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3M™Wheel Weight System

Application Guidelines for Wheel Balancing and Equipment



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Handling Guidelines

General Description
The 3M™ Wheel Weight System combines conformable wheel balancing material and 3M™ Attachment Tape technology to provide an all-in-one, securely attached wheel weight balancing system. Multiple wheel weight profiles are available; please contact your 3M representative for assistance. The following document provides a guideline for the proper use of the 3M Wheel Weight System.

Wheel Design

Wheel Diameter and Geometry: Flexible material is conformable to multiple rim diameters and wheel geometries, and provides excellent wet-out.

Wheel Coating and Surface Roughness: Securely attaches to multiple wheel surfaces using 3M attachment tape technology. Please contact your 3M representative for compatibility testing.

Application Temperature Guidance
The recommended temperature range for both the wheel surface and the 3M Wheel Weight material during application is 15 – 43°C (60 - 110°F).

Cleaning
Contamination from dust or fluids, such as a tire lube, will adversely affect tape performance. Care should be taken to minimize exposing the wheels to these contaminants while in storage or during the wheel balancing process. To increase the robustness of the process the wheel surface should be properly cleaned.



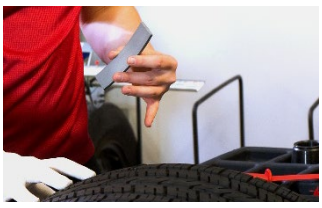
- Clean the area of the wheel where the 3M™ Wheel Weight will be applied using 3M™ Wheel Weight Surface Prep 2000 or another comparable cleaner
- Spray the surface of the wheel and wait for a moment while the cleaner penetrates and loosens the grease or dirt
- Wipe away the residue with a clean cloth

The cleaning should remove all contaminants and leave no residue. After cleaning with a solvent wipe system, allow adequate time for the wheel to dry prior to application of the wheel weight.

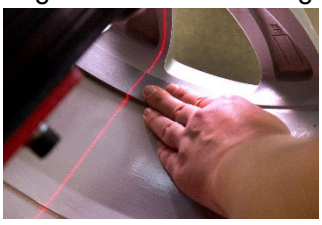
Note: When using solvents, extinguish all ignition sources, including pilot lights and follow the manufacturer's precautions and directions for use.

Weight Positioning

Liner Removal
Check for complete removal of the liner from the 3M tape before placement of the part on the wheel. The removal of the liner should immediately precede weight placement to minimize the potential of contaminating the uncovered adhesive surface. Operators should not touch the adhesive surface as oils from the skin and/or debris from clothing or gloves may transfer and reduce adhesion performance.

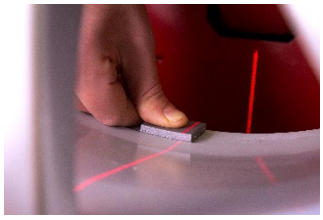


Alignment of Wheel Weight



Proper placement and alignment of the wheel is needed for optimal balance performance. Apply the wheel weight in the correct position using location indicators or fixture. The weight should be applied on the wheel curbside or vehicle side landing surface such that it is not bridging any wheel ridge or feature. For manual installation, align the centering notch to the location dot on the wheel, taking care to keep the length of the weight parallel to the edge of the wheel.

Weight Pressurization



Pressurization of the wheel weight to the wheel is necessary for proper adhesion. The amount and duration of pressure must be reviewed on a case-by-case basis. The determining factor is wet-out or adhesive contact area. Wet-out of tape is especially important along the edges. A good starting point for roller pressure is 5 psi. This is ideally achieved using roller pressure or by applying consistent pressure with your fingers from one end of the 3M™ Wheel Weight to the other as the wheel weight is being applied. The pressure should be applied perpendicular to the tape surface, making contact over the entire wheel weight. Contact a 3M application engineer if assistance is needed.

Tape Wet-Out

Wet-out testing confirms sufficient control of the tape to the wheel. 3M recommends 80% minimum wet-out with no localized voids (i.e., the 20% area without wet-out should be distributed and not concentrated in one area).

1) Dry-erase markers may be used to test for wet-out, although they should be evaluated for effectiveness and clean removal on an inconspicuous area or the wheel.
2) Apply dry-erase marker to the weight landing surface.
3) Ensure that any automated cleaning operations are disabled for the test.
4) Remove the tape liner and process the wheel weight using the normal production process.
5) Remove the wheel weight, being careful not to touch the tape. The dry-erase marker will transfer to areas of the tape that are adequately pressurized, yielding a “footprint” of areas that achieve proper wet-out. You may wish to cover the adhesive surface with clear packaging tape to avoid damaging the wet-out imprint. Look at the tape surface and determine which areas have dry-erase marker transfer. To determine wet-out, a grid made up of 1mm x 1mm squares may be used to measure percent tape wet-out.

Trouble Shooting - Wheel Weight Adhesion

- Verify that the tape is being properly wet-out on the wheel (see wet-out section).
- Check for surface contaminants on the wheel. Lubricants, skin oil or excessive airborne dust, etc., can contaminate the wheel and reduce the adhesion performance of the tape to the wheel. Ensure that there is not excess tire lube on the wheel landing surface. See Cleaning section for recommended cleaning methods.
- Check for contaminants on the tape. Operators should not touch the adhesive surface as oils from skin and/or debris from clothing or gloves can easily transfer and reduce adhesion performance.
- Verify wheel weight adhesion performance to the wheel coating.
- Verify that the wheel and the 3M™ Wheel Weight material are at the recommended temperature prior to application (see Storage & Handling section). Wheel weights or wheels that are stored in cold conditions and installed prior to returning to recommended temperature present two potential issues. A colder weight is less flexible, which may impact its ability to conform to the wheel. A cold wheel brought into the plant conditions may develop condensation on the surface. Moisture on the tape surface can reduce short-term adhesion performance. In both of these situations, part heating may be required prior to application.
- Verify that the location tool and/or hand application are locating the weight properly so that bridging on the wheel surface does not occur.
- If additional assistance is needed, contact a 3M application engineer.

Safety Information

General Safety Statement
Read, understand and follow all safety information contained in these instructions and within each product's labeling, insert and directions for use, prior to set-up and operation of the 3M™ Wheel Weight System. Retain these instructions for future reference.

Intended Use
The 3M™ Cutting Stand PN61480, 3M™ Universal Cutter PN61479, 3M™ Dual Box Holder Kit PN99428 and 3M™ Dual Cutter Bracket PN99429 are intended for use in handling, feeding, measuring and cutting required lengths of 3M™ Wheel Weight PN61403, PN61405, PN55409, PN55428, PN99473 and 3M™ Mechanical Replacement Weight PN99427 roll goods for use in the balancing of automotive wheels. The 3M Wheel Weight System is intended for use in a commercial environment by trained personnel.

The 3M Wheel Weight System must be set-up and operated in the commercial automotive environment as intended. It has not been evaluated for other uses or locations.

Explanation of Signal Word Consequences

Explanation of Signal Word Consequences	
⚠ **WARNING**	Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury and/or property damage.
⚠ **CAUTION**	Indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury and/or property damage.

⚠ WARNING

To reduce the risks associated with the sharp cutting blade, which, if not avoided, could result in serious injury:
- Prior to use, read, understand, follow and retain for future reference the safety information in these user instructions.
- Handle the sharp edge with care (labeled on the cutter).
- Do not use with a damaged or missing cutting blade guard.
- Always latch the cutter handles closed when not in use.
- Keep hands away from cutting area.
- Handle replacement cutter blades with care when replacing and disposing of them.

⚠ CAUTION

To reduce the risks associated with impact, which, if not avoided, may result in minor or moderate injury and/or property damage:
- Locate and operate the cutter tool and stand in an area where it will not be bumped into.
- Cutter stand foot pads must be securely fastened.
- Ensure the box holder set screws are secure prior to use.
- Ensure the locking collar on the upper stand arm for the double box holder kit is in place, is not damaged and is secure prior to use.
- Ensure the upper-stand to lower-stand locking bolt is not damaged and is secure prior to use.
- Ensure the cutter is properly mounted to the upper stand and is not damaged and that the fastener is secure prior to use.
- Ensure that the added box holder for the dual feed kit is properly mounted, that both the front and back detents are engaged and that no more than two box holders are mounted to the stand prior to use.

Set-Up and Instructions for the 3M™ Wheel Weight System Stands, Cutters and Brackets

3M™ Cutting Stand PN61480 and 3M™ Universal Cutter PN61479 Set-Up and Instructions



1. Secure the footpads on the 3M Cutting Stand to the floor.



2. Adjust the upper stand to the desired height.



3. Using set screws, adjust the box holder to the desired angle.



4. Using the cap screws provided, attach the 3M Universal Cutter PN61479 to collar clamp. Using collar clamp screw, adjust the cutter to desired angle.



5. Open the box of 3M™ Wheel Weight material and place in box holder. Thread the wheel weight to the infeed side of the cutter.



IMPORTANT! Match scale to material designator on box.



6. Position scale against stop on outfeed tray of cutter and secure in place.



7. Using thumbscrews on backside of guide, position guide to create loose-fitting slot for the material. Extended liner will pass underneath guide.



8. Advance material to desired weight and cut.

3M™ Dual Box Holder Kit PN99428 and 3M™ Dual Cutter Bracket PN99429 Set-Up and Instructions



1. Remove 3M™ Universal Cutter PN61479 from the 3M™ Cutting Stand PN61480. Loosen socket head cap screws, with a 5/32” allen wrench and remove. Set cap screws aside for later use. Remove metal collar from tube with a 3/16” allen wrench. Dispose of metal collar.



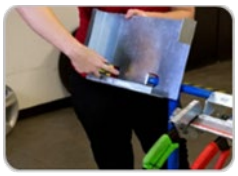
2. From the bottom side of the bracket, insert one cutter into the right side slot as shown. Secure with two supplied socket head cap screws using a 5/32” allen wrench as shown.



3. Insert second cutter onto left side of bracket, aligning mount holes as shown. Secure with two supplied socket head cap screws using a 5/32” allen wrench. Insert desired product rulers into each cutter assembly. Adjust orientation of dual cutter bracket so both product rulers are easy to read.



4. Insert dual cutter bracket onto blue stand orienting roughly as shown in photo, with hex nuts facing rear and cutter slots oriented horizontal to floor. Tighten hex nuts with 7/16” box wrench. This may need to be adjusted later for operator comfort.



5. Remove box holder from stand by loosening (2) set screws using a 1/8” allen wrench as shown.



6. Slide one ear of the box holder back over the stand tube, then slide the collar provided in the box holder kit onto the stand tube, and then slide second ear of box holder back onto the tube as shown.



7. Align hole in collar with outermost set screw hole location in box holder. Install this box holder set screw through collar hole and tighten on stand tube using 1/8” allen wrench. Also install second set screw in box holder and tighten. Adjust orientation of box holder to allow feeding product directly into right side cutter. Finally, tighten collar clamp onto tube using 3/16” allen wrench.



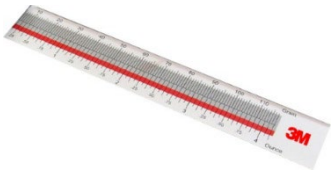
8. Slide second box holder over first, making sure that bottom and left side flanges fully engage the original box holder sides. With a pliers or channel lock, twist the locking tab to secure the second box holder to the original as shown.



9. Insert material into box holders. Advance material into corresponding cutter. IMPORTANT! Match scale to material designator on box.

Replacement Parts

3M™ Replacement Rulers



3M™ Replacement Rulers are genuine replacement parts for the 3M™ Universal Cutting tool and are designed to help automotive technicians measure exact lengths and weights of 3M™ Wheel Weight material. The easy-to-use ruler measures weights for precision wheel balancing in both gram and ounce increments and is easily interchangeable for measuring specific 3M Wheel Weight Profiles. Choose the ruler you need based on the size of 3M™ Wheel Weight Material you are using:

Replacement Ruler Ordering Information

Part Number	3M ID	Description	Corresponding 3M™ Wheel Weight Material
PN55418	7100338857	3M™ Replacement Ruler RR4020/RR6020, 10 per bag	3M™ Wheel Weight PN55409 (TN4020P) and PN55428 (TN6020P)
PN99431	7100339214	3M™ Replacement Ruler RR4023/RR4014, 10 per bag	3M™ Wheel Weight PN61405 (TN4023P) and 3M™ Mechanical Replacement Weight PN99427 (TN4014P)
PN55404	7100338799	3M™ Replacement Ruler RR4029, 10 per bag	3M™ Wheel Weight PN99473 (TN4029P)
PN61565	7100338489	3M™ Replacement Ruler RR4715, 10 per bag	3M™ Wheel Weight PN61403 (TN4715P)

Replacement Blades and Anvils

If cutter does not cut cleanly through wheel weight material and liner, it may be necessary to replace the cutter blade and/or anvil. Please follow all installation and safety instructions provided.

Replacement blades and anvils are available through online retailers. See image to right for example of kit.



Balancing Wheels Using 3M™ Wheel Weights

General Description

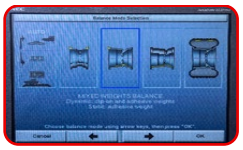
This section covers the recommended procedures for using 3M™ Wheel Weights PN55409, PN61403, PN61405 and PN99473 and 3M™ Mechanical Replacement Weight PN99427, as a part of the 3M™ Wheel Weight System to dynamically balance automotive wheels. The following procedures offer specifics on balancing the wheel, cleaning the wheel rim and applying the 3M Wheel Weight product to the surface of the rim.

Recommended Products, Supplies and Equipment

Wheel Balancer	Clean cloth such as Scotch-Brite® High Performance Cleaning Cloth PN06016
3M™ Wheel Weight Surface Prep PN55453*	3M™ Cutting Stand PN61480
3M™ Dual Box Holder Kit PN99428	3M™ Dual Cutter Bracket PN99429
3M™ Universal Cutting Tool PN61479	3M™ Wheel Weight Material
3M™ Removal Tool PN99099	

* Note: When using solvents, extinguish all ignition sources, including pilot lights and follow the manufacturer's precautions and directions for use.

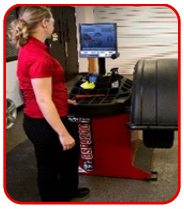
Balancing Wheels using the 3M™ Wheel Weigh System



1. Select Balancer Setting
   - Select clip/clip or clip/tape setting



2. Measure Width of Wheel
   - Place wheel on balancer
   - Use measuring arm on balancer to measure the wheel width.
   - Input measurement into balancer



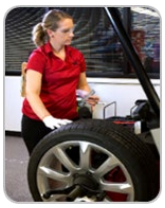
3. Balance the Wheel
   - Lower the hood of the balancer
   - After spinning, the balancer displays the out-of-balance weight and location on the inner and outer portions of the wheel



4. Clean the Wheel Rim
   - Clean the area of the wheel where the 3M™ Wheel Weight will be applied using 3M™ Wheel Weight Surface Prep 2000 or another comparable cleaner
   - Spray the surface of the wheel and wait for a moment while the cleaner penetrates and loosens the grease or dirt
   - Wipe away the residue with a clean cloth



5. Cut the 3M Wheel Weight Material to the Needed Weight
   - Pull the 3M Wheel Weight material through the 3M™ Universal Cutting Tool
   - Using the measuring scale (either gram or ounce), cut to the desired weight



6. Center the 3M Wheel Weight Material to the Correct Position
   - Pre-bend the 3M Wheel Weight
   - Remove the liner from the cut 3M Wheel Weight material, being careful not to touch or contaminate the adhesive



7. Apply the 3M Wheel Weight
   - Bend the part slightly to fit curvature of rim. Apply middle of part to centerline, right against the flange, while keeping ends from making contact
   - Pressurize from the center of the part towards both ends

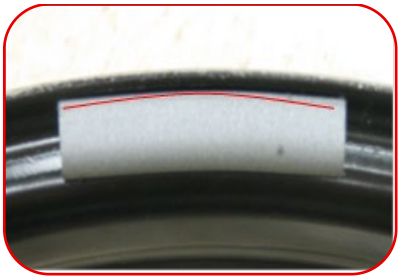


8. Apply Pressure to the Wheel Weight Material
   - Using your fingers or a roller, apply pressure firmly and smoothly along the length of the weight

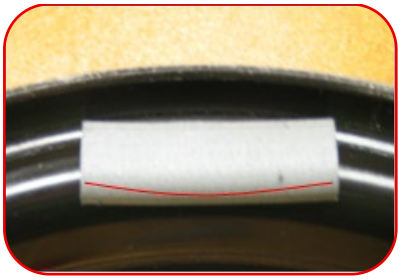


9. Recheck the Balance of the Tire
   - Spin the tire to check for balance
   - A zero on the balancer means the wheel balancing process is complete

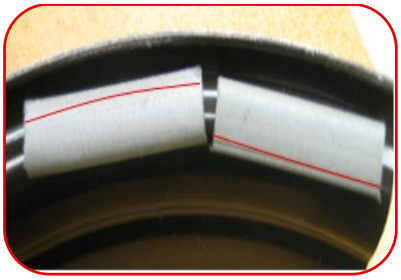
Determining Good versus Bad Part to Flange Match for 3M™ Mechanical Replacement Weights



GOOD – The curved part matches the flange and is applied tightly against it.



BAD – The part is bridged across the flange.



BAD – The part is applied with the notch away from flange (upside down).

Installation Video

Visit www.3m.com/wheelweights to view the 3M™ Wheel Weight Stand and Cutter Set-Up and Product Installation videos.

Shelf Life

Twelve months from date of manufacture, when stored at optimum storage conditions of 22°C (72°F) and 50% relative humidity.

Regulatory Information

Please refer to the product label and Safety Data Sheet (SDS) for health and safety information before using. Observe proper handling precautions as outlined in the SDS, which is available on request or at www.3M.com/msds. To obtain published IMDS ID numbers, email requests to 3M-IMDSrequest@mmm.com.

Contact Information

The information provided in this technical document is intended as a guide for these products. For more information or help in selecting a 3M product for an application, please contact your 3M technical service representative or call 1-800-328-1684.

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