

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

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OPERATOR'S MANUAL

BALANCER, VEHICLE WHEEL,  
ELECTRONIC TYPE, PORTABLE,  
DETECTS  
DYNAMIC AND STATIC UNBALANCE,  
110/220-VOLT DETECTOR UNIT,  
220-VOLT, 60-CYCLE, SINGLE-PHASE MOTOR  
(WHEEL BALANCER MANUFACTURERS ASSOCIATED  
MODEL 5400)  
(4910-279-0629)

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HEADQUARTERS, DEPARTMENT OF THE ARMY  
APRIL 1967

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, D.C., 28 April 1967

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USAR: None

For explanation of abbreviations used, see AR 320-50.

Change

No. 1

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
Washington, D.C., 7 May 1973

**Operator's Manual  
BALANCER, VEHICLE WHEEL  
ELECTRONIC TYPE, PORTABLE,  
DETECTS  
DYNAMIC AND STATIC UNBALANCE  
110/220-VOLT DETECTOR UNIT,  
220-VOLT, 60-CYCLE, SINGLE-PHASE MOTOR  
(WHEEL BALANCER MANUFACTURER'S ASSOCIATED  
MODEL 5400)  
(4910-279-0629)**

TM 94910479-10, 28 April 1967, is changed as follows:  
*Page 14.* Add the following paragraphs and table 1:

**Report of Equipment Publication  
Improvements**

The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications) and forwarded to Commander, US Army Weapons Command. ATTN: AMSWE-MAS-SP, Rock Island, IL 61201

*Page A-1.* Appendix A is superseded as follows:

**Components of the End Item**

Parts included with the end item and considered as components of the end item configuration are listed in the following table:

**Table 1. Components of the End Item**

Components	Part No.	(FSCM)
BLOCK, VEHICLE WHEEL:	S-175	(26206)
DEPRESSOR, PEDAL:	S-178	(26206)
TACHOMETER, SPEED.	S-174	(26206)
TOOL, WEIGHT:	B-140	(26206)
UNIT, PICK-UP:	5400-P	(26206)

**APPENDIX A  
BASIC ISSUE ITEMS LIST  
AND  
ITEMS TROOP INSTALLED OR AUTHORIZED LIST**

**Section I. INTRODUCTION**

**1. Scope**

This appendix lists basic issue items and items troop installed or authorized required by the crew/operator for

operation of the vehicle wheel balancer.

## 2. General

This Basic Issue Items List and Items Troop Installed or Authorized List is divided into the following sections:

- a. *Basic Issue Items List*. Not applicable.
- b. *Items Troop Installed or Authorized List*. Not applicable.

## 3. Explanation of Columns

The following provides an explanation of columns found in the tabular listings:

- a. *Federal Stock Number*. Indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.
- b. *Description*. Indicates the Federal item name and a minimum description required to identify the item. The last line indicates the reference number followed by the applicable Federal Supply Code for Manufacturer (FSCM) in parentheses. The FSCM is used as an element in item identification to designate manufacturer or distributor or Government agency, etc., and is identified in SB 708-42. Items that are included in kits and sets and listed below the name of the kit or set with quantity of each item in the kit or set indicated in front of the item name.

c. *Unit of Measure (U/M)*. Indicates the standard or basic quantity by which the listed item is used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation, e.g., ea, in., pr, etc., and is the basis used to indicate quantities. When the unit of measure differs from the unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned.

d. *Quantity Furnished with Equipment (Basic Issue Items Only)*. Indicates the quantity of the item furnished with the equipment.

e. *Quantity Authorized (Items Troop Installed or Authorized Only)*. Indicates the quantity authorized to be used with the equipment.

f. *Illustration (Basic Issue Items Only)*. This column is divided as follows:

- (1) *Figure Number*. Indicates the figure number of the illustration in which the item is shown.
- (2) *Item Number*. Indicates the item number used to identify each item called out in the illustration.

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NG: State AG (3)

USAR: None

For explanation of abbreviations used, see AR 310-50.

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III	Rear Wheel Balancing Procedure for Conventional (Non - Limited -Slip) Differential .....	8 & 9
IV	Rear Wheel Balancing Procedure for Limited-Slip Differentials .....	9
V	Trouble Shooting & Explanations .....	10 & 11
VI	Maintenance & Lubricating Instructions for Pick-up Unit .....	12
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	APPENDIX A BASIC ISSUE ITEMS LIST.....	A-1.

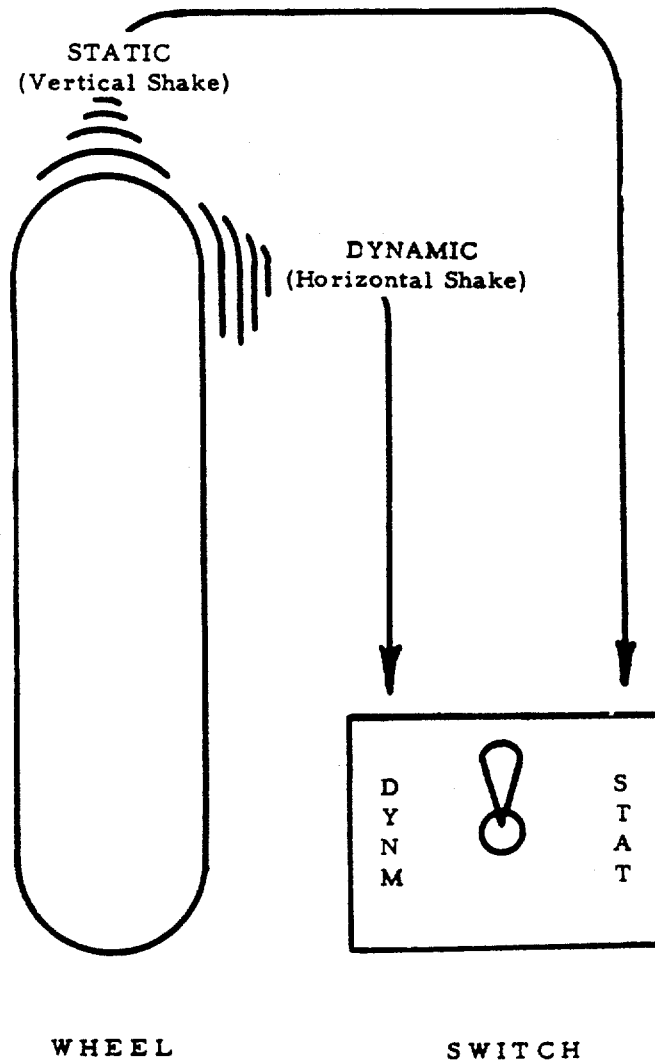
**SECTION I**  
**FOTO-TEL BALANCER OPERATION**

Where To Put The Weight  
How Much Weight  
Which Side Of The Wheel

**STATIC AND DYNAMIC UNBALANCE**

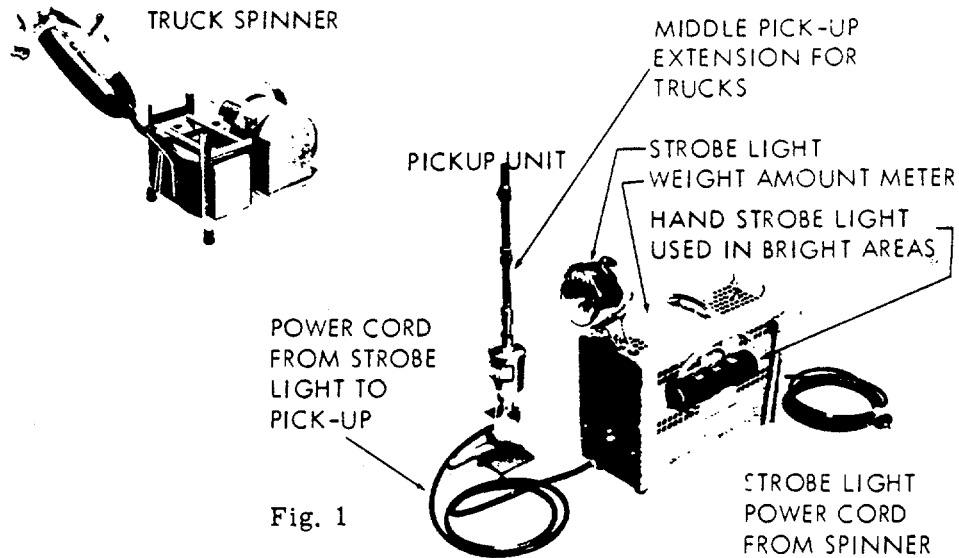
**DYNAMIC UNBALANCE.** Dynamic is the side to side motion a wheel makes while spinning.

**STATIC UNBALANCE.** Static bounce is the up and down motion a wheel makes while spinning. The faster the wheel is spun the harder it will bounce.



**SECTION IA**  
**OPERATING INSTRUCTIONS FOR FOTO-TEL WHEEL BALANCER**

THE FOTO-TEL ELECTRONIC BALANCER PRINCIPLE IS SIMPLE AND EASY TO UNDERSTAND IF THE PURPOSE OF EACH OF THE UNITS IS KEPT CLEARLY IN MIND



**Fig. 1**

1. The spinner is a power source for turning wheels, up to speed for balancing (wheels which are not connected or are disconnected from drive train).
2. The pickup unit is a vibration sensing device. It converts mechanical vibration into electrical impulses and sends them on to the strobe light and weight meter unit.
3. The strobe light is used for observing the revolving spinning wheel in an apparently stationary (stand still) position.

This strobe light will allow you to see the apparently stationary position of the wheel when the heavy spot is at 1:30 o'clock (left side of vehicle), at 10:30 o'clock (right side of the vehicle).

When the wheel is stopped and turned, by hand, to the apparent stationary position (as seen when using the strobe light), the wheel weight is applied at 7:30 o'clock (on left side of vehicle), or at 4:30 o'clock (on right side of vehicle). The wheel weight location, as seen when using the strobe light, is 45 degrees forward (toward front of vehicle) from bottom dead center. The amount of weight which should be used is shown on the weight amount meter while the wheel is rotating at speed.

ALWAYS TO THE FRONT OF AXLE.



**SECTION II**  
**BE SURE TO READ COMPLETE INSTRUCTIONS**  
**BEFORE USING BALANCER**  
**FRONT WHEEL BALANCING PROCEDURE**

1. Place jack under center of main frame cross member (beneath cowl area) and raise both front wheels approximately two inches.
2. Spin wheel manually and check for brake drag. Free-up any brake drag by tapping brake backing plate with a hammer; or loosen the brake adjustment.
3. Remove all weights from inside and outside of the wheel rim before starting balancing procedure.
4. Check manually for loose, worn or dry wheel bearings. Wheels depend on bearings for centering. Improperly Under these conditions the strobe light will show a splattered pattern in dynamic position. (See V, Para 1.) Correct centered wheels or wheels and hubs with bad bearings, cannot be balanced correctly. bearing adjustment or replace bad bearings before proceeding to balance the wheel.
5. Check radial and lateral run out. To determine radial run out, place spinner brake plate 3/16" from tread of tire. Rotate tire by hand and watch spacing between brake plate and tire tread. If there is 3/16" or more run out, check for bent wheel, tire bead improperly seated, flat spot on the tire, or out-of-round tire. Lateral (side-to-side) motion must not exceed 3/16". This condition must be corrected before balancing (by such as straightening the wheel, replacing tire or wheel, or using spare wheel and tire), or unsatisfactory results may occur. **PROPER TIRE PRESSURE IS VERY IMPORTANT. LOW TIRE PRESSURE WILL CAUSE INCORRECT READINGS.**
6. Install pickup unit, Fig. 2, under lower control arm or solid axle, as close to brake backing plate as possible. Make sure it is straight up and down and handle is pointed to the front. Pickup

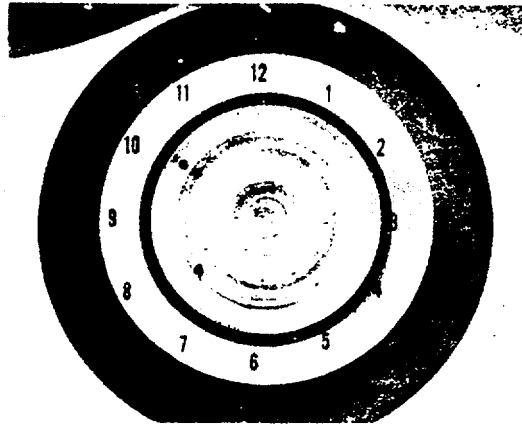


AUTOMOBILE

TRUCK

Fig. 2

**PICK UP MUST BE STRAIGHT UP AND DOWN**



**Fig. 3 REFERENCE MARK COMPARED TO CLOCK**

shaft, with internal spring slightly compressed, must work freely without bottoming in its case, one-eighth to one half inch compression of the shaft is adequate. **DO NOT COMPRESS MORE THAN ONE-HALF INCH.** Connect the unit electrically to the strobe light unit receptacle. With switch on strobe light unit in "STATIC" position, a tap on the front bumper should cause the strobe light to flash. If strobe light does not flash, recheck pickup setting. If pickup is not positioned properly, wrong readings will result.

7. Apply a white mark anywhere on the wheel or tire, or use the valve stem as a mark for reference when the wheel is (spinning) rotating and the strobe light shows the wheel in an apparently stationary position.
8. Meter switch. Set switch in No. 1 position at start of all balancing of small and medium size cars. Set in No. 2 position for large cars and trucks, or for more sensitive reading. (See V, Para 2.) Spin wheel up to speed (see V, Para 3) with switch in "Static" position. Watch meter as it reaches its maximum reading. Rotate wheel to maximum speed with spinner. Immediately before taking readings, remove spinner from contact with tire. Instantly after removal of spinner from tire, note amount of ounces indicated on meter scale. Quickly glance at the reference mark, note position of the mark and read mark as you would the hour hand of a clock. (See Fig. 3) Quickly flip the switch from static to dynamic position and observe reference mark on wheel under strobe light operation, while letting the wheel coast down. Take dynamic reading where first seen (see V, Para 4). If the strobe light does not flash, no dynamic balancing is needed and weights can be applied to the inside or outside of rim if the weight to be applied is 2 ounces or less. If the weight is over 2 ounces; it should be divided equally to both sides of the rim at balance point (see Fig. 4 for balance point). If the strobe light flashes, dynamic balance is needed. Note position of reference mark, take dynamic reading at highest speed seen.
9. If at any time there is vibration in the car and the strobe light is not flashing, press down on the bumper steadily but lightly until strobe light flashes, note reference mark and apply weight to balance point (7:30 o'clock left side of car, 4:30 o'clock right side of car).

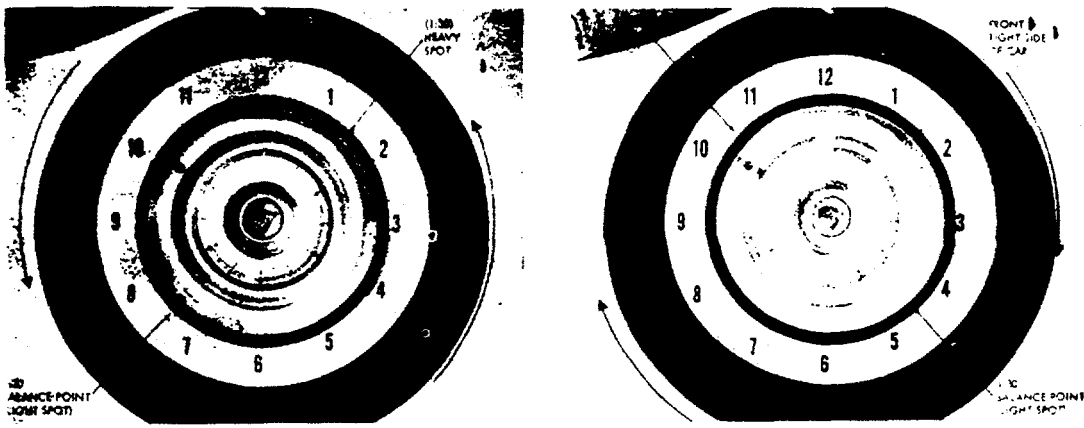


Fig. 4

**WEIGHT IS ALWAYS APPLIED TOWARD THE FRONT OF VEHICLE**

10. If the strobe lighted reference mark is seen in the same position in both the static and dynamic conditions, the indicated amount of weight is to be put on the inside of the wheel at 7:30 o'clock (left side of the car) or 4:30 o'clock (right side of the car). If the strobe lighted reference mark is seen at 180 degrees from the static position, the indicated amount of weight is to be put on the outside of the wheel at 7:30 o'clock (left side of the car) or 4:30 o'clock (right side of the car).
11. STOP THE WHEEL AND INSTALL THE PROPER AMOUNT OF WEIGHT AS FOLLOWS:
  - a. Turn the wheel manually until the reference mark is exactly where seen when wheel was in apparent stationary position under strobe light operation, with switch in static position. (The dynamic position is only to tell you whether the weight goes on the inside or outside of the rim.)
  - b. With the wheel held in static position apply the amount of weight indicated by the meter to the balance point (7:30 o'clock on the left side and 4:30 o'clock on the right side). Inside or outside of the wheel rim as indicated by dynamic flash, if any.
12. With switch in static position spin the wheel up and recheck balance. If strobe light does not flash, the wheel is balanced. If strobe light flashes:
  - a. Note the position of the weight and reference mark. Recheck dynamic.
  - b. Stop the wheel. Rotate the wheel by hand to position the weight in the apparent stationary location seen under strobe light operation, with switch in static position. Move or add weights as indicated in Fig. 5. Repeat until strobe light does not flash.

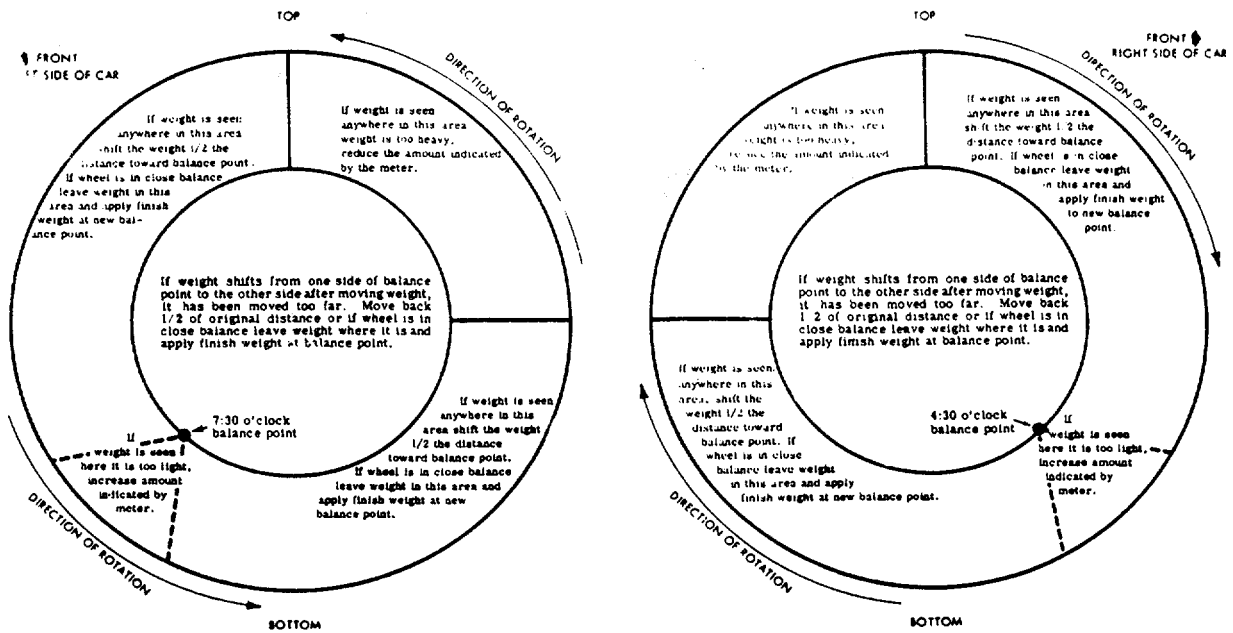


Fig. 5

**TESTS TO DETERMINE THE ACCURACY OF FOTO-TEL-ELECTRONIC BALANCING. SEE FIGURE 5.**

With wheel spinning at high speed, stand a nickel on edge on front fender. It will remain standing if wheel is in perfect balance. The water surface will remain smooth in the beaker, if the wheel is in perfect balance.

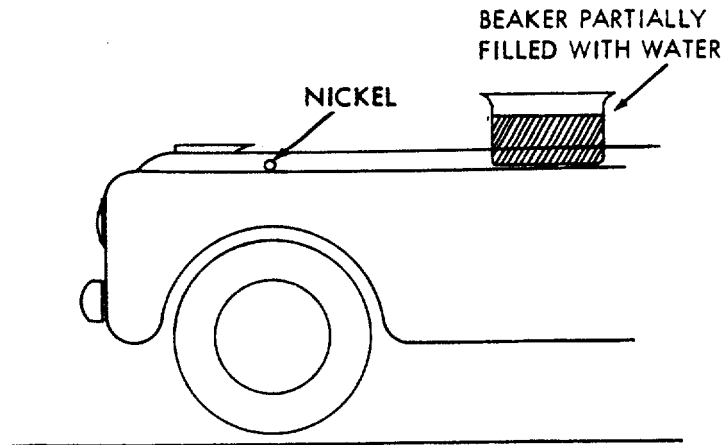


Fig. 6

### SECTION III

#### REAR WHEEL BALANCING PROCEDURE CONVENTIONAL DIFFERENTIAL

Rear wheel balancing procedure is the same as for STATIC balancing front wheels. (No dynamic balancing, on rear wheels. See II.)

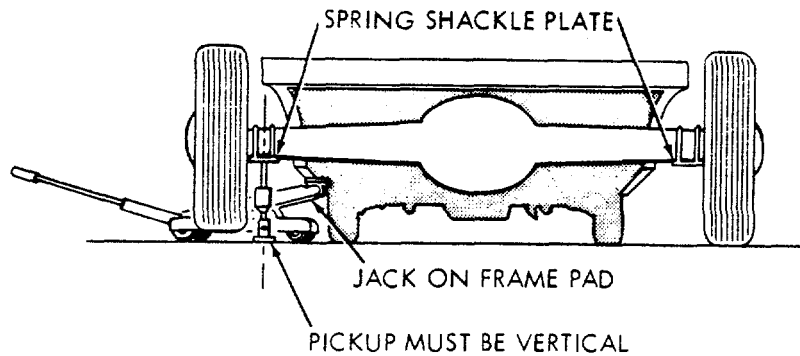


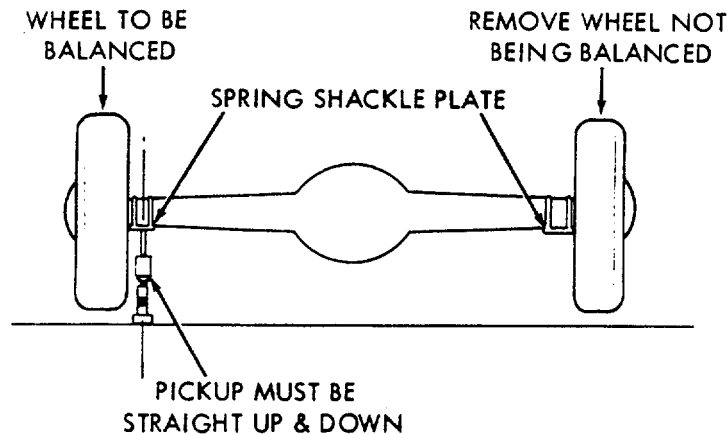
Fig. 7

1. Place jack in proper position and (See Fig. 7) raise wheel to be balanced approximately two inches. Other rear wheel should remain on floor. When using frame contact hoist, block wheel not being balanced from rotating.
2. Install pickup unit. Locate straight up and down under spring shackle plate or shock absorber mounting bar or on axle housing as near brake backing plate as possible.
3. Make reference mark on wheel or use valve stem as reference mark.
4. DO NOT USE SPINNER TO ROTATE ENGINE DRIVEN WHEELS. Start engine and place transmission in high gear with brakes off. Accelerate slowly to 35 MPH on speedometer. Wheel will be turning 70 MPH (double speed). Maintain this speed with pedal depressor, while checking the static balance, with switch in static position.
  - a. If strobe light flashes, balancing is required. (Disregard any flashing of strobe light except at balancing speed, approx. 70 MPH) (35 NMPH on speedometer). (See Sec. V, Para 7.)
  - b. Observe weight amount meter until wheel reaches speed (use No. 1 position on coil springs and No. 2 position on leaf springs. If meter appears to be reading high in No. 2 position switch back to No. 1 position. See II, Para. 8).
5. Stop the wheel. Turn the wheel manually until reference mark is exactly where seen when wheel was in apparent stationary position under strobe light operation.

- a. Apply weight at balance point as shown in Fig. 4, Section II.
- b. Spin the wheel to speed and recheck for balance. If the strobe light flashes at balance speed of 35 MPH on speedometer, check for weight shift or incorrect amount of weight as shown in Fig. 5. See II, Para. 8 for weight application.
- c. Wheel is balanced when strobe light does not flash at the recommended balance speed. Strobe light may flash when picking up speed or slowing down. (Disregard.)

#### SECTION IV

#### REAR WHEEL BALANCING PROCEDURE FOR DUAL TRACTION OR LIMITED SLIP DIFFERENTIAL



**Raise vehicle and place frame or frame pads on jacks or jack stands, allowing rear housing to hang free from spring attachments.**

**Fig. 8**

1. Raise both rear wheels - approximately two (2) inches. Remove wheel opposite the wheel being balanced.
2. Install pickup unit straight up and down under spring shackle plate or shock absorber bar or on rear axle housing as near brake backing plate as possible, of wheel to be balanced.
3. Start engine. With transmission in high gear, brakes off, accelerate slowly to 70 MPH. Maintain this speed while checking the wheel balance.
4. Proceed to balance this wheel as before (See III, Para. 4 and 5).
5. To balance the opposite wheel, replace wheel previously removed.
6. Proceed as before (See IV, Para. 2, 3, and 4).
7. Wheel is perfectly balanced when strobe light does not flash at recommended wheel speed.
8. Balanced wheel does not have to be removed when balancing second wheel.

## SECTION V

### TROUBLE SHOOTING AND EXPLANATIONS

1. **SPLATTERED PATTERN.** In the dynamic position you will see more than one reference mark - sometimes two, three or more reference marks are seen at one time and they may or may not appear to rotate. Two reference marks seen at one time indicates that the wheel bearing is loose. Three or four marks seen at one time indicates a rough or bad bearing. (CORRECT THIS BEFORE TRYING TO BALANCE THE WHEEL.)
2. **READING METER ON FRONT WHEELS.** No. 1 position will read accurate on average size cars (Ford, Chevrolet, Plymouth, Rambler, Volkswagen, 15" wheel, Dodge, etc.). Small cars with small wheels and small tires take one-half of reading of meter in No. 1 position.

NO. 2 POSITION is used for more sensitivity on large type cars (Cadillac, Buick, Oldsmobile, etc.).

**LARGE TRUCKS.** Use No. 2 position and read scale. Multiply scale reading X 8. (Example: Reading 2 ounces X 8 = 16 ounces.) The meter measures the magnitude of vibration or up-and-down movement that the lower control arm, axle or rear housing makes.

Looseness or weak springs or shock absorbers will also let the wheel vibrate more than normal causing the meter to read high. (ALWAYS USE THE METER AS A GUIDE.)

3. If a wheel is badly out of balance, 4, 5, 6 ounces or more, at high speed the wheel will tend to vibrate or oscillate violently. Keep the speed of the wheel down until it is partially balanced, then increase the speed of the wheel.
4. If dynamic reference mark does or does not stay exactly in the same position as static reference mark, but stays within the same half of the wheel, it will be read as staying in the same position as static and place the weight inside of wheel. If dynamic reference mark is seen opposite of static reference mark place weight to outside of wheel at balance point.
5. **REAR WHEEL DYNAMIC.** There is no dynamic balancing required on rear wheels even if the strobe light does flash with switch in dynamic position because the wheels are rigidly mounted to the differential and they will not whip as much as on the front independent suspension.
6. Any movement of persons inside the car while wheel balancing is being done will cause the strobe light to flash and false readings to occur. It is preferable to remove all people and animals from the vehicle.
7. When balancing rear wheels, a drive-line hop (vibration) is sometimes encountered. This may be determined by apparent rotation of the reference mark under strobe light operation. Also, drive-line hop will occur at a frequency consistent with drive-line (RPM) rotation; whereas wheel unbalance will show up at a frequency consistent with wheel (R.P.M.) rotation.

8. High speed, initial spin up should be avoided if the amount of vibration is excessive. If this occurs spin the wheel approximately half speed. Install the indicated weight, then proceed with normal balancing procedure.
9. A dry or cracked wheel bearing can usually be detected by the noise it makes during the initial spin up. A dry bearing "howls", a cracked bearing "growls" and a loose or tight bearing "whines."
10. Heavy loading of spinner-to-tire contact should be avoided. Tip the handle of the spinner up slightly using a steady even pressure for good spin up results. Hold the handle down during braking operation to stop wheel.
11. Tire and spinner wheel contact should be made before starting spinner motor to avoid tire "burning". The spinner has adequate torque to spin the wheel up to speed under normal conditions.
12. The shifting of tire "inner liner", water or other foreign objects inside a tire will cause erratic weight meter readings. These must be corrected before balance can be accomplished.
13. 35 MPH speedometer speed with only one rear wheel raised will produce 70 MPH speed on wheel being spun due to multiplication of 2 to 1 in the differential.
14. 70 MPH speedometer speed with both rear wheels raised will produce 70 MPH speed on both rear wheels.
15. In wet weather spin each wheel to be balanced to approximately 20 MPH prior to balancing. This will throw off excess water and mud.
16. Proper tire inflation pressure is very important. Low tire pressure will cause improper readings.

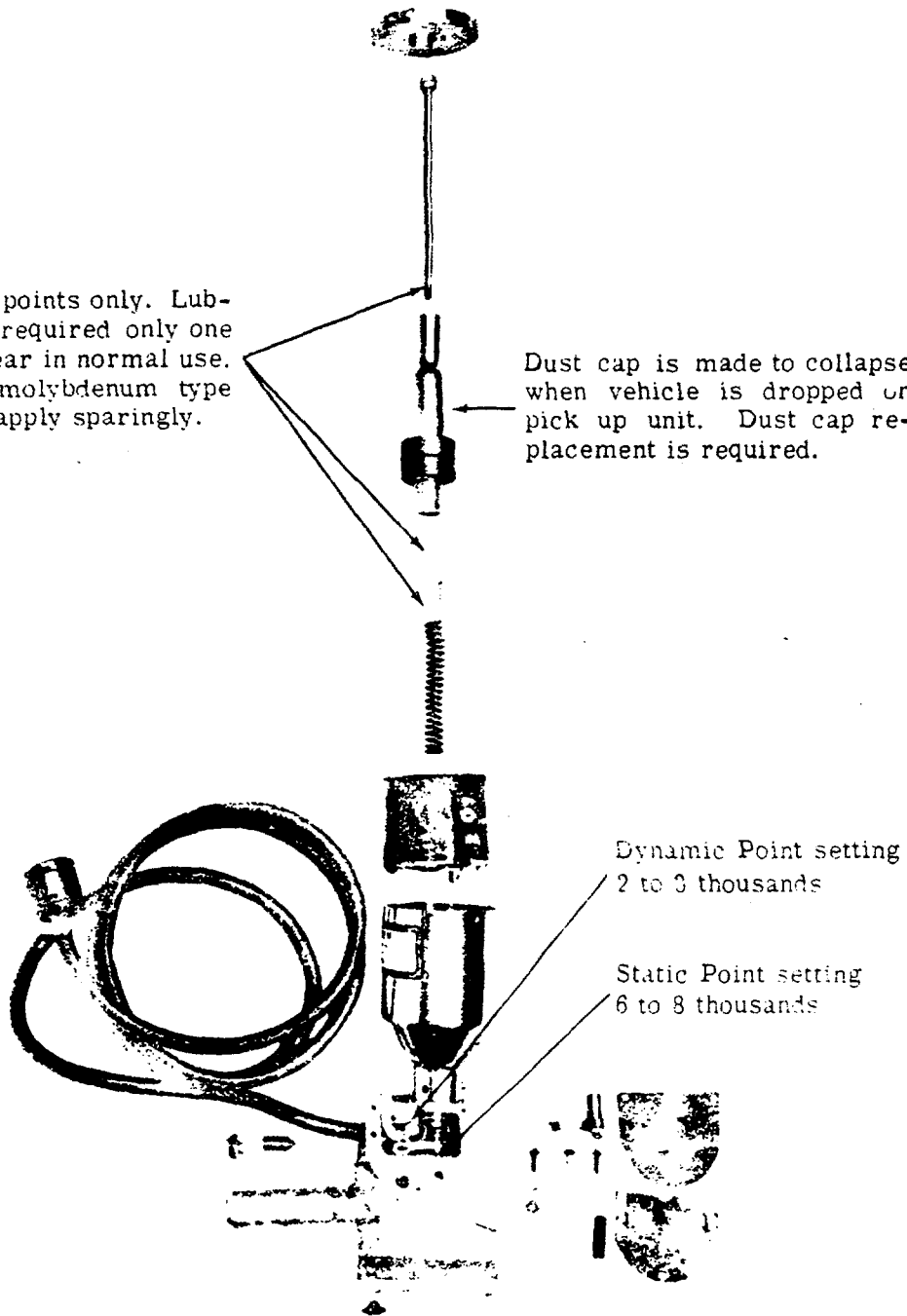


SECTION VI

MAINTENANCE & LUBRICATION INSTRUCTIONS  
FOR PICK-UP UNIT

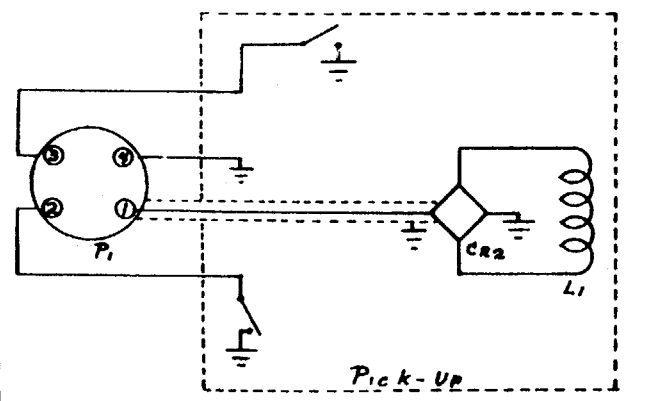
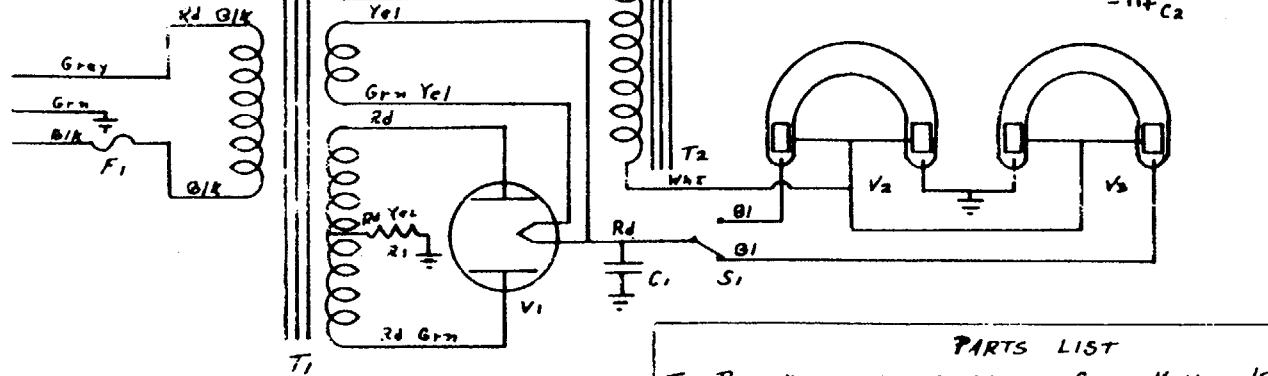
Lubrication points only. Lubrication is required only one time per year in normal use. Use light molybdenum type grease and apply sparingly.

Dust cap is made to collapse when vehicle is dropped on pick up unit. Dust cap replacement is required.



MODEL 5400-P PICK UP UNIT

DRAWING NUMBER  
BP 5400



- PARTS LIST
- |  |  |
|--|--|
| T <sub>1</sub> Pur. Xfmr. 600V @ 266mm | CR1 Mallory 1B12C1U                    |
| 53V @ 9amp                             | CR2 Conent 1E56 Type B                 |
| 5V @ 3amp                              | S <sub>1,2,3</sub> S.P.D.T             |
| T <sub>2</sub> IGNITION COIL (6V)      | J <sub>1</sub> 4 Pin Socket            |
| F <sub>1</sub> 3AG 3 Amp               | P <sub>1</sub> 4 Pin Plug              |
| V <sub>1</sub> 5Y3                     | M <sub>1</sub> 0-50 Micro-Ampere Motor |
| V <sub>2, V3</sub> 555B                | L <sub>1</sub> AS1320                  |
| C <sub>1</sub> 5μfd @ 400V             |  |
| C <sub>2</sub> 3μfd @ 6V               |  |
| R <sub>1</sub> 450Ω @ 10W              |  |

DRAWN	DATE	CHECKED	DATE
JF	8-20-64		
SCALE	DATE	SCALE	DATE
	8-21-64		
NAME MODEL 5400		DRAWING NUMBER BP 5400	
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REVISIONS

## APPENDIX A

### BASIC ISSUE ITEMS LIST

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#### Section I. INTRODUCTION

##### 1. Scope

This appendix lists items which accompany the Vehicle Wheel Balancer or are required for installation, operation, or operator's maintenance.

##### 2. Requisitioning a part to which FSN has not been assigned

When requisitioning a C source (local procurement) item identified only by a manufacturer's part number, it is mandatory that the following information be furnished the Supply Officer:

- a. Manufacturer's code number (5 digit number preceding the colon in the descriptive column).
- b. Manufacturer's part number (the number, and sometimes letters, following the colon (a above)). Dashes, commas, or other marks must be included exactly as listed.
- c. Nomenclature exactly as listed herein, including dimensions if necessary.
- d. Name of manufacturer of end item (from cover of E4 or manufacturer's name plate).
- e. Federal stock number of end item (from TM).
- f. Manufacturer's model number (from TM or name/data plate, preferably name/data plate).
- g. Manufacturer's serial number (from name/data plate).
- h. Any other information such as type, frame number, and electrical characteristics, if applicable.
- i. If DD Form 1348 is used, fill in all blocks except 4, 5, 6, and Remarks field, in accordance with AR 725-50.

Complete form as follows:

(1) In blocks 4, 5, and 6, last manufacturer's code and manufacturer's part number (as listed in description column).

(2) In Remarks field, list noun name (repair part), end item application (FSN of end item), manufacturer, model number (end item), serial number (end item), and any other pertinent information such as frame number, type, etc.

##### 3. Explanation of Columns

The following provides an explanation of columns in the tabular list in section II.

- a. Source, Maintenance, and Recoverability Codes, column 1a, are as follows:

(1) Source Code column 1a, indicates the selection status and source for the listed item. Source codes are:

Code	Explanation
C	Obtain through local procurement. If not obtainable from local procurement, requisition through normal supply channels with a supporting statement of non-availability from local procurement.

(2) Maintenance Code, column 1b, indicates the lowest category of maintenance authorized to install the listed item. The maintenance level is:

Code	Explanation
C	Operator or crew maintenance

(3) Recoverability Code, column 1c, indicates whether unserviceable items should be returned for recoverability or salvage. Items not coded are expendable. Recovery code is:

Code	Explanation
R	Items which are economically repairable at direct and general support maintenance activities and are normally furnished by supply on an exchange basis.

b. Federal Stock Number, column 2, indicates the Federal stock number for the item.

c. Description, column 3, indicates the Federal item name and any additional description required. A five digit manufactured s code and part number is included in parentheses for reference.

d. Unit of Issue, column 4, indicates the unit used as a basis for issue, e.g., ea, pr, ft, etc.

e. Quantity Incorporated in Unit Pack, column 5, indicates the actual quantity contained in the unit pack.

f. Quantity Incorporated in Unit, column 6, indicates the total quantity of the item used on the equipment.

g. Quantity Authorized, column 7, indicates the total quantity of an item to be on hand and necessary for operation and maintenance of the equipment.

h. Illustration, column 8, is divided as follows:

(1) Figure Number, column 8a, indicates the figure number of the illustration in which the item is shown.

(2) Item Number, column 8b, indicates the callout number used to reference the item in the illustration.

1. Federal Supply Code

Federal Supply Code

26206

Manufacturer

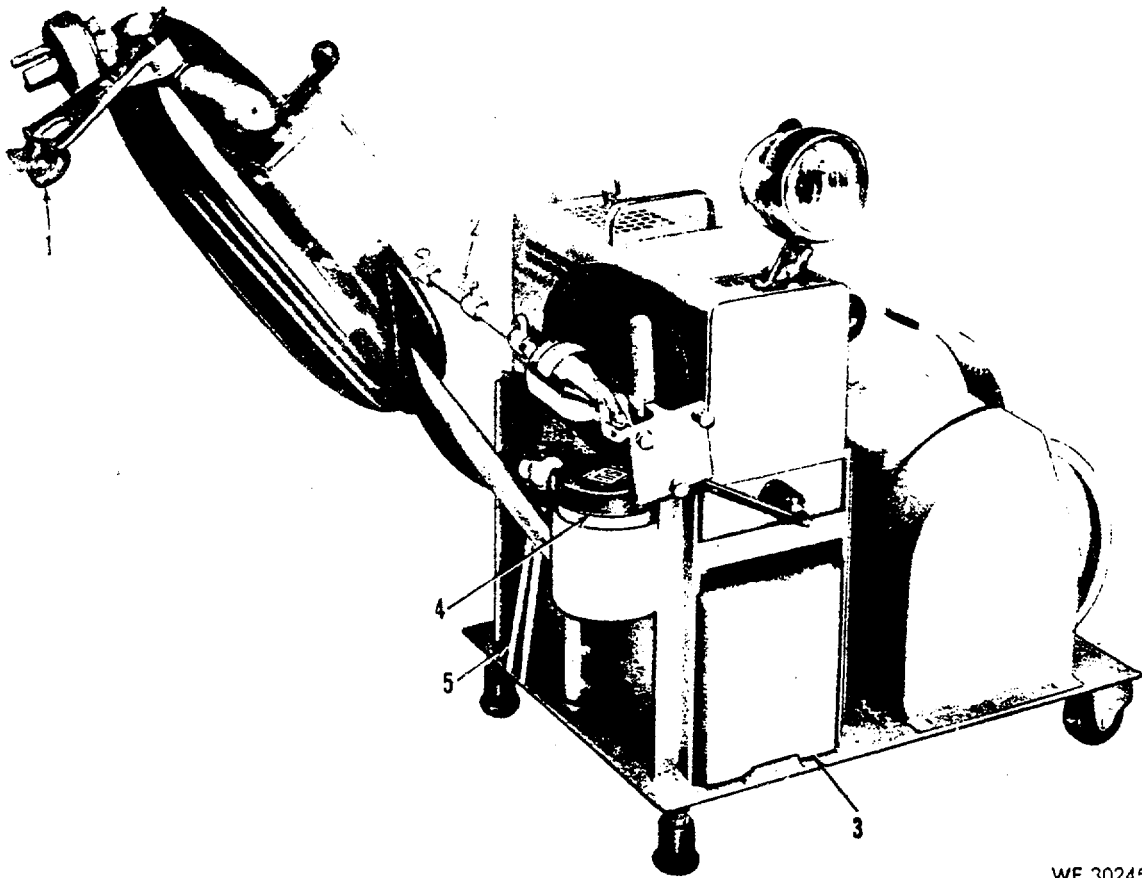
Wheel Balancer Manufacturers Associated

5. Errors, Comments, and/or Suggestions

Reports of errors, comments, and/or suggestions are encouraged. They should be submitted on DA Form 2028 and forwarded direct to: Commanding General, Headquarters, U.S. Army Weapons Command, ATTN: AMSWE-SMM-P, Rock Island Arsenal, Rock Island, Illinois, 61201.

**Section II. BASIC ISSUE ITEMS LIST**

(1) SOURCE MAINT. AND RECOV. CODE			(2) FEDERAL STOCK NO.	(3) DESCRIPTION	(4) UNIT OF ISSUE	(5) QTY. INC. IN UNIT PACK	(6) QTY. INC. IN UNIT	(7) QTY. AUTH	(8) ILLUSTRATION	
(A) SOURCE	(B) MAINT.	(C) RECOV.							(a) FIG. NO.	(b) ITEM NO.
				TOOLS AND EQUIPMENT FOR BALANCER, VEHICLE WHEEL (26206.5900)						
C	C	--	---	BLOCK, WHEEL: wooden, for chocking wheels (26206:S-175).	EA	1	1	1	A-1	3
C	C	--	---	DEPRESSOR, PEDAL: (26206:S-178).	EA	1	1	1	A-1	1
C	C	R	---	TACHOMETER, SPEED: vehicle wheel (26206:S-174).	EA	1	1	1	A-1	4
C	C	--	---	TOOL WEIGHT: for removing and applying balancing weights (26206:B-140).	EA	1	1	1	A-1	5
C	C	R	---	UNIT, PICK-UP: electronic (26206:5400-P).	EA	1	1	1	A-1	2



WE 30245

**Figure A-1. Tools and equipment.**

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RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

 <div style="border: 1px solid black; border-radius: 15px; padding: 5px; display: inline-block; margin-left: 20px;"> <p style="margin: 0;"><i>THEN...JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL.</i></p> </div>		SOMETHING WRONG WITH PUBLICATION	
		FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)	
PUBLICATION NUMBER		DATE SENT	
PUBLICATION DATE		PUBLICATION TITLE	
BE EXACT PIN-POINT WHERE IT IS			
PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.
<div style="border: 1px solid black; height: 400px; margin-top: 10px;"> <p style="text-align: center; font-weight: bold; margin-top: 10px;">IN THIS SPACE, TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT.</p> </div>			
PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER			SIGN HERE

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PREVIOUS EDITIONS ARE OBSOLETE.

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.



## The Metric System and Equivalents

### Linear Measure

1 centimeter = 10 millimeters = .39 inch  
 1 decimeter = 10 centimeters = 3.94 inches  
 1 meter = 10 decimeters = 39.37 inches  
 1 dekameter = 10 meters = 32.8 feet  
 1 hectometer = 10 dekameters = 328.08 feet  
 1 kilometer = 10 hectometers = 3,280.8 feet

### Weights

1 centigram = 10 milligrams = .15 grain  
 1 decigram = 10 centigrams = 1.54 grains  
 1 gram = 10 decigrams = .035 ounce  
 1 decagram = 10 grams = .35 ounce  
 1 hectogram = 10 decagrams = 3.52 ounces  
 1 kilogram = 10 hectograms = 2.2 pounds  
 1 quintal = 100 kilograms = 220.46 pounds  
 1 metric ton = 10 quintals = 1.1 short tons

### Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce  
 1 deciliter = 10 centiliters = 3.38 fl. ounces  
 1 liter = 10 deciliters = 33.81 fl. ounces  
 1 dekaliter = 10 liters = 2.64 gallons  
 1 hectoliter = 10 dekaliters = 26.42 gallons  
 1 kiloliter = 10 hectoliters = 264.18 gallons

### Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch  
 1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches  
 1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet  
 1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet  
 1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres  
 1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

### Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch  
 1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches  
 1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

## Approximate Conversion Factors

<i>To change</i>	<i>To</i>	<i>Multiply by</i>	<i>To change</i>	<i>To</i>	<i>Multiply by</i>
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29.573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

## Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C
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