Inspecting Brake Drum Measurements

Lesson 14

Remember:
Pretty **P**lease **M**y **D**ear **A**unt **S**ally
(From left to right; **P**arentheses; **P**ower; **M**ultiply; **D**ivide; **A**dd, **S**ubtract)

Last week we discussed how a flat-rate technician gets paid, how to make a profit by marking up parts, how much discount we receive when purchasing parts, the percent difference between the cost of two vehicles and how to commutate the cost of a repair.

Now, we need to learn how to measure a brake drum. And if we can resurface it, there charging only a labor fee, or, if the drum is worn or scored beyond it's discard limit.

Do you know what a Brake Drum Gauge is?

What are the specifications on a Brake Drum?

Have you ever simplified an equation or inequality?

Do you know any of the inequality symbols?

Some of the math and math terms we'll be using to today are:

Solving inequalities
Greater than >
Less than <
Greater than or equal to $\geq$
Less than or equal to $\leq$

The formula we'll be using to determine if a drum can be resurfaced is:
m + 2c < D
m = measurement of drum,
c = cut measurement
D = discard value as determined by manufacturer specifications

Okay, a customer comes into your shop with an expired safety Inspection Sticker and the customer complains of a noise from the rear wheels. You decide to remove the left rear drum and find a score in the drum. How would you proceed?
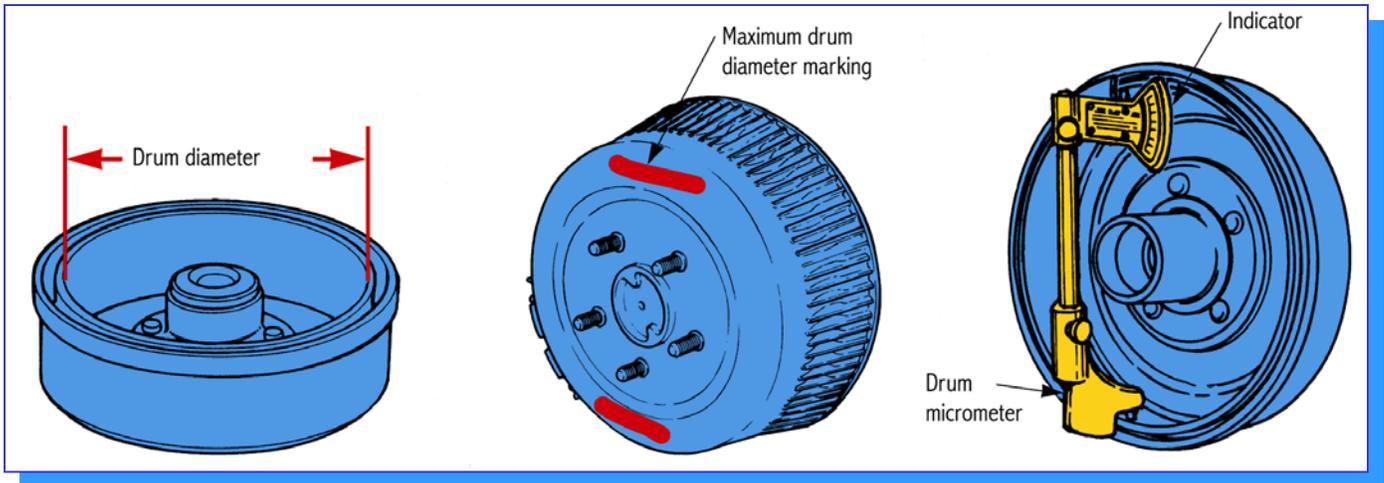
Example:

1. The maximum diameter of a brake drum is listed as 11.090 inches. The drum measures 11.063 inches. After an 0.011 inch cut from the drum to remove score marks, you must determine if the drum is still usable. What does the drum measure after being resurfaced? Can it be reused?

Formula: m+2c<D

m=measured diameter of the drum
c=cut measurement
D=discard value (from drum or manual specs)

m+2c<D11.063+2(.011)<11.09011.063+.022<11.09011.085<11.090Yes, the drum can be machined, it is less than (<) 11.090

2. A Technician measures a brake drum on a Buick Skylark with a 0.015 inch score. The drum measures 8.043 inch. The discard diameter is 8.070. Can the drum be resurfaced or should it be discarded?

3. Bob measures a brake drum on a Toyota Camry with score of .635mm. The drum measures 202.5mm. The discard diameter is 204.72mm. Can the drum be resurfaced or discarded?

4. Jim measures a brake drum on a 1999 Pontiac Bonneville with a .025" score. The drum measures 8.75". The discard diameter can only be found in millimeters and is 226.4mm and you do not have a metric drum gauge. Can the drum be resurfaced or should it be discarded?

5. Solve the following inequality when x=2 & y=5: y+2x<10

6. Solve the following inequality when x=1.5 &y=7: 2y+6x<25

7. Solve the following inequality when x=4 & y=2.2: 3.5x+3y>21

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Lesson 14 Homework - Brake Drum Resurfacing

Name: _____ AM-1: _____ PM _____ Date: _____

$$m+2c<D$$

1. The diameter of a brake drum is 12.435 inches. There is a score on the cylinder wall that measures 0.006 inches deep. The maximum diameter of the drum can be machined to 12.450 inches. Can this drum be machined?

2. The diameter of a brake drum is 9.85 inches. There is a score on the cylinder wall that measures 0.023 inches deep. The maximum diameter of the drum can be machined to 9.74 inches. Can this drum be machined?

3. The diameter of a brake drum is 194.28 mm. There is a score on the cylinder wall that measures 0.66 mm deep. The maximum diameter of the drum can be machined to 193.84 mm. Can this drum be machined?

4. The diameter of a brake drum is 214.6 mm. There is a score on the cylinder wall that measures 0.025 inches deep. The maximum diameter of the drum can be machined to 212.94 mm. Can this drum be machined?

5. Solve the following inequality when x=9 & y=4.1:

   $$3x + y < 34.9$$

6. Solve the following inequality when x=9.2 & y=1.2:

   $$4x + 2.4y \geq 39.68$$

7. Solve the following inequality when x=.02 & y=.04:

   $$-3x -4y < -.18$$