a new one on the customer's vehicle.

And while it is the most basic of procedures for any tire shop, what used to be a rather simple process has become increasingly complex, with more and more sophisticated equipment being used. Today's newer equipment has made the process more precise for the customer and often easier on the backs and legs of tire techs, but fundamentals of getting a tire off and on a wheel remain the same.

There are many manufacturers of tire changing equipment that make models from the very basic to the more sophisticated that will almost do the job automatically. Some of the brands on the market include Hunter, Hennessy/Ammco-Coats, Corghi, Coseng, Eagle, Hoffman/Snap-On, John Bean/Snap-On, Ranger, Tesco and Tire Service Equipment, among others.

## BEGIN AT THE BEGINNING

Generally speaking, there are two basic types of tire changers: the tabletop or rim clamp style, and the center post style.

There are tabletop/rim clamp chan-

gers that will do a fine job in any dealership, and there are more automated models and changers that specialize in handling high performance and UHP tires. Some tabletop models will automatically lock to preset wheel diameter and width positions.

The more expensive automated models – like the center-post style changer above – can handle tires of various diameters and feature a high-torque motor. These changers can mount and demount tires without the use of hand-held levers, which relieves the stress on the beads and the operator. This particular model can be adjusted to three different heights to allow the technician to work at the most effective position. Switches and foot pedals control virtually all tire changing operations, which ensures the same simple operation on all assemblies regardless of the size, design or fitment.

Some changers are designed to handle the largest wheel assemblies, including ultra low profile high performance and ultra-high performance tires. An articulated mounting arm allows the polymer mounting head to follow the rim flange edge. The polymer head helps protect against marring damage on custom and high-end OE wheels, and reduces the stress to beads on stiff, low-profile tires. An optional pneumatic wheel lift helps technicians mount tires effortlessly, preventing potential injuries and

fatigue from manually lifting heavy wheels into place.

Let's look at the steps involved in a basic, generic tire removal using a tabletop tire changer.

## THE TIRE REMOVAL PROCESS INCLUDES:

- **Loosening the beads**
- **Clamping the tire/wheel assembly to a tire changer**
- **Demounting the upper bead**
- **Demounting the bottom bead**

## INSTALLING A NEW TIRE ON A WHEEL INCLUDES:

- **Lubing both beads**
- **Installing the bottom bead**
- **Installing the upper bead**
- **Seating the beads with air pressure**
- **Inflating to the proper PSI**

Sounds simple, right? But with the scores of different types of machinery being offered by major equipment manufacturers to make the job easier, it can become confusing and complex.

## WHAT TO LOOK FOR

The number one item that a tire technician should do is identify the type of wheel involved and how a tire should be changed on that particular wheel. This includes understanding



whether it is a standard or reverse mount rim, the construction material of the wheel, the dimensional size and if any existing damage is present.

Because of differences in wheel construction and materials – from certain OE wheels to high-cost aftermarket wheels – a number of things must be considered and checked due to changes in some wheel constructions. A number of light trucks and even other models now have chrome-clad wheels. These wheels have a plastic cover that can be damaged during the changing process. Handle these wheels more carefully. Some wheels that have painted surfaces also are subject to damage and should be handled with care.

### SAFETY FIRST

There are a number of safety measures that should be observed when changing a tire. Many danger “warnings” are pointed out completely in a new wall chart issued recently by the RMA.

For example, as everyone in this industry should know, there is a danger of serious injury or death if one attempts to mount a tire of one wheel diameter on a wheel with a different diameter. This is most common with 16.5-inch wheel diameter wheels and 16-inch wheel diameter tires, but it also is possible with many other combinations if a tire tech fails to double check tire and wheel sizes.

As simple as it looks, tire changing is dangerous and should be done by trained personnel using proper tools and procedures.

Read and understand warnings published by tire changer manufacturers, tire makers and wheel suppliers, whether the information is on a placard adhered to the machine or on the tire sidewall or in support literature for a wheel. Failure to comply with these warnings may cause or create problems that could result in injury, or worse.

## Step-by-Step Tire Demounting/Mounting Procedures

*The following “how to” photos and captions show and explain the basic procedures for demounting and mounting tires. The process demonstrated here assumes the tire/wheel assembly has standard rubber valve stems and not stems with TPMS sensors. Understand that each tire changer manufacturer has specific steps for its unique equipment. Make sure you follow those specific procedures as required. Additional information about mounting/demounting tires is available on RMA’s website – [rma.org](http://rma.org) – by requesting its Demounting and Mounting Procedures wall chart, or by requesting information from TIA – [tireindustry.org](http://tireindustry.org) – for its Automotive Tire Service training Module 8 on Demounting, Mounting and Inflation.*

### DEMOUNTING STEPS

*Before doing anything, identify the type of wheel and if there are any special handling issues.*



*After positioning wheel assembly on tire changer, remove valve core. (Note core in technician’s fingers.)*



*Remove any wheel weights, again being careful not to damage wheel.*



*Use breaking shovel to unseat the top bead.*



*Turn tire/wheel assembly around and repeat using the shovel.*



*Secure assembly on tire changer. In this photo, the assembly is on a tabletop or rim clamp style changer.*



*Here the assembly is being mounted on a center post style changer. Make sure to properly position the assembly on the center post when using that type of changer.*

Any radial tire suspected of operating under- or overinflated or over loaded must be approached with caution. Ply cords weakened by under- or overinflation and/or over loading may break one after another, until a rupture occurs in the sidewall with explosive force. Obviously, this can result in serious injury or death.

Never, under any circumstances, introduce a flammable – ether, propane, lighter fluid, gasoline, etc. – substance into a tire when trying to seat the beads.

Silicone-, petroleum- or solvent-based lubricants must not be used. These substances may cause the tire to slip on the rim; have a harmful effect on the tire and/or wheel; or create explosive mixtures of air and vapors in the tire that may result in serious injury or death.

When servicing tires and wheels, tire service professionals should always wear the appropriate personal protective equipment (PPE), including safety glasses, work gloves, hearing protection and leather work shoes or boots.

### DISCLAIMER

Demounting and mounting tires is a serious business. The preceding article was researched and written using existing material from Hunter Engineering, RMA and TIA. This information is NOT meant as a substitute for proper training by TIA or by the equipment manufacturer. The photos were taken with the participation of Hunter Engineering at Stark State College. The process shown here is consistent with those used by other major tire changer manufacturers, but consult their specific equipment use procedures and instructions. This article is meant purely for educational purposes and those who use the methods recommended are solely responsible for any injuries or losses resulting from their application.

## DEMOUNTING STEPS (CONT.)



**Lubricate top head.**



**Break top head by pushing down using the changer's unique tool.**



**Use the changer's lever to slip the top head over the rim flange.**



**Lift bottom head over rim flange.**

## TIRE MOUNTING STEPS



**Make sure the tire size matches the wheel diameter and width. After securing wheel to changing machine, check wheel for damage of any type. Also double check to see if the tire has a directional tread.**



**Remove old rubber valve stem, being careful to not damage the wheel. This particular tool breaks the rubber stem into two pieces; make sure to remove the other piece from inside the drop center of the wheel.**



## MOUNTING STEPS (CONT.)



**3**  
*Install a fresh rubber valve stem, again taking care to not damage the wheel.*



**4**  
*Lubricate the inboard and outboard bead areas.*



**5**  
*Place tire on wheel and with a lever securely in place, twist the tire head over the top rim flange by hand.*



**6**  
*You may need to use the changer's mechanical lever to complete this step.*



**7**  
*Install a new valve core.*



**8**  
*Identify the maximum air pressure for the tire. You will need that information to properly seat both beads using air pressure.*



**9**  
*Seat both beads using air pressure and a gentle lift of the tire up into the top rim flange.*



**10**  
*Find the proper inflation pressure for the tires on the vehicle placard located in the driver's door jamb or the vehicle owner's manual. Inflate the tire to that pressure. For uniformity, deflate and then inflate again.*