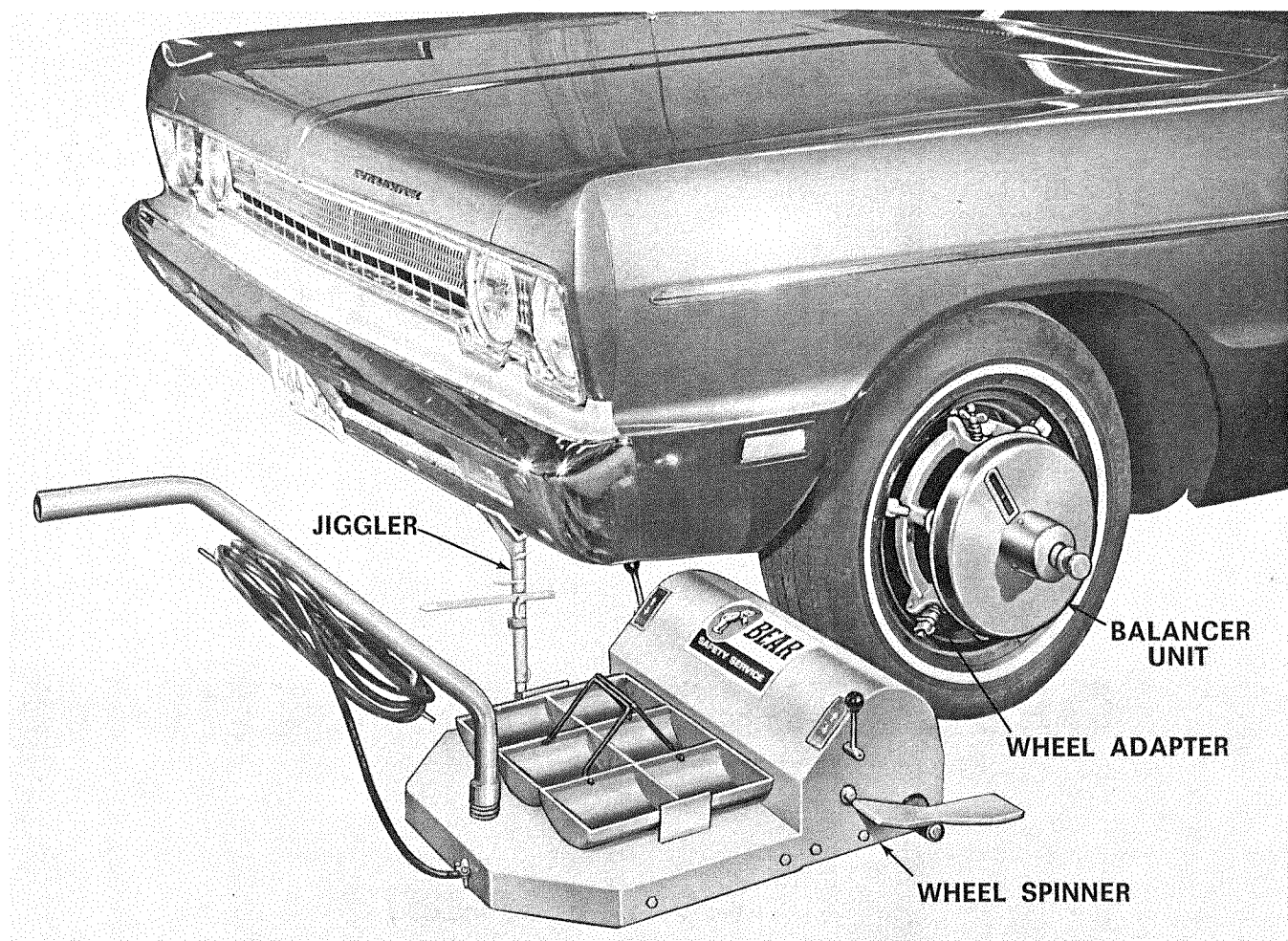


# **BEAR On·A·Car BALANCER**

## **OPERATING INSTRUCTIONS**

**MODELS 386-386/13**





### **WHEEL BALANCER — Model 386/13**

Safe, accurate with On-A-Car speed and simplicity. Balances both front and rear wheel assemblies. Fast, easy two knob operation accurately shows amount and location of weight required. Sensitive jigglers amplify unbalance five times.

### **SPINNER — Model 384**

3 H.P., 208V/230V, 50-60 C., single phase motor, AC-DC. Heavy-duty cast aluminum housing totally enclosed. Safe foot pedal control.

## OPERATION OF WHEEL SPINNER

1. Wheel spinner is wired for 208 Volt/230 Volt, 60 cycle, AC current. Line should be provided with 30 amp time-delay fuses. Do not use the ordinary quick blowing type fuse. Plug spinner cord into outlet.

Secure proper type of male plug to suit receptacle box available. Plug must be 3-wire grounding type. Connect green wire to ground.

2. Spinner is equipped with foot pedal, A Fig. 1, on both sides of spinner, conveniently located for operator. As motor is brought forward against tire by depressing front of foot pedal, motor is switched on — as pedal is released, motor is switched off. Brake is applied by depressing rear of foot pedal.

## TEST FRONT WHEEL FOR UNBALANCE

1. With floor jack under front cross member, raise both front wheels approximately 1" off the floor. Place wheels in straight ahead position.

2. Remove all stones from tire tread.

3. Turn wheel slowly by hand and check tire for excessive run-out or out of round condition. A wobbly wheel or a tire out of round in excess of 1/8" will cause road vibration even after balancing.

4. Check for dragging brake or tight wheel bearing, loosen if necessary — do not spin a tight wheel.

**IMPORTANT:** To spin front wheels on vehicles with disc brakes, a slight drag on disc brakes is normal. If the drag is excessive, it is recommended to free the disc brake shoe pads away from the rotor. This will not only provide ease in spinner operation but also greater accuracy in balancing.

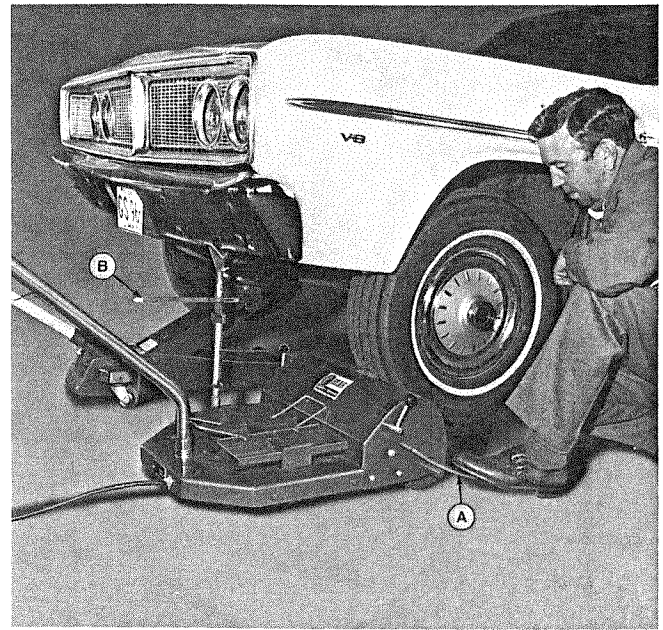


Fig. 1

5. Inspect front end parts — excessive wear may cause difficulty in balancing.

6. Place spinner in line with wheel so spinner pulley is centered with tire and pulley is about 1/2" away from tire.

7. Place jiggle (vibration indicator), B Fig. 1, under the bumper or bumper bracket and adjust height so that the pointer is in a horizontal position. Be sure the pointer is readily visible by the operator.

8. Start wheel by hand, rotate in forward direction. Depress motor pedal so pulley lightly contacts tire, apply only enough pressure to hold pulley against tire. Spin wheel to top speed or until pointer on jiggle vibrates.

9. Remove foot from pedal and release motor, allowing wheel to run freely. Watch pointer on jiggle; if vibration occurs it shows unbalance and the wheel should be balanced.

10. Depress brake pedal and hold brake firmly against tire until wheel is stopped.

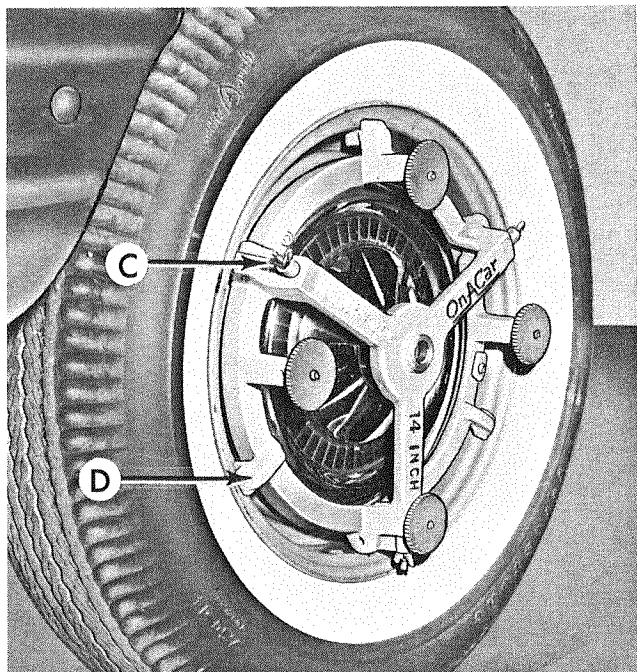


Fig. 2

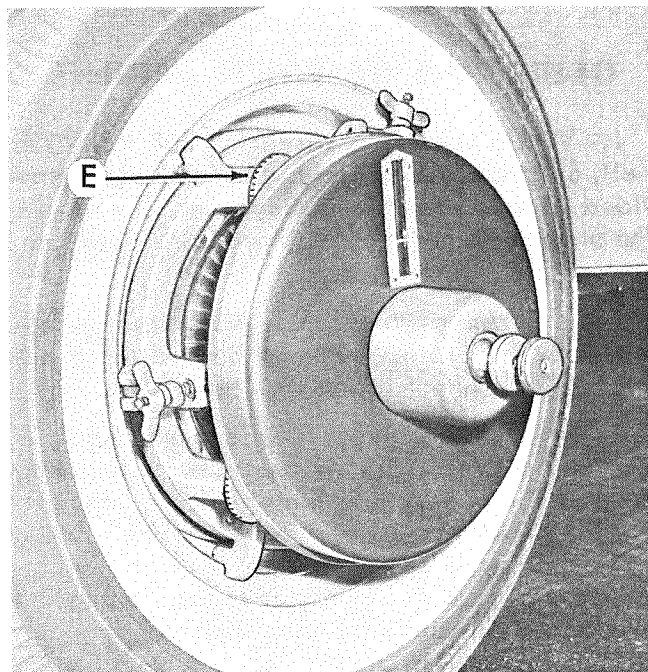


Fig. 3

## INSTALLATION OF BALANCER UNIT

1. Remove all old balance weights from wheel.

2. On many wheels, adapter can be installed without removing hub cap, however if hub cap interferes, remove hub cap.

3. Before installing adapter, check cone point screw extension—all points should be equally exposed beyond face of lever.

Note: Examine hardened points before installing to be sure all three are not broken or appreciably worn. If points have  $1/32''$  diameter bluntness or more they should be replaced. Points are standard  $1/4$ -20 ( $90^\circ$  cone point) set screws,  $3/8''$  long, and may be adjusted or replaced if necessary. A spare set screw will be found as a locking screw behind the point. When replacing, be sure to set point out same distance as original point. Hold with pliers while tightening jam screw with Allen wrench.

4. Back off the three wing nuts, C Figure 2, to fully retract the mounting points.

5. Press adapter into wheel until each locat-

ing stop, D Figure 2, contacts wheel. Adapter is self centering. If valve stem interferes, move adapter or valve to either side. **Be sure stops are all firmly against wheel.**

6. Take up play in thumb screws, then tighten each wing nut a turn at a time; continue tightening in rotation until all three nuts are firm finger tight. As wing nuts are tightened the lever arm point travels in an arc digging into the wheel rim and drawing the adapter into the wheel against the three stops. **Always recheck installation by pulling out on adapter with both hands and full force to be sure it is securely installed.** Do not use pliers on wing nuts.

7. Install balancer unit on adapter, Fig. 3. Unit is centered on adapter and positioned so clamps are next to the hand nuts. Turn unit until clamps snap in place under hand nuts.

8. Tighten the four hand nuts, (E Fig. 3,) finger tight. Caution: Always recheck balancer unit installation, be sure clamps are fully under hand nuts. If unit has been mounted correctly clamps will be centered under hand nuts—all four hand nuts must be firm finger tight.

## OPERATION OF BALANCING UNIT

1. Outer knob, F Fig. 4, is weight amount control — with wheel rotated in forward direction with spinner, on right wheel you pull out to add weight; on left wheel you push in to add weight. To decrease or unload balancer, you reverse the above.

Note: Amount indicator H Fig. 4, on scale describes a faint white circle which can be observed while wheel is rotating. This circle expands when weight is added and contracts as weight is reduced, thereby showing the operator whether weight is being added or reduced and the approximate amount.

2. Inner knob, G Fig. 4, is the weight position control — with wheel rotated with spinner, pushing in or pulling out on the inner knob rotates the position of the counter weight around the balancer unit. When you push in, the counter weight revolves rapidly, when you pull out, the counter weight revolves slowly in the opposite direction. This is to facilitate proper positioning of counter weight.

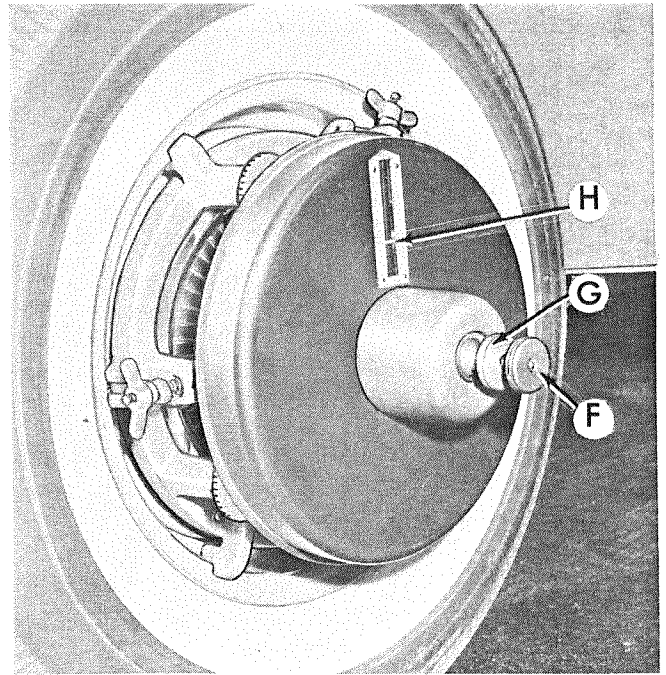


Fig. 4



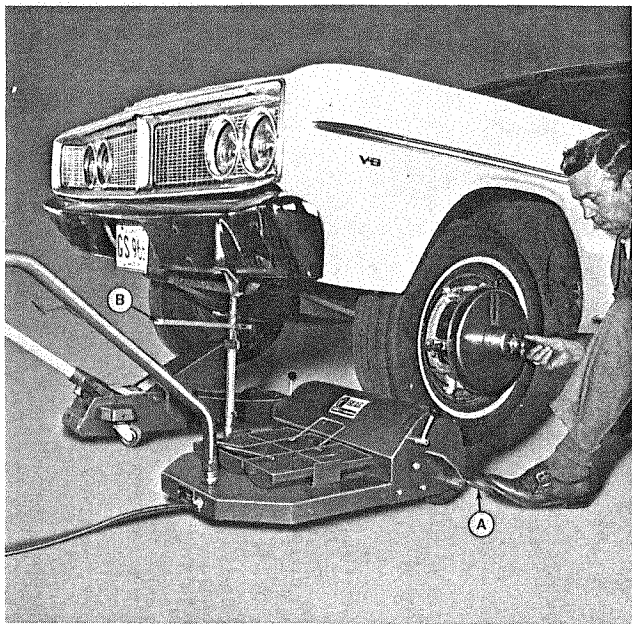


Fig. 5

## BALANCING FRONT WHEELS

1. Start wheel by hand, rotate in forward direction. Depress motor pedal so pulley lightly contacts tire, apply only enough pressure to hold pulley against tire.

2. Push in or pull out knob to add about  $1\frac{1}{2}$  oz. of weight, Fig. 5. With wheel accelerating at low speed, this will describe a white circle about 1" from bottom of scale, H Fig. 4.

3. Increase wheel speed until pointer on jiggle, B Fig. 5 (vibration indicator) vibrates.

4. Push in or pull out inner knob until vibration is reduced as much as possible.

5. Push in or pull out outer knob until vibration is at a minimum. Watch the pointer.

6. Continue spinning wheel up to high speed. Remove foot from pedal and release motor, allowing wheel to run freely. If some vibration remains, slightly adjust position (inner knob) and amount of weight (outer knob) until pointer remains quiet.

7. Learn to balance wheel quickly — do not drive wheel longer than necessary. When pointer remains quiet wheel is in balance.

8. Depress brake pedal and hold brake firmly against tire until wheel is stopped.

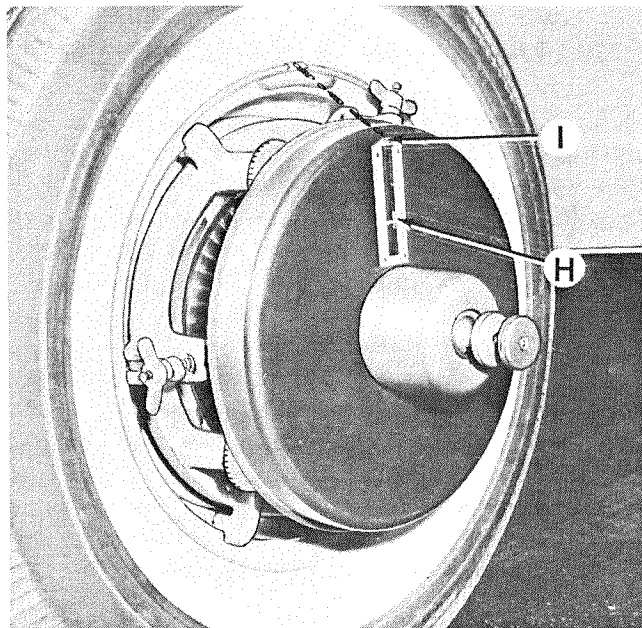


Fig. 6

9. Note amount of weight indicated on scale, H Fig. 6. Apply balance weight of equal amount on the wheel rim at a point directly in line with pointer, I Fig. 6.

Note: If weight required calls for four or more ounces, it is advisable to first place part of the weight,  $2\frac{1}{2}$  or 3 oz., at the point indicated but on the inside of the wheel. Then rebalance, as above, and place additional weight required on the outside of the wheel.

Occasionally an EXTREME DYNAMIC CONDITION may be encountered (noted by Jiggler Pointer) where even a weight of less than 4 ounces should be proportioned as above in order to get a perfect balance and eliminate all vibration.

The same procedure should be followed on some of the 14" wheels and others where the hub cap to rim clearance is negligible and only small weights can be used on the outside of the wheel.

Wheels that are severely out of balance start bouncing and vibrating at relatively low speeds and the initial location and amount should be determined at low speed and corrected as above before faster spinning for final correction.

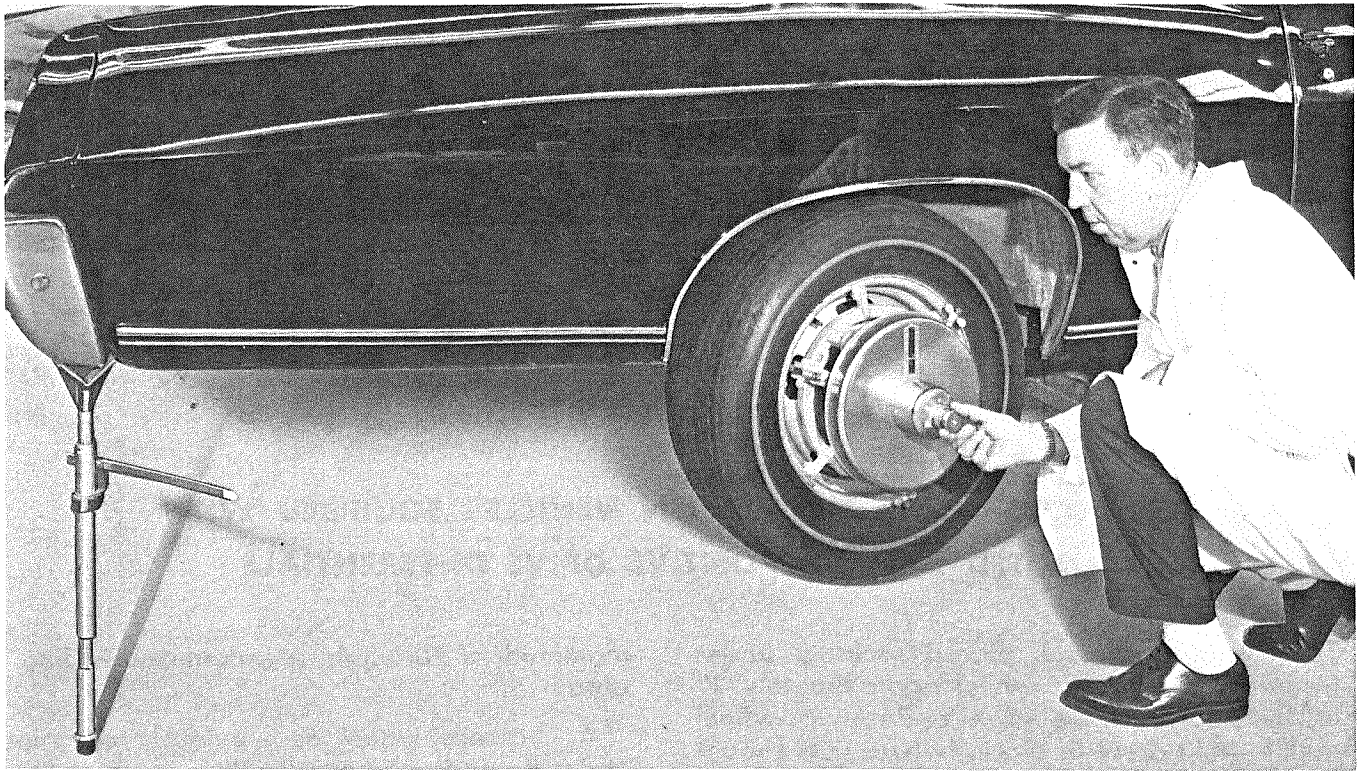


Fig. 7

### TESTING REAR WHEELS FOR UNBALANCE ON STANDARD REAR AXLE

1. With floor jack placed securely under frame, about 12" in front of rear wheel, raise one rear wheel approximately 2" off the floor.
2. Install jiggle under rear bumper or bumper bracket. Fig. 7, adjust height so pointer is in a horizontal position.
3. Put car in high gear and slowly accelerate until pointer on jiggle vibrates or until a maximum of 35 m.p.h. speedometer reading is obtained (wheel speed is double the speedometer reading — do not drive wheel in excess of 35 m.p.h. speedometer reading).
4. If pointer on jiggle vibrates, it shows unbalance and the wheel should be balanced.

### BALANCING REAR WHEELS ON STANDARD REAR AXLE

1. Place jack securely under frame as in testing rear wheels for unbalance.
2. Install balancing unit as outlined previously. Caution — always recheck adapter and balancer unit installation, be sure unit is mounted correctly.
3. Have jiggle under rear bumper or bumper bracket.
4. Put car in high gear and slowly accelerate until pointer on jiggle vibrates or until a maximum of 35 m.p.h. speedometer reading is obtained (wheel speed is double the speedometer reading).
5. Balance wheel, Fig. 7, as previously described under Balancing Front Wheel.
6. Decelerate slowly and then brake.

**Caution:** Never drive wheels in excess of maximum speed listed above or longer than 2 minutes, otherwise internal damage may result.

## **BALANCING REAR WHEELS ON VEHICLES EQUIPPED WITH LIMITED SLIP OR POSITIVE DRIVE DIFFERENTIALS**

1. With floor jack placed securely under frame raise one rear wheel approximately 2" off the floor. Remove wheel and replace wheel nuts to hold drum in place. (wheel nuts should be reversed so flat face contacts drum and should be tightened until snug — DO NOT USE IMPACT WRENCH). Install safety stand under rear axle housing and lower vehicle on safety stand.

2. With floor jack placed securely under frame, about 12" in front of rear wheel, raise the other wheel approximately 2" off the floor.

3. Install balancing unit on wheel, as outlined previously. Caution — always recheck adapter and balancer unit installation, be sure unit is mounted correctly.

4. Have the jiggle under rear bumper or bumper bracket.

5. Put car in high gear and slowly accelerate until pointer on jiggle vibrates or until a

maximum of 70 m.p.h. speedometer reading is obtained.

6. Balance wheel as previously described under Balancing Front Wheel.

7. Have assistant decelerate slowly and then brake.

8. Remove balancing unit, install safety stand under housing and lower vehicle on safety stand — wheel should be approximately 2" off the floor.

9. Replace wheel that was removed and balance wheel in the same manner. (Wheel that was balanced first can be left on the vehicle because it has already been balanced and will not set up any vibration when balancing the opposite wheel).

**CAUTION:** Never drive wheels in excess of maximum speed listed or longer than 2 minutes; otherwise internal damage may result.



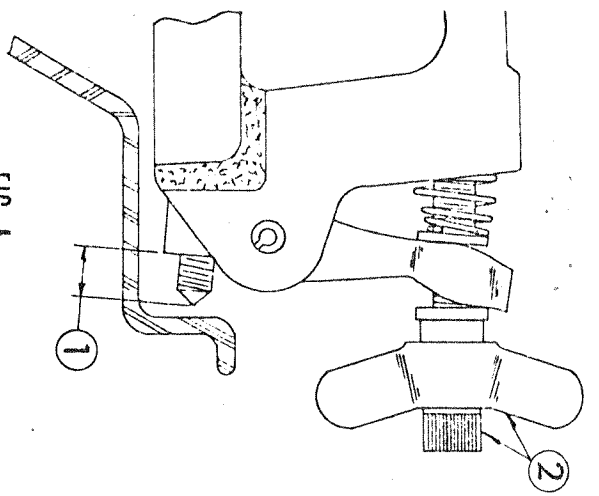


FIG. A

Before assembling adapters to wheels . . . . .  
(See Fig. A)

1. CHECK CONE POINT SCREW EXTENSION (1 Fig. A) on each clamp lever. All points should be EQUALLY EXPOSED beyond face of lever.
2. Back off wing nuts to stops (2 Fig. A).

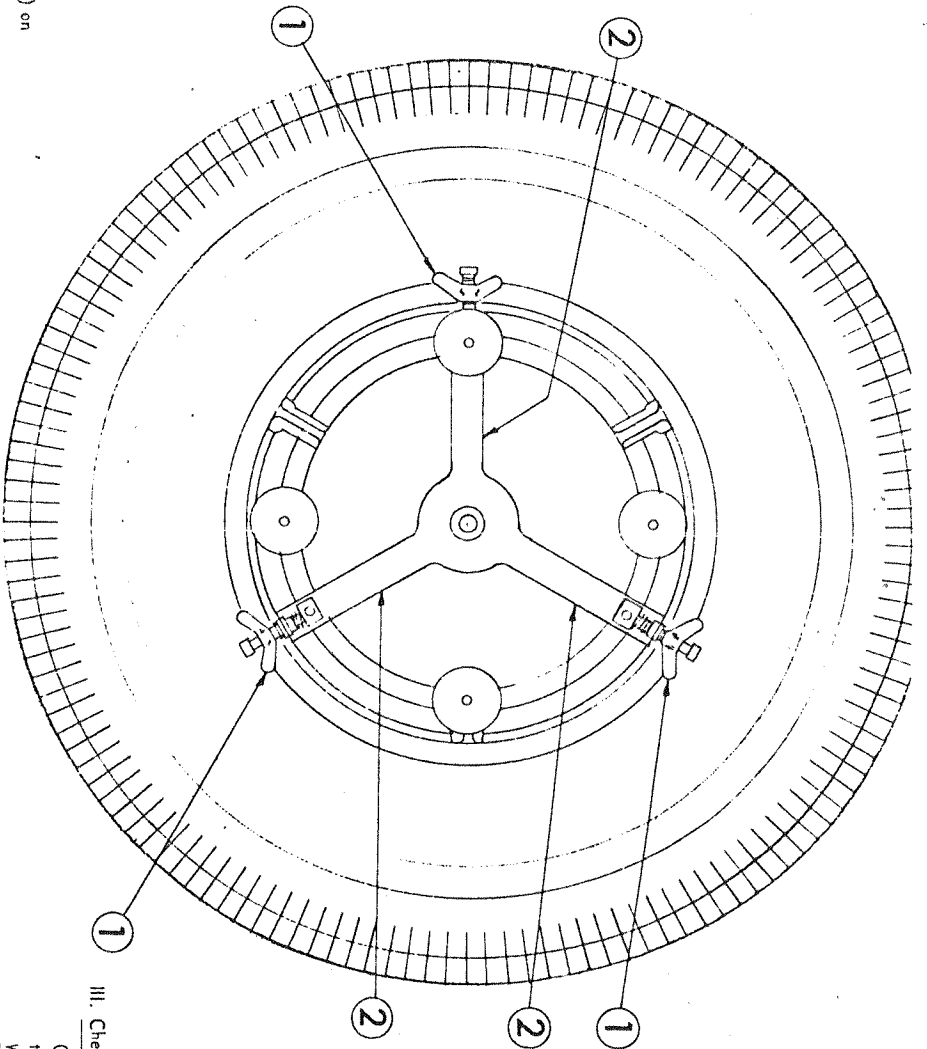


FIG. B

## II. Seating adapters on wheels (See Fig. B)

1. Assemble adapter to wheel - SEAT FIRMLY IN WHEEL RECESS with each stop lug TOUCHING RIM (Fig. C).
2. TIGHTEN EACH WING NUT UNIFORMLY - (1 Fig. B) one or two turns at a time - working around the wheel until CONE POINTS GRIP wheel FIRMLY.

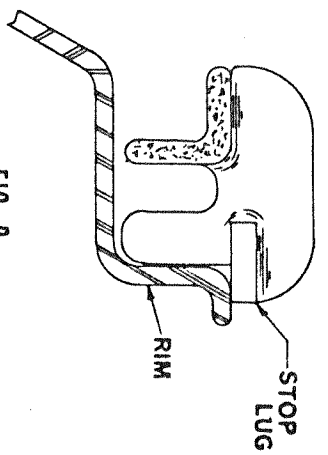


FIG. C

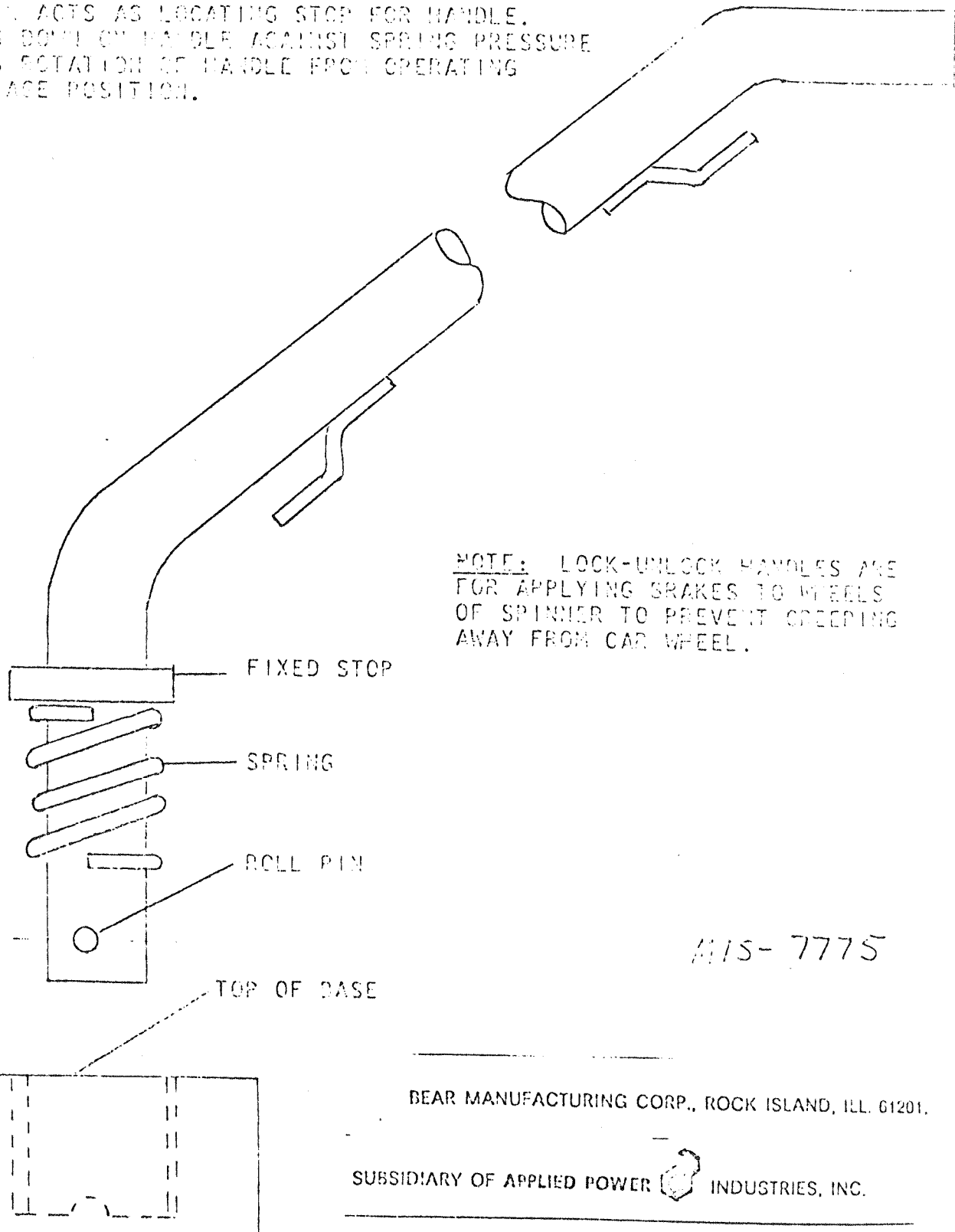
## III. Checking for tightness

Grip adapter spokes (2 Fig. B) and PULL HARD to INSURE ADAPTER WILL NOT COME OFF WHEEL.

**IMPORTANT  
DIRECTIONS**  
MODEL 350 OM-A-CAR  
BALANCER

# INSTRUCTIONS FOR INSTALLATION OF HANDLE

1. HANDLE ASSEMBLY IS REMOVED FROM SPINNER FOR SHIPPING PURPOSES.
2. TO INSTALL HANDLE ON SPINNER:
  - A) DRIVE ROLL PIN COMPLETELY OUT OF TUBULAR HANDLE, USE A DRIFT TO PROTECT PIN AND HANDLE. RETAIN ROLL PIN.
  - B) INSERT HANDLE, WITH SPRING IN PLACE AGAINST FIXED STOP, INTO HOLE AT REAR OF SPINNER HOUSING, TIP SPINNER FORWARD, TOWARD MOTOR, PUSH DOWN ON HANDLE COMPRESSING SPRING SUFFICIENTLY TO PERMIT INSERTION OF ROLL PIN.
  - C) DRIVE ROLL PIN THRU HANDLE UNTIL IT PROTRUDES EQUALLY ON EACH SIDE OF HANDLE.
  - D) ROLL PIN ACTS AS LOCATING STOP FOR HANDLE.
  - E. PUSHING DOWN ON HANDLE AGAINST SPRING PRESSURE PERMITS ROTATION OF HANDLE FROM OPERATING TO STORAGE POSITION.



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