

# COATS®

## 6401 Computer Truck Wheel Balancer



### Installation Instructions Operating Instructions Safety Instructions Maintenance Instructions

READ these instructions before placing unit in service KEEP these and other materials delivered with the unit in a binder near the machine for ease of reference by supervisors and operators.

**HENNESSY INDUSTRIES, INC.**

1601 J. P. Hennessy Drive, LaVergne, TN USA 37086-3565 615/641-7533 800/688-6359

HENNESSY INDUSTRIES INC. Manufacturer of AMMCO®, COATS® and BADA® Automotive Service Equipment and Tools.

Manual Part No.: 8144030 03

Revision: 05/04

# Direct Drive

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# Safety



Failure to follow danger, warning, and caution instructions may lead to serious personal injury or death to operator or bystander or damage to property. Do not operate this machine until you read and understand all the dangers, warnings and cautions in this manual. For additional copies of either, or further information, contact:

### **Hennessy Industries, Inc.**

P.O. Box 3002, 1601 J.P. Hennessy Drive  
LaVergne, TN 37086-1982  
(615) 641-7533 or (800) 688-6359  
[www.Hennessy-Ind.com](http://www.Hennessy-Ind.com)

## **Operator Protective Equipment**

Personal protective equipment helps make tire servicing safer. However, equipment does not take the place of safe operating practices. Always wear durable work clothing during tire service activity. Loose fitting clothing should be avoided. Tight fitting leather gloves are recommended to protect operator's hands when handling worn tires and wheels. Sturdy leather work shoes with steel toes and oil resistant soles should be used by tire service personnel to help prevent injury in typical shop activities. Eye protection is essential during tire service activity. Safety glasses with side shields, goggles, or face shields are acceptable. Back belts provide support during lifting activities and are also helpful in providing operator protection. Consideration should also be given to the use of hearing protection if tire service activity is performed in an enclosed area, or if noise levels are high.

## **Important Information**

### **Rubber Manufacturers Association**

1400 K Street N. W.  
Washington, DC 20005  
(202) 682-4800

### **Tire Guides, Inc.**

The Tire Information Center  
1101-6 South Rogers Circle  
Boca Raton, FL 33487-2795  
(561) 997-9229  
[www.tireguides.com](http://www.tireguides.com)



### **Do it Now**

Make sure the instruction and warning decal is clean and clearly visible to operator.



# Safety

## Owner's Responsibility

To maintain machine and user safety, the responsibility of the owner is to read and follow these instructions:

- Follow all installation instructions.
- Make sure installation conforms to all applicable Local, State, and Federal Codes, Rules, and Regulations; such as State and Federal OSHA Regulations and Electrical Codes.
- Carefully check the unit for correct initial function.
- Read and follow the safety instructions. Keep them readily available for machine operators.
- Make certain all operators are properly trained, know how to safely and correctly operate the unit, and are properly supervised.
- Allow unit operation only with all parts in place and operating safely.
- Carefully inspect the unit on a regular basis and perform all maintenance as required.
- Service and maintain the unit only with authorized or approved replacement parts.
- Keep all instructions permanently with the unit and all decals/labels/notices on the unit clean and visible.
- Do not override safety features.
- If ownership of the unit is transferred, provide new owner all information, manuals, and provide COATS new ownership information.
- Warranty is non-transferable.

## Definitions of Hazard Levels

Identify the hazard levels used in this manual with the following definitions and signal words:

### DANGER

Watch for this symbol:



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

### WARNING

Watch for this symbol:



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

### CAUTION

Watch for this symbol:



It Means: Hazards or unsafe practices, which may result in minor personal injury or product or property damage.



Watch for this symbol! It means BE ALERT! Your safety, or the safety of others, is involved!

# Safety

## IMPORTANT SAFETY INSTRUCTIONS

### READ ALL INSTRUCTIONS

1. Eye and face protection recommendations:  
“Protective eye and face equipment is required to be used where there is a reasonable probability of injury that can be prevented by the use of such equipment.” O.S.H.A. 1910.133(a) Protective goggles, safety glasses, or a face shield must be provided by the owner and worn by the operator of the equipment. Care should be taken to see that all eye and face safety precautions are followed by the operator. **ALWAYS WEAR SAFETY GLASSES.** Everyday glasses only have impact resistant lenses, they are not safety glasses.
2. Do not disable hood safety interlock system, or in any way shortcut safety controls and operations.
3. Be sure that wheels are mounted properly, the hub nut engages the arbor for not less than four (4) turns, and the hub nut is firmly tightened before spinning the wheel.
4. Read and understand this manual before operating. Abuse and misuse will shorten the functional life.
5. Be sure the balancer is properly connected to the power supply and electrically grounded.
6. Do not operate equipment with a damaged cord or if the equipment has been dropped or damaged – until it has been examined by a qualified serviceman.
7. Do not let cord hang over edge of table, bench, or counter or come in contact with hot manifolds or moving fan blades.
8. 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.
9. Keep guards and safety features in place and in working order.
10. Wear proper clothing. Safety toe, non-slip footwear and protective hair covering to contain hair is recommended. Do not wear jewelry, loose clothing, neckties, or gloves when operating the balancer.
11. Keep work area clean and well lighted. Cluttered and/or dark areas invite accidents.
12. Avoid dangerous environments. Do not use power tools or electrical equipment in damp or wet locations, or expose them to rain.
13. Avoid unintentional starting. Be sure the balancer is turned off before servicing.
14. Disconnect the balancer before servicing.
15. Use only manufacturer’s recommended accessories. Improper accessories may result in personal injury or property damage.
16. Repair or replace any part that is damaged or worn and that may cause unsafe balancer operation. Do not operate damaged equipment until it has been examined by a qualified service technician.
17. Never overload or stand on the balancer.
18. Do not allow untrained persons to operate machinery.
19. To reduce the risk of fire, do not operate equipment in the vicinity of open containers or flammable liquids (gasoline).
20. Adequate ventilation should be provided when working on operating internal combustion engines.
21. Keep hair, loose clothing, fingers, and all parts of body away from moving parts.
22. Use equipment only as described in this manual.
23. Use only manufacturer’s recommended attachments.

## SAVE THESE INSTRUCTIONS

## **Before You Begin**

### **Receiving**

The shipment should be thoroughly inspected as soon as it is received. The signed bill of lading is acknowledgement, by the carrier, of receipt in good condition of the shipment covered by our invoice.

If any of the goods called for on this bill of lading are shorted or damaged, do not accept them until the carrier makes a notation of the shorted or damaged goods on the freight bill. Do this for your own protection.

NOTIFY THE CARRIER AT ONCE if any hidden loss or damage is discovered after receipt and request him to make an inspection. If the carrier will not do so, prepare an affidavit to the effect that you have so notified the carrier (on a certain date) and that he has failed to comply with your request.

IT IS DIFFICULT TO COLLECT FOR LOSS OR DAMAGE AFTER YOU HAVE GIVEN THE CARRIER A CLEAR RECEIPT.

File your claim with the carrier promptly. Support your claim with copies of the bill of lading, freight bill, invoice, and photographs, if possible.

Although COATS® responsibility ceases upon delivery of the shipment to the carrier, we will gladly assist in tracing lost shipments. Our willingness to assist in every possible manner does not make COATS® responsible for collection of claims, or replacement of lost or damaged materials.

### **Electrical Requirements**

The balancer requires a 220 VAC, 60Hz, three-phase power supply with 20 amp fuse or circuit breaker, or a 220 VAC, 60 Hz, single-phase power supply with 20 amp fuse or circuit breaker.

The three-phase balancer is equipped with an approved cord and a 4-prong grounding plug to fit a Hubbell 2420 or Bryant 71520 grounding receptacle (not included).

The single-phase balancer is equipped with an approved cord and a 3-prong grounding plug to fit a Hubbell 2320 or Bryant grounding receptacle (not included).

The receptacles should be installed by a qualified electrician in accordance with state and local codes.

# Direct Drive

## Specifications

- Cycle time . . . . .12 seconds (avg.)
- Max Tire Diameter . . . . .46 inches
- Max Tire Weight . . . . .200 pounds
- Rim Diameter . . . . .16 inches
- Wheel Width Range . . . . .4.5 to 25 inches
- Balancing Increments:

	<i>Truck</i>	<i>Truck</i>	<i>RV</i>	<i>Car</i>
<i>Round Off</i>	<i>Dynamic</i>	<i>Static</i>	<i>Dynamic</i>	<i>Dynamic</i>
Ounce	2.0	2.0	wt≤4.0; .5 wt>4.0; 1.0	.25 .5
Grams	50	50	wt≤100; 10 wt>100; 20	wt>55; 10 wt≤55; 5

- Resolution (Round Off Mode) . . .0.01 ounce, 1.4°
- Motor - Modified torque with 850 RPM rating, forced air cooling, large housing for heat dissipation, and heavy duty insulation for high temperature applications
- Balancer Weight . . . . .900 pounds
- Shipping Weight . . . . .1,100 pounds

## Standard Accessories

- 5/16 Allen Wrench
- Weight Hammer
- 6401 Threaded Stud
- Accessory Pegs
- Hood Springs
- Caliper
- Small Cone
- Medium Cone
- Large Cone
- Truck Cone
- Truck Cone Spacer
- Back Cone Spring
- Pressure Drum
- Hubnut Wrench, Large
- Hubnut Wrench, Small
- Hubnut

## Optional Accessories

- Tire/Wheel Lift #0501: A roll-around hydraulic lift for mounting tire and wheel assembly to the balancer
- Dayton Wheel Adapter for 20-22.5 Inches
- Dayton Wheel Adapter for 22-24.5 Inches
- Combi Adapter for Most Truck Wheels
- Hub

## Features

- Exclusive Direct Drive System - No Belts or Pulleys
- Will Balance Most Automotive, All Truck, RV and Light Truck Wheels
- Backcone And Truck Cone Mounting Systems
- Single Spin Dynamic Two Plane Balance Or Static Balance
- Vertical Wheel Mounting
- Hood Safety Interlock System
- Static, Car/RV And Truck Operating Modes
- Adjustable Control Panel
  - Scratch and Solvent Resistant
  - Large, Bright Digital Displays
  - Easy-to-Read Position Indicators
  - Large Keypad for Data Entry
  - Easily Repositioned for Best Visibility
  - Electronics Isolated from Motor Heat
  - Automatic Memory and Program Check
- Automatic Rim Gauge Return
- Simple Calibration
- Removable Shaft Stud
- Oversized Weight Bins
- Built In Anvil for Hammering Weights
- "No Bolt-Down" Installation



# Direct Drive

## Installation and Setup

A factory trained COATS® Service Technician must perform the install, setup, and initial test procedures on your 6401 balancer. Do not attempt to install and setup the unit yourself. Accurate and reliable operation of your unit depends on proper installation. Please contact COATS® directly at 1-800-688-9240 for the Certified Service Partner nearest you.

## Floor and Space Requirements

The balancer must be located on a flat floor of solid construction, preferably concrete. The balancer must sit solidly on its three feet. If the balancer is not level, does not sit solidly on its three feet, or is placed on an unstable floor, the balancer will not function properly and will produce inaccurate balance readings.

Do not operate the balancer when it is still bolted down or while it is on the pallet.

Select a location for the balancer that provides a level, solid floor, and adequate clearance around and above the balancer (Figure 1). Make sure the location selected has enough room above and behind the unit so the hood can be raised completely. The location must also provide working room for mounting and removing wheels.

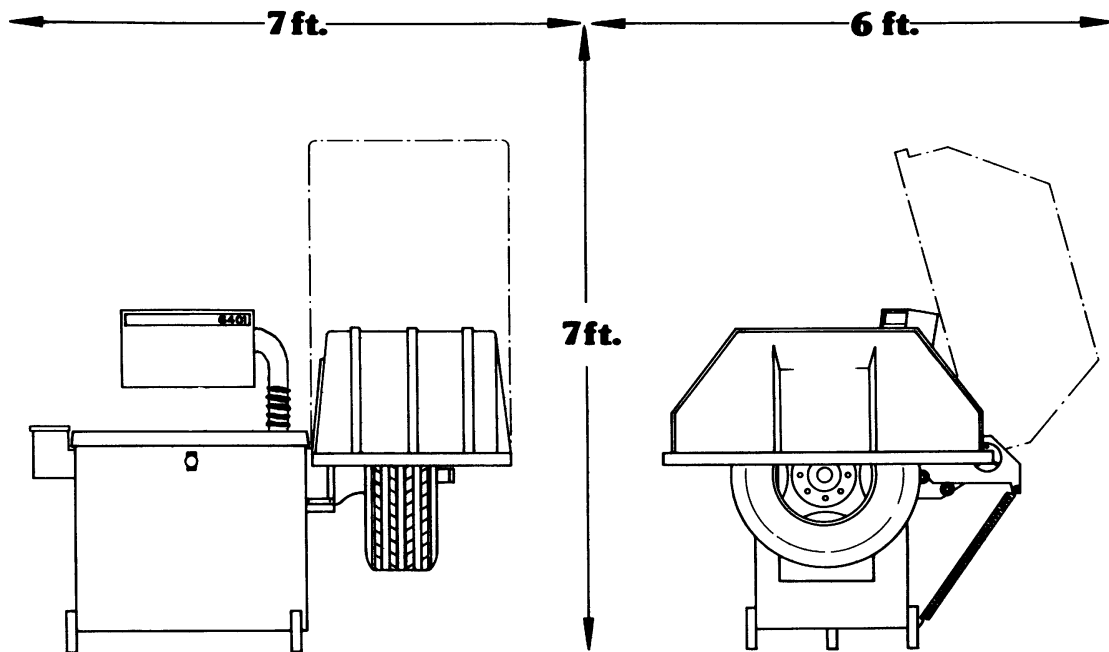


Figure 1 - Space Requirements

# Direct Drive

## Unpack and Setup the Unit

1. Install the two (2) hood springs.
2. Mount hood using the three (3) hex bolts (3/8-16 UNC x 1"), matching hex nuts and lock washers supplied in the accessory box.
3. Remove the bolts holding the balancer to the pallet. With a forklift, carefully lift the balancer off the pallet and move to final position.



**Do not use the control pod, control pod arm, face-plate, hood or stub shaft to lift the balancer.**

4. Install and tighten the four (4) accessory pegs and hang the accessories.

5. Install and tighten the threaded stud into end of motor shaft.

6. Loosen the four 5/16" nuts and raise the control pod support arm. Raise it high enough to allow room for the pod to rotate into position and for the Match Mount instructions to lower below the pod.

7. Lightly tighten the control pod support arm retainer nuts on the side of the support bracket. Arm will be adjusted and tightened later.

8. Loosen the two adjustment knobs on the back of the control pod (Figure 2).

9. Rotate the pod into operating position, and retighten the knobs.

10. Loosen the nuts on the support arm retainers. Raise or lower the control pod into the desired position, and tighten the retainer nuts securely. The bottom edge of the pod should be at least 8 inches above the top of the balancer (Figure 3).

11. Lower the Match Mount instructions attached to the underside of the control pod. If there is not enough room between the pod and the balancer weight tray to fully lower the instruction card, the pod should be raised.

12. Position the balancer in its final operating location. Lightly tighten the four 5/16" nuts

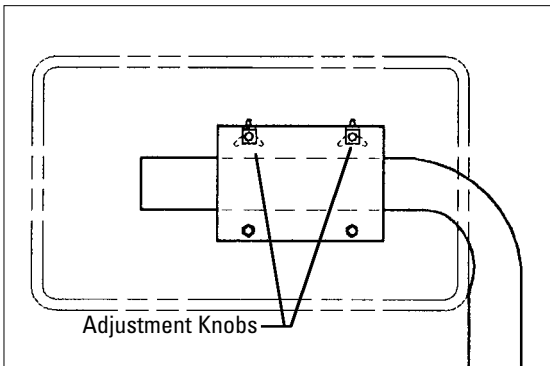


Figure 2 - Control Pod Adjustment Knobs

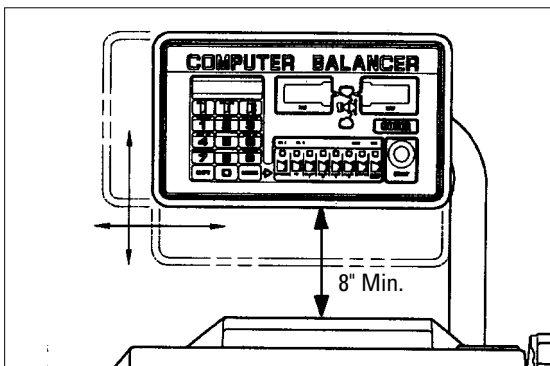


Figure 3 - Control Pod Height

# Direct Drive

## Connect to Power

Your factory trained COATS® Service Technician should do the final check to verify the power installation before connecting the balancer to a power supply. Failure due to improper power connection will void the warranty.

Connect the balancer to an appropriate electrical receptacle. Refer to Figures 4 and 5, as well as Electrical Requirements on page 1.

**Note:** If pedestrian or equipment traffic might damage the standard power cord, power outlets must be enclosed in a race-way on the floor or in an overhead drop.

**Note:** Electric outlets must be solidly connected. There should be less than 1  $\Omega$  electrical resistance between the ground pin and earth ground. The installer or electrical inspector must verify the outlet installation before connecting the balancer. **Failure due to improper power connection will void the warranty.**

**Note:** The green wire in the cord is the grounding wire. Never connect the green wire to a live terminal.

## Initial Testing

This should be performed by your factory trained COATS® Service Technician.

**Precautions:** Initial testing should be performed by the instructor. Power requirements must be verified by the installer or instructor before connecting balancer. Failure to observe this precaution may void warranty.

**Power:** Plug power cable into power outlet receptacle. Set circuit breaker in building breaker panel on. Set On/Off switch on. Leave power on during an entire work day.

**Cooling Air:** Check to verify cooling air blower is running. Do not operate unit unless cooling air flow is present.

**\*Spin:** (220 VAC 3 phase units) Press START button with hood down. Faceplate should rotate clockwise. If initial direction of faceplate rotation is incorrect, an error message will show in the control panel display: ERROR. Set On/Off switch off. Set building circuit breaker off. Interchange X and Y wires in outlet plug. Set building circuit breaker on. Set On/Off switch on. Press TRUCK button. Faceplate initial rotation should be clockwise.

**\*Spin:** (220 VAC single phase units) Press START button with hood down. Faceplate should rotate clockwise for an interval and then stop.

**Note:** If the above conditions cannot be obtained during initial test, call the distributor for service advice.

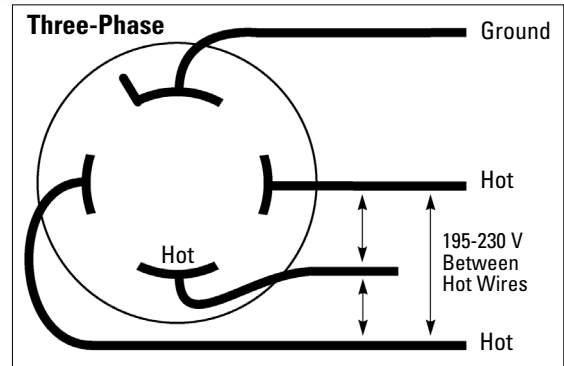


Figure 4 - Three-Phase Wiring Diagram

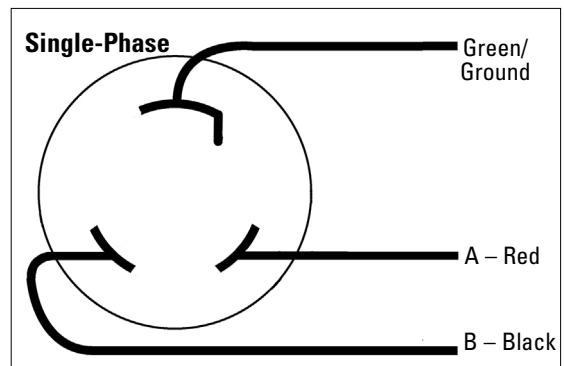
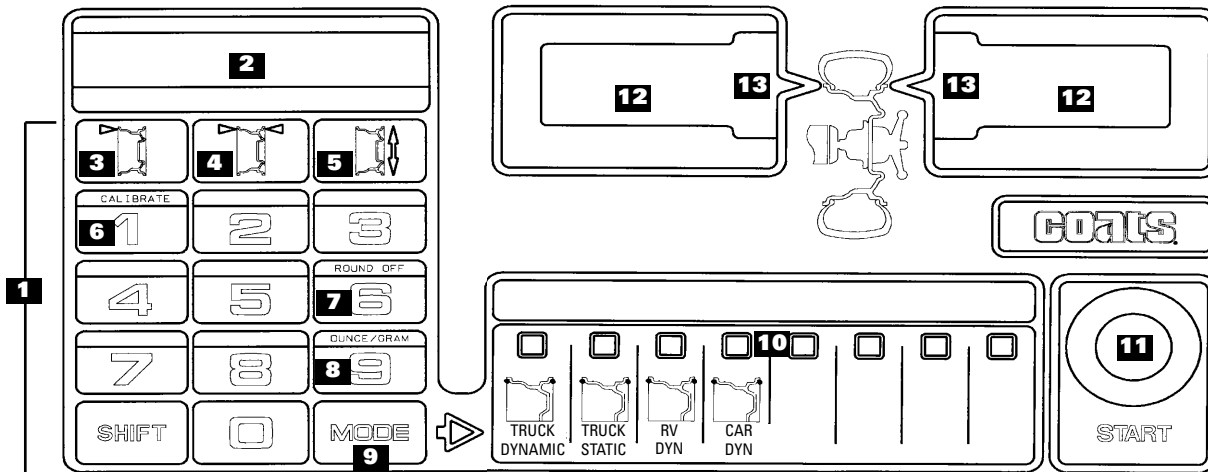


Figure 5 - Single-Phase Wiring Diagram

\*Mount a tire/wheel assembly to avoid HUB ERR.

# Direct Drive

## Operating Overview



### Control Panel

**1 Keypad** - User enters information and selects function using these keys.

**2 Wheel Measurement Display** - Displays A, W, and D values.

**3 Wheel Offset (A)** - The distance between the inner rim flange and the edge of the balancer. Refer to Offset on page 9 for detailed instructions.

**4 Wheel Width (W)** - The width of the rim between the inner and outer rim flanges. Refer to Width on page 10 for detailed instructions.

**5 Wheel Diameter (D)** - The diameter of the wheel at the weight location. Refer to Diameter on page 10 for detailed instructions.

**6 Calibrate** - Places the balancer in the Calibrate Mode. Press and hold the SHIFT key, and press 1.

**7 Round Off** - Toggles the balancer between the high accuracy mode (0.01-ounce increments) and the normal mode (0.25-ounce increments). Press and hold the SHIFT key, and press 6.

**8 Ounce/Gram** - Toggles the balancer between ounces or grams. Press and hold the SHIFT key, and press 9.

**9 Mode** - Selects the desired balancing mode.

**10 Balancing Modes** - Press the MODE key to select from the 4 available modes. The LED above the mode will illuminate to indicate the mode is selected.

**11 Start Button** - Press to start a spin cycle.

**12 Weight Displays** - Indicate the weight amount to be attached to the wheel.

**13 Weight Position LEDs** - Center LEDs flash when correct weight position is at top-dead-center.

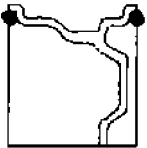
# Direct Drive

## Selecting Balancing Mode

Four balancing modes are available on the 6401. Select the balancing mode based on wheel type and customer request. Press the mode key to select the desired balance type. The LED will illuminate to indicate your selection. In the static mode, the balancer will automatically adjust the wheel diameter to compensate for the actual location of the weight(s).

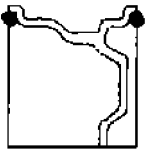
**Note:** See page 12 for balancing procedures.

### Car Dynamic



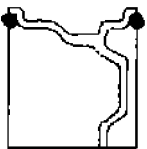
The most common mode used for passenger cars and light trucks (Less than 14" diameter tires). Selecting this mode tells the balancer that standard clip weights will be used on the inner and outer rim flanges.

### RV Dynamic



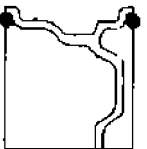
Use this mode to balance larger wheels that do not require balancing at 0.5 ounce or below (14" to 16" diameter tires).

### Truck Dynamic



Use this mode to balance larger wheels that do not require balancing below 2 ounces (16"+ diameter tires).

### Truck Static



Use this mode to static balance large wheels (16"+ diameter tires). This is a two-plane static balance.

## Selecting Balancing Options

**Round Off** - The default weight measurement on the balancer is 0.25 ounces in car mode or 0.50 ounces in truck mode. The balancer can be set to a non-Round Off mode that displays weights in 0.01 ounce increments. Press and hold the SHIFT key and press 6 to toggle between the Round Off and non-Round Off modes.

**Ounce/Gram** - In the default mode, the balancer will operate in ounces. The balancer can be set to operate in grams by pressing and holding the SHIFT key and pressing 9. Toggle back to ounces by using the same key sequence

# Direct Drive

## Reading the Displays

**Weight Displays** - The two weight displays (one for the inner plane, and one for the outer plane) are positioned with a wheel cross section diagram. After spinning the wheel, the balancer will calculate the weight needed and display it in these displays. The display to the left of the diagram will show the weight to be applied to the inner plane of the wheel and the display to the right will show the weight for the outer plane.

Error messages and system messages will also be shown in these displays.

**Weight Position LEDs** - Each weight display includes weight position LEDs. Located between the weight display and the diagram, these LEDs indicate the proper location for weight application. After a spin, rotate the wheel until the center position indicator LEDs flash. This indicates that the position specified by the balancer for weight application is at top-dead-center.

**Display Messages** - Both inner and outer displays will show 0.00 when the balancer is first turned on or after clearing the memory. The balancer may also display the following messages:

**Err** - An error was detected after the start button was pressed. The error is in one of the wheel measurements entered into the balancer. Check your measurements and re-enter as needed.

**Err 3** - Circuit malfunction. Call the Hennessy Service Department at (800) 688-6359.

**Hood (hod)** - The hood has been raised during the balancing cycle. The balancer will automatically brake to a stop. The hood must be down with the safety interlock engaged for the balancer to spin.

**Hub** - The hub nut has come loose. The balancer will automatically brake to a stop when the wheel is 13 inches or larger in diameter. Retighten the hub nut and respin.

# Direct Drive

## Balancing Procedures

### Mount Wheel

Choose the correct mounting method:

1. Back Cone Mounting: Use only small or medium cones (See page 13).
2. Front Cone Mounting: Any cone can be used (See page 13).
3. Combi Adapter: Where center cone mounting cannot be used due to an oversized center hole of rim (See pages 14).

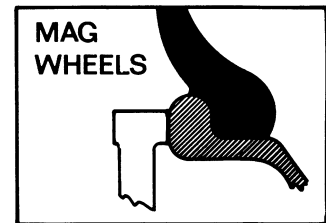
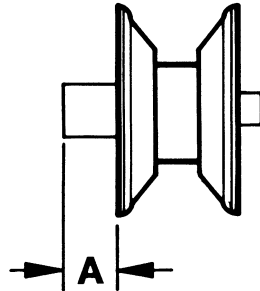
Adapts to: 275 mm (10.827") Bolt circle, 8 hole rims.

11 1/4" Bolt circle, 10 hole rims.

335 mm (13.188") Bolt circle, 10 hole rims.

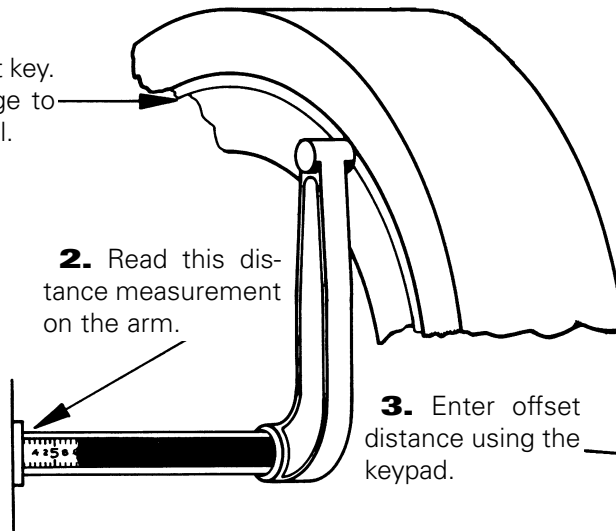
4. Dayton Adapters 20" & 22.5", 22" & 24.5": For use with truck spoke wheels only (See page 15).

### Offset

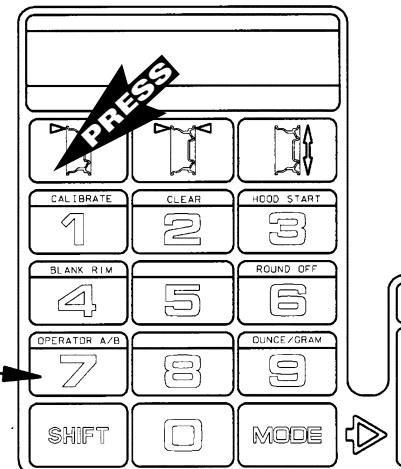


1. Press the offset key.  
Move distance gauge to touch edge of wheel.

2. Read this distance measurement on the arm.



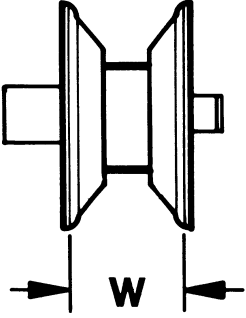
3. Enter offset distance using the keypad.



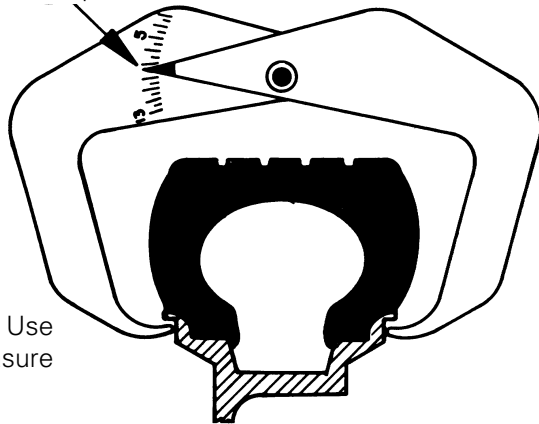
# Direct Drive

## Width

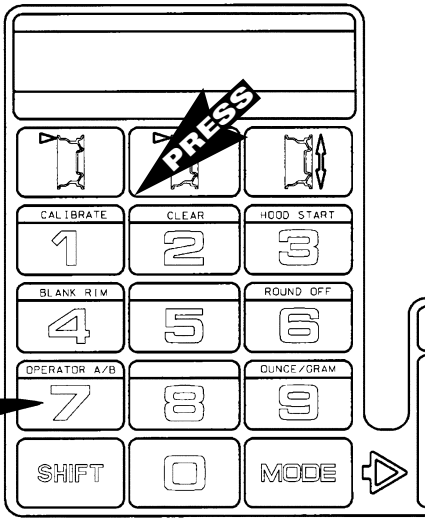
**1.** Press the width key. Use Rim Width Calipers to measure wheel at points shown.



**2.** Read the width reading on the calipers.

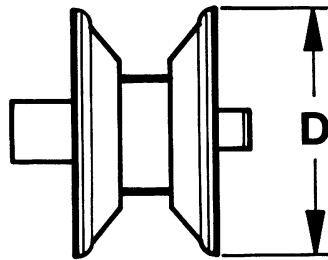
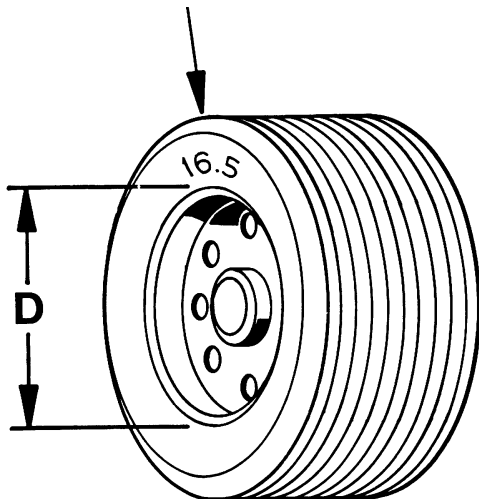


**3.** Enter wheel width information using the keypad.

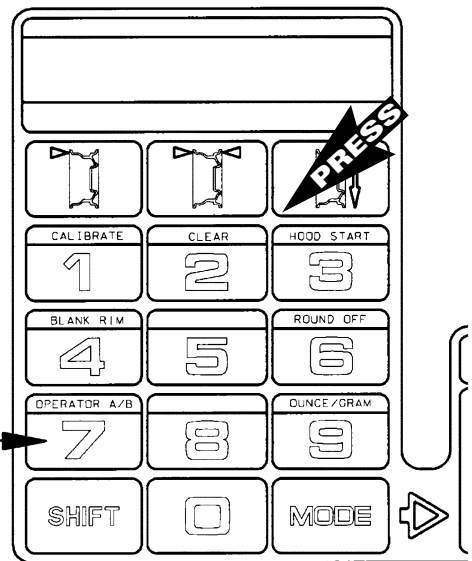


## Diameter

**1.** Press the diameter key. Read rim diameter size as read from tire sidewall.



**2.** Enter diameter using the keypad.





# Direct Drive

## Take Readings

**1.** Weight and position readings will appear on displays as balancer is braking tire.

## Attach Weight

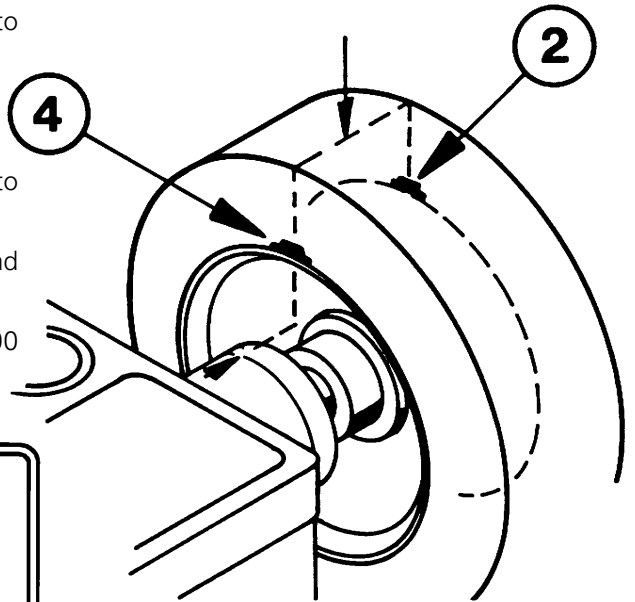
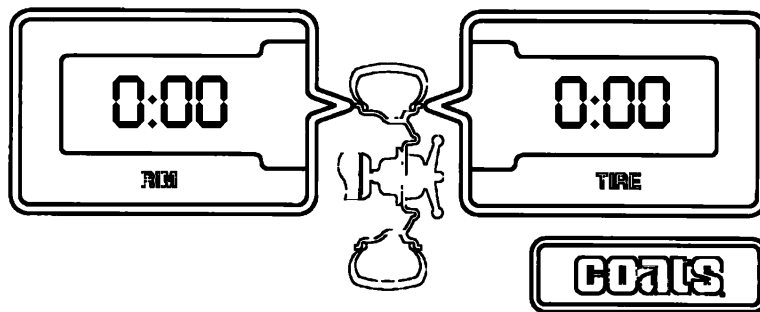
**1.** Rotate wheel until right (outer) red position lights begin to flash.

**2.** Attach a weight equal to outer weight reading at top dead center of outer rim (see #2).

**3.** Rotate wheel until left (inner) red position lights begin to flash.

**4.** Attach a weight equal to inner weight reading at top dead center of inner rim (see #4).

**5.** Respin wheel after weights are applied to obtain 0.00 reading.



**Note:** The more accurate you are in selecting the exact weight and position, the more often you will balance in one spin.

# Direct Drive

## Balancing Wheels

### Truck Dynamic

1. Select Truck Dynamic mode using the keypad.
2. Set distance gauge, wheel width and wheel diameter as indicated in BALANCING PROCEDURES.
3. Lower hood and push START.
4. Raise hood and attach weight as indicated in BALANCING PROCEDURES.
5. Lower hood. Respin wheel to obtain 0.00 reading.

### Truck Static

**Note:** This method is equivalent to a bubble balance.

1. Select Truck Static mode using the keypad.
2. Set distance gauge, wheel width and wheel diameter as indicated in BALANCING PROCEDURES.
3. Lower hood and push START.
4. Raise hood and attach weight as indicated in BALANCING PROCEDURES.

**Note:** Use two standard clip weights to *split* the weight on the inner and outer rim.

**Note:** One weight, using the total imbalance amount, may be used on the inside.

**Note:** If one tape weight is desired on the drop center then set the rim diameter "D" 1 1/2" smaller than tire size.

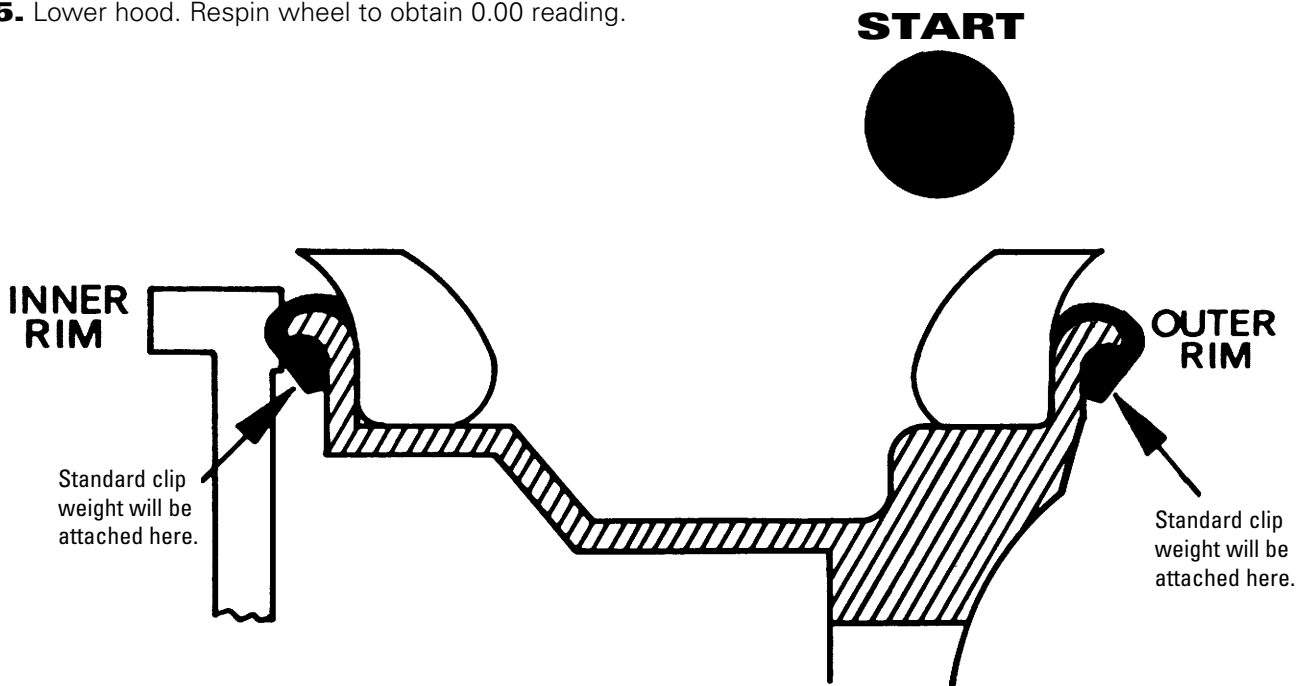
5. Lower hood. Respin wheel to obtain 0.00 reading.

### RV Dynamic

1. Select RV Dynamic mode using the keypad.
2. Set distance gauge, wheel width and wheel diameter as indicated in BALANCING PROCEDURES.
3. Lower hood and push START.
4. Raise hood and attach weight as indicated in BALANCING PROCEDURES.
5. Lower hood. Respin wheel to obtain 0.00 reading.

### Car Dynamic

1. Select Car Dynamic mode using the keypad.
2. Set distance gauge, wheel width and wheel diameter as indicated in BALANCING PROCEDURES.
3. Lower hood and push START.
4. Raise hood and attach weight as indicated in BALANCING PROCEDURES.
5. Lower hood. Respin wheel to obtain 0.00 reading.



## Wheel Mounting Options

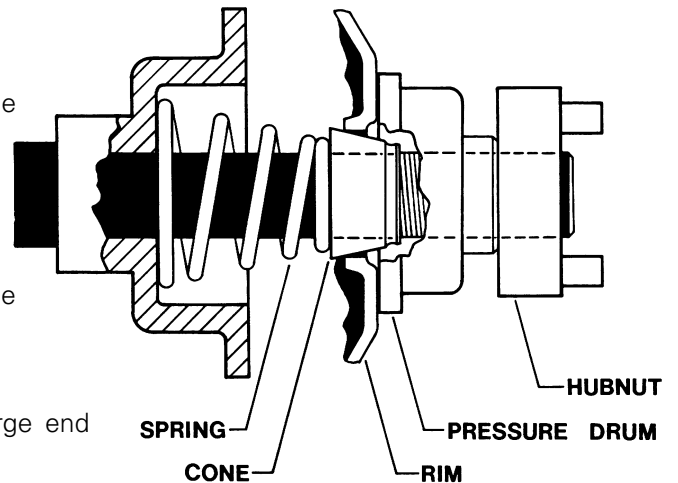


**Hubnut must engage threads for at least four full turns. Failure to tighten hubnut securely or to force wheel firmly against the faceplate may result in serious personal injury.**

### Back Cone Mounting

Use only small or medium cones.

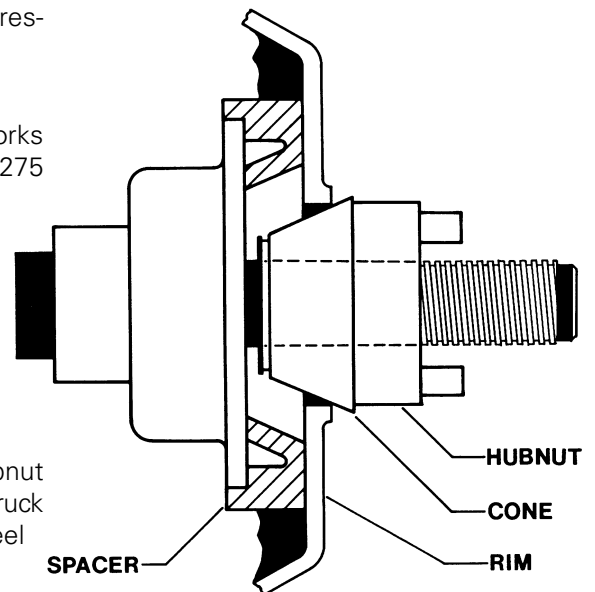
1. Place spring over threaded stud with the large end inside of the faceplate. Spring must be used.
2. Select a cone that best fits into wheel center hole. Use only small or medium cones. If a larger cone is required, use the front cone mounting system.
3. Slide selected cone onto threaded shaft with the large end against the spring.
4. Lift wheel onto shaft and center on cone.
5. Slide pressure drum onto threaded shaft with the large end against the wheel.
6. Thread hubnut on and tighten with hubnut wrench. If hubnut won't tighten all the way down, use the front cone mounting system. The wheel must be forced firmly against the faceplate.
7. If you still can't tighten hubnut because of a lack of threads, use an additional cone to act as a spacer between the hubnut and pressure drum.



### Front Cone Mounting

Can be used with all cones (do not use spring). This method works well with most truck wheels where the bolt circle is less than 275 mm.

1. Select a cone that best fits into wheel center hole.
2. Lift wheel onto threaded shaft.
3. Slide selected cone onto shaft with the small end against the wheel.
4. By lifting wheel from bottom, center on cone.
5. Thread hubnut on and tighten with hubnut wrench. If hubnut won't tighten all the way down, remove cone and wheel. Slide truck cone spacer over faceplate and repeat steps 2 thru 5. The wheel must be forced firmly against the faceplate.
6. If you still can't tighten hubnut because of a lack of threads, use an additional cone to act as a spacer between the hubnut and existing cone.



# Direct Drive

## Combi Adapter (Optional)

**1.** Determine the correct hole pattern by comparing the rim to the adapter. Wheels with the largest bolt circle (335 mm) should be fastened to the large diameter side of the reversible adapter—all others should be fastened to the small diameter side (see illustration below).

**2.** Fasten threaded studs from back of adapter using the 5/16 Allen wrench. Leave enough threads to securely fasten hex nuts and lock washers.

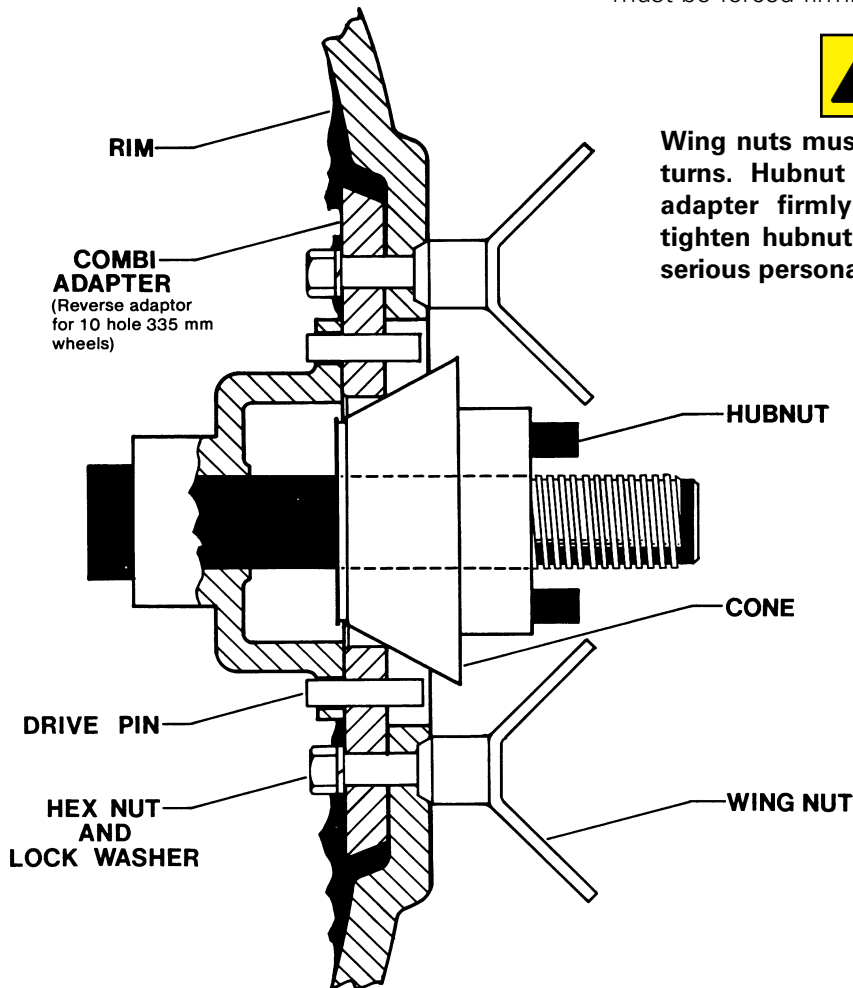
**3.** Slide lock washers on. Hold the studs in place with the 5/16 Allen wrench while threading the hex nuts on, then tighten them down with a 5/16 wrench.

**4.** Mount the adapter onto the faceplate by inserting the two (2) drive pins of the adapter into the matching holes in the faceplate.

**5.** Slide truck cone onto shaft with the small end inside the center hole of the adapter. Mount by front cone method only.

**6.** Thread hubnut on and tighten with hubnut wrench. The adapter must be forced firmly against the faceplate.

**7.** Mount the wheel onto the adapter's lugs. Fasten wing nuts by hand then securely tighten them with a rubber mallet. Wheel must be forced firmly against the faceplate.



**Wing nuts must engage threads for at least six full turns. Hubnut and cone must force wheel and adapter firmly against the faceplate. Failure to tighten hubnut or wingnuts securely may result in serious personal injury.**

# Direct Drive

## Dayton Adapters

**Dayton Wheel Adapter (110785)** - This adapter fits duplex rims (18 x 22.5 tires) for steering axles, and standard rims from 20" to 22.5".

The adapter mounts on a Dayton rim from the front side. On a rim used in a dual wheel application, mount the adapter where the spacer would have been placed. For a rim used on a steering axle application, mount the adapter where the wheel clamps would have been placed.

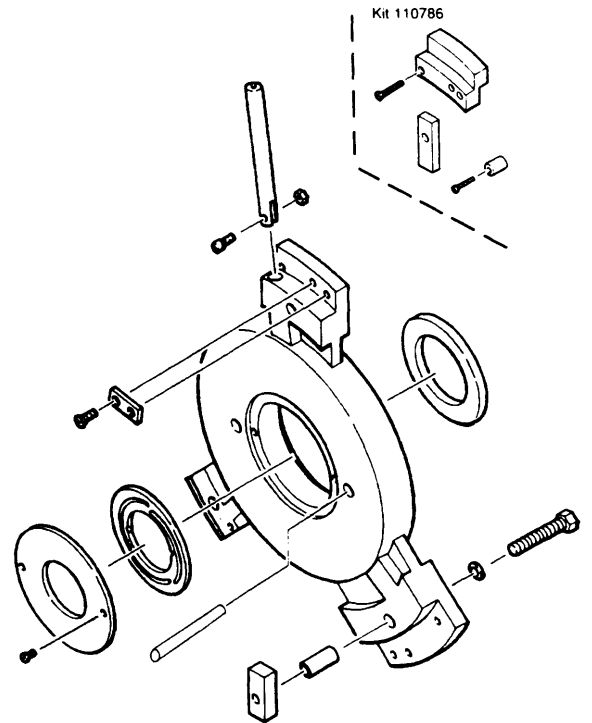
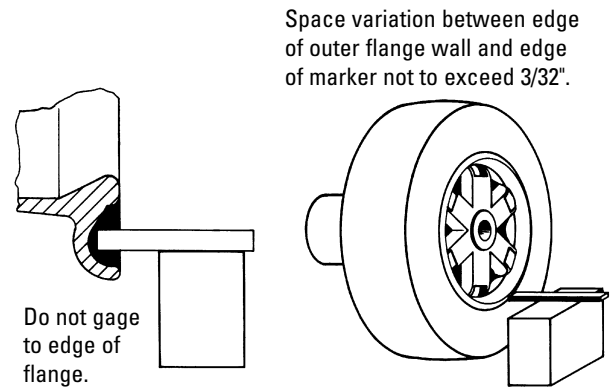
1. Fully retract the adapter centering rods by turning the eccentric to the left (counterclockwise).
2. Loosen the clamps and turn them to a position parallel with the edge of the adapter.
3. Set the adapter into the front side of the rim. Center the valve stem between clamps.
4. Center the adapter in the rim by turning the eccentric. Insert the spanner wrench into the slot in the eccentric and turn it to the right (clockwise).
5. Reach through from the front of the rim and turn the clamps until they are 180° in relation to the clamping surface on the backside of the rim.
6. Tighten the clamps finger tight from the front side of the adapter. When clamps are finger tight use a 3/4" open end or box wrench to tighten all the clamps securely. A 1/2 to 3/4 turn is usually sufficient. Do not use an air wrench.

The wheel is now ready to be mounted on the balancer. Use the appropriate cone to fit the center hole. Remove the adapter by reversing the installation instructions.

**Accessory Kit (110786)** - Contains additional parts to modify the 110785 adapter to fit 22" and 24.5" rims.

1. Remove the wear plates from the three arms.
2. Remove the clamps from the arms.
3. Install the three arm extensions and rod extensions.
4. Install the longer clamps.

The adapter will now fit 22" and 24.5" demountable wheels. Install the adapter according to the steps provided for 20" and 22.5" rims.



**Hubnut and cone must force adapter firmly against the faceplate. Failure to tighten hubnut or rim clamp nuts securely may result in serious personal injury.**

## Special Problems

Customers will occasionally complain of vibration on the car after balancing. Some possible causes are listed below:

**1.** Beads improperly seated. Check bead seating and inflation pressure before balancing spin.

**2.** Stiffness variations in radial belts.

**3.** Tire out of round; wheel out of round, bent, or not running true. Visually check runout of wheel and tire during balance spin. Re-check mounting. Replace wheel or tire if necessary.

**4.** Suspension wear, misalignment, or loose vehicle components.

**5.** Wheels not correctly centered due to damaged hub, damaged or worn center hole, worn bolt circle holes, or imprecise original design. Check wheel run out before balance spin and on the vehicle after mounting.

**6.** Sensitive suspensions. Set the balancer to a non-Round Off mode (See page 6).

**Complaint:** Balancer uses too many weights or several spins to balance.

**Remedy:** Recheck rim dimensions entered. Position the weights exactly top dead center when red position lights are on.

**Complaint:** Weight or position readings fluctuate.

**Remedy:** Check cone/hubnut for slippage. Check the balancer is resting firmly on three mounting points, floor is flat and stable, and that no tools or weights are between balancer and floor.

## Maintenance and Calibration

### Preventative Maintenance

The balancer requires only minor maintenance to keep the unit operating properly.



**NEVER use compressed air or a water hose to clean any part of your balancer.**

- 1.** Keep the display clean and clear. Use a vaporizing cleaner only. Do not use cleaners or solvents, which leave oily or filmy residues behind.
- 2.** Keep the adapters, cones, faceplate, threaded arbor, pressure cup, and hub nut clean. Grease and dirt buildup will cause premature wear and inaccurate balancing. Clean at least once a day with a vaporizing solvent.
- 3.** Clean the weight tray, accessory post, and pegs. Weights stored in a dirty tray will pick up grease and dirt which may alter their weight or keep them from securely attaching to the wheel. Use a vaporizing solvent to clean the tray, pegs, and post.
- 4.** Keep the area around the balancer clear. Remove any tools or other items that are leaning against the balancer. Keep the area under the balancer clear as well. Remove any items that may cause the balancer to not sit level.
- 5.** Use only COATS accessories. Accessories from other manufactures may not fit or function properly, and may damage the balancer.

### Calibration

The balancer utilizes a "self calibration" scheme. To keep your balancer in proper calibration, this calibration procedure should be performed once a month, or whenever the accuracy of the balancer is questioned.

- 1.** Mount a 16 or 16.5 light truck tire/wheel assembly on the balancer.
- 2.** Enter A, W, and D wheel measurements.

**Note:** Make sure the balancer is in NON ROUND OFF mode (SHIFT 6).

- 3.** Remove any weights attached to the wheel. The balancer will read CAL 0.
- 4.** Press and hold SHIFT and press 1.
- 5.** Lower the hood and press START.
- 6.** Raise the hood, rotate the wheel until the outer weight positioning LED flashes, and attach an 8 ounce weight (227 grams) at top-dead-center.

**Note:** It is critical that this weight be placed accurately to achieve proper calibration.

- 7.** Lower the hood and press START.
- 8.** Raise the hood and remove the weight.

The balancer is now calibrated. If a mistake is made during this procedure, turn the balancer off, then back on, and start the procedure over again.

