

# GSP97MB

## Road Force Measurement® System



**Solves Vibration and  
Tire Pull Problems That  
Balancers and  
Aligners Can't Fix.**

**HUNTER**  
Engineering Company

**Road Force  
Measurement  
GSP97MB**



Winner of Three



**HUNTER**  
Engineering Company

Mercedes-Benz Technical Data Report 40.1 E150 assesses the GSP as quality essential workshop equipment with no comparable equipment available.

Going far beyond the

# GSP97MB



Shown with optional Wheel Lift system.



*Hunter's exclusive Road Force Measurement® System simulates a road test to identify radial force vibration and pull\* problems.*

## Benefits of the

### ■ Solves Vibration Problems Balancers Won't Fix

Detects non-balance, radial-force-related problems associated with:

- Tire uniformity.
- Tire and rim runout.
- Wheel-to-balancer mounting error.
- Improper bead seating of tire to rim.

\* Requires optional StraightTrak® LFM feature. \*\* Patented

# traditional functions of a wheel balancer...

The GSP97MB measures radial and lateral tire forces and provides instructions for solving ride and handling problems that balancers and wheel aligners cannot fix.

Hunter's GSP97MB is endorsed and recommended by vehicle manufacturers and proven by thousands of repair facilities worldwide as the industry standard in...



## 1. Wheel Balancing

## 2. Tire Road Force and Rim Eccentricity Measurement

## 3. Tire Pull Lateral Force Measurement

Visit The  
GSP9700  
Wheel Balancing  
Consumer and  
Technical Website  
[www.gsp9700.com](http://www.gsp9700.com)

## GSP97MB's "Three-In-One" Diagnostic Repair Capability:

### ■ Faster Troubleshooting & Repair

Quickly calculates the contributions of the rim and tire to radial vibration problems and presents the technician with easy step-by-step repair instructions.

### ■ Identifies Potential Vehicle Pull or Drift Problems

The optional StraightTrak<sup>®</sup> LFM\*\* feature measures lateral tire force, then applies that information to the set of tires, providing multiple placement choices to eliminate or minimize pull problems—an otherwise unfixable vehicle complaint during alignment service.

### ■ Dramatically Improves Ride Quality & Customer Satisfaction

Duplicates vibration measurement and tire/wheel matching methods previously used only by vehicle manufacturers to provide that "new car ride."

### ■ Increases Wheel Service Income

Establishes your shop as **the** vibration and handling control experts. Reduces comebacks and enables you to service vehicles that other shops turn away.

Exclusively reduces operating costs with SmartWeight<sup>®</sup> balancing technology.



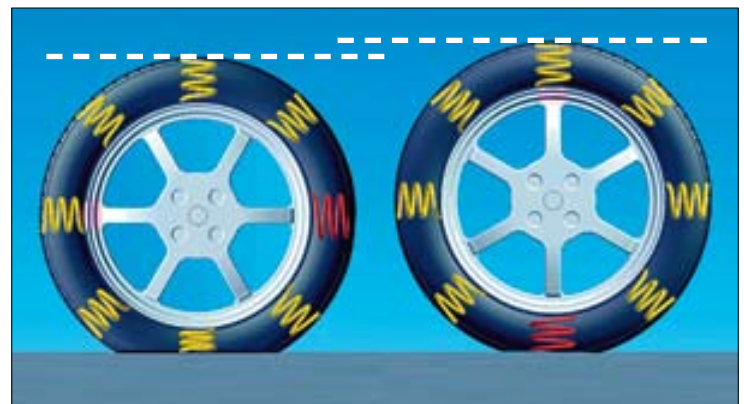
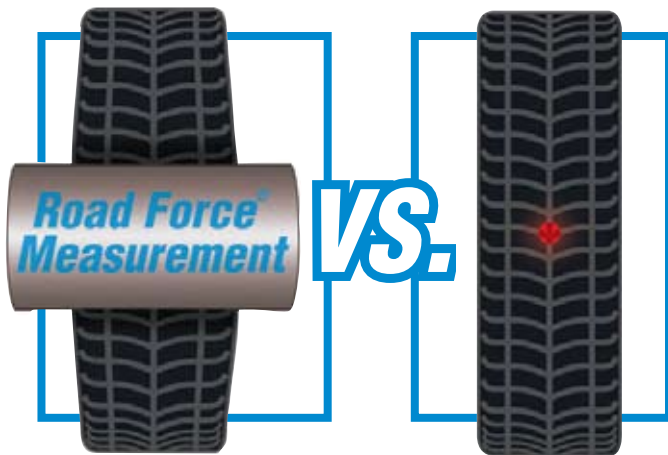
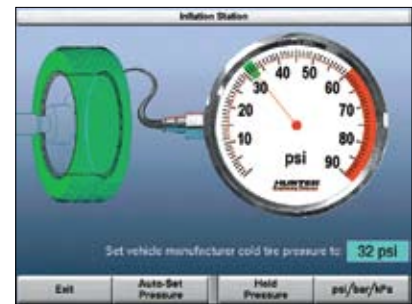
# Road Force® Measurement



**GSP97MB's Inflation Station\*** provides proper inflation pressure and automatic prompting for the operator to ensure accurate testing and customer satisfaction.

The exclusive Road Force Measurement® system applies up to 1,400 pounds (635 kg) against the tire. The loaded roller detects non-balance, radial-force-related vibrations caused by eccentricity and constructional variation of the tire and wheel. Unlike non-contact measurement, the roller samples the entire footprint of the tire including the sidewall's contribution to ride quality.

As an additional alternative to Road Force® mode, the operator may also choose a QuickMatch® mode to quickly measure loaded runout alone.



**Non-contact runout measurement systems often provide inconsistent results and do not take into consideration the contribution of tire sidewalls to vibration problems.**

**Lack of tire uniformity is a common and often hidden source of vibration. As a tire rolls, it flexes as if it were made of springs. Vibration results when tire stiffness is not uniform.**

\* Patented



# Rim Runout Measurement and ForceMatching



*Rim runout can be measured without removing the tire...*

The GSP97MB measures lateral and radial rim runout without removing the tire from the rim and quickly indicates if runout is tire-related. Runout can also be measured at the actual bead seat on a bare rim.



*... or directly at the bead seat on a bare rim.*

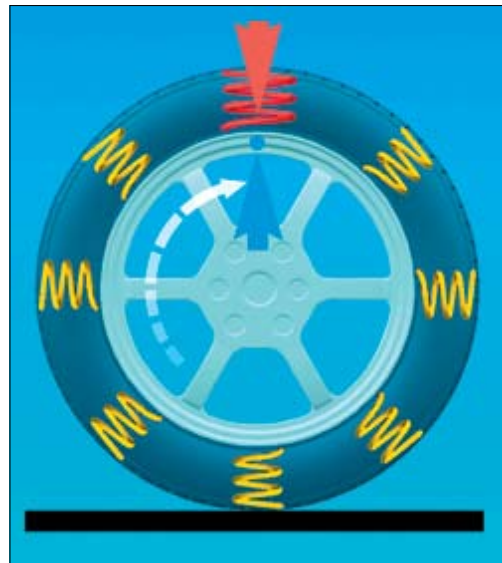
The GSP97MB slowly rotates the wheel automatically during measurement.\* The GSP97MB then calculates the contributions of the tire and the rim to the vibration problem and presents the technician with easy-to-follow repair instructions.



Hunter's patented ForceMatching® feature cancels the stiffest point of tire radial force variation with the low spot on the rim. This helps eliminate vibration by minimizing the effects of radial force variation and rim runout.

QuickMatch® measurement may also be chosen to quickly audit and matchmount with loaded runout instead of force calculations if greater time savings during cycle time is preferred.

Once the correction is completed, the technician can continue with a precision wheel balance by instantly choosing the balancing method without key closure steps.



***Offering the same service as new car vehicle manufacturers, the GSP97MB matches the stiffest area or high spot on the tire with the lowest spot on the rim to cancel vibration caused by radial force variation and provide the smoothest possible ride.***

*\* Patented feature*

# StraightTrak® Lateral Force Measurement

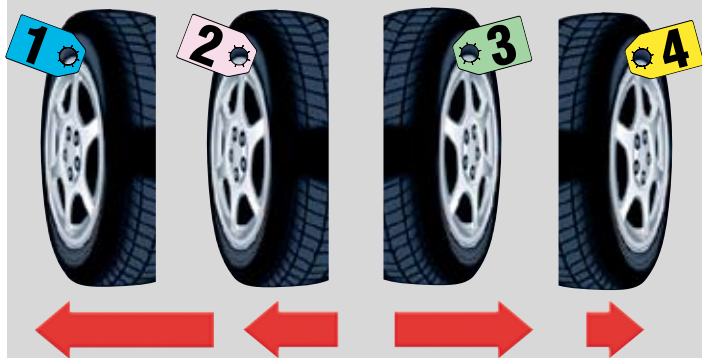
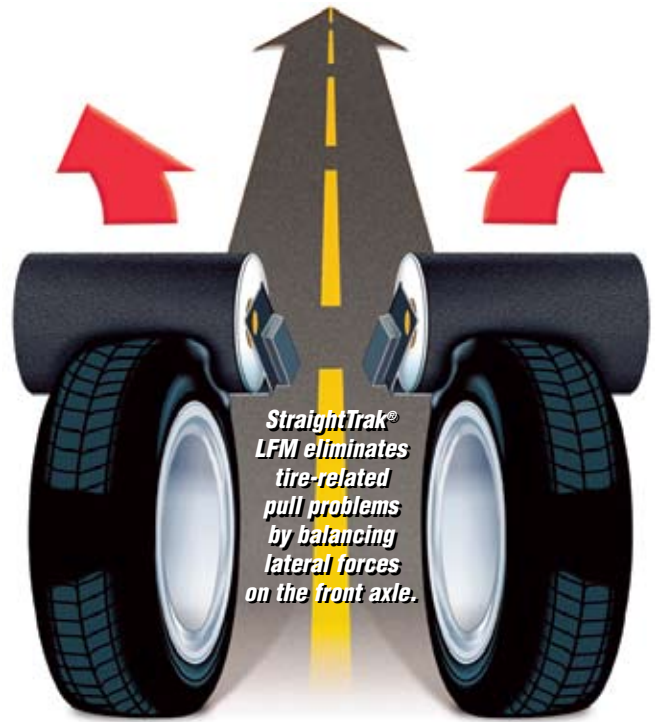
## Solve Tire Pull Problems With the GSP97MB That Alignment Service Can't Fix



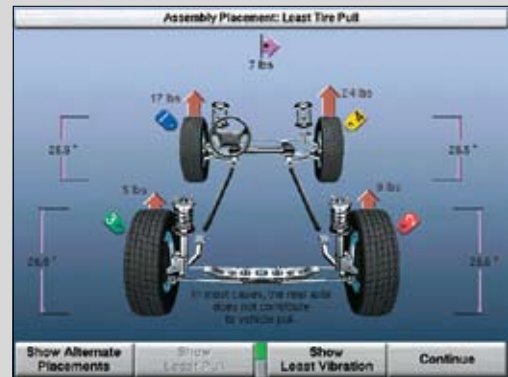
Tire-related pulls are caused by lateral forces in the tires. Lateral force is the amount of left or right pull force created as the tire rolls along the road. This condition may cause a vehicle to steer away from straight ahead. These forces are primarily created by conicity and cannot be detected during standard balancing or alignment service.

## Deliver the Ultimate in Customer Satisfaction

The StraightTrak® LFM feature measures lateral tire force during the GSP97MB's Road Force Measurement® test. The GSP97MB then applies this lateral force information to the set of tires, providing the technician with optimal placement choices about the vehicle.



*Tires are tagged and positioned on the vehicle to provide the least amount of vehicle pull and obtain the best straight ahead steering stability.*



*Pull or drift caused by the lateral forces can be systematically minimized, offset or eliminated.*



## StraightTrak® LFM Integration

By partnering a StraightTrak LFM equipped GSP97MB with a Hunter wheel alignment system, the technician will finally be able to deliver the ultimate in customer satisfaction by achieving the four main wheel service criteria customers expect in vehicle ride quality:

- Proper Tire Wear
- Straight Vehicle Tracking
- Smooth Ride
- Straight Steering Wheel

**For more information on StraightTrak LFM, ask your Hunter Sales Representative for Form 4863T or for the demo video, Form 4879T.**

# SmartWeight® Balancing Technology

## Unique Benefits:

- Reduces wheel weight costs 30% to 40%
- Significantly reduces labor costs and service time
- Simplifies balancer use
- Eliminates shortcuts that affect quality
- Automatically performs a better overall balance

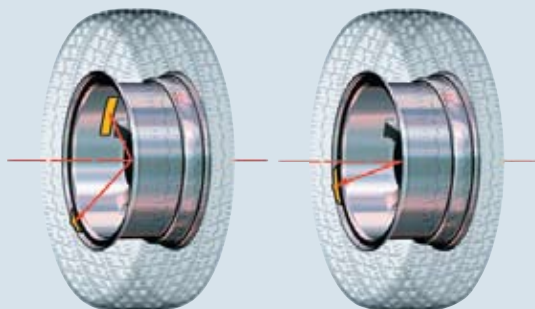


Hunter Engineering's patented SmartWeight® balancing technology is a revolutionary wheel balancing method that minimizes correction weight usage and maximizes productivity, saving money on both material and labor costs. SmartWeight balancing technology can reduce wheel weight costs 30% to 40%, reduce the time it takes to balance most wheels, and improve vehicle ride quality.

This new method computes correction weights by independently evaluating static (shake) and couple (shimmy) forces that cause dynamic vibration. Unlike traditional balancing, which displays balance conditions based on correction weight values alone, SmartWeight balancing uses the actual static and couple forces to directly address the source of vibration, resulting in the best possible balance.

## Save Labor Time on More Than 30% of Balances!

SmartWeight technology typically reduces "floor-to-floor" cycle time on more than 30% of wheels balanced by using a single wheel weight to achieve the best possible static and couple balance.



Typical Double Weight Correction

Single Weight Correction With SmartWeight Technology

Weight Savings						
	<<-14"	15"->17"	18"->20"	21"->23"	24"->>	Total
<b>Clip-Clip</b>						
Spins:	381	1168	7	1	0	1559
Non-SmartWt:	215.80	2252.75	14.00	3.25	0.00	2985.80oz
SmartWt:	587.80	1663.75	12.25	3.25	0.00	2168.25oz
<b>Savings:</b>	<b>208.00</b>	<b>589.00</b>	<b>1.75</b>	<b>0.00</b>	<b>0.00</b>	<b>798.75oz</b>
	29.1 %	26.1 %	12.5 %	0.0 %	0.0 %	26.8 %
1 wt req'd:	225	559	2	0	0	786
no wts req'd:	11	16	0	0	0	27
<b>Clip-Tape</b>						
Spins:	4	41	12	0	0	57
Non-SmartWt:	17.00	142.50	22.25	0.00	0.00	182.75oz
SmartWt:	8.25	89.50	11.00	0.00	0.00	108.75oz
<b>Savings:</b>	<b>8.75</b>	<b>54.00</b>	<b>11.25</b>	<b>0.00</b>	<b>0.00</b>	<b>74.00oz</b>
	51.5 %	37.6 %	50.6 %	0.0 %	0.0 %	40.5 %
1 wt req'd:	4	31	10	0	0	45
no wts req'd:	0	0	0	0	0	0
<b>Tape-Tape</b>						
Spins:	3	308	382	180	20	822
Non-SmartWt:	9.75	945.75	1420.80	482.25	88.50	2952.25oz
SmartWt:	3.25	804.50	898.75	328.25	52.75	1888.50oz
<b>Savings:</b>	<b>6.50</b>	<b>341.25</b>	<b>529.25</b>	<b>156.00</b>	<b>33.75</b>	<b>1068.75oz</b>
	66.7 %	36.1 %	37.1 %	32.3 %	39.0 %	36.1 %
1 wt req'd:	0	180	209	56	10	465
no wts req'd:	1	4	9	0	0	14
<b>Totals</b>						
Spins:	2438					
Non-SmartWt:	6120.80oz					
SmartWt:	4180.50oz					
<b>Savings:</b>	<b>1939.50oz</b>					
	<b>31.7 %</b>					
1 wt req'd:	1298					
no wts req'd:	41					

**Easily View Total Weight Savings on the Balancer Screen!**

SmartWeight balancing software displays and stores wheel weight savings for each balance cycle and tracks wheel weight savings over time.

This example shows that for 2,438 wheels SmartWeight technology saved a total of 1,939.5 oz. (32%) of weight. Labor time was also reduced, because 53% of the wheels were dynamically balanced with only one weight required.

For more information on SmartWeight balancing technology, visit our website at [www.weightsaver.com](http://www.weightsaver.com)

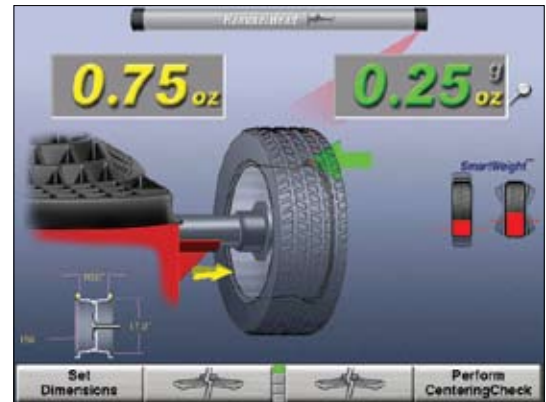


# Features That Make Expert Balancing Easier and Faster...



The patented HammerHead™ TDC weight placement laser is a new option for GSP wheel balancers that speeds clip-weight balancing service. Activated by the ServoDrive™ system, the HammerHead weight-placement laser lines are projected onto the top-dead-center of the rim flange when the wheel weight position is automatically located.

The HammerHead TDC laser increases balance accuracy, productivity and shop profitability and ensures weight attachment accuracy, resulting in more single-spin balances and superior ride satisfaction. An added fluorescent light illuminates the operator's work area.



*Top-dead-center laser lines are projected onto the rim flange when the wheel weight position is located.*

## Clip-Weight Placement



*Precision wheel weight placement is fast and easy using the HammerHead TDC laser as a guide.*



*Angle errors from even slight misjudgment of the TDC location lead to an inferior and time-consuming balance with excessive checkspins.*

# Dataset® Arms Speed Floor-to-Floor Cycle Time

## Inner Dataset® Arm



Inner Dataset® arm determines exact placement for weights and allows automatically measures weight positions on wheels up to a 30" (762 mm) diameter.

## Automatic Double Dataset® Arms



Inner and Outer Dataset® arms speed wheel data direct-measure input and placement of clip-on or adhesive weights, increasing accuracy and allowing more single-spin balances.

**NEW!**

## Automatic Weight Mode and Location Detection\*\*

This feature eliminates the need for the technician to select balance modes, reducing service time and possible mode entry error. Balance mode is selected automatically based on the position chosen for the Inner Dataset arm or Outer Dataset arm.

*When the technician places the Inner Dataset® arm...*

*... DOWN inside the wheel, the balancer automatically selects "Tape-Weight Mode".*



*... UP on the wheel, the balancer automatically selects "Clip-Weight Mode".*



**NEW!**

## Rim Scan Feature\*\*



The inner Dataset arm will trace the exact wheel contour and store the scanned distances and diameters for all available tape weight locations selected by the operator. Rim Scan also offers the benefits of Automatic Weight Positioning to increase the capability to single-spin balance with SmartWeight® technology.

## Patch Balancing® Feature



The perfect choice for oversized custom wheels and tires. With 4x4 and street cruiser tire weights growing in size, with the Patch Balancing® feature solves excessive lead or adhesive weight balance problems by using weighted patch(s) inside the tire. Rim-mounted weights can be reduced or eliminated. Increase profits by balancing oversize tires that others turn away.



# Exclusive Features Make Expert Balancing Easier and Faster

## CenteringCheck® Feature\*



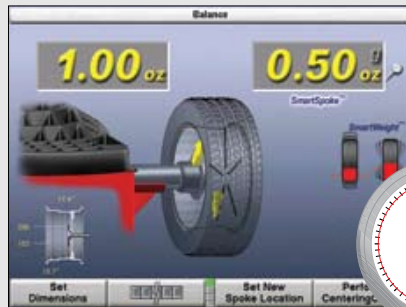
This patented feature, exclusive to Hunter wheel balancers, ensures that the wheel is properly centered when mounted on the balancer, eliminating guesswork when choosing mounting accessories or set-up errors on problematic wheels.

**NEW!**

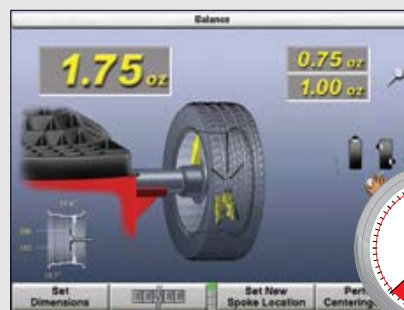
## Hide, Reduce or Move Weight Positions to Alternative Locations

### SmartSpoke™ Weight Locator Feature\*\*

Derived from SmartWeight® balancing, the SmartSpoke™ weight locator feature exclusively enables the technician to achieve the best possible balance by placing only a single adhesive weight behind one wheel spoke instead of two weights behind two spokes. This feature reduces weight use, minimizes labor time and speeds the balance procedure.



*The SmartSpoke balance results consumed 49% less correction weight and significantly less labor time.*



*Without the SmartSpoke feature more weight and labor time is consumed.*

### Split Clip-Weight™ Mode\*

- Exclusive Split Clip-Weight™ mode key splits the clip weight into two smaller weights and relocates them on the wheel. Repeated use of the key presents multiple split-weight choices.
- Eliminate weight inventory over 2.25 oz. increments on passenger-car, SUV and light-truck applications.
- Shift the weight position to avoid obstructions, such as trim ring clips.





# Exclusive Features Make Expert Balancing Easier and Faster

## Servo Stop and Servo Push Drive Control\*



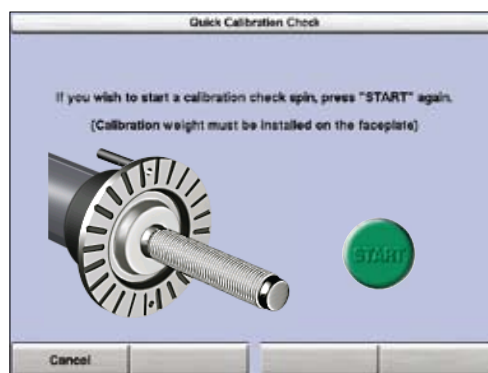
Servo Stop automatically rotates and holds the wheel at the desired top-dead-center clip-weight or bottom-dead-center adhesive-weight location. Servo Push operates with a push of the wheel, automatically rotating the wheel to the next weight placement position.

## BDC Adhesive Weight Placement Laser



Activated by the ServoDrive™ system, the BDC laser line automatically identifies the bottom-dead-center position for fast adhesive-weight application. Helps guide operator to optimal location for correct weight placement.

## Quick Cal-Check® Calibration Feature\*



Just attach the calibration weight and press "start". In just a few seconds, this patented and exclusive feature confirms balancer calibration.

## Spindle-Lok® Brake Feature



Tapping the foot brake activates entry and storage of wheel data. The foot brake also locks the spindle for easier tightening and loosening of the wing nut.



## Integrated Wheel Lift System Increase Productivity and Accuracy

Hunter's optional integrated Wheel Lift System helps technicians safely service today's oversized custom, light-truck, and medium-duty commercial wheels quickly and easily.

# GSP97MB Specifications

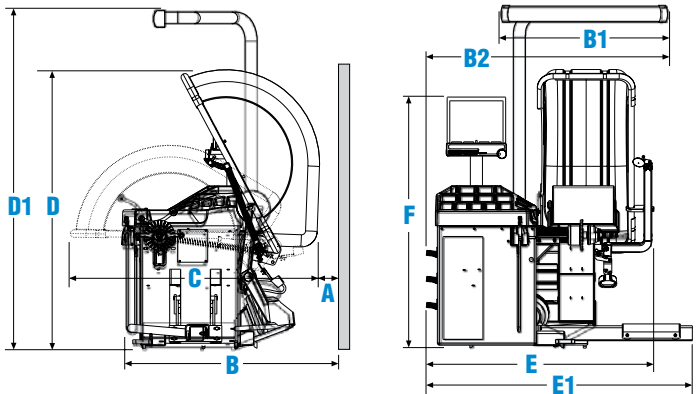
- Power Requirements:** 230 V (+10% -15%), 10 amp, 50/60 Hz, 1-ph  
(Power cable includes NEMA 20 amp plug, L6-20P)
- Air Supply Requirements:** 100-175 psi (7-12 bar)
- Motor:** Programmable drive system and DC motor\*\*
- Shipping Weight:** Without Wheel Lift: 664 lbs. (302 kg)  
With Wheel Lift: 711 lbs. (323 kg)
- Roller Force:** Variable up to 1,400 lbs. (635 kg)
- Capacity:**
- Rim Width:** 1.5 in. (38 mm) to 20.5 in. (520 mm)
  - Rim Diameter:** 10 in. (254 mm) to 30 in. (762 mm)
  - ALU:** 3.5 in. (89 mm) to 40 in. (1016 mm)
  - Maximum Tire Diameter:** 40 in. (1,016 mm)
  - Maximum Tire Width:** 20 in. (508 mm)
  - Maximum Tire Weight:** 175 lbs. (80 kg)
- Accuracy:**
- Radial & Lateral Runout:** 0.002 in. (0.05 mm)
  - Radial Force Measurement:** 2.2 lbs. (1.0 kg), 9.8N
  - Imbalance Resolution:** ± 0.05 oz (± 1.0 gms)
  - Placement:** 512 positions, ± 0.35°
- Balancing Speed:** Variable rpm, direction and torque (0-300rpm)
- Certification:** U.L., C.E., PTB, DIN IEC 38



**GSP92MB Wheel Balancer shown with optional wheel lift and HammerHead™ feature.**

## GSP97MB Dimensions (shown with optional Wheel Lift and optional HammerHead feature)

- |                             |                             |
|-----------------------------|-----------------------------|
| <b>A</b> 10 in. (254 mm)    | <b>D</b> 73 in. (1854 mm)   |
| <b>B</b> 61.5 in. (1562 mm) | <b>D1</b> 86 in. (2184 mm)  |
| <b>B1</b> 41 in. (1041 mm)  | <b>E</b> 56.5 in. (1435 mm) |
| <b>B2</b> 58 in. (1473 mm)  | <b>E1</b> 66 in. (1676 mm)  |
| <b>C</b> 62 in. (1575 mm)   | <b>F</b> 64 in. (1626 mm)   |



Feature	Domestic Mercedes Benz GSP97MB Models			
	GSP972204MB	GSP972205MB	GSP972206MB	GSP972207MB
Mercedes Benz Adaptor Kit	X	X	X	X
Wheel Lift			X	X
Road Force® Measurement	X	X	X	X
StraightTrak® Tire Pull Measurement		X		X
Calibration Tools	X	X	X	X
Ink Jet Printer	X	X	X	X



**Wheel Balancers do not include adaptor kits as standard equipment. For adaptor options and details, see Form 3203T.**

**Because of continuing technological advancements, specifications, models and options are subject to change without notice.**

Cal-Check, CenteringCheck, Dataset, ForceMatching, HammerHead, MatchMaker, QuickMatch, Quick-Thread, Road Force, Road Force Measurement, SmartSpoke, SmartWeight, Spindle-Lok, Split Spoke, Split Weight, StraightTrak and WeightSaver are trademarks of Hunter Engineering Company.



LASER LIGHT  
DO NOT STARE INTO THE BEAM OR VIEW  
DIRECTLY WITH OPTICAL INSTRUMENTS  
CLASS 2M LASER PRODUCT

LASER LIGHT  
DO NOT VIEW DIRECTLY  
WITH OPTICAL INSTRUMENTS  
CLASS 1M LASER PRODUCT

# HUNTER

## Engineering Company

11250 Hunter Drive, Bridgeton, MO 63044  
800-448-6848 • 314-731-3020 • FAX 314-731-1776  
**Visit our Website at [www.hunter.com](http://www.hunter.com)**