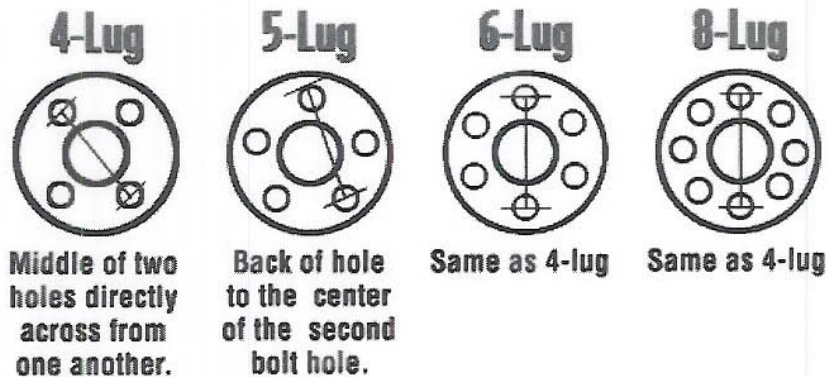
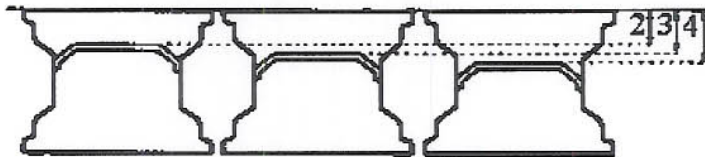

How to Measure Bolt Patterns



How to Measure Wheel BackSpace



Items required to measure wheel backspace:

- Tape measure
- Straight edge
- Wheel w/o tire (preferred)

The easiest way to measure backspace is to lay the wheel face down onto the ground so the backside of the wheel is facing up. Take a straight edge and lay it diagonally across the inboard flange of the wheel. Take a tape measure and measure the distance from where the straight edge contacts the inboard flange to the hub mounting pad of the wheel. This measurement is backspace. The above photo shows three wheels with 2", 3", & 4" backspace.

Measuring Wheel Offset

To calculate offset you'll need the following measurements:

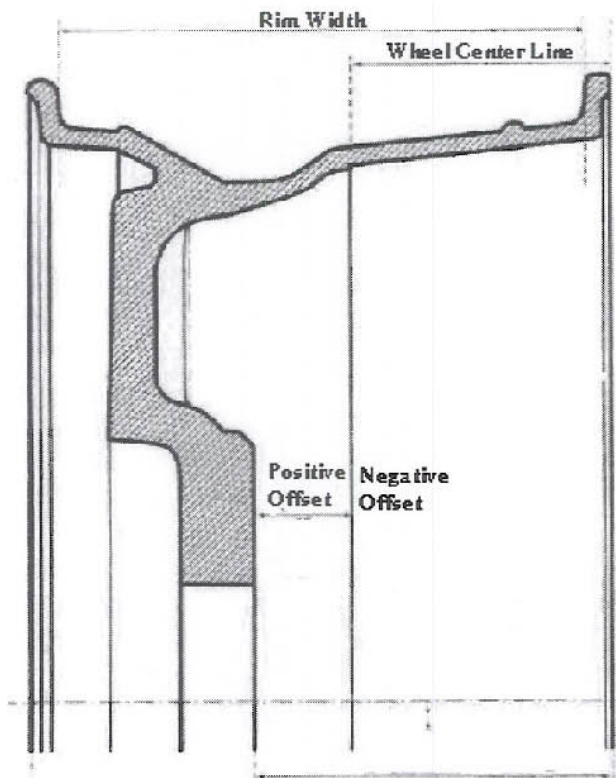
- Wheel backspace
- Wheel Width
- Wheel Center line (outboard flange to inboard flange measurement / 2)

Subtract:

- Wheel center line from Wheel backspace to get offset.
 - If backspace is less than the wheel centerline the offset is negative
 - If backspace is greater than the wheel centerline the offset is positive

Tip:

- To convert from inches to mm multiply by 25.4
- To convert from mm to inches divide by 25.4



BACKSPACE	3.25"	3.5"	3.75"	4"	4.25"	4.5"	5"	5.25"	5.5"	5.75"	6"
WHEEL WIDTH											
5.5"	0	6	12	19	25	32	44	52	57	63	69
6"	-6.4	0	6	12	19	25	38	44	51	57	63
6.5"	-12	-6	0	6	12	19	32	38	44	51	57
7"	-19	-12	-6	0	6	12	25	32	38	44	51
8"	-32	-25	-19	-12	-6	0	12	19	25	32	38
8.5"	-38	-32	-25	-19	-12	-6	6	12	19	25	32
9"	-44	-38	-32	-25	-19	-12	0	6	12	19	25
9.5"	-51	-44	-38	-32	-25	-19	-6	0	6	12	19
10"	-57	-51	-44	-38	-32	-25	-12	-6	0	6	12
10.5"	-63	-57	-51	-44	-38	-32	-19	-12	-6	0	6
11"	-69	-63	-57	-51	-44	-38	-25	-19	-12	-6	0
12"			-69	-63	-57	-51	-38	-32	-25	-19	-6

Backspace to Offset Conversion Chart

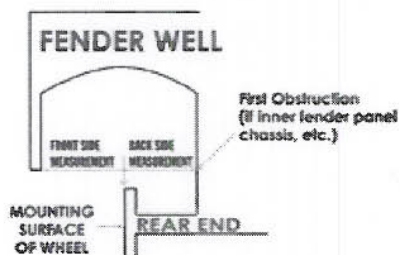
The table on the right is a quick reference for finding offset, pick the rim width and follow the row over to the backspace of your wheel.

Determining Vehicle Fitment

Fitting a wheel and tire package is different for each vehicle, but by following these guidelines your chances for success will be much greater. In most cases you'll have to use the physical dimensions of the current wheel/tire package to determine the dimensions of the new wheel/tire package.

Items which are potential trouble spots:

- Tie Rod Ends
- A-arms
- Brake Calipers
- Shocks and Shock Mounts
- Inner & Outer Fenders (esp. front tires turned to lock)



In the drawing on the left, we've made two measurements

- Front Side Clearance
- Back Side Clearance

These measurements when used with:

- Tire Section Width
- Tire Diameter
- Rim Width

■ Rim Backspace

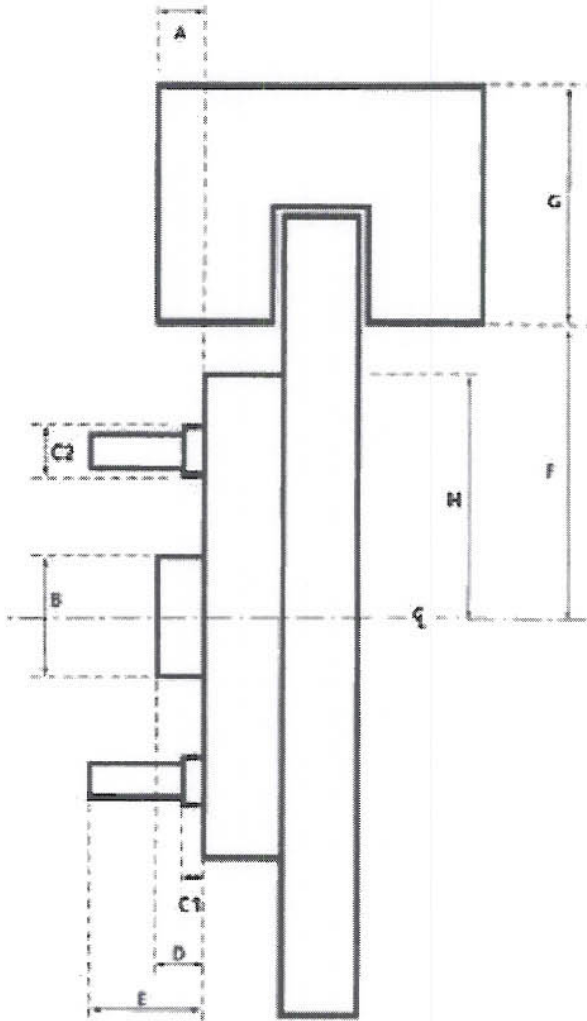
Help determine if wheel/tire clearance is adequate for the new wheel/tire package you've selected

Suggestion: Start your search for new wheels by picking the tires first. Get the tire manufacturer's rim width recommendations and physical dimensions for the tires you want. Pay close attention to Section Width and Measured Rims specs., these are important numbers to be used when selecting rims and determining vehicle fitment.

Determine Wheel Caliper Clearance

Ensuring proper caliper clearance inside the wheel is important. The following chart should enable you to have the dimensions required by most wheel manufactures.

Caliper and Hub Diagram



- A. Caliper Overhang Distance
 - Used to determine if wheel dish is adequate (in some cases a spacer is required for clearance)
- B. Diameter of Hub Center
 - Required if wheels are hub centric
- C. Wheel Stud Diameter
 - Required along with bolt circle
- D. Height of Hub Center
- E. Length of Lug and Thread Type (Fine or Coarse)
 - Required to determine if longer studs are necessary
- F. Distance from CL of Hub to Caliper
 - Used with A to determine if a spacer is required for proper fitment
- G. Width of Caliper
 - Used with F to determine if wheel ID is adequate to clear rotor/caliper package
- H. Diameter of Hub Mounting Face
 - Used to determine if hub is adequate to support wheel/spacer

Typical Lug Nut Torque Specifications

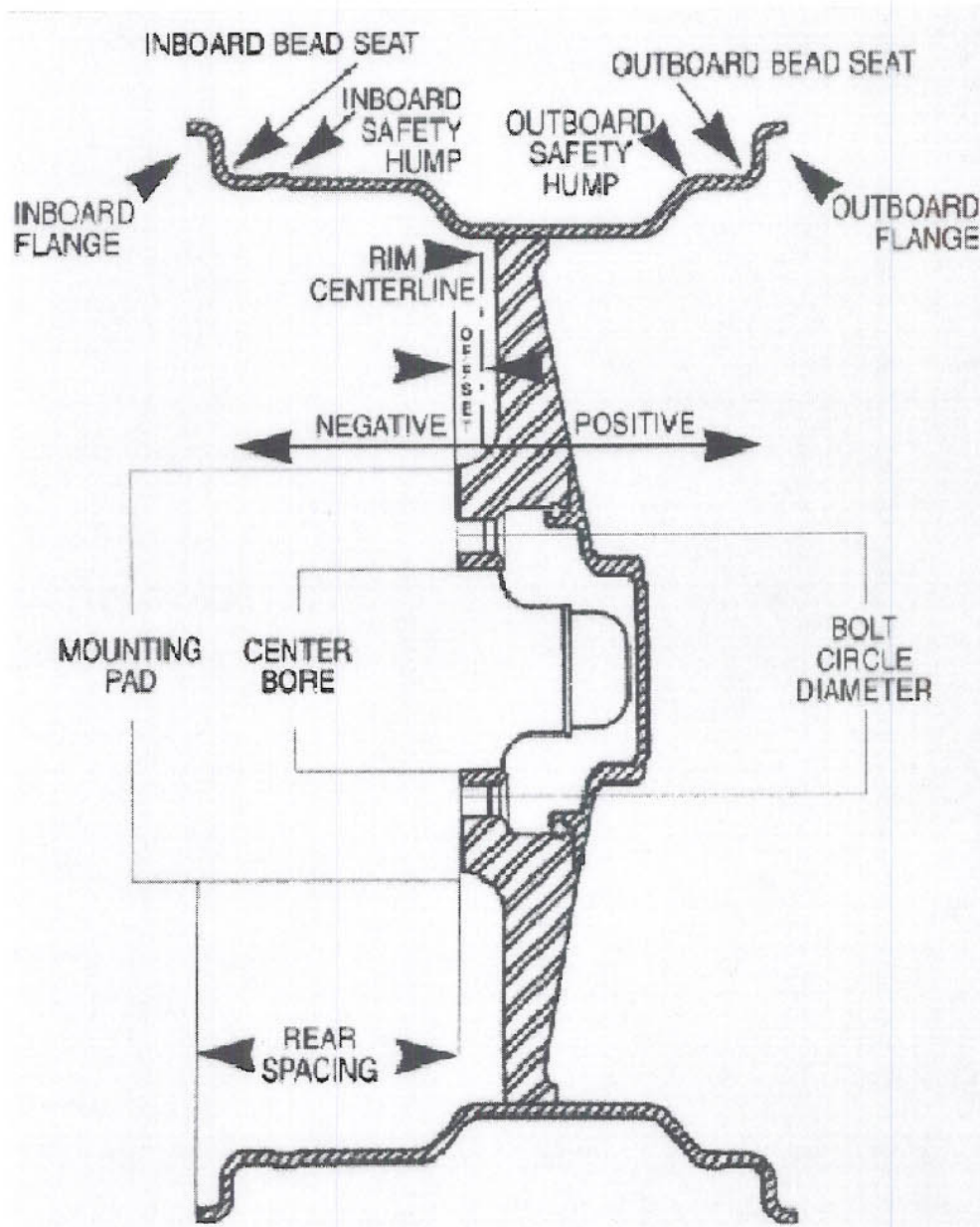
Tighten Lug Nuts in a Criss-Cross Pattern for Best Equal Torque Dist

 4 LUG	 5 LUG	 6 LUG	 8 LL	Lug Size 7/16" 1/2" 9/16" 5/8" 12mm 14mm	Ft/Lbs Torque 55-65 75-85 95-115 135-145 72-80 85-95
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IMPORTANT NOTICE: As with all types of wheels retorque lug nuts after the first 25 miles & at 100 mile intervals until lug torque is maintained.

Note: Always refer to Owner's Manual for proper factory specifications that take precedence over the listed recommendations.

Wheel Terminology



Bolt pattern or lug pattern or bolt circle is determined by the number

of bolt holes and the bolt circle diameter.

Hub Diameter or **center bore** is the hole at the center of the wheel.

Rear spacing or **back spacing** is the distance from the backside of the wheel mounting pad to the outside of the rim flange.

Offset: The distance from the centerline of the wheel to the mounting surface of the wheel.

Negative offset: When the back of the bolt pad is closer to the inside of the wheel; when mounting surface is inboard of the rim centerline.

Positive offset: When the back of the bolt pad is closer to the street side of the wheel; when the mounting surface is outboard of the rim centerline.

Bead-Loc A device which captures the tire bead between it's flanges, usually secured by bolts to keep tire bead from dismounting. Usually used in dirt circle track or off road applications where low tire pressures are used and hitting ruts or other vehicles are common.
Left: An example of a Bead-Loc wheel

BOLT PATTERN DESIGNATIONS			
CATALOG	BOLT PATTERN #studs on circle	STUD HOLE SIZE	COMMON APPLICATION
A	5 on 4.5"	1/2"	Older Full size Ford & Chrysler Products
B	5 on 4.75"	7/16"	Chevy Camero & Most Older Full Size Chevrolet
C	5 on 5"	5/8"	Grand National & Most Older Full-Size GM Cars
D	5 on 5.5"	1/2"	1/2 Ton Ford Pickups, Most Jeeps, & International Scouts
E	6 on 5.5"	7/16"	Older Model Chevy & GM Pickups & Some Late Blazer & Datsun
F	8 on 6.5"	1/2"	All 8 Hole 3/4 Ton Trucks
G	5 on 7.75"	5/8"	Old Wide 5 Hole Volkswagen
H	5 on 10.25"	5/8"	Modified 37 Ford, Skeleton or Wide 5 Pattern
I	6 on 5"		6-Pin Sprint Car 5/8 Drive Pin
J	6 on 5"		6-Pin Midget 1/2" Drive Pin
K	4 on 98mm		Fiat
L	4 on 100mm		Chevy Chevette, Plymouth K-Car, Isuzu Pup, & Renault
M	5 on 100mm		All GM A, J, & X Body Front Wheel Drive and some Mopar
N	4 on 4"		Vega & GM '80 & Older Skyhawk, Starfire, Astro & Sunbird
O	5 on 4"		Plymouth Duster, Scamp, Valiant, Dodge, & "A" Body Mopar
P*	4 on 4.25"		Pinto, Some T-Birds, Other Ford Small Cars, & Some Porsche
Q	4 on 110mm		Some Renault & Mazdas
R*	4 on 4.5"		Older Mustangs & Capri 6 Cyl, Some Datsun, MG, Mazda & Toyota
S	4 on 120mm		Some Mazda & Honda
T	4 on 130mm		Volkswagen & Some Porsche
U	4 on 140mm		Subaru
V	6 on 8.75"		Military Pull Truck
W	6 on 7.25"		Military Pull Truck
X	6 on 8"		Military Pull Truck
AE	5 on 6.5"		Land Rover
*Multi-Lug	Listing here does not constitute availability. Some centers require machining at extra cost and Metric Centers are higher.		

BOLT PATTERN REFERENCE GUIDE

6 Bolt Wheels

6 on 5-1/2"

Chevrolet - all to '48

Chevy/GMC - P.U., van to '70

- 4x4 P.U., Blazer '71-'89

- LUV 2WD '72-'84

Dodge - D-50, Ram 50 P.U. '79-'87

Ford - Courier PU '72-'84

Mazda - P.U. '72-'89

Nissan/Datsun - P.U., Pathfinder '67-'89

Toyota - SR5, 4WD P.U., Landcruiser, 4-Runner (some) to '89