



# The —Black —Crack —Report



The addiction you don't want to fight

Issue 25, March 2011

## 2011 Event Schedule

Hoping to see many of you at our events this year

- [March 14<sup>th</sup> & 15<sup>th</sup>, 2011 \(Mon/Tue\) VIR](#)
- [April 2<sup>nd</sup> & 3<sup>rd</sup>, 2011 \(Sat/Sun\) Putnam Park](#)
- [May 7<sup>th</sup> & 8<sup>th</sup>, 2011 \(Sat/Sun\) Putnam Park](#)
- *3 Balls Racing Event May 16th at Mid Ohio (Mon)*
- [July 2<sup>nd</sup> & 3<sup>rd</sup>, 2011 \(Sat/Sun\) Putnam Park](#)
- [July 30<sup>th</sup>, 2011 Horsepower4Hope Charity Track Event \(Sat\) Putnam Park](#)
- [July 31st, 2011 \(Sun\) Putnam Park](#)
- [August 11th, 2011 \(Thur\) Mid Ohio](#)
- *3 Balls Racing Event September 19th at Mid Ohio (Mon)*
- [October 22<sup>nd</sup> & 23<sup>rd</sup>, 2011 \(Sat/Sun\) Putnam Park](#)
- [November 5<sup>th</sup> & 6<sup>th</sup>, 2011 \(Sat/Sun\) Carolina Motorsports Park](#)



**It is not too late to register for VIR on March 14<sup>th</sup> & 15<sup>th</sup>. We had a great event last year and this one should be no different.**

### **Tech Inspection Notes:**

I am still working on finalizing an Annual Tech program for our drivers and should have this ready to go by the April Event at Putnam Park. I will pass along details as I finalize them.

### **Event Waiver Notes:**

Due to some legal issues, I cannot provide for an Annual Event Waiver program. Drivers will need to sign this for each event in the past.



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## 10/10ths Tech Corner

### Wheel Offset

The offset of a wheel is the distance from its hub mounting surface to the centerline of the wheel. The offset can be one of three types (measured in millimeters).

#### Zero Offset

The hub mounting surface is even with the centerline of the wheel.

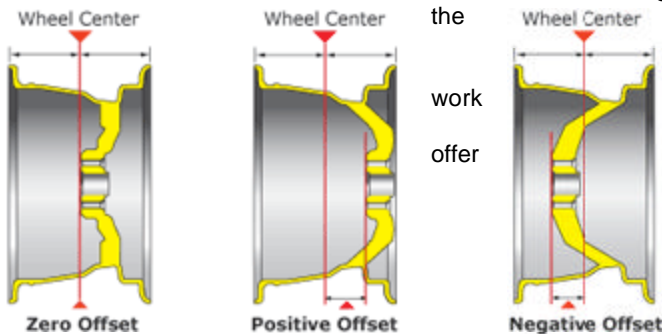
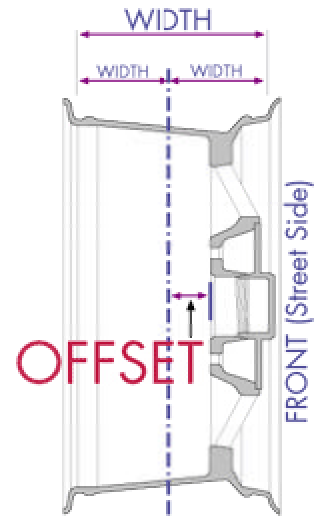
#### Positive

The hub mounting surface is toward the front or wheel side of the wheel. Positive offset wheels are generally found on front wheel drive cars and newer rear drive cars.

#### Negative

The hub mounting surface is toward the back or brake side of the wheels centerline. "Deep dish" wheels are typically a negative offset.

If the offset of the wheel is not correct for the car, the handling can be adversely affected. When the width of the wheel changes, the offset also changes numerically. If the offset were to stay the same while you added width, the additional width would be split evenly between the inside and outside. For most cars, this won't work offer correctly. We have test fitted thousands of different vehicles for proper fitment. Our extensive database allows our sales staff to you the perfect fit for your vehicle.



### Calculating the Offset of a Wheel

Calculating the offset of a wheel is a fairly easy mathematical equation. First, measure the overall width of the wheel (remember, just because a wheel is 18x7.5, does not mean that the OVERALL width is 7.5"). It means that the measurement from **outboard flange** to the **inboard flange** is 7.5"). Next, divide that width of the wheel by two; this will give you the centerline of the wheel.

$$\text{Overall width}/2 = \text{Centerline}$$

After determining the centerline, measure from the **mounting pad** to the edge of the inboard flange (if the wheel were laying flat on the ground – face up – your measurement would be from the ground to the mounting pad). This is your **back spacing**.

$$\text{Centerline} - \text{Back Spacing} = \text{Offset in Inches}$$

$$\text{Inches} \times 25.4 = \text{Offset in mm}$$



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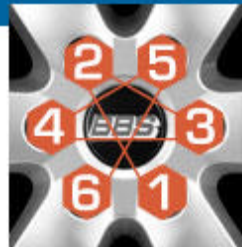
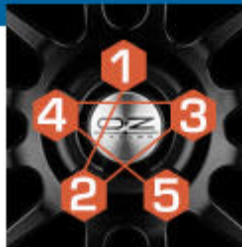
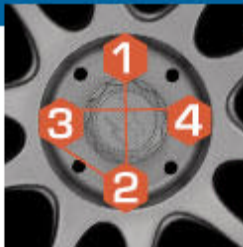
## Wheel Torque

Proper installation requires that the wheel lug torque be set to the recommended specification for your vehicle. These torque specifications can be found in your vehicle's owner's manual, shop repair manual or obtained from your vehicle dealer.

Unless specifically stated otherwise, wheel lug torque specifications are for clean and dry threads (no lubricant) that are free of dirt, grit, etc. **Applying oil, grease or anti-seize lubricants to the threads will result in inaccurate torque values that over tighten the wheels.**

A thread chaser or tap should be used to remove any burrs or obstructions of the threads allowing the lug hardware to be turned by hand until it meets the wheel's lug seat. Once lugs are snugged down, finish tightening them with an accurate torque wrench. Use the appropriate crisscross sequence (shown below) for the number of wheel lugs on your vehicle until all have reached their proper torque value. Be careful because if you over-torque a wheel, you can strip a lug nut or hub, stretch or break a stud or bolt, and cause the wheel, brake rotor and/or brake drum to distort.

### Tightening and Loosening Patterns



Use the dry wheel lug torque values specified in the vehicle's owner's manual, shop manual or obtained from the vehicle dealer/service provider.

Don't forget to give your wheels a very good inspection before and after each event. There have been cases in the past of total wheel failures at other events. A good inspection can minimize this potential.



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## Types of Torque Wrenches

### Beam type

Beam type torque wrench. The indicator bar remains straight while the main shaft bends proportionally to the force applied at the handle.

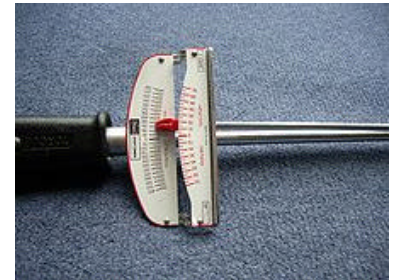


Detailed view of the torque display scale on a beam type torque wrench. This shows a torque of about 160 inch-pounds force or 18 N·m.

The simplest form of torque wrench consists of a long lever arm between the handle and the wrench head, made of a material which bends elastically in response to applied torque. A second, smaller bar with integral mechanical indicator is also connected to the head; this is never subjected to torque and thus maintains a constant position with respect to the head. When no torque is applied to the lever arm the indicator rests parallel to the lever arm. A calibrated scale is fitted to the handle so that applied torque, and the associated bending of the main lever, causes the scale to move under the indicator. When the desired torque is reached (as shown by the indicator), the operator stops applying force. This type of wrench is simple, inherently accurate, and inexpensive.

### Deflecting beam

The dual-signal deflecting beam torque wrench was patented by the Australian Warren and Brown company in 1948. It employs the principle of applying torque to a deflecting beam rather than a coil spring. This helps prolong wrench life, with a greater safety margin on maximum loading and provides more consistent and accurate readings throughout the range of each wrench. The operator can see and hear when a dual-signal wrench reaches the selected torque, since the signal can be seen and heard.



### Click type

Click-type torque wrench, with a socket attached, adjusted by turning the knurled handle



A more sophisticated method of presetting torque is with a calibrated clutch mechanism. At the point where the desired torque is reached, the clutch slips, signaling the desired torque and preventing additional tightening. The most common form uses a ball detent and spring, with the spring preloaded by an adjustable screw thread, calibrated in torque units. The ball detent transmits force until the preset torque is reached, at which point the force exerted by the spring is overcome and the ball "clicks" out of its socket. The advantage of this design is greater precision and a positive action at the set point. A number of variations of this design exist for different applications and different torque ranges. A modification of this design is used in some drills to prevent gouging the heads of screws while tightening them.



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## Electronic torque wrenches

With electronic (indicating) torque wrenches, measurement is by means of a strain gauge attached to the torsion rod. The signal generated is converted by the transducer to the required unit of force (N·m, lbf·ft etc.) and shown on the digital display. A number of different joints (measurement details or limit values) can be stored. These programmed limit values are then permanently displayed during the tightening process by means of LEDs or the display. At the same time, this generation of torque wrenches can store all the measurements made in an internal readings memory. This readings memory can then be easily transferred to a PC via the interface (RS232) or printed straight to a printer. A popular application of this kind of torque wrench is for in-process documentation or quality assurance purposes.



## Programmable electronic torque / angle wrenches

Torque measurement is conducted in the same way as with an electronic torque wrench but the tightening angle from the snug point or threshold is also measured. The angle is measured by an angle sensor or electronic gyroscope. The angle measurement process enables joints which have already been tightened to be recognised. The inbuilt readings memory enables measurements to be statistically evaluated. Tightening curves can be analysed using the software via the integrated tightening-curve system (force/path graph). This type of torque wrench can also be used to determine breakaway torque, prevail torque and the final torque of a tightening job. Thanks to a special measuring process, it is also possible to display the yield point (yield controlled tightening). This design of torque wrench is highly popular with automotive manufacturers for documenting tightening processes requiring both torque and angle control because, in these cases, a defined angle has to be applied to the fastener on top of the prescribed torque (e.g. 50 N·m or 37 ft·lbf + 90° - here the 50 N·m or 37 ft·lbf means the snug point/threshold and +90° indicates that an additional angle has to be applied after the threshold).



## Mechatronic torque wrenches

Torque measurement is achieved in the same way as with a click-type torque wrench but, at the same time, the torque is measured as a digital reading (click and final torque) as with an electronic torque wrench. This is, therefore, a combination of electronic and mechanical measurements. All the measurements are transferred and documented via wireless data transmission.





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## *Differences Between Torque Wrench Types*

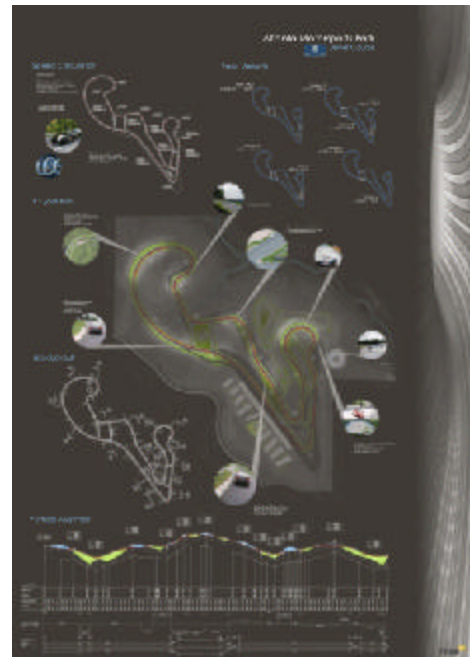
Click type torque wrenches are precise when properly calibrated—however the more complex mechanism can result in loss of calibration sooner than the beam type, where there is little to malfunction. Beam type torque wrenches are impossible to use in situations where the scale cannot be directly read—and these situations are common in automotive applications. The scale on a beam type wrench is prone to parallax error, as a result of the large distance between indicator arm and scale (on some older designs). There is also the issue of increased user error with the beam type—the torque has to be read at every use and the operator must use caution to apply loads only at the floating handle's pivot point. Dual-beam or "flat" beam versions reduce the tendency for the pointer to rub, as do low-friction pointers.

For the click type, when not in use, the force acting on the spring should be removed by setting the scale to 20% of full scale in order to maintain the spring's strength. Never set a micrometer style torque wrench to zero as the internal mechanism requires a small amount of tension in order to prevent tool failure due to unwarranted tip block rotation. If a micrometer tool has been stored with the setting above 20% the tool should be set to 50% of full scale and exercised at least FIVE times before being used. In the case of the beam type, there is no strain on the component that provides the reference force except when it is in use, therefore, accuracy is inherent.

## **Atlanta Motorsports Park**

10/10ths is planning on going to the new Atlanta Motorsports Park in 2012.

I will be getting additional information and will update everyone as I make plans.





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## Don't forget about this great event !

We are still working on putting this very worthwhile event together and I have high hopes for a successful outcome. If all goes well, this will certainly become an annual event.

Everyone is welcome to register and please pass this along to any person or company you think might want to help by becoming a sponsor. Anyone can email me at [1010ths@zoomtown.com](mailto:1010ths@zoomtown.com) for details on sponsorships.



### July 30<sup>th</sup>, 2011

## Hope Haven Horse Farm, Inc.

Hope Haven Horse Farm, Inc. is a recognized non-profit dedicated to promoting growth, learning, hope and opportunities for at-risk and special needs residents in Hendricks County, Putnam County and surrounding communities.



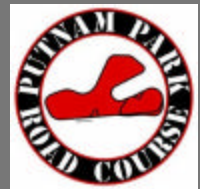
Come join us for the 1<sup>st</sup> Annual HORSEPOWER 4 HOPE Charity Event at Putnam Park Raceway.

*All proceeds to benefit the Hope Haven Horse Farm*

### EVENT ACTIVITIES

- 10/10ths Motorsports High Performance Driving Event
  - There will be some serious race cars turning is loose at this event !
  - Take a look, sit in them, photos and maybe even a ride.
- Touring group and lunchtime on track touring session
- Guest ride-alongs with instructors
- Cookout and Music
- Photo sessions
- Trophy(s) for best looking race / street car
- Some Very Cool Cars and Lots of Fun
- Sponsor Booths
- Door Prizes

## Sponsors Welcome !



Registered Drivers, Guests and Spectators welcome !



Event Details can be found at [www.1010thsmotorsports.com](http://www.1010thsmotorsports.com) or by calling 513.615.2861



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## Did You Know

**10/10ths Motorsports, LLC is a Hawk Brake Distributor.** I can get you some great brakes at a great price. With your 10/10ths driver discount, I can almost always provide you with the best pricing. They can be shipped to your house or brought to the track at our events. Email me or call if you have questions or need to order. Thanks !!!!! Your support will no doubt help 10/10ths Motorsports in providing track days for all our drivers.

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