Form 6555TE-05, 05-14a
Supersedes Form 6555TE-05, 09-12

SmartWeight Touch® and GSP9200 Touch Wheel Balancer

Operation Instructions Software Version 2.0

HUNTER Engineering Company

Contents

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OWNER INFORMATION

Model Number_____

Software Version Number_____

Serial Number_____

Date Installed_____

Service and Parts Representative_____

Phone Number_____

Sales Representative_____

Phone Number_____

CONCEPT AND PROCEDURE TRAINING CHECKLIST

	Trained	Declined
Safety Precautions	☐	☐
Quick-Thread®		
AutoClamp (optional)		
Autostart		
Servo-Stop		
Maintenance & Calibration	☐	☐
Cleaning, Lubrication, and Maintenance of Adaptors, Hub, and Shaft		
Calibrating the Balancer		
Calibrating the Load Roller and Dataset Arms		
Calibrating the Inflation Station		
Mounting the Wheel/Tire Assembly	☐	☐
Verifying Mounting Repeatability with Centering Check Feature		
Cone Mounting		
Pressure Ring and Spacers		
Flange Plate and Cone Mounting		
Wheel Balancing	☐	☐
SmartWeight®		
Standard		
Mixed Weights		
Adhesive Weights with Auto Dataset Arms		

Split Spoke®

RimScan

TPMS

Do's and Don'ts of Wheel Balancing ☐ ☐

Adjusting P/SUV/LT Limits ☐ ☐

Assembly Measurements

Applying Previous Wheel Measurements

Applying Previous Tire Measurements

Wheel Measurement with Dataset Arms

Tire Installed

Bare Rim

Matching Without Rim Runout

Individuals and Date Trained:

_____ _____

_____ _____

_____ _____

_____ _____

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_____ _____

1. Getting Started

1.1 Introduction

This manual provides operation instructions and information required to operate the SmartWeight Touch®/ GSP9200 Touch Balancer. Read and become familiar with the contents of this manual prior to operating the SmartWeight Touch® or the GSP9200 Touch Balancer.

The owner of the SmartWeight Touch®/GSP9200 Touch Balancer is solely responsible for arranging technical training. The SmartWeight Touch®/GSP9200 Touch Balancer is to be operated only by qualified trained technicians. Maintaining records of personnel trained is solely the responsibility of the owner and management.

This manual assumes the technician has already been trained in basic balancing procedures.

References

This manual assumes that you are already familiar with the basics of tire balancing. The first section provides the basic information needed to operate the SmartWeight Touch®/GSP9200 Touch. The following sections contain detailed information about equipment operation and procedures. “Italics” are used to refer to specific parts of this manual that provide additional information or explanation. For example, *“1.3 SmartWeight Touch®/ GSP9200 Touch Components” on page 7.* These references should be read for additional information to the instructions being presented.

1.2 For Your Safety

Hazard Definitions

Watch for these symbols:

CAUTION: Hazards or unsafe practices, which could result in minor personal injury or product or property damage.

WARNING: Hazards or unsafe practices, which could result in severe personal injury or death.

DANGER: Immediate hazards, which will result in severe personal injury or death.

These symbols identify situations that could be detrimental to your safety and/or cause equipment damage.

IMPORTANT SAFETY INSTRUCTIONS

Read all instructions before operating the SmartWeight Touch®/GSP9200 Touch Balancer. Read and follow the instructions and warnings provided in the service, operation and specification documents of the products with which this SmartWeight Touch®/GSP9200 Touch Balancer is used (i.e., automobile manufacturers, tire manufacturers etc.).

Do not operate equipment with a damaged cord or equipment that has been dropped or damaged until a Hunter Service Representative has examined it.

Always unplug equipment from electrical outlet when not in use. Never use the cord to pull the plug from the outlet. Grasp plug and pull to disconnect.

If an extension cord is necessary, a cord with a current rating equal to or more than that of the equipment should be used. Cords rated for less current than the equipment may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.

Verify that the electrical supply circuit and the receptacle are properly grounded.

To reduce the risk of electrical shock, do not use on wet surfaces or expose to rain.

Verify the appropriate electrical supply circuit is the same voltage and amperage ratings as marked on the balancer before operating.

DO NOT ALTER THE ELECTRICAL PLUG. Plugging the electrical plug into an unsuitable supply circuit will damage the equipment and may result in personal injury.

To reduce the risk of fire, do not operate equipment near open containers of flammable liquids (gasoline).

Read and follow all caution and warning labels affixed to your equipment and tools. Misuse of this equipment can cause personal injury and shorten the life of the balancer.

Keep all instructions permanently with the unit.

Keep all decals, labels, and notices clean and visible.

To prevent accidents and/or damage to the balancer, use only Hunter SmartWeight Touch® and GSP9200 Touch Balancer recommended accessories.

Use equipment only as described in this manual.

Never stand on the balancer.

Wear non-slip safety footwear when operating the balancer.

Keep hair, loose clothing, neckties, jewelry, fingers, and all parts of body away from all moving parts.

Do not place any tools, weights, or other objects on the safety hood while operating the balancer.

ALWAYS WEAR OSHA APPROVED SAFETY GLASSES. Eyeglasses that have only impact resistant lenses are NOT safety glasses.

Keep the safety hood and its safety interlock system in good working order.

Verify that the wheel is mounted properly and that the wing nut is firmly tightened before spinning the wheel.

The safety hood must be closed before touching the green “START” button, to spin the wheel.

Hood Autostart will cause the balancer shaft to spin automatically upon hood closure. For the next Autostart, the safety hood has to be lifted to the full up position and then closed.

Raise safety hood only after wheel has come to a complete stop. If safety hood is raised before the spin is completed, the weight values will not be displayed.

Do not let cord hang over any edge or contact fan blades or hot manifolds.

The red “STOP” button, can be used for emergency stops.

Never reach under the hood while the balancer is performing a balance spin.

SAVE THESE INSTRUCTIONS

Electrical

The Hunter SmartWeight Touch® and GSP9200 Touch Balancer are manufactured to operate at a specific voltage and amperage rating.

Make sure that the appropriate electrical supply circuit is of the same voltage and amperage ratings as marked on the balancer.

DO NOT ALTER THE ELECTRICAL PLUG. Plugging the electrical plug into an unsuitable supply circuit will damage the equipment.

Make sure that the electrical supply circuit and the appropriate receptacle is installed with proper grounding.

To prevent the possibility of electrical shock injury or damage to the equipment when servicing the balancer, power must be disconnected by removing the power cord from the electrical power outlet.

After servicing, be sure the balancer ON/OFF switch is in the “O” (off) position before plugging the power cord into the electrical power outlet.

This device is rated as Class A for radiated emissions.

In the event of radio interference, the display read out may flicker - this is normal.

Decal Information and Placement

Right Side View

Decal **128-1244-2** cautions the operator that spindle rotation may occur with foot pedal depression and to keep clear of clamping components during Quick-Thread® shaft rotation.

Decal **128-1234-2** gives the maximum wheel diameter and maximum wheel weight for the SmartWeight Touch®/ GSP9200 Touch.

Decal **128-116-2** warns the operator not to view the laser light with optical instruments.

Decal **128-1117-2** shows the FDA performance standards compliance.

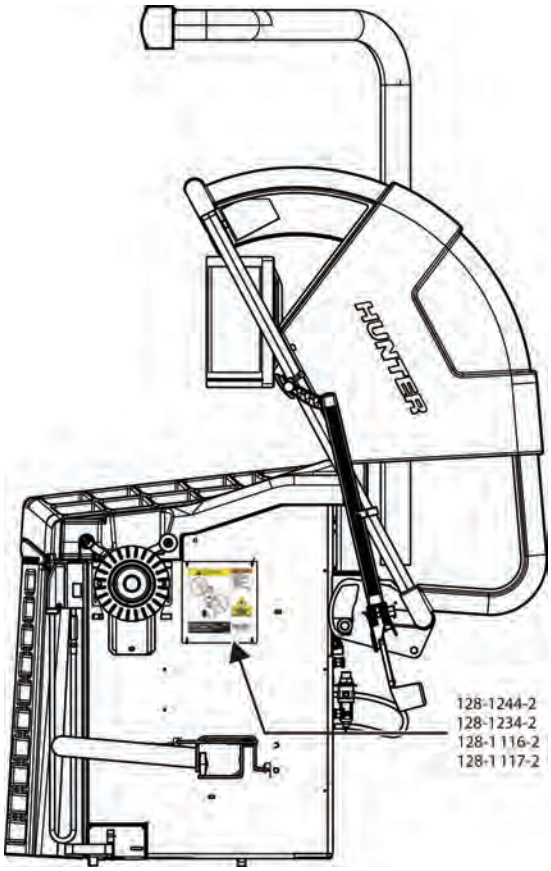


Figure 1.

Left Side View

*(Figure 2.)*Decal **128-391-2-00** cautions that the unit may automatically start upon closing of the hood when hood Autostart is enabled.

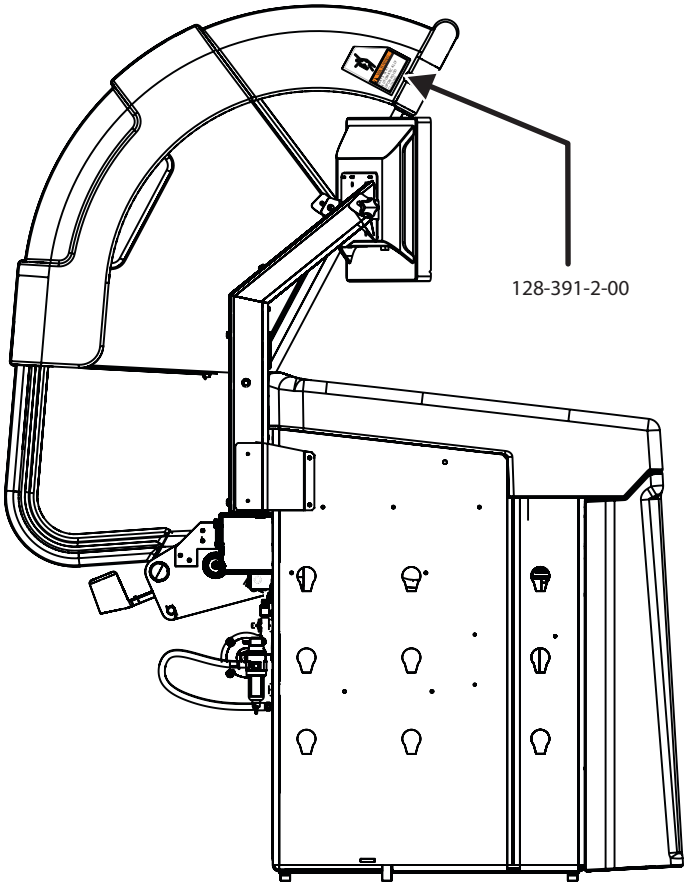


Figure 2.

Back View

Decal 128-381-2 warns the operator not to remove the cover of the SmartWeight Touch/GSP9200 Touch because of the risk of electrical shock and not to use below garage floor level.

Decal 128-1120-2 shows ETL listing and cautions not to use below garage floor level.

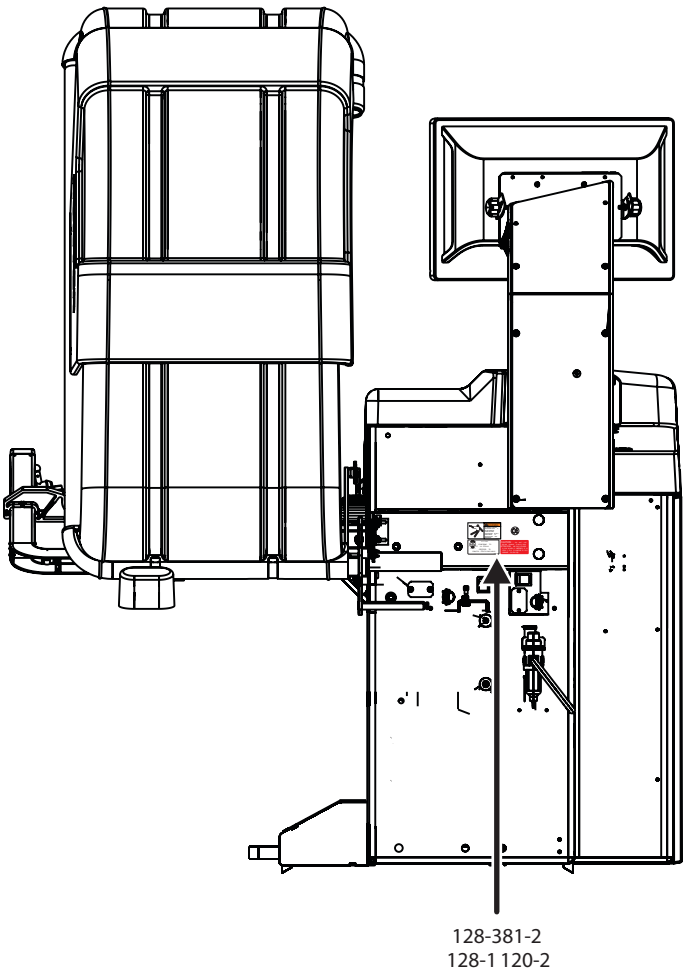


Figure 3.

Specific Precautions/Power Source

The SmartWeight Touch®/GSP9200 Touch Balancer is intended to operate from a power source that will apply 230VAC +10% / -15%, 1 phase, 10 amp 50/60 Hz, power cable includes NEMA 20 amp plug, L6-20P, between the supply conductors of the power cord. The power cord supplied utilizes a twist lock connector, NEMA L6-20P. *(Figure 4.)* This machine must be connected to a 20 amp branch circuit. Please refer all power source issues to a certified electrician. Refer to “Installation Instructions for SmartWeight Touch® Balancer,” Form 6423-T.

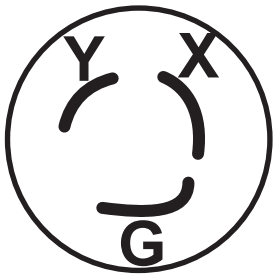


Figure 4.

A protective ground connection, through the grounding conductor in the power cord, is essential for safe operation. Use only a power cord that is in good condition.

For information on converting from single phase NEMA L6-20P plug to thee phase NEMA L15-20P plug refer to Form 5350-T, “NEMA L6-20P to NEMA L15-20P Power Plug Conversion Instructions.”

Specific Precautions/BDC Laser Indicator

The BDC (Bottom Dead Center) Laser Indicator is a class 1M laser designed to aid in applying adhesive weights. The laser is not a field serviceable or adjustable part.

Use caution in regard to reflective materials around the laser and never look into the laser beam.

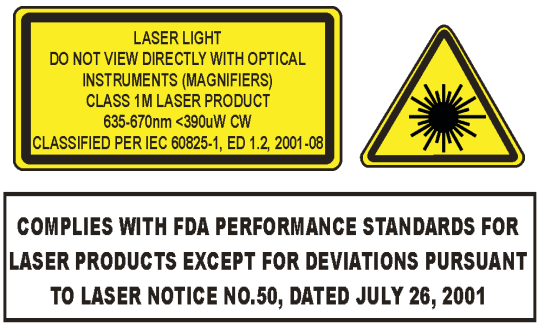


Figure 5.

Specific Precautions/HammerHead® TDC Laser Indicator (Optional)

The TDC (Top Dead Center) Laser Indicator is a class 2M laser designed to aid in applying clip-on weights. The laser is not a field serviceable or adjustable part.

Use caution in regard to reflective materials around the laser and never look into the laser beam.

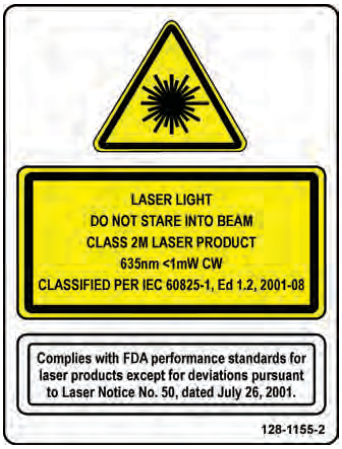


Figure 6.

Turning Power ON/OFF

Push Button Switch

The SmartWeight Touch®/GSP9200 Touch is equipped with a push button power switch located on the left side of the LCD support. Use this switch for normal shut down and restarting procedures.

Figure 7.

Main Power Switch

To prevent loss of data, always use the push button switch on the LCD support to power the balancer on and off. Then use the main power switch to remove power to the entire unit.

The main power ON/OFF switch is located on the back of the balancer cabinet. To power the balancer “ON,” press the “I” side of the ON/OFF switch. To turn all power the balancer “OFF,” press the “O” side of the ON/OFF switch. *(Figure 8.)*

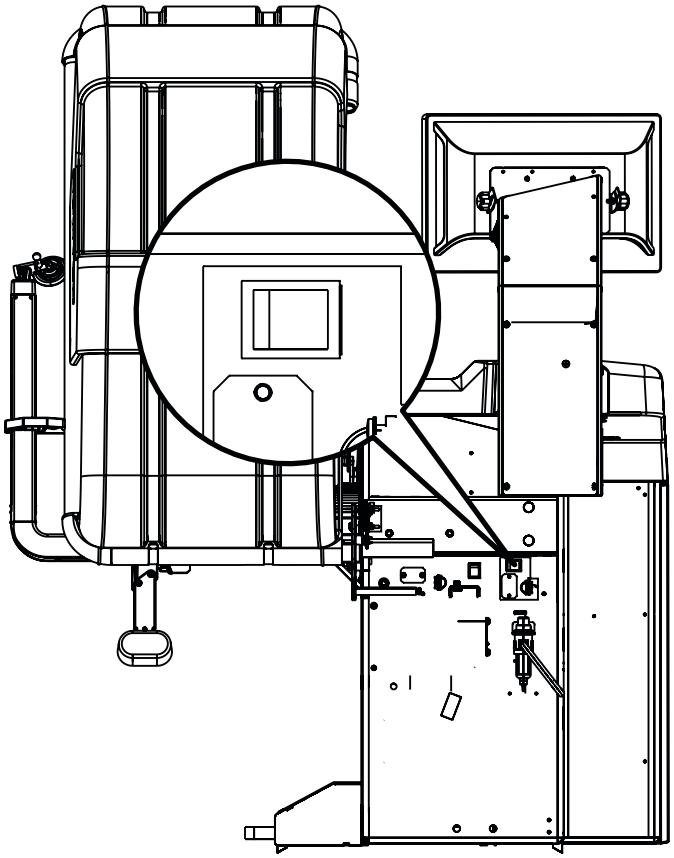


Figure 8.

After the SmartWeight Touch®/GSP9200 Touch Balancer performs a self-check, the main balance screen will appear indicating the unit is ready for use.

Figure 9.

Equipment Installation and Service

Only a Hunter Factory-Authorized Representative should perform installation.

This equipment contains no operator serviceable parts. All repairs must be referred to a qualified Hunter Service Representative.

Equipment Specifications

Electrical	
Voltage:	230VAC +10% / -15%, 1 phase, 50/60 Hz, power cable includes NEMA 20 amp plug, L6-20P
Amperage:	10 amperes
Wattage:	3450 watts (peak)
Air	
Air Pressure Requirements:	100-175 PSI (6.9-12.0 bar)
Approximate Air Consumption:	4 CFM (110 Liters/Minute)
Atmospherics	
Temperature:	0°C to +50°C (+32°F to +122°F)
Relative Humidity:	Up to 95% Non-condensing
Altitude:	Up to 1829 m (6 000 ft.)
Sound Pressure Level	
Equivalent continuous A-weighted sound pressure at operator’s position does not exceed 70 dB (A).	

Explanation of Symbols

These symbols may appear on the equipment.

	Alternating current.
	Earth ground terminal.
	Protective conductor terminal.
I	ON (supply) condition.
	OFF (supply) condition.
	Risk of electrical shock.
	Stand-by switch.
	Not intended for connection to public telecommunications network.

1.3 SmartWeight Touch®/GSP9200 Touch Components

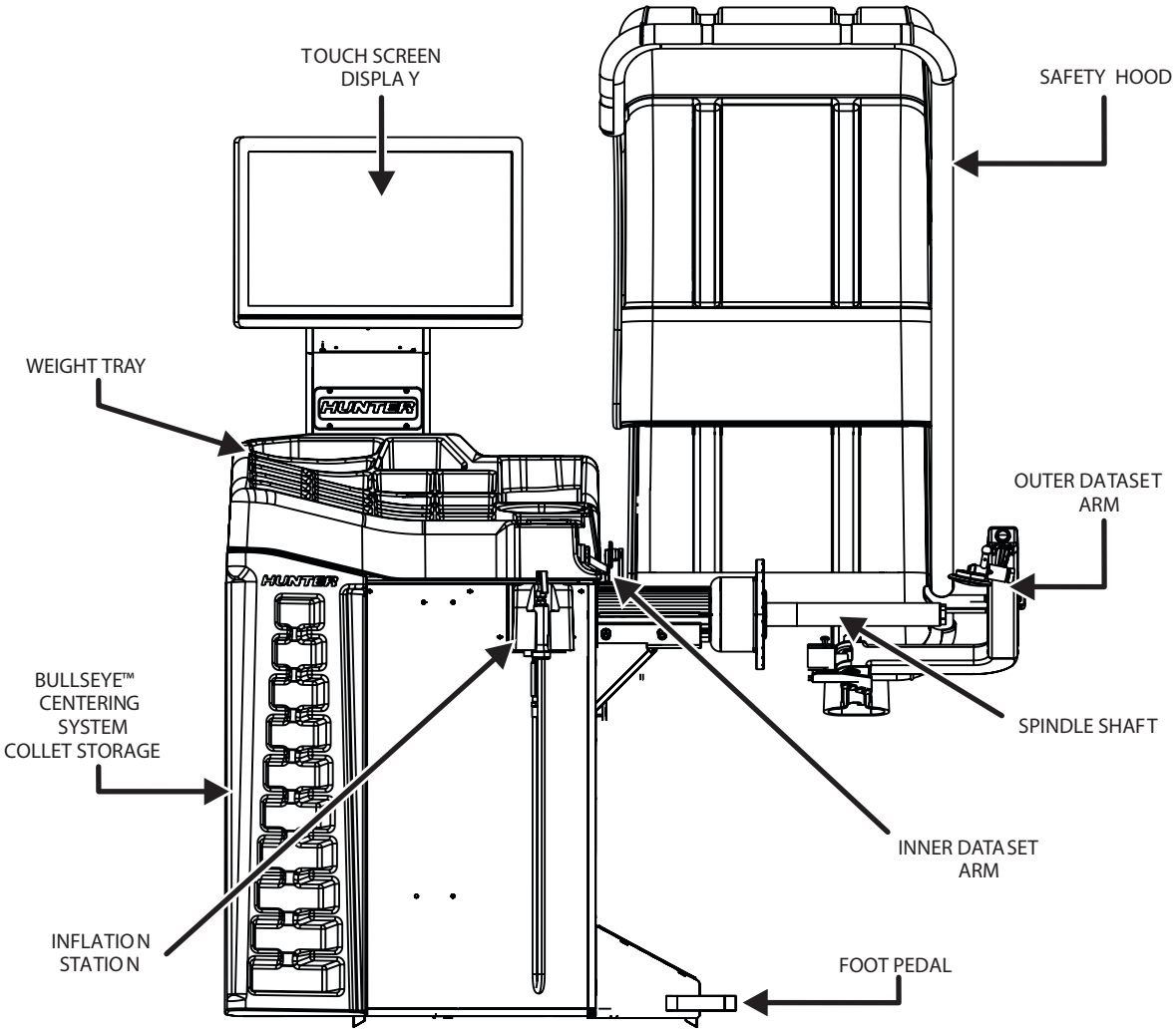


Figure 10.

1.4 Main Screen Components

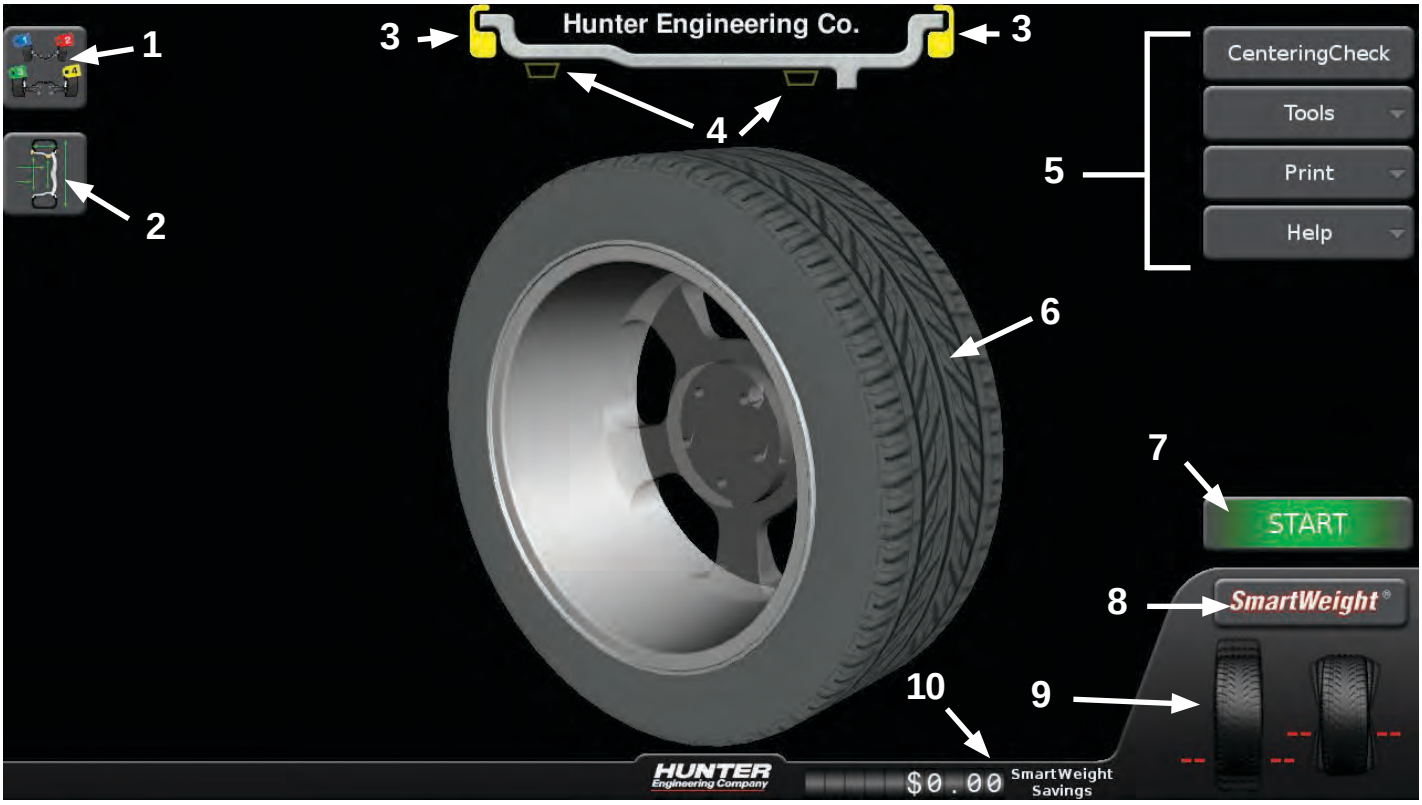


Figure 11.

1. Tire Stack / Vehicle Plan View Tab	6. Wheel Assembly Display
2. Wheel Dimensions Tab	7. Start / Stop Button
3. Clip Weight Plane	8. SmartWeight® Menu Button
4. Tape Weight Plane	9. Imbalance and Couple Force Display
5. Context Sensitive Menu	10. SmartWeight Savings Total

1.5 Operating the Balancer

Main Balance Screen

Pull-out tabs are on the left for Tire Stack/Vehicle Information (upper tab) and Wheel Dimensions (lower tab). Buttons along the right side allow navigation to other screens and activities. Buttons in the lower left and right portions of the screen allow navigation to SmartWeight® and SmartWeight® procedures and options.

Figure 12.

Main Balance Screen - Error Pop-ups

If the operator attempts to perform an illegal operation in the main balance screen, an error pop-up with appropriate information will be displayed. For example, the above screen is displayed if operator attempts to start a spin without first lowering the hood.

Figure 13.

Main Balance Screen - Prompt Text

When the operator needs more info in a non-error condition, prompting text will appear in the lower portion of the screen.

Figure 14.

Main Balance Screen – Performing a Spin

During a balance spin, several things occur on the screen. First, the green Start button is replaced with a red Stop button and the tire assembly spins in 3D space.

Figure 15.

After the spin is complete, and if dimensions have been entered, the 3D scene will show all information necessary to balance the assembly including; Weight Amounts, Weight Type, and Weight Position.

Figure 16.

Main Balance Screen – Servoing To Position

If servoing is enabled in Setup, the balancer will servo either the inner or outer place weight position to top-dead-center. To servo to the next position, the operator can either touch the “Start” button or touch the corresponding weight amount.

Figure 17.

Main Balance Screen – SmartWeight® Buttons

Touching the SmartWeight® button expands a set of button options. SmartWeight® can be disabled or enabled, Performance Mode can be disabled or enabled and Weight savings can be viewed.

Figure 18.

2. Introduction to Balancing

2.1 Balance Forces

Balancing Theory - Static Imbalance

As the word static implies, the tire will be balanced when at rest. For example, if an unmoving assembly was centered on a cone and was balanced, it would be statically balanced. A “bubble balancer” is designed to statically balance a tire/wheel assembly.

STATIC FORCE
GRAPH DISPLAY

Figure 19.

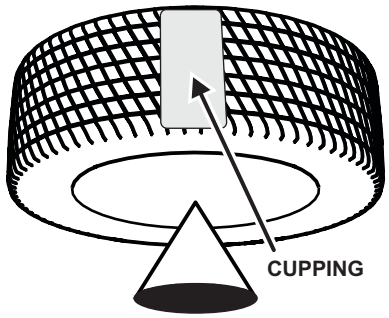
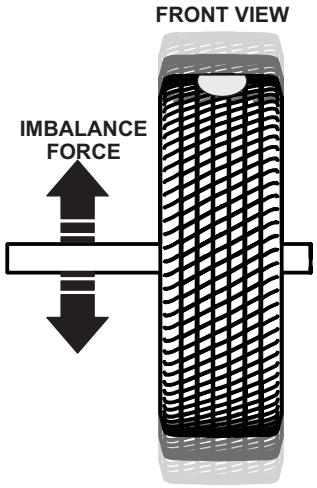


Figure 20.

Static imbalance is a condition where one amount of weight located in the center of the tire/wheel assembly causing an imbalance. As the weight rotates, centrifugal forces are created causing the wheel to lift as the weight reaches top dead center. This lifting motion causes the tire/wheel assembly to move “up and down” creating a bounce that can be felt. This static imbalance condition is evident by a “jiggle” or up-down movement of the steering wheel. These vibrations may also be apparent in the body, with or without steering wheel shake.

A statically imbalanced tire driven for an extended period may cause “cupping” in the tire’s tread, create vibration, and adversely effect handling.



STATIC IMBALANCE

Figure 21.

Static balancing alone is a seldom-recommended procedure. For example, a single weight is commonly placed on the inner clip weight position for cosmetic purposes. This is not a recommended practice and usually insures the assembly is not properly dynamically balanced. The assembly may then experience side-to-side imbalance while in motion, causing a shimmy condition and objectionable vibration.

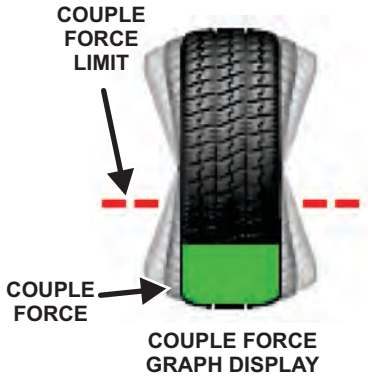
NON-RECOMMENDED FORM OF STATIC BALANCING

BALANCE WEIGHT IS NOT IN CENTER OF WHEEL

Figure 22.

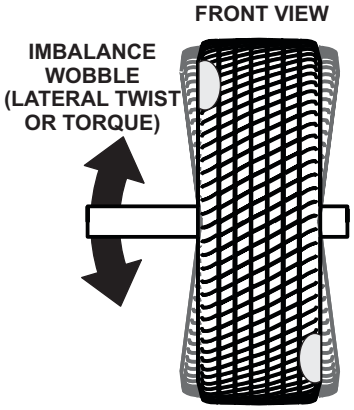
Balancing Theory - Couple Imbalance

Dynamic imbalance is defined as a condition where one or more locations of the tire/wheel assembly are heavier causing an imbalance force and/or an imbalance shake and wobble. Shown below is a tire/wheel assembly with two heavy spots of equal weight which are located 180 degrees from each other on opposite sides. As this assembly rotates, centrifugal forces cause a large imbalance wobble to be created, but the imbalance force (as well as the static imbalance) will be zero. A wheel with this condition will cause a wobble or shimmy to be felt in the steering wheel. Excessive dynamic imbalance of this type creates a shimmy that transfers through the suspension components to the occupants of the vehicle, especially at higher speeds.



COUPLE FORCE GRAPH DISPLAY

Figure 23.



ZERO STATIC IMBALANCE WITH LARGE COUPLE IMBALANCE

Figure 24.

Modern “dynamic” balancers spin the wheel in order to measure both the up and down static imbalance force and couple wobble or shimmy related imbalance (side-to-side).

Dynamic balancers direct the operator to place correction weights on the inside and outside correction locations of the rim, or a single weight away from the center of the wheel, so that both imbalance shake (static) and imbalance wobble (couple) will be eliminated.

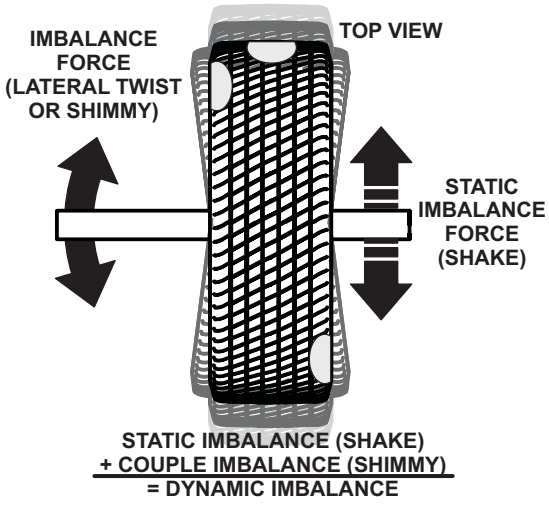


Figure 25.

2.2 SmartWeight Balancing Technology®

SmartWeight Balancing Technology® is not a procedure. Rather, it is a technology that measures the forces of couple side-to-side shimmy and static up-and-down shake and computes the correction weight required to reduce these forces. This reduces the amount of weight used, reduces time, reduces check spins, “chasing weights”, and saves shop time and money.

SmartWeight Balancing Technology® can reduce the number of steps in the balancing process. Not only does SmartWeight Balancing Technology® give the customer a better riding vehicle, it also helps the environment by using less corrective weight.

Static and non-rounding modes are eliminated to simplify operation. Always enter at least two weight positions during wheel measurement in SmartWeight® balancing mode. All other functions are identical to the traditional balancing method.

Static and Dynamic Imbalance Sensitivity

As a general rule of thumb, to achieve the best balance on an average sized tire and wheel assembly Residual static imbalance should be less than 1/4 ounce (7 grams).

Residual couple imbalance should be less than 3/4 ounce (21 grams).

- Residual couple imbalance is preferred over remaining static imbalance.
- It takes much more residual couple imbalance weight to cause a vibration than the same amount of static imbalance correction weight.
- The larger the diameter used for weight placement, the smaller the amount of correction weight is required for static correction.
- The wider the distance between the two weight placement locations, the smaller the amount of correction weight is required for couple correction.
- If static balance is the only option, always verify that the remaining couple residual imbalance is within acceptable tolerance. This can only be verified using SmartWeight® balancing.

SmartWeight® balancing performs this check automatically.

2.3 SmartWeight Balancing Technology® Dynamic Weight Planes

SmartWeight® requires the operator to enter at least two weight planes. This balancing method will automatically determine if one or both weight planes require a weight to be added. This eliminates “blinded” static single plane balancing, which alone may not be sufficient to solve couple vibration issues.

The SmartWeight Touch®/GSP9200 Touch balancer offers two primary ways to balance tires:

1. SmartWeight Balancing Technology®

Figure 26.

2. Traditional balancing technology.

Figure 27.

Both of these methods can balance tires dynamically. The main difference being that SmartWeight® will reduce the amount of corrective weight in a basic wheel balancing situation and automatically optimize static force reduction and single plane weight placement.

2.4 Using SmartWeight Balancing Technology®

The SmartWeight® balancing forces display varies greatly from the standard balancing display. SmartWeight® tire graphs independently display the static and couple forces within a tire/wheel assembly. A single plane (static) mode and non-round off modes are no longer necessary. The traditional “static” and “dynamic” modes are eliminated. The traditional non-round off mode is eliminated. These modes are no longer necessary with SmartWeight® balancing.

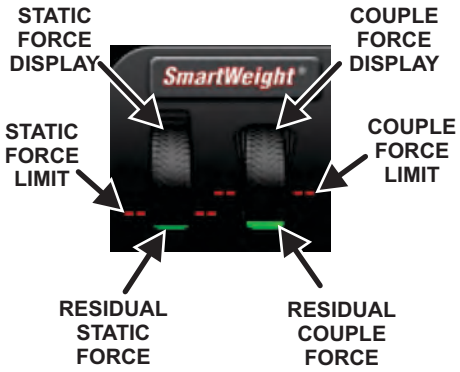


Figure 28.

The red-dotted line represents the acceptable amount of force the tire and wheel assembly can have that will not result in a ride problem. Any forces below that line will be shown in green. Any forces that are above that level will be shown in red and indicate an excessive amount of force.

Install a tire/wheel assembly as normal. Rim measurements are not required to determine if the balance forces are exceeded. Lower the hood and spin.

Figure 29.

Prior to balance spin, the tire graphs will display no color. The SmartWeight® balance force graphs will display red for excessive forces and green for acceptable amounts of force.

Figure 30.

If the SmartWeight® balancing procedure requires correction weights, wheel dimensions will be required. Enter the dimensions using the Dataset® arms.

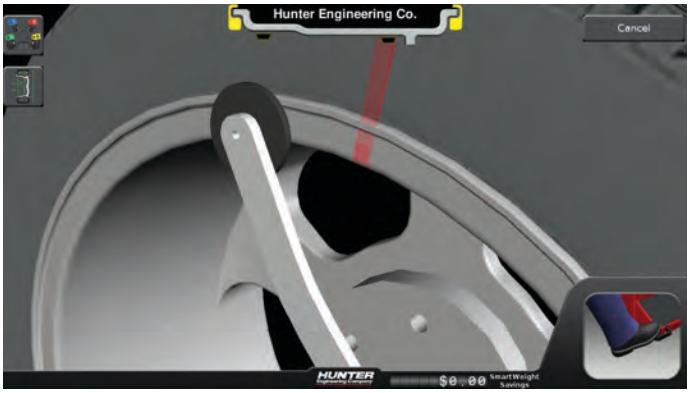


Figure 31.

Figure 32.

Close the hood and perform a spin.

After the spin is complete, the screen will display the amount and location of corrective weight necessary.

Figure 33.

Install the weights as indicated on the screen using the TruWeight™ feature. Lower the hood to re-spin and check the balance.

The balancer displays “OK,” indicating that the force levels are reduced to within the acceptable tolerances.

Figure 34.

Switching from SmartWeight Balancing Technology® to Traditional Dynamic Balancing

At any time, SmartWeight Balancing Technology® can be switched to standard balancing provided that both standard and SmartWeight® balancing modes are enabled in setup.

Touch the SmartWeight® button to display the SmartWeight® menu buttons. *(Figure 35.)*

Figure 35.

SmartWeight Balancing Technology® is the default balancing method and is the most recommended way to accurately balance wheel / tire assemblies.

Touch the Disable SmartWeight® button.

Figure 36.

The balancer is now in traditional dynamic balancing mode.

Figure 37.

When changing to traditional dynamic balancing mode, weight amounts as well as weight placement locations change.

Figure 38.

Figure 39.

Switching from Traditional Dynamic Balancing to Traditional Static Balancing.

In non-SmartWeight® mode, the balancer can be switched from dynamic balancing to static balancing.

Dynamic mode is selected:

Figure 40.

Touching the static mode icon will switch to static mode.

Figure 41.

Blinding and Rounding

In non-SmartWeight® mode, the balancer can display either an “actual” or “blinded and rounded” amount of imbalance.

Touching the magnifying glass icon next to the dynamic or static icons will toggle blinding and rounding on or off.

Dynamic mode, blinding/rounding is disabled:

Figure 42.

Static mode, blinding/rounding is enabled:

Figure 43.

Enable Performance Mode

In SmartWeight® mode, the balancer can be switched to performance mode.

Touch the Enable Performance Mode button.

Figure 44.

Show Savings

Touch the Show Savings button.

Figure 45.

The SmartWeight® Savings screen will be displayed.

Figure 46.

Touch the Show Details button to view details of SmartWeight® savings.

Figure 47.

The Weight Savings screen will be displayed.

Figure 48.

Touch the Investment Return button.

Figure 49.

The SmartWeight® Investment Return screen will be displayed.

Figure 50.

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3. Balancing Procedures

3.1 Mounting a Wheel Using Wheel Lift (Optional)

The wheel lift is an optional feature on the SmartWeight Touch®/GSP9200 Touch/GSP9200 Touch series balancer.

Raising the Wheel Assembly

Slide the appropriate Bullseye™ Centering System collet onto the spindle shaft. Position wheel lift carriage at the end of the wheel lift rail.

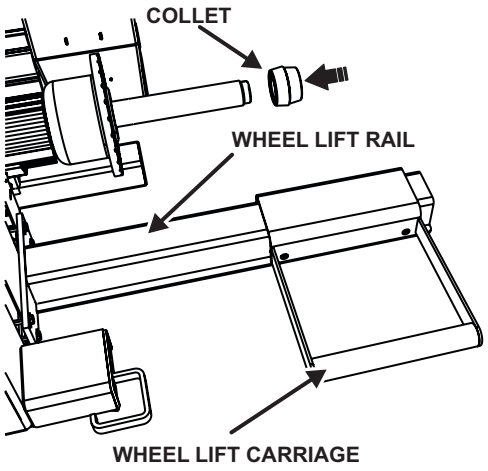


Figure 51.

Press the lift control handle “down” until the trolley carriage is at its lowest level.

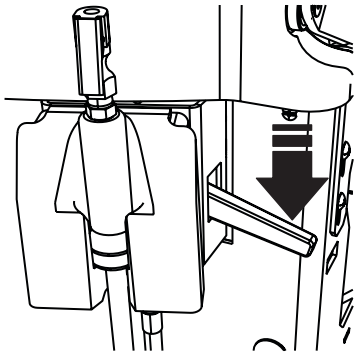


Figure 52.

Roll the wheel assembly onto the wheel lift carriage.

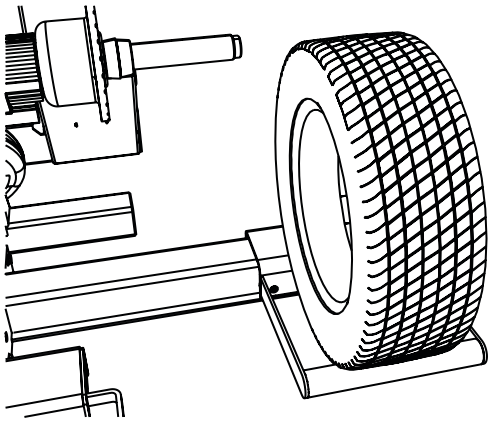


Figure 53.

Raise the lift control handle “up” to move the lifting assembly into a position where the wheel assembly can be installed onto the spindle shaft.

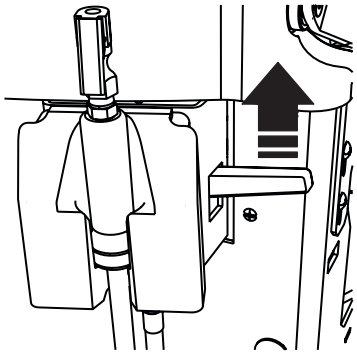
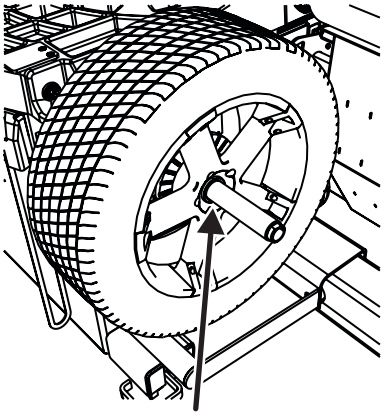


Figure 54.

Slide the tire/wheel assembly onto the spindle and center on the collet. Verify that the wheel assembly is centered vertically on the spindle shaft.



TIRE / WHEEL ASSEMBLY CENTERED VERTICALLY ON SPINDLE SHAFT

Figure 55.

Lower wheel lift as needed to clamp wheel, but keep the wheel lift carriage in place under the wheel assembly.

Clamp wheel onto the spindle shaft.

Keep the wheel lift carriage in place under the wheel assembly and close the hood. The lifting assembly will automatically lower and park the carriage below.

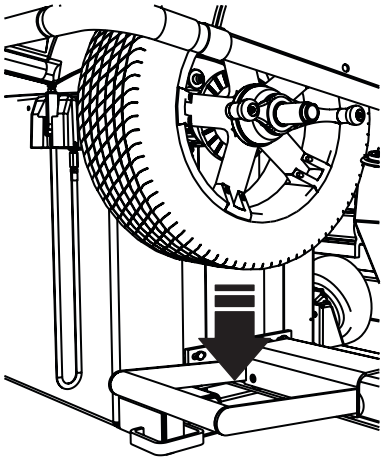


Figure 56.

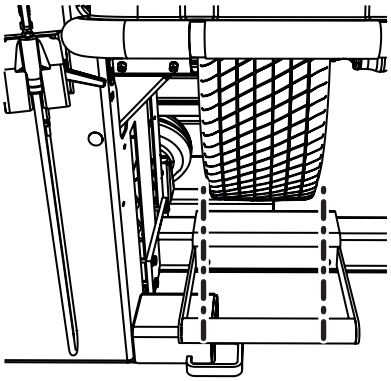


Figure 57.

Allowing the balancer to park the wheel lift carriage in place under the wheel assembly will make the removal and lowering of wheel assembly easier and quicker.

Lowering the Wheel Assembly

Remove wheel clamp.

Starting with the wheel lift carriage parked under the wheel assembly; raise the lift control handle “up” to move the lifting assembly to the wheel assembly.

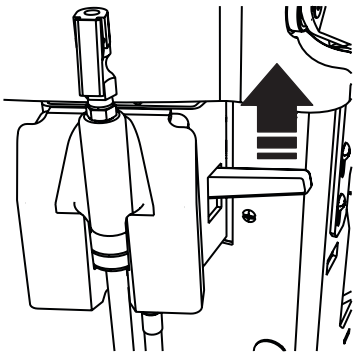


Figure 58.

Slide the carriage with wheel assembly to the end of the wheel lift rail.

Press the lift control handle “down” until the carriage is at its lowest level.

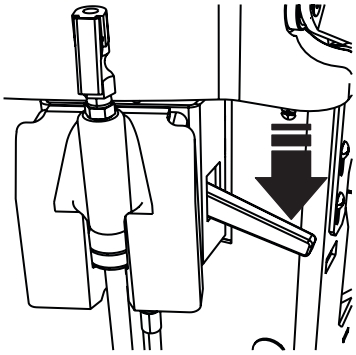


Figure 59.

Roll wheel assembly from carriage.

3.2 Mounting the Wheel on the Balancer Spindle Shaft

Use only cones, collets and accessories that are specifically designed for the SmartWeight Touch®/GSP9200 Touch GSP9700.

Since today’s vehicle designs are lighter and more sensitive to road feel, it is critical to achieve the best balance. Proper balance requires that the tire/wheel assembly be centered on the balancer. Tire/wheel assemblies can be balanced to zero, even with the tire/wheel assembly mounted off-center. The main objective of the balancer operator is to center the wheel on the hub and shaft, using the best available method. Mounting the wheel off-center creates incorrect measurements of imbalance and runout conditions.

Remove any existing wheel weights, rocks, and debris from the tire tread, and clean the center hole of the wheel. Inspect inside of wheel for excessive accumulation of dirt and debris. Remove if necessary before balancing.

Accurate balancing depends on accurately centering the wheel. Choose the proper Bullseye™ Centering System collet by placing it in the center hole of the wheel to be balanced.

If basic collets and adaptors do not fit the wheel, additional centering adaptors will be necessary. A wheel that cannot be properly centered, cannot be properly balanced. All balancers require additional centering adaptors to properly center certain types of wheels. For additional information, refer to “Wheel Balancer Accessories”, Form 3203-T for optional accessories.

Installing the Wheel - Typical Scenario

With the safety hood open, place the collet on the spindle shaft against the captivated spring.

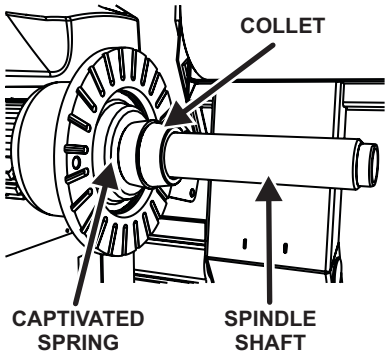


Figure 60.

Position the wheel with the inside surface facing the balancer, centered on the collet.

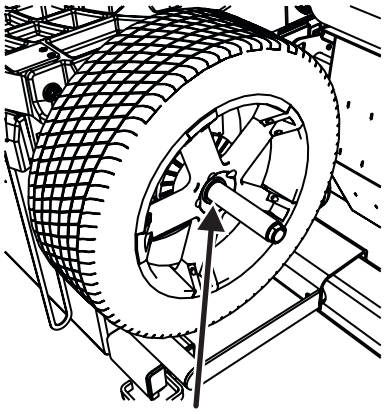


Figure 61.

Install the plastic clamping cup and wing nut on the spindle shaft against the wheel and secure the entire assembly by firmly tightening the wing nut.

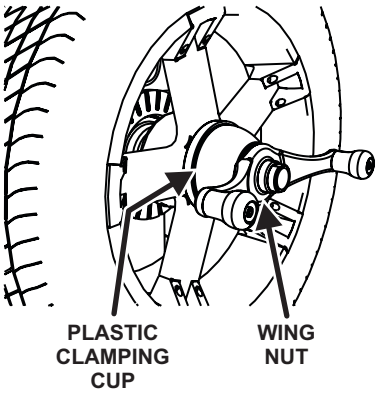


Figure 62.

Depress and hold down the Spindle-Lok® foot pedal while tightening the wing nut. Holding the shaft locked while tightening the wing nut improves centering accuracy.

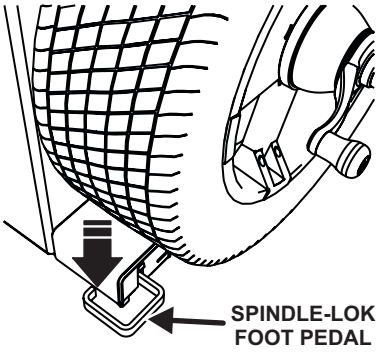


Figure 63.

Slowly roll the wheel towards you while tightening the wing nut. This improves accurate wheel centering, since the wheel is allowed to roll up the taper of the collet as opposed to forcing it to slide up the collet.

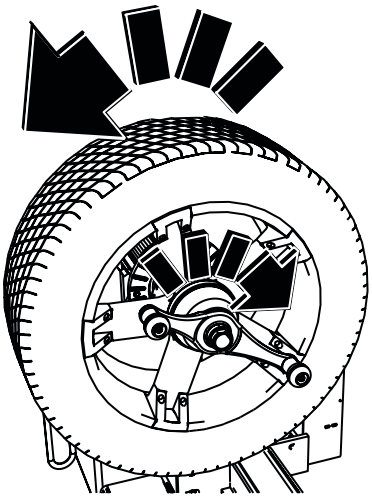


Figure 64.

Installing the Wheel Using Quick-Thread® Wheel Clamping

Keep clear of clamping components during Quick-Thread® shaft rotation.

With the safety hood open, place the collet on the spindle shaft against the captivated spring.

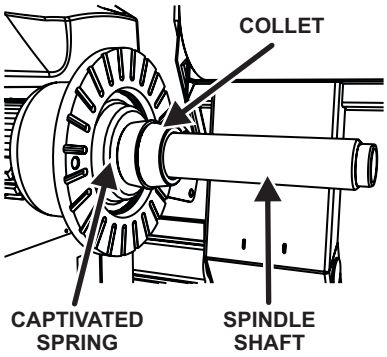
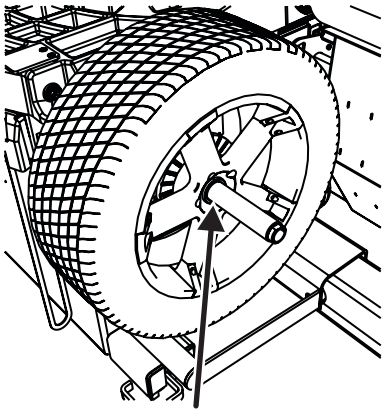


Figure 65.

Lift the wheel assembly onto the shaft as normal without threading on the wing nut.

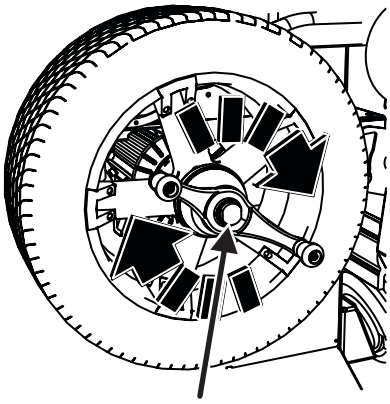


TIRE / WHEEL ASSEMBLY CENTERED ON COLLET

Figure 66.

With the left hand, hold the rim over the collet to remove the weight of the rim from the spindle shaft and to allow maximum quick-thread wing nut travel.

Place the wing nut on the spindle and rotate one full turn onto the spindle threads.



ROTATE WING NUT ONE FULL TURN

Figure 67.

With the right hand, hold one handle of the wing nut while lifting the rim.

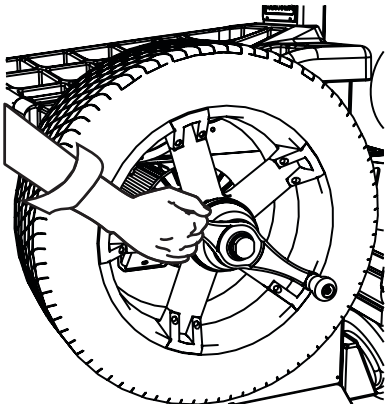


Figure 68.

Heavier wheel assemblies may require extra lifting to prevent the software limited motor torque control from stopping the rotation of the spindle.

Tap the foot pedal twice and the spindle will rotate to install the wing nut to save threading time.

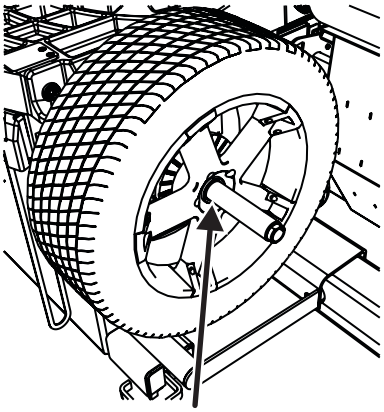
A single tap within the first three seconds of rotation will reverse the direction of rotation. A single tap after the first three seconds of rotation will stop rotation.

Quick-Thread® spindle rotation will stop when the clamping components contact the wheel, or when the foot brake is applied for more than half of a second.

Quick-Thread® does not tighten the wing nut! In Quick-Thread® rotation, torque allowed is minimal. Therefore, the wing nut must still be hand-tightened before balancing.

Installing the Wheel Using Auto-Clamp™ Wheel Clamping (Optional)

With the safety hood open, place the collet on the spindle shaft against the captivated spring. Position the wheel with the inside surface facing the balancer, centered on the collet.



TIRE / WHEEL ASSEMBLY CENTERED ON COLLET

Figure 69.

Install the plastic clamping cup and Auto-Clamp™ device by sliding onto the spindle shaft with the clamping cup pressed against the wheel.

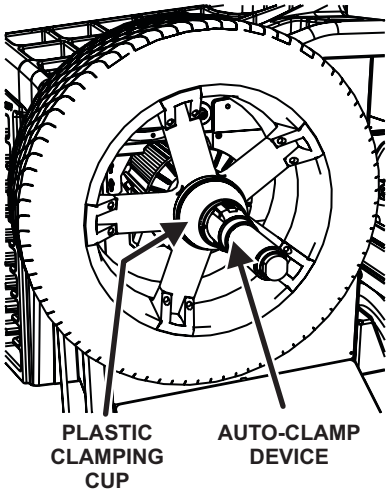


Figure 70.

Rotate the Auto-Clamp™ device until it locks into place on the spindle shaft.

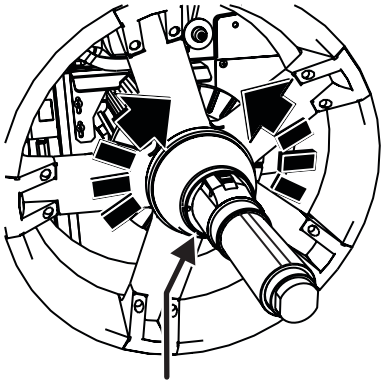


Figure 71.

Keep hands clear of clamping components during Auto-Clamp™ operation.

Secure the wheel by tapping the Spindle-Lok® foot pedal twice. The Auto-Clamp™ device will slide tightly against the wheel.

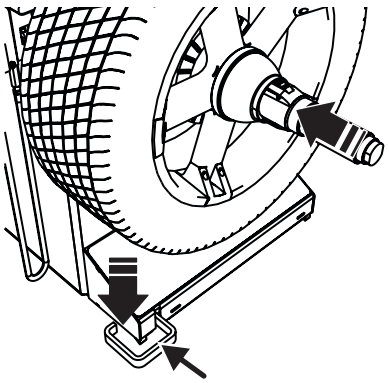


Figure 72.

To remove the Auto-Clamp™ assembly, slightly tap the Spindle-Lok® foot pedal to release the pneumatically powered spindle. Squeeze the levers on the Auto-Clamp™ device to disconnect the Auto-Clamp™ locks from the spindle, and slide the assembly off the spindle.

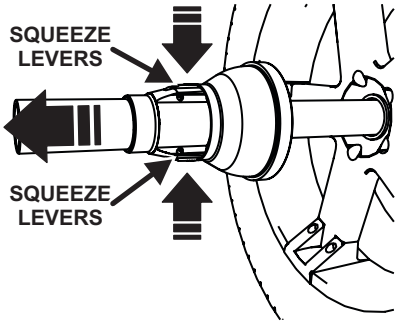


Figure 73.

3.3 CenteringCheck® Wheel Centering Feature

CenteringCheck®

CenteringCheck® is an inspection or verification of the wheel's mount to balance to identify possible centering errors, thus recognizing improper measurements.

From the main balance screen, touch the "CenteringCheck" button.

Figure 74.

CenteringCheck® Errors

If an error condition occurs during the procedure, an error popup will appear with text explaining the error.

Follow the on-screen instructions to correct the error and proceed with CenteringCheck®.

Balance Mode CenteringCheck®

Balance Mode CenteringCheck® provides a quick and accurate method of checking for centering errors.

CenteringCheck® may be used with either a "bare rim" or a "rim with tire assembly." On-screen prompts lead the operator through the procedure.

Mount the wheel on the spindle and securing with the wing nut / AutoClamp™.

Touch the "Use Balance Mode" button.

Figure 75.

Lower hood and wheel will spin.

When spin is complete, raise hood and rotate the wheel to position the valve stem at 12:00 o'clock. Touch the "Enter Valve Stem" button or tap the Spindle-Lok foot pedal to enter the valve stem position.

Figure 76.

Figure 77.

Hold down the Spindle-Lok® foot pedal. Loosen the wing nut / AutoClamp™ so the wheel can be removed from the collet.

While performing this operation, the spindle shaft must stay in the same position. Use the Spindle-Lok® foot pedal to hold the shaft in place.

Loosen wing nut / AutoClamp™ and rotate the wheel and collet approximately 180 degrees from their current positions.

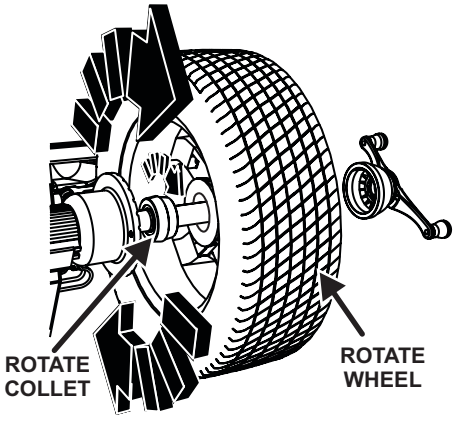


Figure 78.

Lower hood and the wheel will spin.

Figure 79.

When spin is complete, raise hood and rotate the wheel to position the valve stem at 12:00 o'clock. Touch the "Enter Valve Stem" button or tap the

Spindle-Lok foot pedal to enter the valve stem position.

Figure 80.

Figure 81.

CenteringCheck® results will appear

If the rim is centered properly, the CENTERING CHECK PASSED screen will appear.

Figure 82.

The balancer will then return to the main balance screen. Balancing procedures may now be performed.

If a centering problem is detected, the “off-target” screen will be displayed.

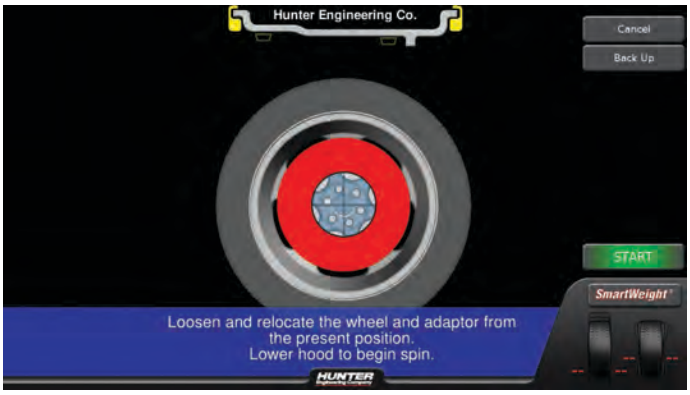


Figure 83.

The CenteringCheck® procedure will repeat up to four times and always compare the previous measurement to the next check.

If centering is not achieved after four attempts, the CENTERING FAILURE screen will appear.

Figure 84.

If centering is not achievable, check for:

- Correct collet/adaptor for this wheel design.
- Wheel defect such as a metal burr interfering with the collet/adaptor.
- Dirt or debris interfering with the collet/adaptor.

Follow the on-screen prompts, and then touch the “Restart Procedure” button.

Mounting Error Detection Features

To verify that the tire/wheel assembly is centering, re-mount the tire/wheel assembly and observe the results. Do any of the following conditions occur?

- Weight amount varies excessively
- Weight location changes

If any of these conditions occur, the centering accuracy of the tire/wheel assembly needs to be verified.

3.4 Front / Back Collet Mounting

Collet mounting is one of the most common and reliable ways to mount wheels on balancers.

The Bullseye™ Centering System is a set of collets that provides wheel centering coverage for most passenger cars and light trucks. Due to the degree of taper on the collets, multiple collets may be used on a wheel assembly. As long as the collet is in the center bore of the wheel, and does not bottom out, it can be used. To verify, always perform a centering check.

Select the proper Bullseye Centering System™collet by placing it in the center bore of the wheel to be balanced. Select the collet that contacts the wheel nearest the center of the collet.

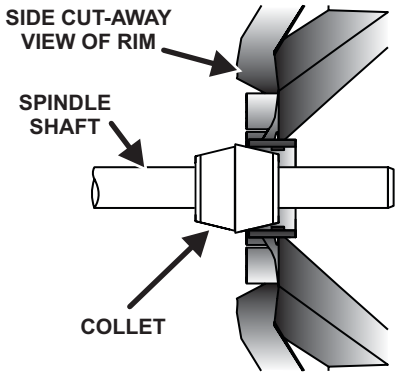


Figure 85.

When using a collet, make sure that only the sloping surface contacts the center wheel bore. If the face of collet “bottoms out” on the interior surface of the rim, choose a different collet.

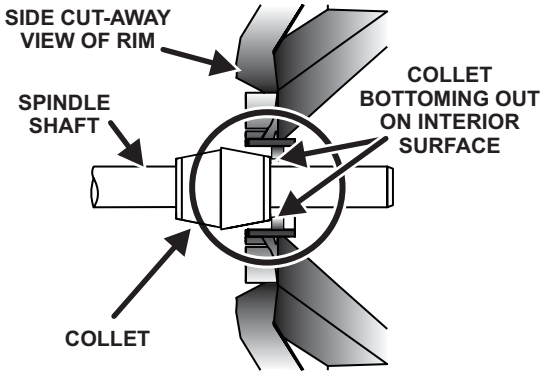


Figure 86.

Place the wheel collet on the spindle shaft against the spring plate. Mount the wheel with the inner rim facing the balancer and centered on the collet.

Use only the wing nut or Auto-Clamp™ supplied with the balancer.

Install the clamping cup and wing nut / Auto-Clamp™ on the spindle shaft against the wheel and secure the entire assembly as previously described.

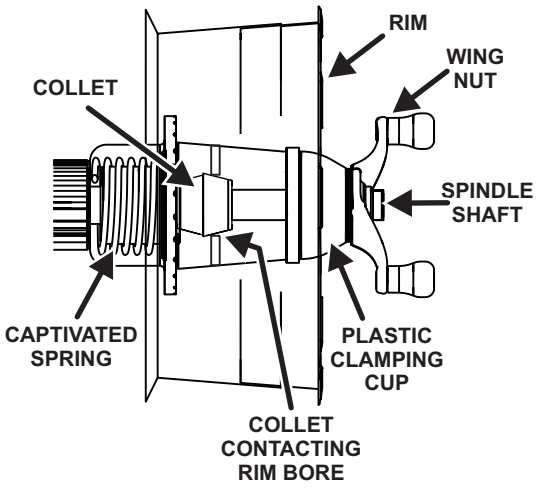


Figure 87.

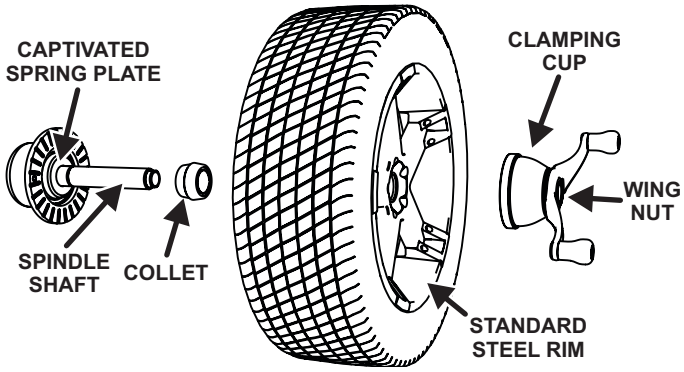


Figure 88.

Using The Plastic Wheel Mounting Spacer

The plastic wheel mounting spacer, 46-320-2, may be used to prevent scratches on wheels where the standard plastic cup and scratch guard cannot be used.

The plastic wheel mounting washer may also be used when mounting a wheel with a large offset that is between collet sizes. Use of the washer as shown below can improve centering ability by increasing cone pressure against the wheel.

For example: One collet size is too small because the captivated spring is not pressing the collet against the inner wheel opening, but the next larger collet size is too big and will not fit the opening. Use the smaller collet size with the plastic wheel mounting washer to “extend” the captivated spring to hold the collet against the wheel opening with greater pressure. The scratch guard may be installed on the clamping cup to protect alloy rims from being marred, but should not be used on steel wheels.

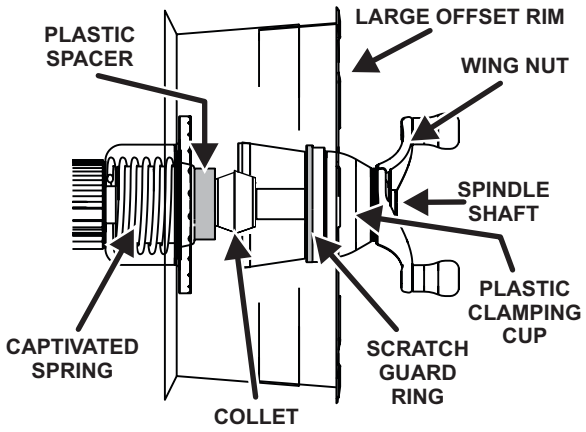


Figure 89.

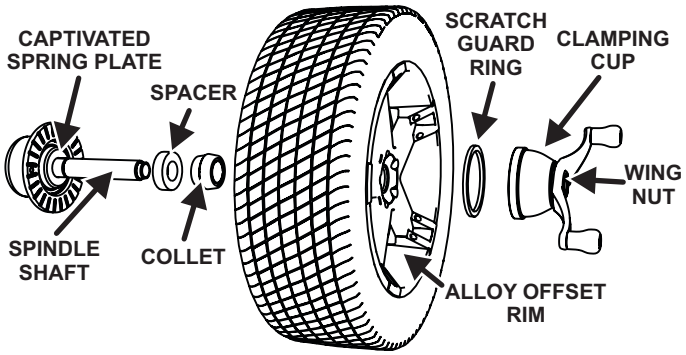


Figure 90.

Using The 9-Inch Alloy Wheel Pressure Cup

In some cases, the wing nut / Auto-Clamp™ contact point of the wheel may be extremely wide, and the standard clamp cup will not properly contact the wheel hub area. In these cases, the optional nine inch alloy wheel pressure cup may be used in place of the clamping cup.

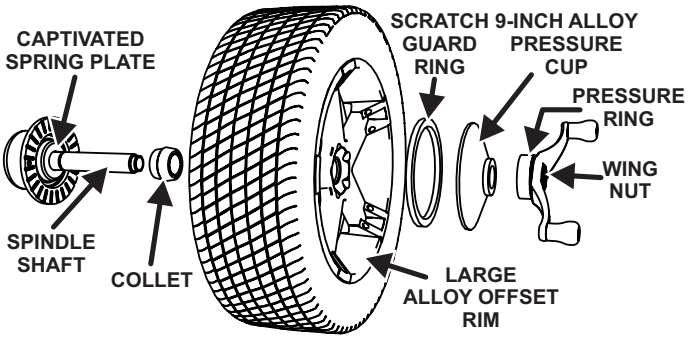


Figure 91.

Front Collet Mounting

Front collet mounting is generally not recommended. It should only be used in instances where traditional backside collet mounting is not possible.

This procedure utilizes a collet inserted from the front side of the wheel instead of the backside as previously described.

Select the proper collet by placing it in the center bore of the wheel to be balanced. Choose the collet that contacts the wheel nearest the center of the collet.

Mount the wheel with the inner rim facing the balancer. Place the collet on the spindle with the appropriate side of the collet facing the front of the wheel.

Install the wing nut / Auto-Clamp™ and pressure ring assembly onto the spindle shaft against the wheel and secure the entire assembly by firmly tightening the wing nut or / Auto-Clamp™.

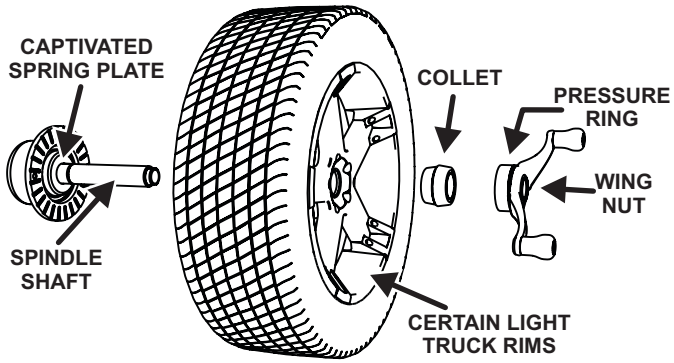


Figure 92.

Heavy Wheel Centering

Heavy wheel centering may benefit by (1) pulling the tire away from the hub face at top dead center while tightening the wing nut or (2) use of optional wheel lift to position heavy wheel onto shaft and cone. This helps the wheel to overcome gravity against the hub or spacer.

3.5 Specialized Mounting Conditions

Collet / Flange Plate Mounting

Some wheels may be centered using the lugholes and center bore with a flange plate and collet. It is important that a back mounted collet be used to support and center the wheel when using flange plates.

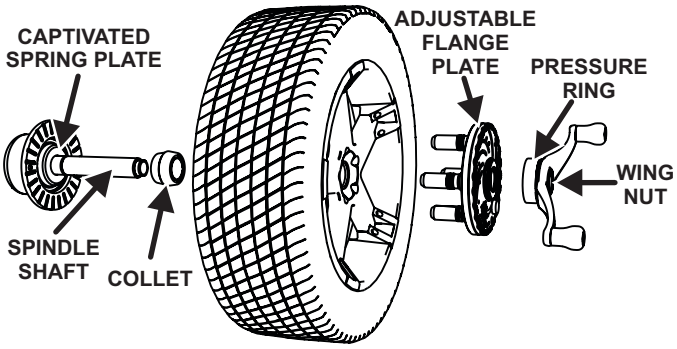


Figure 93.

The correct flange adaptor setup is determined by the following:

Measure and set the bolt circle diameter and number of studs to use against the lug holes.

Set the number of lugholes as follows:

A three-lug wheel uses three studs.

A four-lug wheel uses four studs.

A five-lug wheel uses five studs.

A six-lug wheel uses three studs.

A seven-lug wheel uses seven studs.

An eight-lug wheel uses four studs.

Choose the correct taper design of flange studs to fit the wheel lug seats. The mounting area of the flange stud must match the design of the wheel's lughole seat or depression.

The flange plate must be able to apply pressure to the center of the wheel while maintaining perpendicularity to the shaft.

> If the lug seats are unevenly machined or worn, an optional universal flange adaptor with compressible studs or bolt on lugs may be used to more accurately mount the wheel with the collet.

Flange plates are useful when the wheel cannot be properly centered off the hub bore with a collet alone because of improper fit, interference, or lack of a center hole.

A flange plate in many cases adds value because it aids in more effective centering than a collet alone. This statement is true for many wheels including hub centric wheels. That is why a flange plate and back cone may be more accurate and repeatable, regardless of whether the wheel is lug centric or hub centric.

Using the Pressure Ring and Spacers

Pressure Ring

The pressure ring clips on to the wing nut. It is used in lieu of the clamping cup.

It may also be used in place of a clamping cup if space is limited between the wheel and the end of the spindle.

The pressure ring should be used to prevent the wing nut from directly contacting an adaptor or a collet. It will act as a bearing to enable higher clamping forces.

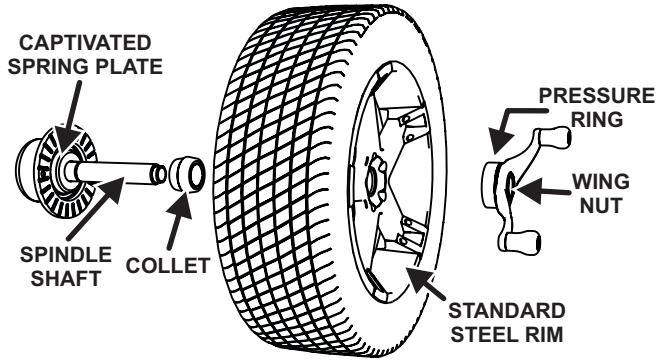


Figure 94.

Hub Ring Spacers

These spacers are designed to build a larger pocket when using extra large collets. It also provides a location for the centering pins found on some dual wheel configurations.

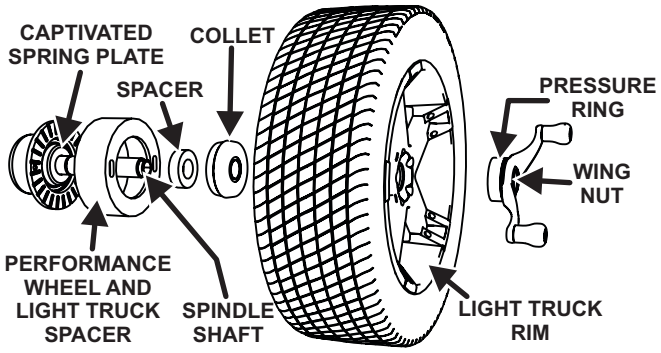


Figure 95.

3.6 On-Vehicle Wheel Installation Methods

Hub Centric

A hub centric wheel is aligned to the hub by the center bore of the wheel. The vehicle weight rests on the hub bore. The clearance between the hub bore and the hub on a hub centric wheel is between 0.003 and 0.004 of an inch. A hub centric wheel is identified by removing the lug nuts (or bolts) and moving the wheel up, down, and side-to-side. If there is virtually no movement or shift, the wheel is centered by the hub.

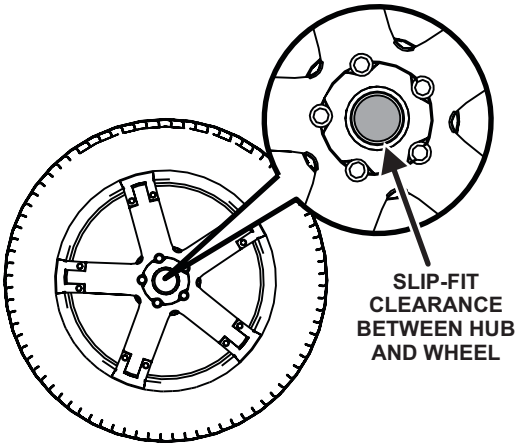


Figure 96.

To verify if the wheel is hub centric:

Remove the lug nuts (or bolts) and try to move the wheel up/down and side/side on the hub.

If the wheel has no appreciable movement around or about the centerline of the hub, it should be considered hub centric.

A hub centric wheel will have very little (0.003 – 0.004") clearance or a slip fit to the hub.

Lug Centric

A lug centric wheel is identified by removing the lug nuts (or bolts) and moving the wheel up, down, and side-to-side. If movement around the hub is apparent, the wheel is centered on the vehicle by the lugs or studs of the axle flange.

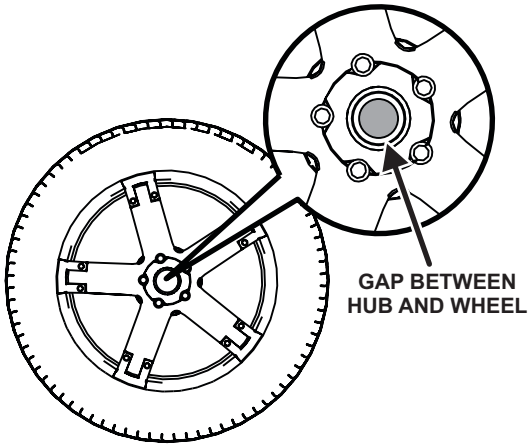


Figure 97.

The static imbalance and radial force variation of a lug centric wheel may be greatly changed when the centering of the wheel differs on the vehicle.

To verify if the wheel is lug centric:

Remove the lug nuts (or bolts) and try to move the wheel up/down and side/side on the hub.

A lug centric wheel will display noticeable movement.

Use "Step-torque" star pattern to proper torque specification.

When mounting a lug centric wheel to a vehicle, extreme centering care must be taken by ensuring the lug nuts (bolts) are tightened equally, while rotating the wheel. *(Figure 98.)*

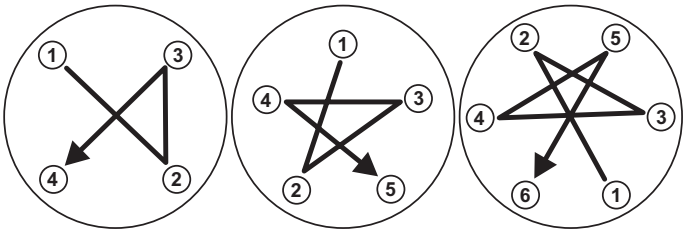


Figure 98.

3.7 Wheel Assembly Selection for Saving Spin Data

Saving Spin Data

The SmartWeight Touch®/GSP9200 Touch automatically tracks the wheel assembly currently being balanced.

The balancer assumes that the technician is working “around the vehicle” by beginning at the LEFT FRONT and working around the vehicle in a clockwise fashion. Successive spins are stored as either “before” or “after” data based on the following rules:

- If the weight displays read “OK/OK” or is blank, assume the next complete spin is “before” data.

Figure 99.

- If the weight displays read anything other than “OK/OK” or is blank, assume the next complete spin is “after” data.

Measurement Storage

The SmartWeight Touch®/GSP9200 Touch automatically tracks the wheel assemblies as they are balanced.

As the wheel assemblies are balanced, their status can be viewed as they would appear on the vehicle currently being serviced. Select the VirtualView® button to expand the VirtualView® panel.

Figure 100.

The panel can be further expanded to show detailed information for up to the last eight wheel assemblies balanced. *(Figure 101.)*

Figure 101.

Print Summary

A printout is available that incorporates a detailed image of each wheel assembly with the stored measurements. If a measured value is out of tolerance compared to the recalled specification, the value will be printed in red.

From the main balance screen, select “Print”.

Figure 102.

From the drop down menu, select “Vehicle Summary”.

Figure 103.

The Vehicle Summary screen will be displayed.

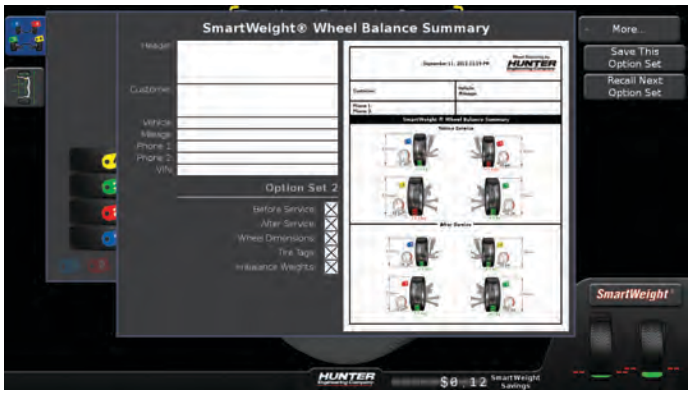


Figure 104.

From this screen, several options may be used to create custom printouts. Information such as the shop name, customer name, vehicle, etc., can be displayed on the printout.

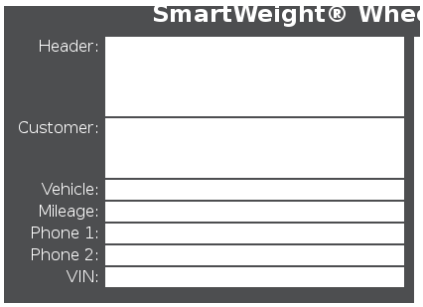


Figure 105.

Information for the printout can be entered using the on-screen keyboard.

Figure 106.

Also, custom data such as before service, after service, individual tire pull, etc., can be toggled on or off for the printout.

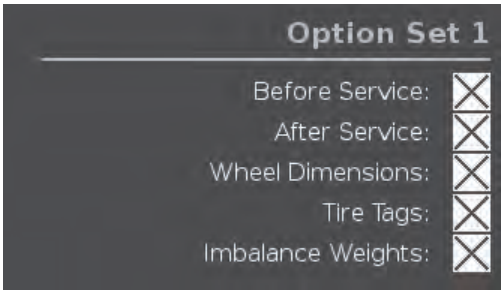


Figure 107.

Once the options are set for the printout, they can be stored and recalled later.

Figure 108.

Select “Recall Next Option Set” to cycle to the next set.

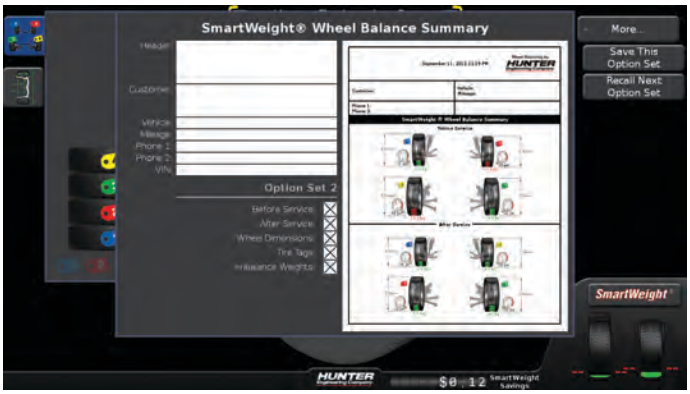


Figure 109.

Select “Print” to send before and after balance summary results to the printer.

Figure 110.

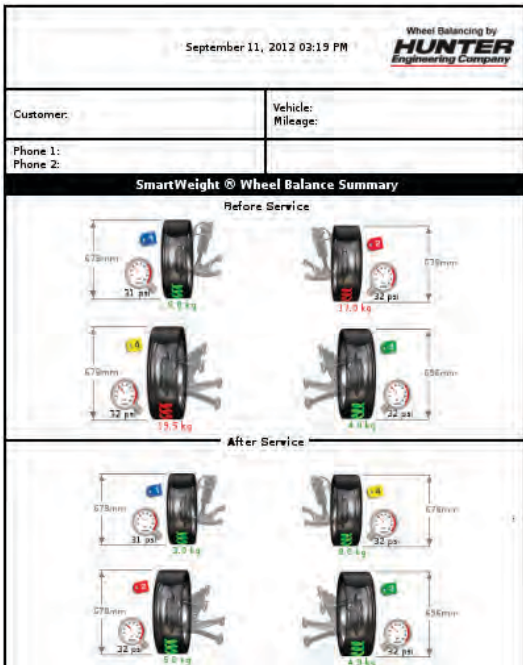


Figure 111.

3.8 Balance Modes

SmartWeight® Balancing Technology

SmartWeight® Balancing Technology is a method of reducing forces on a wheel during balancing. SmartWeight® is not a procedure. Instead, it measures the forces of side-to-side movement and up-and-down shake and computes weight to reduce these forces. This reduces the amount of correction weight used, balancing time required, check spins needed and “weight chasing”.

SmartWeight® saves the shop time and money.

Figure 112.

Dynamic Balancing – Traditional Balancing Mode

SmartWeight Balancing Technology® is the default balancing method and is the most recommended way to accurately balance wheel / tire assemblies.

Enter wheel dimensions before selecting dynamic balancing. If SmartWeight® mode is enabled in setup, the balancer will return to SmartWeight® balancing upon dimension entry.

Dynamic balancing will always display two weight planes. It provides a more complete balance than static balancing. Dynamic balancing should be selected whenever possible to minimize vehicle vibration.

Switching from SmartWeight Balancing Technology® to Traditional Dynamic Balancing

At any time, SmartWeight Balancing Technology® can be switched to standard balancing provided that both standard and SmartWeight® balancing modes are enabled in setup.

Touch the SmartWeight® button to display the SmartWeight® menu buttons.

Figure 113.

Select the Disable SmartWeight® button.

Figure 114.

The balancer is now in traditional dynamic balancing mode.

Figure 115.

When changing to traditional dynamic balancing mode, weight amounts as well as weight placement locations change.

Figure 116.

Figure 117.

Static Balancing – Traditional Balancing Mode

> Enter wheel dimensions before selecting dynamic balancing. If SmartWeight® mode is enabled in setup, the balancer will return to SmartWeight® balancing upon dimension entry.

Static balancing provides a less desirable balance than dynamic balancing. Dynamic balancing should be selected whenever possible to minimize vehicle vibration.

Switching from Traditional Dynamic Balancing to Traditional Static Balancing.

In non-SmartWeight® mode, the balancer can be switched from dynamic balancing to static balancing.

Dynamic mode is selected:

Figure 118.

Touching the static mode icon will switch to static mode.

Figure 119.

Blinding and Rounding

In non-SmartWeight® mode, the balancer can display either an “actual” or “blinded and rounded” amount of imbalance.

Touching the magnifying glass icon next to the dynamic or static icons will toggle blinding and rounding on or off.

Dynamic mode, blinding/rounding is disabled:

Figure 120.

Static mode, blinding/rounding is enabled:

Figure 121.

3.9 Balancing Procedures for Specific Weight Types and Placement using TruWeight™

The SmartWeight Touch®/GSP9200 Touch offers both automatic and manual modes for weight placement.

Figure 122. Automatic Mode

Figure 123. Manual Mode

Clip-clip, tape-tape and mixed weight modes are available for both dynamic and static balancing.

With these options, correction weights can be placed at an infinite number of locations, based upon the choice of the operator.

Automatic is the default setting, automatically choosing the correct type of weights and locations determined by the placement of the Dataset® arms.

TruWeight™ shows the operator exactly how to place the weights on the wheel. Place them exactly as displayed on the screen.

Dimensions Entry

From the main balance screen, the operator can take wheel dimensions. This is done by either lifting the inner Dataset® arm or lowering the outer Dataset® arm. In both cases, the on-screen graphics will match the movement of the arms.

Figure 124.

The action of positioning the Dataset® arms sets the corrective weight types and locations the operator chooses. The balancer will now display those types and locations during the balance procedure.

Dimensions can be viewed by touching the Dimension button.

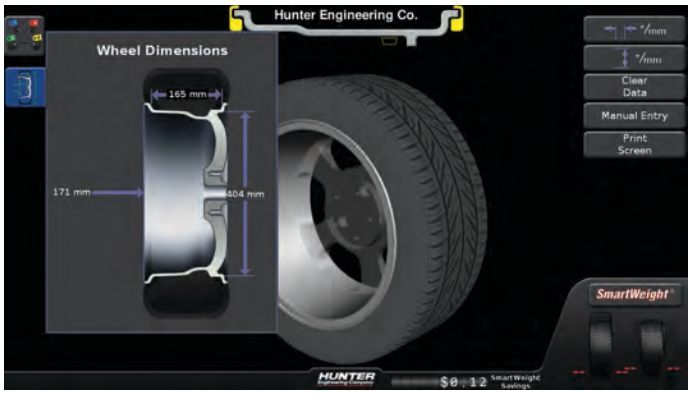


Figure 125.

Dimensions Entry - Inner Clip

Lifting only the inner Dataset® arm signals to the balancer that the operator wants to measure an inner plane clip dimension.

Figure 126.

Dimensions Entry - Inner Tape

Pulling out only the inner Dataset® arm and pointing it down signals to the balancer that the operator wants to measure an inner plane tape dimension.

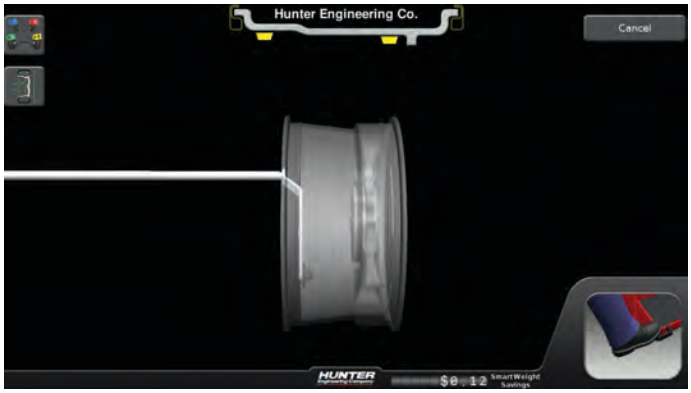


Figure 127.

Dimensions Entry - Outer Tape

Pulling out only the inner Dataset® arm, pointing it down and pressing on the foot pedal records the first dimension. Since the Dataset® arm is still in the down position, this signals to the balancer that the operator wants to measure the second inner plane tape dimension.

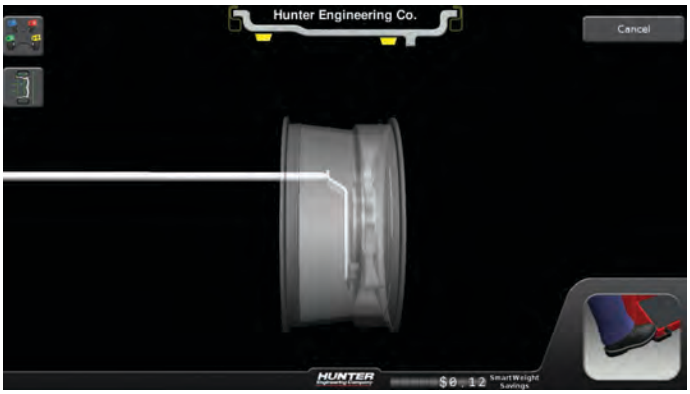


Figure 128.

Dimensions Entry - Enter Spoke(s)

Entering an outer plane tape dimension will prompt operator to enter spoke positions so that tape weight(s) can be hidden behind spoke(s).

Figure 129.

The operator can enter the spoke(s) location(s) or return the Dataset® arm to its home position to cancel spoke location entry.

Dimensions Entry - Outer Clip

Pulling out only the outer Dataset® arm after already measuring an inner clip dimension signals to the balancer that the operator wants to measure an outer plane clip dimension.

Figure 130.

Dimensions Entry - Inner and Outer Clip

Pulling out both the inner and outer Dataset® arms and placing them in the clip-clip position signals to the balancer that the operator wants to measure inner and outer plane clip dimensions.

Figure 131.

Balancing Procedure Using Clip-On Weights

Figure 132.

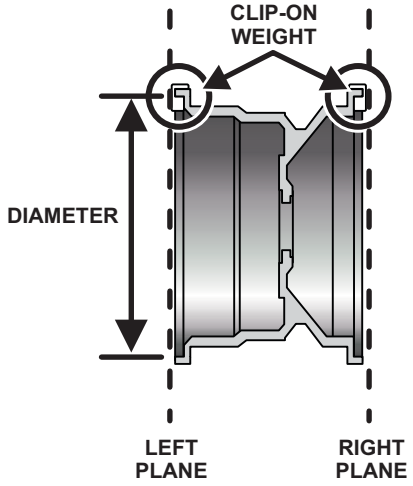


Figure 133.

Verify the correct clip-on weight type will be used for the wheel that is being balanced.

Verify that the wheel is clean and free of debris.

Remove all previous weights.

Mount tire/wheel assembly.

Use both Dataset® arms in the UPWARD position at the clip-on weight location to measure the distance, diameter, and rim width dimensions.

Figure 134.

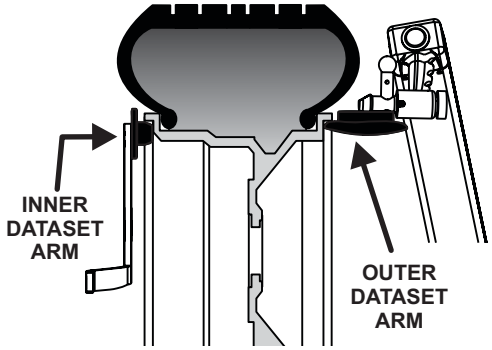


Figure 135.

Enter the rim data by depressing the foot pedal. Release the Dataset® arms.

Close safety hood.

Touch the green “START” button if “Hood Autostart” is disabled.

As the wheel is spinning, the amount(s) of corrective weight(s) needed will be shown on the screen. This time can be used to find and prepare the needed weights.

> Once weight amounts are shown on the screen, they can be toggled to display either ounces or grams by pressing the “oz” or “g” graphic shown after the weight amount.

Figure 136.

After wheel comes to a complete stop, raise the safety hood.

> If Auto Hood is enabled, the hood will raise automatically.

The SmartWeight Touch®/GSP9200 Touch will find the top-dead-center (TDC) for the first weight plane if “Servo-Stop” is enabled. “Servo-Stop” will hold the wheel in the TDC position while the weight is applied.

Figure 137.

Attach the weight amount shown on the screen for the selected weight plane to the correct side of the wheel.

TruWeight™ shows the operator exactly how to place the weights on the wheel. Place them exactly as displayed on the screen.

> If the optional HammerHead® TDC weight locator is installed, the weight should be applied at the location marked by the laser.

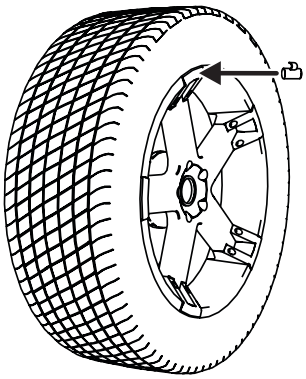


Figure 138.

Touch the green “START” button with the safety hood in the raised position.

Figure 139.

The SmartWeight Touch®/GSP9200 Touch will rotate the wheel to TDC for the next weight plane. The view of the wheel will also change to the next plane view and the weight amount for the next plane will be displayed in green.

Figure 140.

Optionally, pressing the next plane weight amount will rotate the wheel to TDC for the next weight plane.

Attach the weight amount shown on the screen for the selected weight plane to the correct side of the wheel.

TruWeight™ shows the operator exactly how to place the weights on the wheel. Place them exactly as displayed on the screen.

If the optional HammerHead® TCD weight locator is installed, the weight should be applied at the location marked by the laser.

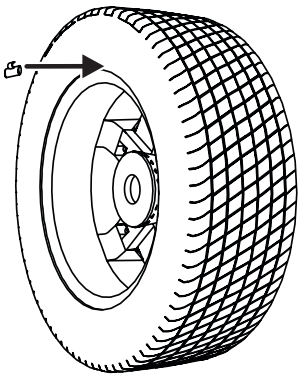


Figure 141.

Close the safety hood to perform a check spin.

Left and right weight plane displays should show “OK” after the check spin.

Figure 142.

The clip-on weight balancing procedure is complete.

Balancing Procedure Using a Combination of Clip-On & Adhesive (Tape) Weights (Mixed Weights)

Figure 143.

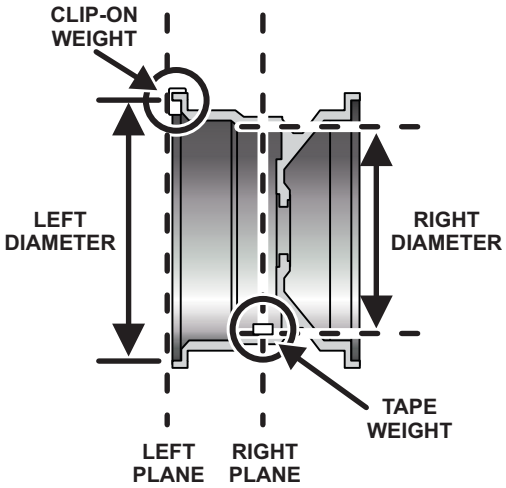


Figure 144.

Verify that the wheel is clean and free of debris.

Remove all previous weights.

Mount tire/wheel assembly.

Use the inner Dataset® arm in the UPWARD position at the clip-on weight location to measure the distance, diameter, and rim width dimensions.

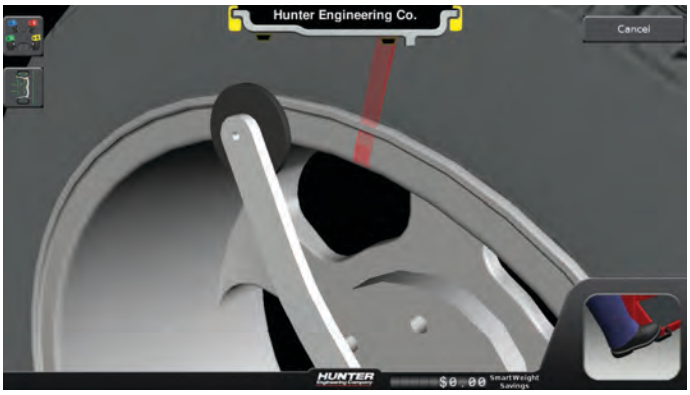


Figure 145.

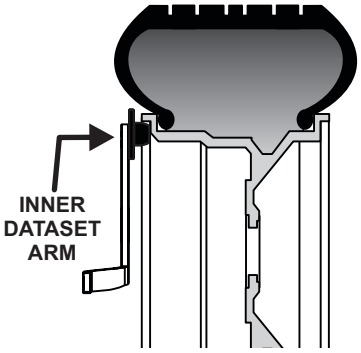


Figure 146.

Do NOT return the arm to the “home” position.

Using the DOWNWARD position, move the inner Dataset® arm disk edge to the location for placement of the right edge of the adhesive weight on the right weight plane and enter data by depressing the foot pedal.

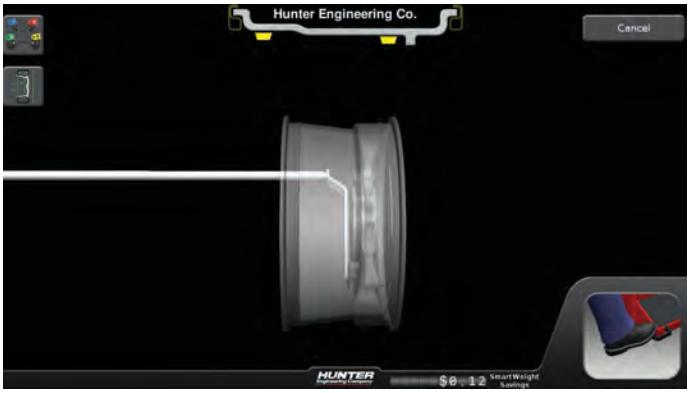


Figure 147.

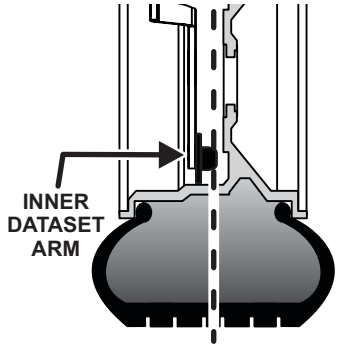


Figure 148.

If the Split Spoke® feature of hiding weights behind spokes is to be used, position the Dataset® arm disk in the center of a spoke and tap the foot pedal.

Figure 149.

Move to the next spoke and repeat. Up to 10 spoke locations may be entered.

Close safety hood.

Touch the green “START” button if “Hood Autostart” is disabled.

As the wheel is spinning, the amount(s) of corrective weight(s) needed will be shown on the screen. This time can be used to find and prepare the needed weights.

> Once weight amounts are shown on the screen, they can be toggled to display either ounces or grams by pressing the “oz” or “g” graphic shown after the weight amount.

Figure 150.

After wheel comes to a complete stop, raise safety hood.

> If Auto Hood is enabled, the hood will raise automatically.

The SmartWeight Touch®/GSP9200 Touch will find the top-dead-center (TDC) for the first weight plane if “Servo-Stop” is enabled. “Servo-Stop” will hold the wheel in the TDC position while the weight is applied.

Figure 151.

Attach the clip-on weight amount shown on the screen for the left weight plane to the inner rim of the wheel.

TruWeight™ shows the operator exactly how to place the weights on the wheel. Place them exactly as displayed on the screen.

If the optional HammerHead® TCD weight locator is installed, the weight should be applied at the location marked by the laser.

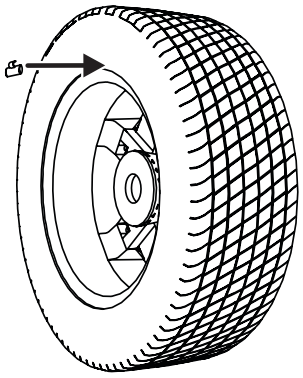


Figure 152.

Touch the green “START” button with the safety hood in the raised position.

Figure 153.

Optionally, pressing the next plane weight amount will rotate the wheel to the next weight plane.

The SmartWeight Touch®/GSP9200 Touch Servo-Activated Laser automatically locates BDC to aid in fast adhesive weight positioning.

Figure 154.

The BDC laser locator automatically displays a vivid line at bottom dead center after a wheel has been spun. The laser turns off when the wheel is spun again.

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

With the servo enabled, attach the adhesive weight using the weight amount shown for the right weight plane on the screen.

TruWeight™ shows the operator exactly how to place the weights on the wheel. Place them exactly as displayed on the screen.

Close the safety hood to perform a check spin.

Left and right weight plane displays should show “OK” after check spin.

Figure 155.

MIXED WEIGHTS balancing procedure is complete.

Balancing Procedure Using Adhesive (Tape) Weights

Figure 156.

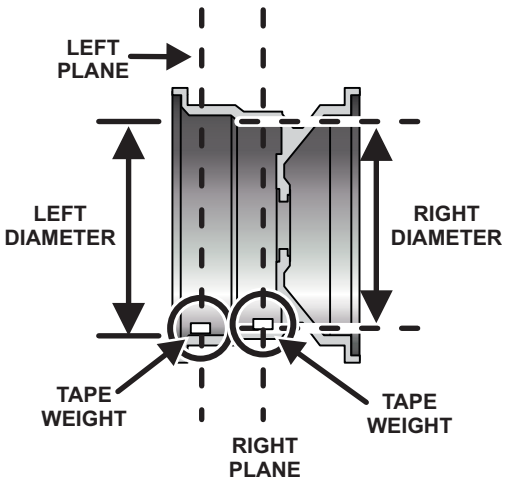


Figure 157.

Verify that the wheel is clean and free of debris.

Remove all previous weights.

Mount tire/wheel assembly.

Using the DOWNWARD position, move the inner Dataset® arm disk edge to the location for placement of the left edge of the adhesive weight on the left weight plane and enter data by depressing the foot pedal.

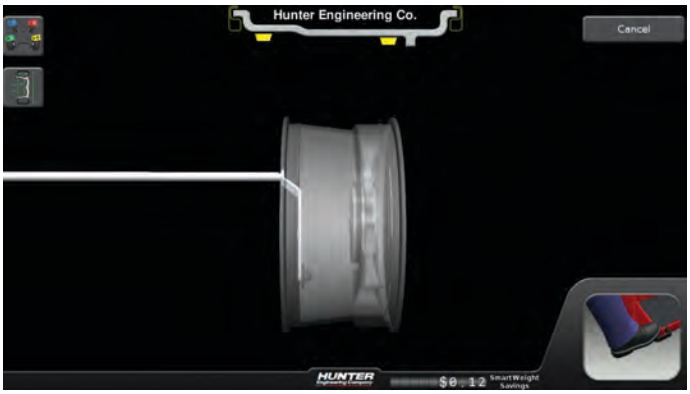


Figure 158.

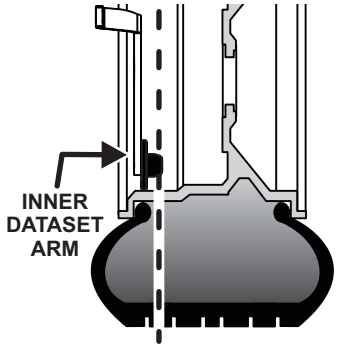


Figure 159.

Do NOT return the inner Dataset® arm to the “home” position.

Using the DOWNWARD position, move the inner Dataset® arm disk edge to the location for placement of the right edge of the adhesive weight on the right weight plane and enter data by depressing the foot pedal.

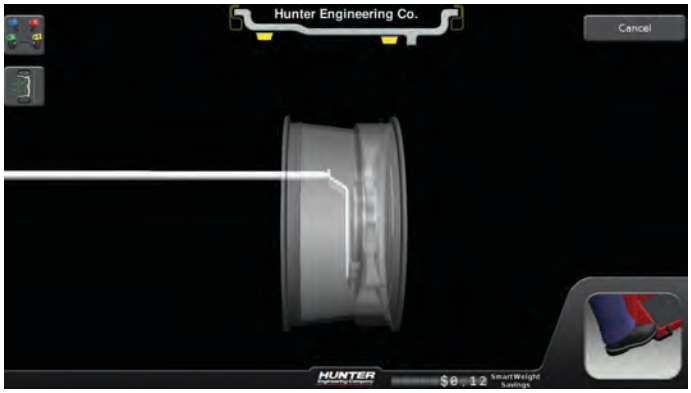


Figure 160.

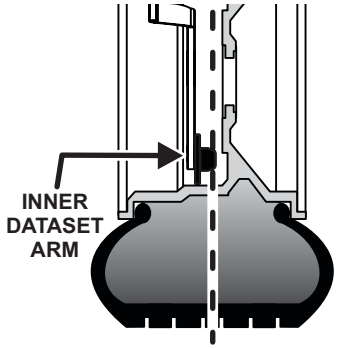


Figure 161.

If the Split Spoke® feature of hiding weights behind spokes is to be used, position the Dataset® arm disk in the center of a spoke and tap the foot pedal.

Figure 162.

Move to the next spoke and repeat. Up to 10 spoke locations may be entered.

Close safety hood.

Touch the green “START” button if “Hood Autostart” is disabled.

As the wheel is spinning, the amount(s) of corrective weight(s) needed will be shown on the screen. This time can be used to find and prepare the needed weights..

Once weight amounts are shown on the screen, they can be toggled to display either ounces or grams by pressing the “oz” or “g” graphic shown after the weight amount.

Figure 163.

After wheel comes to a complete stop, raise the safety hood.

If Auto Hood is enabled, the hood will raise automatically.

The SmartWeight Touch®/GSP9200 Touch Servo-Activated Laser automatically locates BDC to aid in fast adhesive weight positioning.

Figure 164.

The BDC laser locator automatically displays a vivid line at bottom dead center after a wheel has been spun. The laser turns off when the wheel is spun again.

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

With the servo enabled, attach the adhesive weight using the weight amount shown for the left weight plane on the screen.

TruWeight™ shows the operator exactly how to place the weights on the wheel. Place them exactly as displayed on the screen.

Touch the green “START” button with the safety hood in the raised position.

Figure 165.

Optionally, pressing the next plane weight amount will rotate the wheel to the next weight plane.

Close the safety hood to perform a check spin.

Left and right weight plane displays should show “OK” after the check spin.

Figure 166.

ADHESIVE WEIGHTS balancing procedure is complete.

3.10 Automatic Dataset® Arms Operation

Auto Dataset® arms are a faster and more accurate method to take rim measurements than traditional methods. Auto Dataset® arms are used to input rim distance, rim width, and weight plane location automatically. The Dataset® arms of the SmartWeight Touch®/GSP9200 Touch are positioned on the weight plane and data is entered by depressing the foot pedal.

Auto Dataset® arms also input weight position measurements for balancing.

Automatic Weight Position Measurement

The Dataset® arms can be used to enter weight position dimensions instantly and accurately. The arms are “triggered” when they are moved away from their home position. When the arms are triggered, graphic representation on the screen identifies the plane currently being inputted.

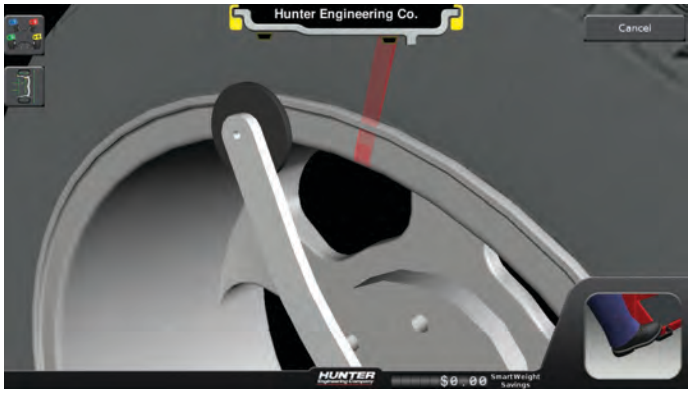


Figure 167.

Figure 168.

In most cases, the Dataset® Arms are used to input the exact weight position.

The exact weight position is entered by holding the arm(s) stable in the desired location and depressing the foot pedal to enter the dimensional data.

Manual Weight Position Measurement

Touch the screen in the upper rim profile area to toggle manual weight selection. The balancer will switch to Manual Weight Selection mode.

Figure 169.

Touching the weight locations will change the weight location planes.

Figure 170.

Automatic is the default setting, automatically choosing the correct type of weights and locations determined by the placement of the Dataset® arms. Hunter Engineering Company recommends using the inner and outer Dataset® arms to enter dimensions (Automatic).

Measuring Dimensions

Positioning the Auto Dataset® arms on the desired weight planes and tapping the foot pedal will record wheel dimension data.

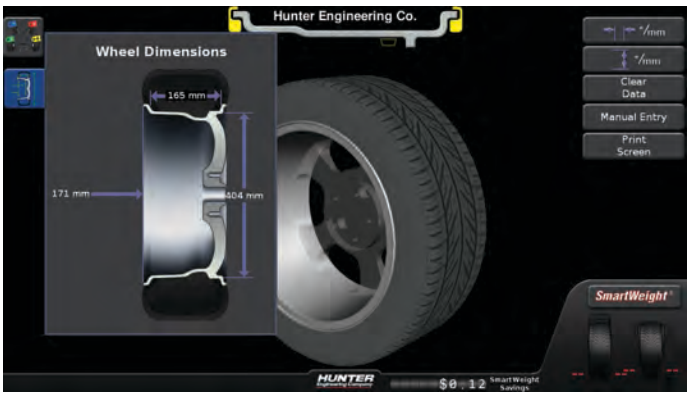


Figure 171.

3.11 Blinding and Rounding

In non-SmartWeight mode the balancer can display either an “actual” or “blinded and rounded” amount of imbalance.

“Blind” is a tolerance or amount of imbalance required before an imbalance amount is displayed. “Round” allows the balancer to display weight imbalance to a desired increment. The blind and round values can be changed in the “Setup” procedure.

While in the “Balance” primary screen, blind and rounding may be disabled by touching the screen to highlight the magnifying glass. The actual amounts of imbalance for the selected mode will be displayed when “Blind and Rounding” are disabled as shown below.

Dynamic mode, blinding/rounding is disabled:

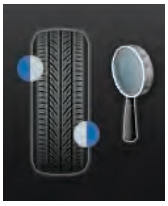


Figure 172.

Static mode, blinding/rounding is enabled:

Figure 173.

3.12 Tape Weight Menu

By touching a weight on the wheel, such as the strips of weight shown below, a weight style menu will appear.

Figure 174.

Figure 175.

This offers the ability to change to another style of tape weight and/or split the weight. This can improve balancing accuracy.

Here, the 1/2 oz style weights were selected by touching that weight on the screen.

Figure 176.

Additional properties of the available weight styles are considered in the calculations so that chase spins are avoided. It is even possible for a menu choice to change the total required weight size to place on the wheel. Unlike previous balancers, the weight properties and placement arrangements are not assumed by the calculations. The ability to "tell" the balancer what you are using and doing avoids time consuming weight chasing.

The weight menu won't always provide a choice using single row weights.

Showing a single weight as a second row may seem odd, but it's saving effort before and after applying the weights. To trim a single strip of 1/2 oz weights to 3.75 oz is tedious enough, but to center that trimmed length on the BDC laser line would be even harder.

Placing the strip of 1/2 oz weights first and then the single 1/4 oz weight is faster more accurate. This mixed use of weight strip styles is no problem since the balancer knows exactly what styles are used and how the pieces are arranged.

Split Weight®

Touching "Split the Weight" fans the weight on selected plane into two smaller weights.

Figure 177.

If the servo is on at the time of the split, the wheel will move one of the split weights to BDC and turn on the laser for weight placement. Repeated touches of "Split the Weight" will provide alternate choices where the weights fan further apart but become larger to accommodate the correction needed.

To return to the single weight, touch “Split the Weight” repeatedly until the weights become larger than the single weight and return to the un-split weight.

Figure 178.

Correcting Large Imbalances

Split Weight® can also be used to apply three weights when needed. For example, a large wheel may require 6.75 ounces. Not only is this size unlikely to be in the weight tray, but splitting 6.75 ounces would likewise result in large weights. In this case, apply one-third of the called for weight (in this case 2.25 ounces) at the 6.75 ounce weight location and spin the assembly again. The display will now call for a 4.5 ounce weight to be placed on top of the 2.25 ounce weight.

Touch “Split the Weight” to fan out the two weights until they clear the previously applied 2.25 ounce weight. Then place the two indicated ounce weights on either side of the 2.25 ounce weight using the TDC indicators.

3.13 Split Spoke® Feature

When in either mixed weight or adhesive weight modes, (dynamic or static), correction weights can be hidden behind the spokes of a wheel.

If the Split Spoke® feature of hiding weights behind spokes is to be used, position the Dataset® arm disk in the center of a spoke and tap the foot pedal.

Figure 179.

Move to the next spoke and repeat. Up to 10 spoke locations may be entered.

> When SmartWeight® is enabled in conjunction with wheel spoke entry, the “SmartSpoke®” weight locator feature can in many instances allow the use of weight at only one spoke when it would have required two using conventional spoke mode balancing.

Continue the balance procedure as normal.

3.14 BDC Laser Adhesive Weight Locator

The Servo-Activated Laser automatically locates BDC to aid in fast adhesive weight positioning.

During the mixed weights and adhesive weights balancing procedures, the BDC laser locator automatically displays a vivid line at bottom dead center after a wheel has been spun. The laser turns off when the wheel is spun again.

> Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

This Laser Product is designated as Class 1M during all procedures of operation.

Never look directly into the laser. Doing so may cause serious injury.

Figure 180.

Operation accessible radiation fields:

Wavelength: 635-660nm

Laser Power for Classification: <390uW via 7mm aperture

Beam Diameter: <5mm at aperture

Divergence: <1.5mrad x <2rad

Transverse Beam Mode: TEM00

3.15 Optional HammerHead® TDC Laser Adhesive Weight Locator

The balancer will find the TDC for the left or right weight plane if “Servo-Stop” is enabled. “Servo-Stop” will hold the wheel in the TDC position while the servo-activated laser automatically locates TDC to aid in fast clip-on weight positioning.

The HammerHead® TDC Laser System automatically displays a vivid line at top dead center after a wheel has been spun. The laser turns “off” when the wheel is spun again.

> Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

This Laser Product is designated as Class 1M during all procedures of operation.

Never look directly into the laser. Doing so may cause serious injury.

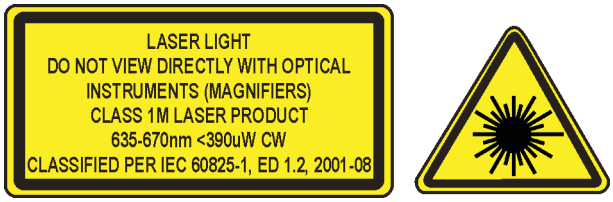


Figure 181.

Operation accessible radiation fields:

Wavelength: 635-660nm

Laser Power for Classification: <1mW via 7mm aperture

Beam Diameter: <5mm at aperture
Divergence: <1.5mrad x <2rad

Transverse Beam Mode: TEM00

Specific Precautions / HammerHead® TDC Laser System

Use caution in regard to reflective materials around the laser and never look into the laser beam

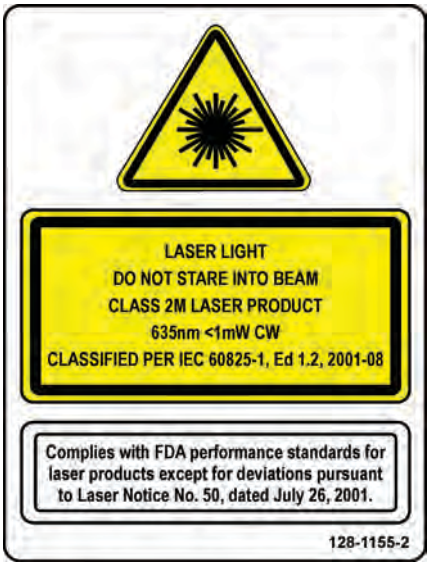


Figure 182.

3.16 TPMSpecs™ Feature

TPMS specifications can also be found on Hunter Aligners (with WinAlign 11.0 and greater) and online at UnderCarInfo.NET (subscription service).

The TPMSpecs® feature identifies vehicles with tire pressure monitoring systems. It also provides in-depth information regarding the service of TPMS.

- TPMS Type
- Sensor Type
- Reset Required on Tire Rotation or Replacement
- Reset Tool Requirement
- Required Tools
- Reset Procedure
- TPMS Hints
- Information / Disclaimers

TPMSpecs® may be accessed in two ways.

Option 1:

From the Main Balance screen, scan a VIN barcode. TPMS information for the vehicle scanned will be automatically retrieved and displayed.

Option 2:

From the main balance screen, touch the “Tools” button.

Figure 183.

Touch the “TPMS” button.

Figure 184.

The main TPMSpecs® screen is displayed. Select the make, model and specifics of the vehicle being serviced.

Figure 185.

Figure 186.

Figure 187.

The “AT A GLANCE” overview starts each vehicle TPMS specification. The first image shows the type of TPMS sensor on the vehicle. The following three images show the requirements for servicing the wheel: process, scan tool and OEM scanner. The red border, yellow border or grayed appearance of the image denotes the requirement as required, optional or not required. Red and white striped border indicates the requirement is possibly required; refer to the explanation below the images.

Figure 188.

Scroll up or down by dragging the scroll bar, or touching the “up” and “down” arrows on the right side of the screen.

Figure 189.

Touch the “Home” button to return to the main TPMSpecs® Menu.

Figure 190.

Touch the “arrows” to navigate backward or forward.

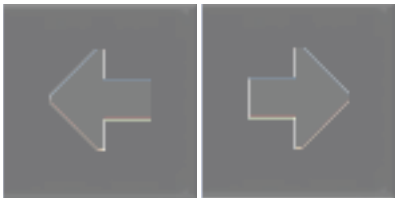


Figure 191.

Touch the “print” button to print the current page.

Figure 192.

Touch “X” to return to the balancer screen.

Figure 193.

3.17 Hunter Help

Video Player

The Video Player feature provides tips and procedures for using the SmartWeight Touch®/GSP9200 Touch GSP9700.

To access the Video Player:

From the main balance screen, touch the “Help” button.

Figure 194.

Touch the “Launch Video Player” button.

Figure 195.

The main video menu screen is displayed.

Figure 196.

Select a topic from the menu to view the video.

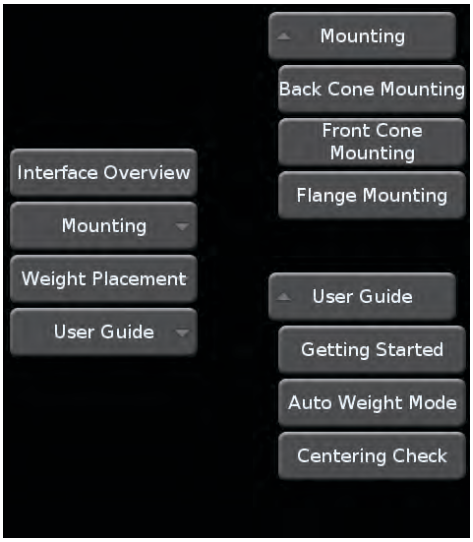


Figure 197.

The video screens may change as new content is added.

The selected video will begin playing.

Go back in the video by touching the “back” button.

Figure 198.

Play the video by touching the “play” button.

Figure 199.

Stop the video by touching the “stop” button.

Figure 200.

Go forward in the video by touching the “forward” button.

Figure 201.

Decrease the video volume by touching the “-” button.

Figure 202.

Mute the video volume by touching the “mute” button.

Figure 203.

Increase the video volume by touching the “+” button.

Figure 204.

Exit the video player by touching the “Exit” button.

Figure 205.

Launch Help

The Hunter Help feature provides tips and procedures for Hunter balancers and tire changers. It also provides a Rolling Smooth Sample Quiz.

Additional content will be added to the Hunter Help files and can be updated as it becomes available.

To access Hunter Help:

From the main balance screen, touch the “Help” button.

Figure 206.

Touch the “Launch Help” button.

Figure 207.

The Main Menu of Hunter Help is displayed. Select the item to view by touching the selection.

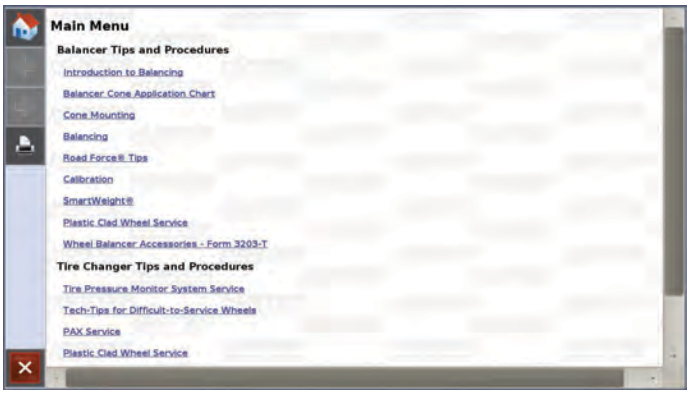


Figure 208.

The help screens may change as new content is added.

Some items have sub-menus that will display help on a specific topic. Touch to view the selected topic.

Figure 209.

Detailed help on specific topics can also be printed. Select “Print” to print the page currently being viewed.

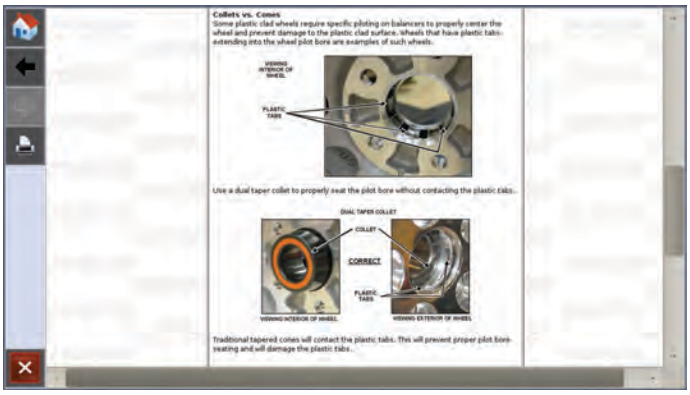


Figure 210.

Scroll up or down by dragging the scroll bar, or touching the “up” and “down” arrows on the right side of the screen.

Figure 211.

Touch the “Home” button to return to the main Hunter Help Menu.

Figure 212.

Touch the “arrows” to navigate backward or forward.

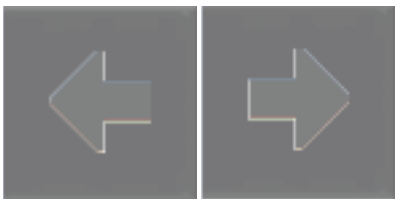


Figure 213.

Touch the “print” button to print the current page.

Figure 214.

Touch “X” to return to the balancer screen.

Figure 215.

3.18 Printout

Touching the “Print” button will allow the operator to print summary information.

Figure 216.

Touching the “Vehicle Summary” button opens the Vehicle Summary screen.

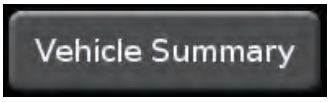


Figure 217.

Custom vehicle summaries can be created by selecting the items to include in the printout. When a custom summary is created, it can be saved by touching the “Save This Option Set” button.

Figure 218.

Custom vehicle summaries can be recalled by touching the “Recall Next Option Set” button.

Figure 219.

Print information can also be entered in the text boxes on the Vehicle Summary screen.

Use “Header:” to display shop name, address, and phone, or any custom message to appear on the printout.

Use “Name:” to display the customers name.

Use “Vehicle:” to display the vehicle being serviced.

Use “Mileage:” to display the vehicle mileage.

Use “VIN:” to display the vehicle identification number.

Figure 220.

Touching in any text field will launch the on-screen keyboard. Use the on-screen keyboard to type in the desired fields.

Figure 221.

3.19 Quick-Thread® Wheel Clamping

Quick-Thread® is an “intelligent” DC drive motor control feature that allows motor assisted threading for fast installation and removal of the SmartWeight Touch®/ GSP9200 Touch wing nut.

Keep clear of clamping components during Quick-Thread shaft rotation.

Lift the wheel assembly onto the shaft as normal without threading on the wing nut.

With the left hand, hold the rim over the cone to remove the weight of the rim from the spindle and to allow maximum quick-thread wing nut travel.

Place the wing nut on the spindle and rotate one full turn onto the spindle threads.

With the right hand, hold one handle of the wing nut while lifting the rim.

Heavier wheel assemblies may require extra lifting to prevent the software limited motor torque control from stopping the rotation of the spindle.

Tap the foot pedal twice and the spindle will rotate to install the wing nut to save threading time.

The direction of spindle rotation toggles each time it is used. For normal operation, spindle rotation will begin in the correct direction for wing nut installation. A single tap within the first three seconds of rotation will reverse the direction of rotation. A single tap after the first three seconds of rotation will stop rotation.

Quick-Thread® spindle rotation will stop when the clamping components contact the wheel, or when the foot brake is applied for more than half of a second.

Quick-Thread® does not tighten the wing nut! In Quick-Thread® rotation, torque allowed is minimal. Therefore, the wing nut must still be hand-tightened before balancing.

Because of the software limited torque control, you must loosen the wing nut before Quick-Thread® will remove it.

Quick-Thread® will not operate under the following conditions:

- If the balancer is in “Diagnostics,” “Setup,” or “Calibration.”
- If either Dataset® arm is out of its “home position” while in the “Balance” screen.

Auto-Clamping™ Wheel Clamping (Optional)

Auto-Clamp is an optional spindle equipped with a pneumatic clamping device that eliminates the spin on type wingnut.

3.20 Motor Drive/Servo-Stop and Spindle-Lok®

Motor Drive/Servo-Stop

The intelligent DC motor drive on the SmartWeight™ is able to position and hold the tire assembly in position for weight application, apply different amounts of torque, and control the speed and direction of the spindle.

When the “Start” button is touched with the hood in the raised position, while weights are showing, the motor will automatically rotate the wheel to the next weight plane and hold the assembly in position for weight or mark application.

Alternatively, touching the weight amounts will achieve the same results.

Figure 222.

Spindle-Lok® Feature

Depressing the foot pedal will lock the spindle. Locking the spindle will stabilize the wheel for attaching weights at precise locations if automatic weight positioning is disabled, and will allow for tightening and loosening of the wing nut.

Do not use the Spindle-Lok® as a brake to stop a spinning wheel.

Depressing the foot pedal will cancel Servo-Stop.

Using the Spindle-Lok® to stop a spinning wheel may result in personal injury or damage to the balancer.

3.21 Safety Hood Features

Hood Autostart

The balancer can be set to automatically spin the wheel upon hood closure. After a spin, the hood must be raised completely before the balancer will Autostart again.

For safety, the balancer will not Autostart in “Calibration,” “Setup,” “Diagnostics,” if no balancing procedure is selected.

3.22 Loose Hub Detect Feature

When the SmartWeightTouch® senses that the wheel is loose, it will automatically stop the spin. Secure the tire/ wheel assembly before proceeding.

If the wing nut appears to be tight, remove the wing nut and then clean and lubricate the spindle threads.

Figure 223.

4. Equipment Information

4.1 Tools

The Tools button contains equipment information and set up options.

Quick Calibration Check

Quick Calibration Check allows the operator to check balancer calibration.

From the main balance screen, touch the “Tools” button.

Figure 224.

Touch the “Quick Calibration Check” button.

Figure 225.

Install the calibration weight on the spindle faceplate and follow the on-screen instructions.

Figure 226.

After calibration check, remove calibration weight.

Set Up

The “Set Up” screen contains a list box of balancer set up items.

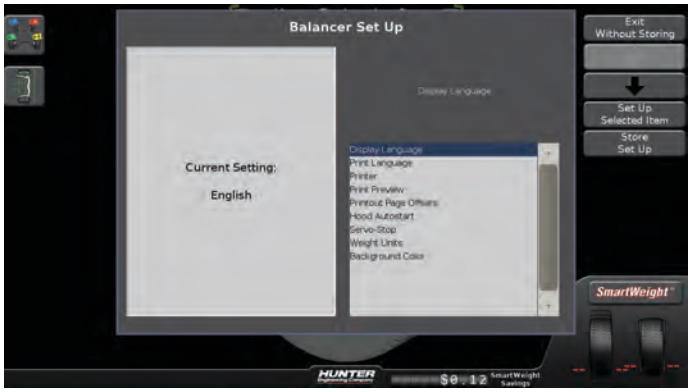


Figure 227.

From the main balance screen, touch the “Tools” button.

Figure 228.

Touch the “Advanced” button.

Figure 229.

Touch the “Set Up” button.

Figure 230.

Change set up features by touching the desired item then touching the “Set Up Selected Item” button.

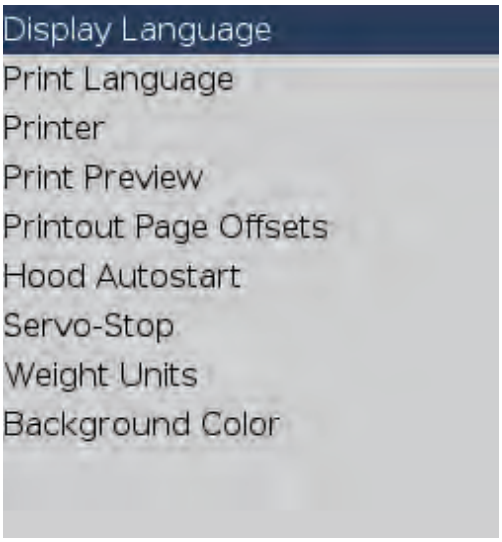


Figure 231.

Figure 232.

Available options will be displayed.

Figure 233.

When the selection is made, touch “OK” to save or “Cancel” to abandon.

Figure 234.

To scroll up or down in the list of items, either press the “Up” or “Down” arrows, or drag the scroll bar.

Figure 235.

The upper right area of the set up screen displays the current setting for each feature.

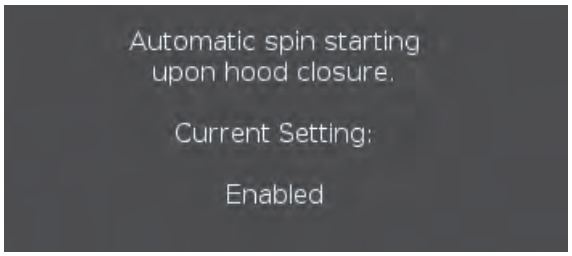


Figure 236.

The set up information is not stored until “Store Set Up” is touched.

Figure 237.

To abandon the set up procedures without saving changes, touch the “Exit” button or reset the system.

Figure 238.

“Reset All” Button

Clears all data and returns the balancer to a freshly booted condition.

Figure 239.

Specification Database

The specification database can be accessed by two different methods.

Touch the specification database tab button or touch the text that says “No Vehicle Selected.”

Figure 240.

A drop down list appears listing vehicle makes. Touch the desired make, year and model.

Figure 241.

Navigation buttons at the top of the drop down list allow for back and refresh.

Specification information will be displayed.

Figure 242.

TPMS specification information can be accessed by touching the “View TPMS Info” button.

Figure 243.

The selected vehicle now shows at the top of the screen.

Figure 244.

The specification database will be updatable.

Volume Control

Selects the volume output for both the beep and click sounds. Video volume is adjustable on the selected video screen.

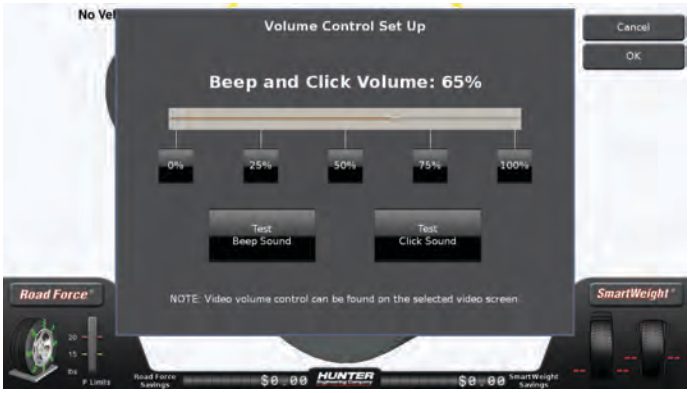


Figure 245.

Date and Time

Date and time can be set by user. There is also support for international date format (DD/MM/YYYY).

From the set up screen, touch “Set Date and Time”. *(Touch the desired time zone)*

Figure 246.

Touch the desired date and time. Touch the box next to the desired date format.

Figure 247.

To set up a desired time zone, touch “Edit Time Zone”.

Touch the desired time zone. Touch “Set Time Zone” to save.

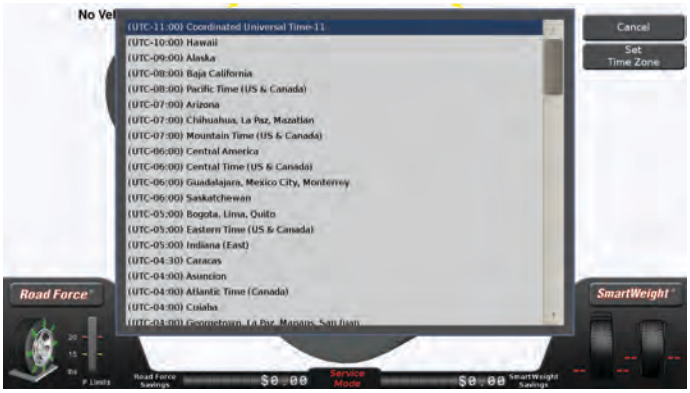


Figure 248.

Support of 3M Tape Weights

The ability to use 3M tape weights is now available. Note: the balancer does not have to be in service mode to set up 3M tape weights.

From the main screen, touch the “Tools” button.

Figure 249.

Touch the “Advanced” button.

Figure 250.

Touch the “Set Up” button.

Figure 251.

The screen will display a list of available set up options.

Scroll down and touch “3M Tape Weights”.

Touch the “Set Up and Selected Item” button.

Figure 252.

Touch the boxes that match the size and shape profiles of the 3M tape weights to be used.

Touch “OK” when finished. .

Figure 253.

Note: If the exact profile of the 3M tape weight(s) to be used is not shown, select the closest match.Physically hold the 3M tape weight(s) up to the screen.

When prompted for adding balance weight, touch the weight icon on the rim. The 3M tape weights will show up as a selection.

Touch the 3M tape weight to use it.

Figure 254.

If multiple 3M tape weights are set up, touch the weight that is the closest match to the weight being used.

Figure 255.

Physically hold the 3M tape weight(s) to the screen. The images on the screen are correctly scaled.

Display Language

Selects the language for on-screen display.

Print Language

Selects the language for printouts.

Printer

Sets printer output to the desired printer.

Print Preview

Enables or disables print preview.

Printout Paper Size Selection

Selects the size of paper for printouts.

Selectable Print Destination

From any printable screen or report, there is now an option to print to multiple destinations. For example, if there is a printer attached to the balancer and a thumb drive is plugged into a USB port, the operator is given a choice of where the print job should go.

Touch the “print” button. A pop-up dialog box will appear.

Figure 256.

When printing to a USB drive, the drive must contain a volume “name”. The USB drive must first be “named” using your laptop or another PC then plug it in an open USB port. Use the one on the neck for easy removal to print on a PC.

Touch the arrow to the right of the listed printer. A list of available destinations will appear.

Select the desired destination and touch “OK”.

Figure 257.

The same feature is available on customer report print screens.

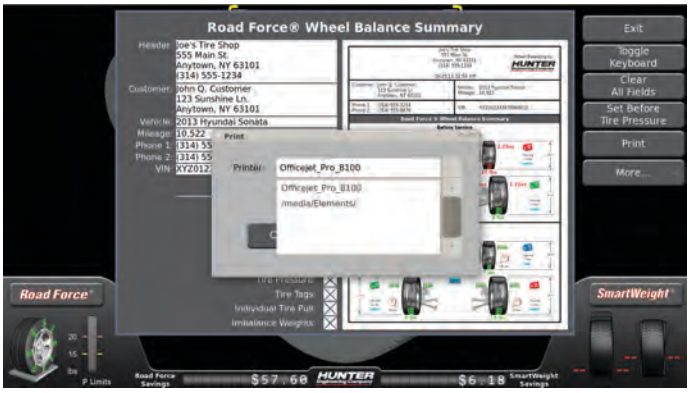


Figure 258.

Hood Autostart Feature

Enables or disables automatically starting the spin upon closing the hood.

Servo-Stop

Enables or disables the intelligent DC motor drive to automatically rotate the wheel to the weight positions. Servo-Push may also be enabled, which allows pushing the wheel (approximately 1/8 of a revolution) to cause the intelligent DC motor drive to automatically rotate the wheel to the next weight positions. Touching the “START” key or the weight amounts or locations may still be used for this function. Options are Enabled, Disabled or Enabled with “Servo-Push”

Rim Dimension Manual Entry

In the event of a Dataset® arm failure, balancing can still be performed by using a tape measure to manually input rim dimensions.

Touch the “Wheel Dimensions” button.

Touch the “Manual Entry” button.

Figure 259.

In this example, no dimensions have been entered.

Use a tape measure to obtain the outer rim dimension.

Touch the box and use the keypad to enter the dimension.

Rpeat for the rim width dimension.

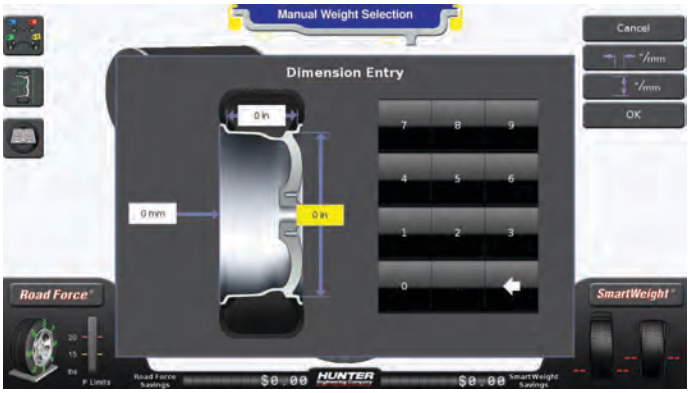


Figure 260.

Touch the inner rim dimension box. Instructions will appear explaining how to measure the inner distance dimension.

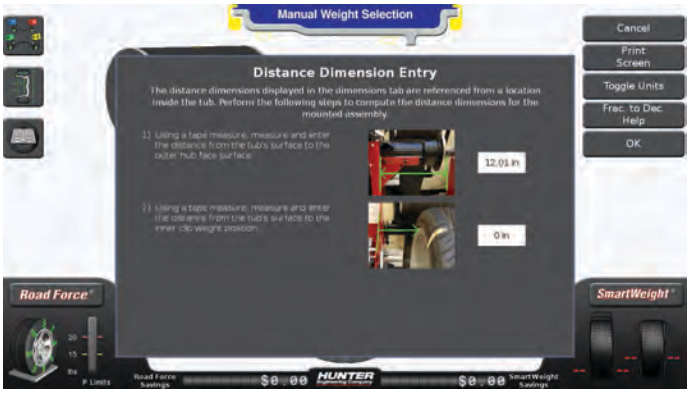


Figure 261.

If needed, a “Fraction to Decimal Help” application is available.

Press “OK” to continue.

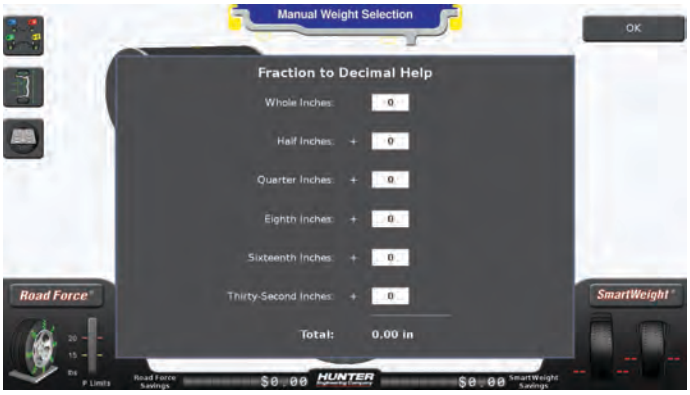


Figure 262.

Rim Interior Light

When the inner Dataset® is rotated downward, the rim interior light activates. This is useful for inspection, cleaning the rim interior and applying tape weights. Inner Dataset® arm in “home” position.

Figure 263.

Inner Dataset® arm in “down” position.

Figure 264.

Balance Checkspin

Enables or disables the load roller during balance verification spins. When enabled the load roller will automatically disabled as necessary. Options are Disabled or Enabled.

Weight Units

Use “Weight Units” to select ounces or grams for displaying wheel weights.

Background Color

Changes the background color of all screens.

Calibration Procedures

Using calibration procedures, the operator can calibrate the following systems:

- Inner Dataset
- Outer Dataset

The operator can also perform a 3 Spin Balancer Calibration and check calibration of any of the systems.

From the main balance screen, touch the “Tools” button.

Figure 265.

Touch the “Advanced” button.

Figure 266.

Touch the “Calibration Procedures” button.

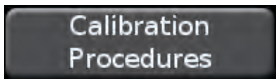


Figure 267.

The main Calibration Procedures screen is displayed.

Figure 268.

Select the desired calibration procedure and follow the on-screen instructions.

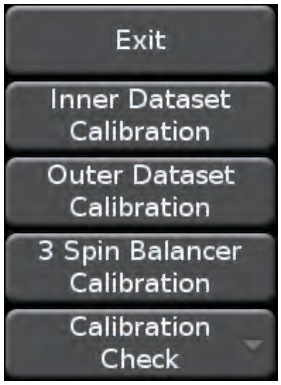


Figure 269.

Diagnostics

From the main balance screen, touch the “Tools” button.

Figure 270.

Touch the “Advanced” button.

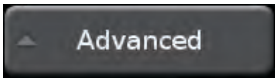


Figure 271.

Touch the “Diagnostics” button.

Figure 272.

The main Diagnostics screen is displayed.

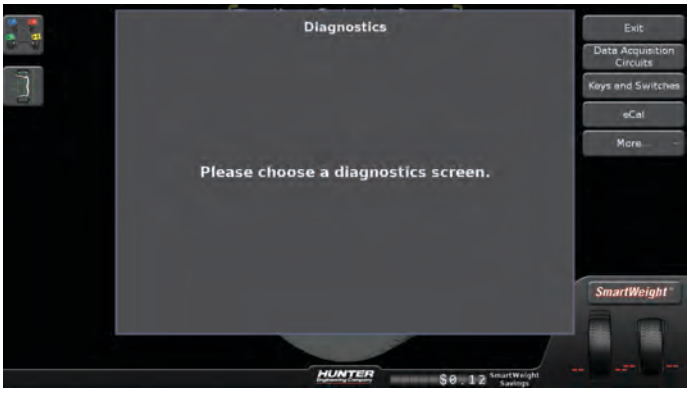


Figure 273.

Select the desired diagnostic procedure and follow the on-screen instructions.

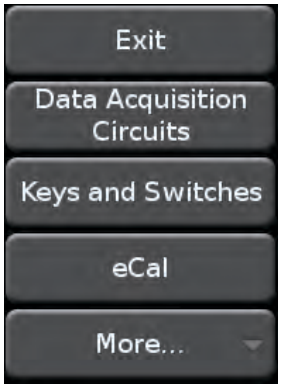


Figure 274.

Identify Software

From the main balance screen, touch the “Tools” button.

Figure 275.

Touch the “Advanced” button.

Figure 276.

Touch the “Identify Software” button.

Figure 277.

The Identify Software screen is displayed.

Figure 278.

Authorization

From the main balance screen, touch the “Tools” button. *(Figure 279.)*

Figure 279.

Touch the “Advanced” button.

Figure 280.

Touch the “Identify Software” button.

Figure 281.

Touch the “Show Authorization” button.

Figure 282.

The Electronic Key Authorization screen is displayed.

Figure 283.

TPMS

From the main balance screen, touch the “Tools” button.

Figure 284.

Touch the “TPMS” button.

Figure 285.

The main TPMSpecs® screen is displayed. Select the make, model and specifics of the vehicle being serviced.

Figure 286.

Figure 287.

Figure 288.

The “AT A GLANCE” overview starts each vehicle TPMS specification. The first image shows the type of TPMS sensor on the vehicle. The following three images show the requirements for servicing the wheel: process, scan tool and OEM scanner. The red border, yellow border or grayed appearance of the image denotes the requirement as required, optional or not required. Red and white striped border indicates the requirement is possibly required; refer to the explanation below the images.

Figure 289.

Scroll up or down by dragging the scroll bar, or touching the “up” and “down” arrows on the right side of the screen. *(Figure 290.)*

Figure 290.

Touch the “Home” button to return to the main TPMSpecs® Menu. *(Figure 291.)*

Figure 291.

Touch the “arrows” to navigate backward or forward. *(Figure 292.)*

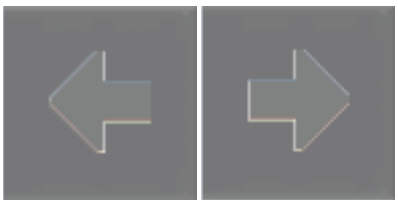


Figure 292.

Touch the “print” button to print the current page.

Figure 293.

Touch “X” to return to the balancer screen.

Figure 294.

Clean Threads

From the main balance screen, touch the “Tools” button.

Figure 295.

Touch the “Clean Threads” button.

Figure 296.

The main Clean Threads Explanation screen is displayed.

Figure 297.

Follow the on-screen instructions to clean the spindle threads.

After the spindle threads are cleaned, touch the “Exit” button to return to the main balance screen. *(Figure 298.)*

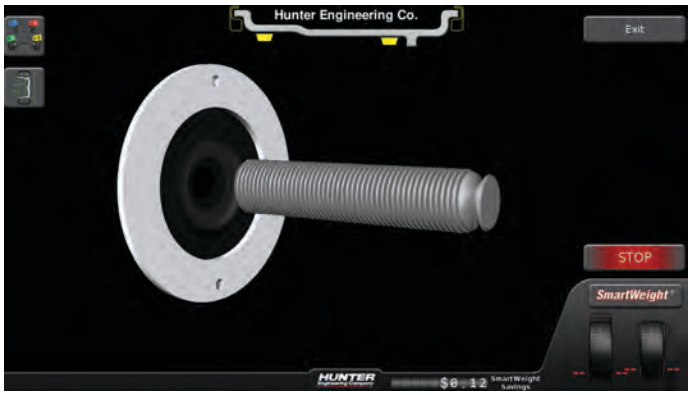


Figure 298.

Balance Bare Rim

From the main balance screen, touch the “Tools” button.

Figure 299.

Touch the “Balance Bare Rim” button.

Figure 300.

The balance screen is displayed with a bare rim. During bare rim balancing, the load roller is disabled.

Figure 301.

Balance the rim as normal, taking dimensions, applying weights, etc.

Figure 302.

Touch the “Balance Rim With Tire” button to return to standard balancing.

Figure 303.

4.2 USB Program Flash Drive and Security Key Removal and Installation

Turn power to balancer OFF.

Remove the rear cover from the support assembly for the LCD display by removing the six screws. Set the rear cover and attaching hardware aside.

Insert the USB program flash drive(s) into open USB sockets on the Mini-ITX/Atom Motherboard. Verify that the USB drives are fully seated.

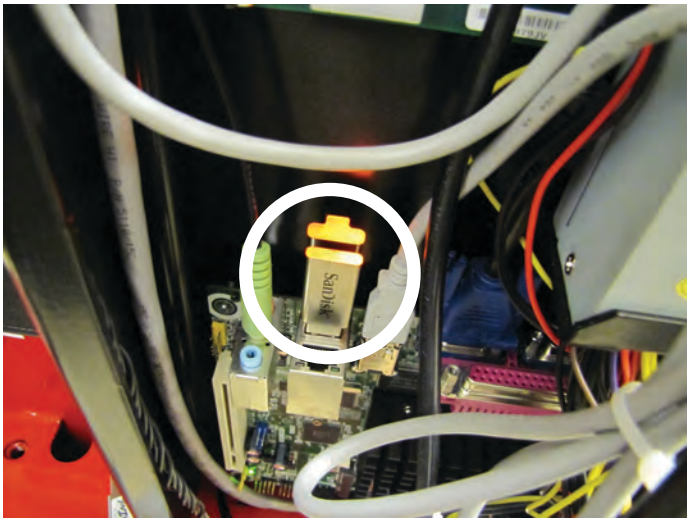


Figure 304.

Install the supplied electronic security x-key(s) in the button socket on the board within the support assembly.

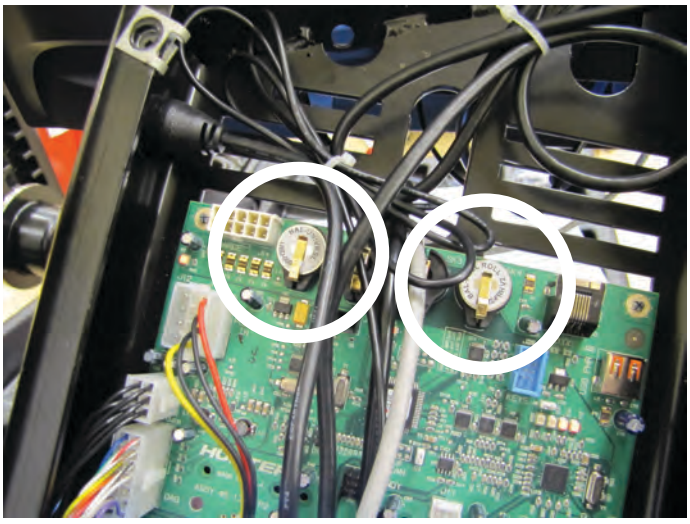


Figure 305.

Taking care not to pinch any cables, re-install the rear cover to the support assembly with the previously removed screws.

The balancer must be completely re-calibrated after program cartridge installation.

5. Calibration and Maintenance

5.1 Calibration Procedures

eCal™ Auto-Calibration

The SmartWeight Touch®/GSP9200 Touch utilizes eCal™ automatic calibration. Once the balancer is calibrated at installation time, no further operator input is required.

Calibration Procedures

Using calibration procedures, the operator can calibrate the following systems:

- Inner Dataset
- Outer Dataset
- Load Roller

The operator can also perform a 3 Spin Balancer Calibration and check calibration of any of the systems.

From the main balance screen, touch the “Tools” button.

Figure 306.

Touch the “Advanced” button.

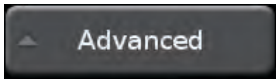


Figure 307.

Touch the “Calibration Procedures” button.

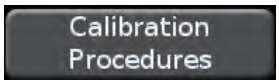


Figure 308.

The main Calibration Procedures screen is displayed.

Figure 309.

Select the desired calibration procedure and follow the on-screen instructions.

Figure 310.

Calibration Check

A quick calibration check can be performed on the balancer using a calibration weight.

From the main balance screen, touch the “Tools” button.

Figure 311.

Touch the “Quick Calibration Check” button.

Figure 312.

Screw in the calibration weight and clamp a large cone or collet to the shaft. Lower the hood and press start to begin the check.

Figure 313.

Rotate the shaft to the 12:00 position until the yellow dot on the screen turns green to complete the check.

Figure 314.

5.2 Diagnostic Tools

The balancer is equipped with a series of self-diagnostic tools. From the main balance screen, touch the “Tools” button.

Figure 315.

Touch the “Advanced” button.

Figure 316.

Touch the “Diagnostics” button.

Figure 317.

The main Diagnostics screen is displayed.

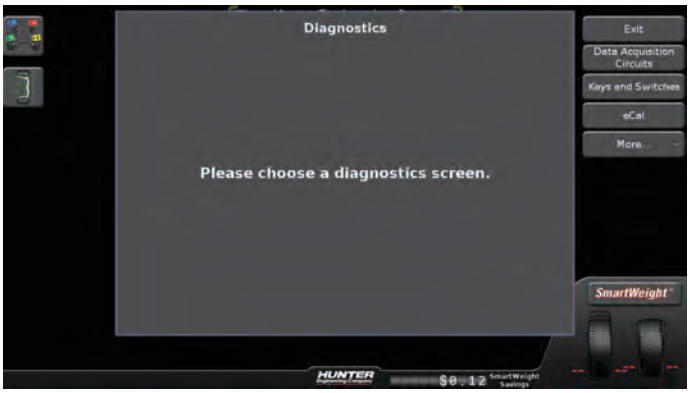


Figure 318.

Most of the diagnostic data is for the sole purpose of conveying information to the Hunter Service Representative. The service representative may request information from these screens to diagnose service concerns. The ability to convey diagnostic data to the representative prior to service expedite repair to the equipment.

Data Acquisition Circuits

Touch the “Diagnostics” button.

Figure 319.

The Data Acquisition Circuits screen is displayed.

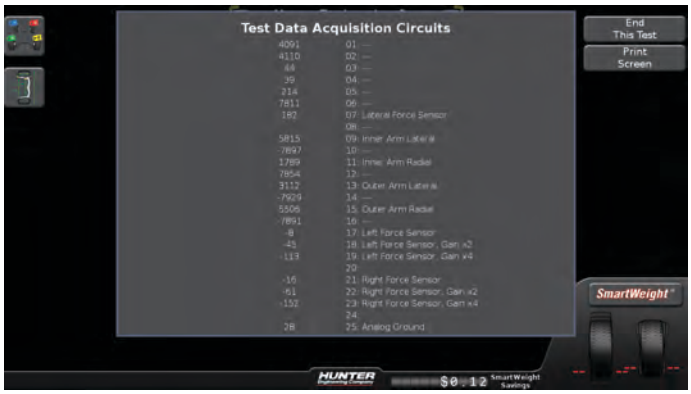


Figure 320.

Keys and Switches

Touch the “Keys and Switches” button.

Figure 321.

The Keys and Switches screen is displayed. Follow the on-screen instructions to perform each test.

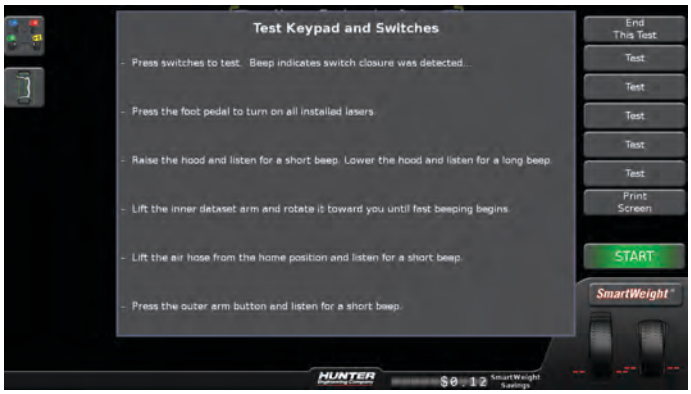


Figure 322.

eCal™

Touch the “eCal” button.

Figure 323.

The eCal™ screen is displayed.

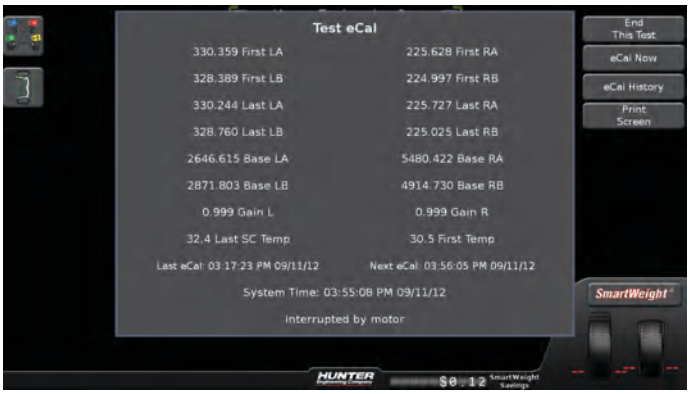


Figure 324.

Touch the “eCal History” button.

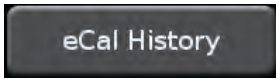


Figure 325.

Choose which eCal history timeframe to view. The eCal history is displayed.

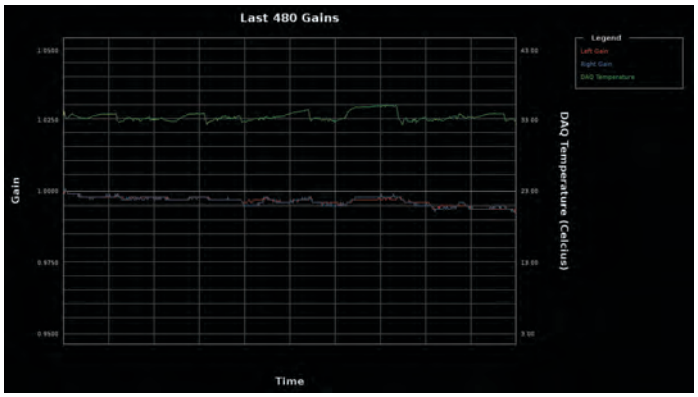


Figure 326.

Spindle Encoder

Touch the “More...” button.

Figure 327.

Touch the “Spindle Encoder” button.

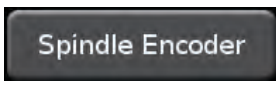


Figure 328.

The Test Spindle Encoder screen is displayed.

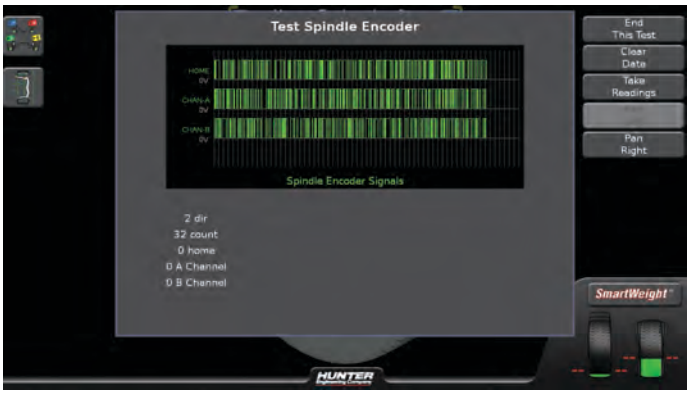


Figure 329.

Dataset Arm Sensors

Touch the “More...” button.

Figure 330.

Touch the “Dataset Arm Sensors” button.

Figure 331.

The Dataset Arm Sensors screen is displayed.

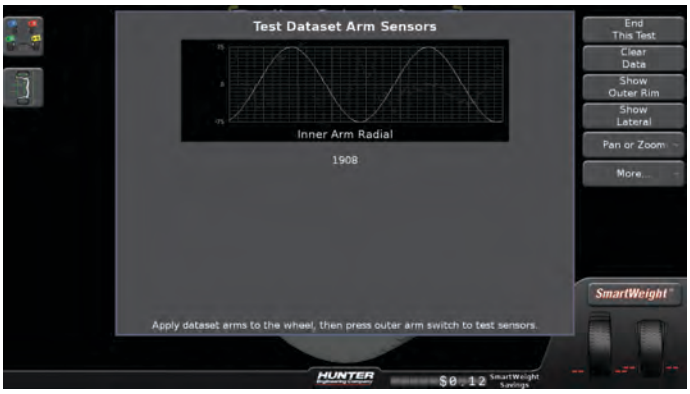


Figure 332.

5.3 Cleaning the Console

When cleaning the console, use window cleaning solution to wipe off the display console and cabinet. Do not spray window cleaning solution directly onto LCD. Power should be “OFF” prior to cleaning the LCD.

Exposing the balancer to water either by hose, bucket, or weather may cause risk of electrical shock to operator or bystanders and will damage the electrical system. Place, store, and operate the balancer only in a dry, sheltered location.

Cleaning the Screen

Do not touch the screen with chemicals or solvents on fingers, i.e. brake cleaner. Doing so will damage the anti-glare protector on the screen.

Safety Instructions

- Please keep the display away from any heat sources such as electric radiators or direct sunlight. Place the display in a stable and well-ventilated place.
- The holes or openings on the display are designed for ventilation. Do not cover or block the ventilation holes or openings with any objects.
- As the display surface is vulnerable to scratches, avoid touching the surface with nail or pen point.
- Shut off the power supply before cleaning. Use a soft lint-free cloth instead of a tissue to wipe the screen.
- You may use a glass cleaner to clean the product as required. However, never spray the cleaner directly onto the display surface.
- Do not attempt to repair this product yourself! Improperly disassembly of the product may expose you to danger! If your problem cannot be solved according to the “Troubleshooting” guidelines, contact your regional HP authorized service provider, http://www.hp.com/support.

To maintain a brand new appearance of the display, clean with soft cloth regularly. Please remove stubborn stains with soft cleaner rather than strong cleaners such as diluting agent, benzene or corrosive cleaner as they may damage the display. For the sake of safety, remove the power plug prior to cleaning.

ArmorAll wipes are a suitable cleaning product for the touch screen.

Spindle Hub Face and Shaft

Keep the shaft and wing nut threads clean and lubricated. Lubricate the shaft without contaminating the hub face. Run the edge of a rag between the threads while the spindle is slowly turned by the motor drive. If any signs of dirt or debris appear on the spindle threads, the spindle should be cleaned immediately prior to mounting a wheel.

Failure to clean spindle properly will result in a loss of clamping force.

Lubricate the shaft with a coating of light lubricant with Teflon® such as Super Lube® by Loctite after cleaning. Do not lubricate the spindle hub face mounting surface. This could cause slipping between the wheel and the hub face. Keep the hub face mounting surface clean and dry.

BDC Laser Adhesive Weight Locator Maintenance or Service

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

This Laser Product is designated as Class 1M during all procedures of operation.

Never look directly into the laser. Doing so may cause serious injury.

Do not intentional use a reflective device to enhance or re-direct the laser.

Do not operate the laser if the cover or seal is damaged.

There is no required maintenance or service to keep the BDC Laser in compliance.

Any necessary repair or maintenance should be done by the factory only. The BDC Laser Locator has no field serviceable parts.

The unit should never be opened or modified.

Optional HammerHead® TDC Laser Clip-On Weight Locator Maintenance or Service

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

This Laser Product is designated as Class 2M during all procedures of operation.

Do not stare into the beam or view directly with optical instruments. Doing so may cause serious injury.

Do not intentionally use a reflective device to enhance or re-direct the laser.

Do not operate the laser if the cover or seal is damaged.

There is no required maintenance or service to keep the HammerHead® TDC Laser System in compliance.

The laser is not a field serviceable or an adjustable part.

Any necessary repair or maintenance should be done by the factory only. The HammerHead® TDC Laser System has no field serviceable parts.

The unit should never be opened or modified.

5.4 Mounting Cone Maintenance

Keep the mounting cones clean and lubricated. Lubricate with a coating of light lubricant with Teflon® such as Super Lube® by Loctite.

Do not use cones in any way that is not described in this operation manual. This could cause damage to the mounting cone and not allow for proper mounting of the wheel.

6. Glossary

Amplitude (Magnitude)

The amount of force or the intensity of the vibration.

AutoClamp

Pneumatically-powered automatic wheel clamping device.

Back Coning

When the wheel requires the cone to center the wheel on the balancer's shaft from the backside, primarily due to the chamfer of the wheel. Also referred to as Back-Cone Mounting.

Backspacing

The distance measured from the mounting face to the back edge of the wheel.

BDC

The abbreviation for bottom dead center also referred to as 6 o'clock.

Bead seating

The process of seating the tire to the rim bead seats. Bead seating preferably occurs just after the tire and rim have been assembled, but may gradually change and optimize over a longer period. If loaded with the SmartWeight Touch® load roller or driven, the position of the bead may optimize or always remain seated improperly, unless the tire is demounted, lubricated, and remounted. However, the load force and its' relatively short duration will not necessarily solve defective mounting of the tire bead seat to the rim seat.

Blinding and Rounding

Blinding is a set amount if imbalance required before an indication of imbalance is displayed. Rounding sets the weight increments to specific amounts, such as tenths, or quarters, etc.

Bolt Pattern Circle

The diameter of an imaginary circle drawn through the center of each lughole, and virtually always on the same centerline as the hub bore of the wheel.

CenteringCheck

Hunter feature that ensures the wheel is properly centered when mounted on the balancer.

Couple Balance

A procedure that corrects the imbalance in radial movement.

Dataset®

The inner and outer electronic arms on the SmartWeight Touch® GSP9700. By positioning the Dataset arms and entering data using the foot pedal, rim dimensions can be recorded for balancing.

Dynamic Balance

A procedure that balances the wheel assembly by applying correction weights in two planes so that up and down imbalance and side-to-side imbalance are eliminated.

eCal™

A method automatically adjusting balancer transducer calibration.

Force Matching™

A method of aligning the high spot of the tire's radial force variation with the low spot of rim runout to decrease rolling vibration in the wheel assembly.

Forced Vibration

Vibrates when energy is applied.

Free Vibration

Continues to vibrate after the outside energy stops.

Frequency

The number of disturbances that occur per unit of time.

Front Coning

When the wheel requires the cone to center the wheel on the balancer's shaft from the front. Also referred to as Front-Cone Mounting.

Harmonic

A vibration that is identified by the number of occurrences per revolution. For example, a 1st harmonic vibration has a once per revolution vibration component.

Hertz

A unit of frequency: one disturbance per second.

Hub Centric

The wheel is centered using the center hole of the wheel.

Inflation Station

A feature on models of the SmartWeight Touch® that automatically inflates or deflates tires to a predetermined air pressure.

Lateral Runout

The amount of side-to-side movement as the tire/wheel assembly rotates.

Load Roller

Feature of balancers that measure SmartWeight® measurements. The load roller runs perpendicular to the tire and applies up to 1400 pounds of force to simulate road conditions.

Lug Centric

The wheel is centered using the lug holes rather than the wheel center hole.

Magnitude (Amplitude)

The amount of force or the intensity of the vibration.

MatchMaker®

Allows the operator to match up four identical tires on identical rims, to achieve the optimal combination of match mounting.

Natural Frequency

The point at which an object will vibrate the easiest.

Order

The number of disturbances per cycle (rotation). For example, a 1st order vibration occurs once per cycle, and a 2nd order vibration occurs twice per cycle.

P, P/SUV, LT

“P Tires” refers to passenger tires, “LT Tires” refers to light truck tires, and “P/SUV Tires” refers to P-Rated sport utility vehicle tires.

Patch Balance

Method of balancing that balances weighted rubber patches applied to the inside of a tire.

PAX

A specifically designed wheel/tire assembly that does not use the traditional rim lip/bead design. PAX assemblies require adhesive or patch balancing.

Phase

The position of a vibration cycle relative to another vibration cycle in the same time reference.

Phasing

The cycle pattern of two or more vibrations that overlap and combine to increase the overall magnitude.

Pressure Ring

The accessory used to prevent the wing nut from contacting the wheel when on the balancer shaft.

QuickMatch®

Tire and wheel mounting and balancing method that matches the loaded runout of the tire in contrast to the runout of the rim to achieve vibration reduction.

Quick-Thread®

Motor assisted threading of the wing nut for quick installation and removal.

Radial Force Variation (RFV)

A term describing a measurement of the tire uniformity, under load, measuring the variation of the load acting toward the tire center.

Radial Runout

A condition where the tire and wheel assembly is slightly out of round forcing the spindle to move up and down as the vehicle rolls along a smooth surface.

Resonance

The point where a vibrating component's frequency matches the natural frequency of another component.

Responding Component

The noticeable component that is vibrating.

Road Force®

A change in the force between the wheel and the axle while rotating under a load. Discrepancy in road force can cause a vibration although the tire and rim may be perfectly round and the tire is balanced.

Road Force® Measurement

A measurement of the wheel assembly as would be found from an actual road test of a vehicle. The Road Force Touch® is equipped with a load roller to take the Road Force® Measurement. The load roller places up to 1400 pounds of force on the spinning tire, and automatically measures the effects of loaded runout and tire stiffness to emulate tire/wheel assembly force variation. Loaded runout of rim and tire stiffness calculated equals the Road Force® Measurement.

Road Force® Variation

A change in force exerted on the axle by the tire/wheel assembly while rotating under load. Units of measurement are in pounds, Newton's, etc.

Runout

The side-to-side movement of a wheel as measured from its true center.

Servo-Stop

The ability to locate varying positions of the tire/wheel assemblies and hold the position in place while correctional weights or OE-Matching marks are applied.

SmartWeight® Balancing Technology

SmartWeight measures the forces placed on a wheel and balances in an effort to reduce those forces, thus saving weight, time, and money.

Source Component

A component causing another object to vibrate, such as a tire/wheel assembly.

Spindle-Lok®

A feature that locks the spindle in place by depressing the foot pedal.

Split Weight®

Feature designed to reduce single heavy amounts of weight by dispersing the corrective weight over a wider area.

Static Balance

A procedure that balances the wheel assembly using only a single weight plane so that up and down imbalance is eliminated.

StraightTrak

Balancer feature which helps designate where tires should be installed on a vehicle for optimum ride and handling.

TDC

An abbreviation for top dead center. Also referred to as 12 o'clock.

Torque Sensitive Vibration

The vibration occurs when accelerating, decelerating, or applying the throttle.

Total Indicated Reading (T.I.R.)

Data measurements taken by the load roller (measured in lbs. or kg) or Dataset® Arms (measured in inches or millimeters) representing the actual runout measured. The T.I.R. data represents the difference in value between the highest and lowest value measured.

TruWeight™

A method calculating and displaying exact placement of balance weights on a wheel.

Vibration

A shaking or trembling, which may be heard or felt.

Weightsaver® Feature

Weightsaver® is the percentage of maximum shimmy allowed. The larger the percentage, the greater the weight savings.

Wheel Diameter

Dimension measured on the inside of the rim at the bead seats.

Wheel Offset

The measured distance between the mounting face of the wheel and the centerline of the rim.

Wheel Width

Dimension measured on the inside of the rim between the bead seats.

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