"Bolt In" Axle Shaft Ordering Defined

1250 E. Piper Ct. Meridian, Idaho 83642 Phone: 503.257.6604 Fax 503.253.6564

Rear end type

This is simply the make and model of the rear end you are working on.
Examples of this are Ford 8", 9"; GM 10 & 12 bolts using billet ends; Mopar 8 3/4; 35/44, Dana 44, 60 etc...

AL: (Right or Left shaft length, Axle flange to End of spline)

This should be done with a tape measure by hooking the outside of the axle flange (wheel side-where the wheel studs are) and pulling back to the end of the splines. If you put a ruler or straight edge at the end of the shaft, this measurement will be accurate. Note; Measuring at an angle will give you a longer measurement. Depending on the length of the axle and the diameter of the flange, this will be approximately 1/16" - 1/8" longer. It's best to measure straight across using a straight edge.

HL: (Right or Left shaft length, Housing flange to End of spline)

This should be done with a tape measure by hooking the side gear in your differential, measuring to the housing flange (where your brake backing plate or caliper mount goes); taking care that you've actually hooked the spider gear in the carrier and not something else. This measurement can also be measured on the axle by hooking the outside (wheel side) of the bearing and pulling back to the end of spline and then subtracting 1/8" (the wheel bearing of a correctly installed axle will stick out past the housing flange about 1/8", to locate the backing plate). A ruler or straight edge is not needed for this measurement. A 3rd way to measure this is using one of our Dutchman "Dog Bones", which shows the end of the splines and makes measuring very easy. We currently make & stock Ford 8", 9" & 8.8 car/truck, Mopar 8 3/4" & 9.25, Dana 44 & Dana 60 and 12 bolt GM car. Others will be added as we have time.

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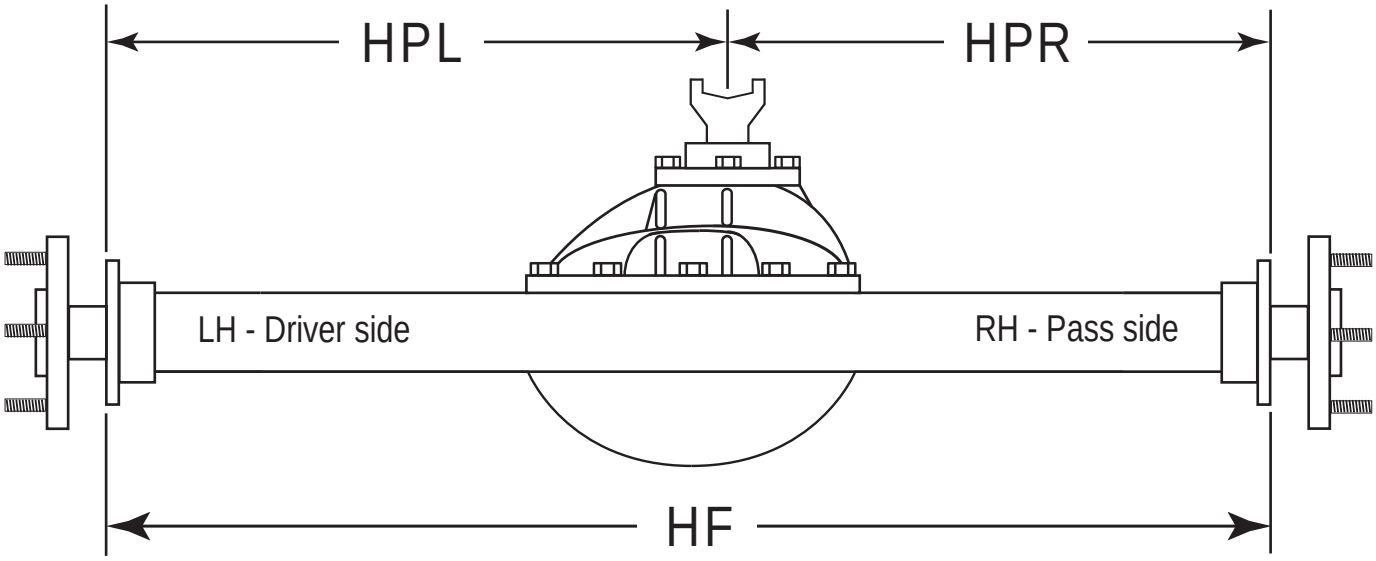
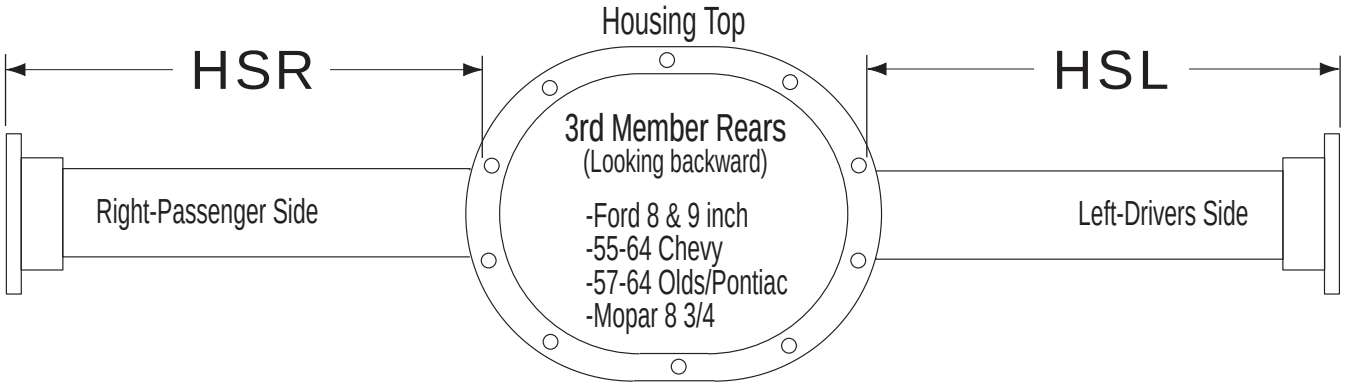
HPL/HPR: (Right and Left pinion length, Housing flange to Pinion centerline)

This should be done with a tape measure; with a helper and a straight edge on the housing flange (where your brake backing plate or caliper mount goes), measure to the center of the pinion yoke on the left and right hand sides, taking care to keep the tape straight so your measurement is accurate. Avoid bending the tape measure over suspension brackets, making the length longer than what it should be. The two dimensions added together should be the same as the overall width of the housing (the "HF" dimension).



HF: (Housing length, Housing flange to Housing flange)

This should be done with a tape measure; with a helper and a straight edge or ruler on the housing flange (where your brake backing plate or caliper mount goes), taking care to keep the tape straight, so your measurement is accurate. Avoid measuring at an angle or bending the tape measure over the 3rd member or suspension brackets, making the length longer than what it should be.



HSR/HSL: (Right and Left alternate length, Housing flange to Outside of stud/bolt hole)

This should be done with a tape measure and only if you cannot provide axle lengths or pinion location. You must also provide HF measurement. Please refer to the diagram for a visual representation of the OUTSIDE of the stud/bolt hole to housing flange measurement.

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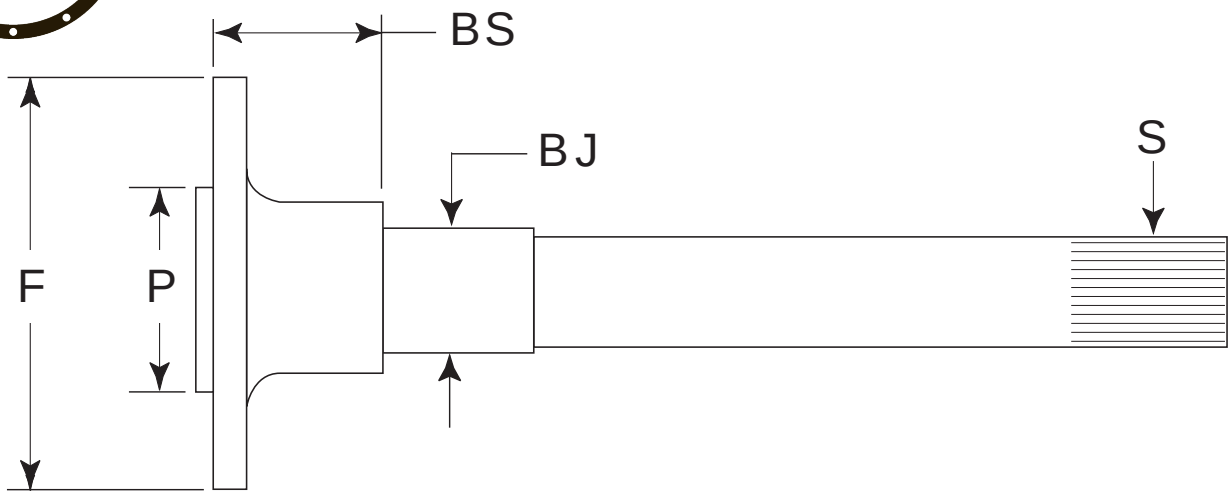

S: (Spline count)

This is the number of splines the axle has. Either count the teeth or measure the diameter of the splines with a dial caliper or micrometer. Use the reference chart of some common splines to identify your spline count.

Also list the type & manufacturer of differential or spool you will be using (as some use different pressure angles for their splines).

An example of this could be: Eaton Tru Track or Strange Spool, etc...

Spline	Diameter
16	1.375
17	1.167
19	1.245
23	1.500
26	1.125
27	1.167
28	1.205

Spline	Diameter
29	1.250
30	1.290
31	1.325
32	1.375
33	1.410
34	1.370
35	1.500

F: (Axle flange diameter)

This can be done with a tape measure and is the maximum diameter for the axle flange (where the wheel studs stick out) that will fit inside your brake drum or rotor.

If you are using aftermarket brakes, there's a good chance the diameter needed to fit the drum or rotor is a different size than the original axle flange size. In this case, skip measuring your axle and ONLY measure the drum or rotor to determine the maximum flange diameter allowed for the kit you are using.

P: (Drum or Rotor pilot diameter)

This can be done with a micrometer or dial caliper on the axle. Note: Some factory axles have a tall stepped pilot, so be sure to measure the larger diameter that is closest to the flange [NOT the outer smaller dia]. If you are using aftermarket brakes, there is a good chance the center hole in the drum or rotor is a different size than the original axle pilot size. In this case, skip measuring the axle and ONLY measure the drum or rotor center hole of the kit you're using. Note: our axles have a 1/4" tall pilot to catch the drum or rotor only, NO step. Tall or stepped pilots carry a surcharge.

BO: (Brake offset)

The brake offset is the measurement between the axle flange (where the drum or rotor mounts) and the housing flange (where the backing plate or caliper bracket mounts).

BS: (Bearing shoulder)

This can be done with a tape measure and ONLY if the bearings are OFF the shaft. If the axle has a 1" access hole in the flange, put the tape through the hole, hook the outside of the flange, and measure to the bearing shoulder (the part of the axle where the bearing stops pressing on). If there is no access hole, hook the tape on the outside of the flange and measure to the shoulder-using a straight edge up from the bearing journal. Note: It is not necessary to remove your bearing(s) if they are on the shafts, simply proceed to the "BE" bearing to edge illustrations.

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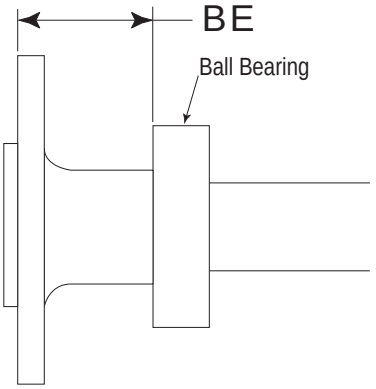
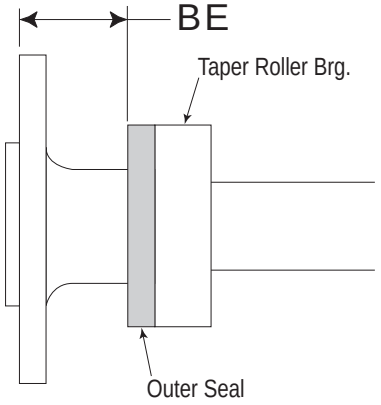


BE: (Axle flange to the bearing edge)

This can be done with a tape measure or dial caliper and ONLY if the bearing is ON the axle. As illustrated, it is measured from the outside of the axle flange (where the wheel studs are) to the outside (wheel side) of the bearing (not including the width of the bearing). To help in measuring the "BE" dimension, hold the retainer plate tight against the bearing edge (ball type) or outer seal (taper roller type) as if it were bolted into the housing. A straight edge can be used to help insure an accurate measurement.

BJ: (Bearing journal)

This should be done with a micrometer or vernier caliper. We've listed the most common sizes. In most cases, if you provide the bearing type or part number this question is automatically answered.



HE: (Housing end)

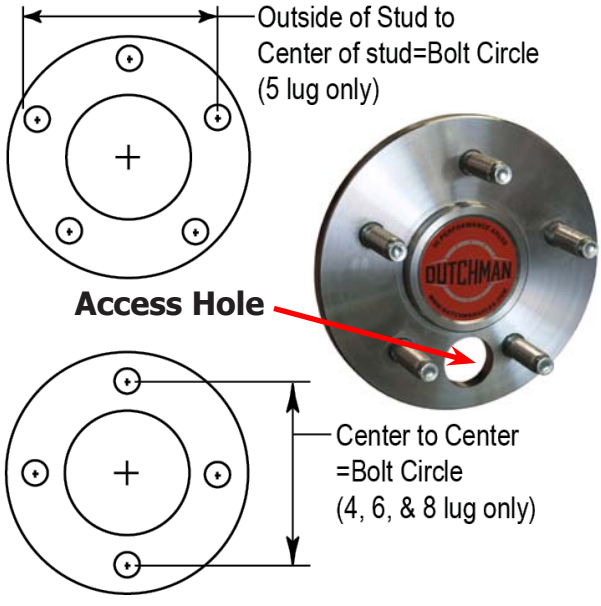
List the housing end type from the chart (see last page).
Note: Housing ends are determined by the dimensions and not the shape of the housing end profile on the diagram.

Brake kit info: (If Dutchman is supplying)

If you are purchasing the brake kit from Dutchman we'll have the correct dimensions. There is no need to provide "F, P, BO, BS or BE. Make your brake kit selection on line, add it to your cart, and we'll do the rest. If purchasing the brake kit from us at a later date, we'll need to know which kit selection for the specs. List the brake kit in the notes (on line) or write the part number on the order form.

Brake kit info: (If you're supplying your own)

If you are supplying your own brake kit, check with us to see if we have the specs on file. If we do, there is no need to provide dimensions; "F, P, BO, BS or BE as we have the brake kit build specifications on file (List the brake kit you're using in the notes). If we don't, we will need the brand, part # if known, housing end it's designed to fit (see our reference chart), the brake offset, flange OD & the pilot size.
An example of this info would be: Wilwood, #140-7140, Big bearing new style ends, 2.5 BO, 6 3/8 flange, 3.062 pilot.



Bolt Pattern(s): (Wheel pattern)

This should be done with a tape measure; 4, 6 and 8 lug bolt patterns are center to center, but 5 & 7 lug bolt patterns need to be OUTSIDE of one to the center of the 2nd one across (see illustrations).

Contrary to what you may have been told this is the industry standard method of measuring.

Optional access holes: (Machined in the axle flange)

This depends on two things;

(1) the brake kit you plan on using, as some brake kits require the access holes or you won't be able to assemble the rear end. Disc brakes like Ford Explorer and Wilwood with the internal park brake assembly.

(2) on brake kits that don't require the access holes, whether you want the convince of using a socket and extension to bolt the axle to the housing instead of a box or open end wrench. see pic.

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Studs: (Wheel studs)


7/16" Drum


7/16" Disc


12mm x 1.5

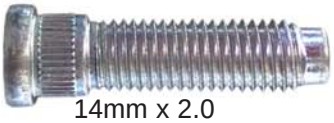

1/2" Drum


1/2" Disc


1/2" x 2" screw in


1/2" x 3" screw in


14mm x 1.5


14mm x 2.0


5/8" NF


5/8" NC


5/8" Monster studs

7/16", 1/2", 5/8", 12mm & 14mm press-in style studs have knurls under the head and press in from the back side of the axle flange. These are just like what the OEM axle shafts used.

1/2" by 2" or 3" long screw-in style studs are threaded the entire length of the stud (under the head) and screw in from the back side of the axle shaft. The 3" long version is typically used on drag cars that require the threads showing past the lug nuts. (Note: Using an impact wrench on the thread in studs should be avoided, as this can back the stud out of the axle flange).

5/8" Monster studs are the XHD drag race style drive studs. They thread in from the front side of the axle shaft and use a jamb nut on the back side of the flange for added stud retention & security. Typically used on big bad drag cars. You will need to list the wheel & rotor thickness in the notes.

Note: some aftermarket disc kit rotors will need to be clearance drilled for press in and/or larger studs.

Hardware items

Installing the axle hardware [the studs, bearings, and retainer plates] depends on two things;

1) whether or not you have a press and want to assemble the axles yourself for any reason, and/or

2) whether you have something else that needs to be installed before the bearings or studs, ie. a full circle disc retainer or a back mounted rotor hat.

Our pricing includes "Free" hardware assembly, so it's your choice [With exception to the 5/8 monster studs, they come un-installed].

NOTE: We don't recommend using your old wheel studs as they won't press in as tight the 2nd time around & you never know what kind of abuse they have had. Save yourself the trouble & let us install new studs.

This also applies to the wheel bearings & seals. Start 100% fresh to prevent premature bearing failure and leaks. Do it right the first time!

BEARING IDENTIFICATION CHART

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BALL BEARINGS

SR Chart Description	Industry / Set #	ID	OD	WI	WO	Application / Notes
RW124R	RW-124-R	1.378	2.834	.669	.669	Toyota Celica (Popular dwarf car rear ends) / Special Order
RW130R	RW-130-R	1.574	3.543	.905	.905	Toyota Truck / Special Order, TPU, Van, SUV
RW207	RW-207-CCRA	1.378	2.835	.844	.844	Small Ford 8" or 9"
307R	RW-307-R	1.378	3	.905	.905	57 Chevy / 1 O-Ring on Outer Race; Won't cross to 607 w/o pre-loading
506AR	RW-506-AR	1.250	2.562	.729	.669	62-63 Chev II (Drop out Carrier) / Freak Nova Bearnig, Special Order
507CR	RW-507-CR	1.378	2.747	.700	.660	BOP (Late 60's Buick, Olds, Pontiac)
507GR	RW-507-GR	1.439	2.890	.700	.700	Buick (Late 60's Wagon) / Freak, Special Order
507ER	RW-507-ER	1.378	2.834	.925	.885	55-56 Chevy
508BR	RW-508-BR	1.531	3.062	.776	.776	Pontiac (Late 60's Grand Prix / Bonneville) / Freak, Special Order
533 O-Ring	RW-508-ER / A1020	1.531	3.150	1.045	.825	Big Ford 9" / BOP (Buick, Olds, Pontiac) / BCA# RW-508-DR
564 O-Ring	RW-508-ER1562 / A1021	1.564	3.150	.981	.825	Big Ford 9" / BOP (Buick, Olds, Pontiac) / Aftermarket Supply Only
45mm Brg	RW-508-ER1771W / A1019	1.765	3.150	1.045	.825	Big Ford 9" / Race axles only / Not for Off Road Abuse
509FR	RW-509-FR	1.625	3.267	1.023	1.023	Buick / Lincoln (60's Full Size) / Freak, Special Order
607NR	RW-607-NR	1.378	3	1.032	1.032	58-64 Chevy / 2 O-Rings on the Outer Race
Small Conversion	RW-902-R-2834 / A1023A	1.564	2.834	.887	1.100	Small Ford 8" or 9" / For 31-35 spline small brg race axles only
C35R	RW-C35-YYR	1.432	2.876	.930	.700	Dodge, Plymoth (6cyl w/ 7.25 RG & 10" Drum) / Freak, Special Order
F34R	RW-F34-R	1.338	2.677	.944	.826	Dodge, Plymoth (6cyl w/ 7.25 RG & 9" Drum) / Freak, Special Order
RUB	RUB-1580-EBFR	1.626	3.150	1.083	1.083	Ford Pick-Ups & Vans w/ 9 3/8" Rears / Special Order
Small to Big Ford	63072RS / 307F	1.378	3.150	.827	.827	Small Ford Axle 8" or 9" Axles to Big Ford 9" Housing Ends
70-74 Alfa Romeo	88107	1.378	2.834	.984	.669	Alfa Romeo 105 / 164 (1600 / 1750 cc)
88131	88131-R	1.531	3.252	1.025	.850	BOP (Buick, Olds, Pontiac)
514003	514003 / 88128	1.531	3.150	1.083	.826	Big Ford 9" / Early BOP (Buick, Olds, Pontiac)
ST400	ST400 / MO400 / A1022	1.564	2.875	-.825	1.135	Mopar 8 3/4 / Non Adjustable "Green" Bearing

TAPER ROLLER BEARINGS

SR Chart Description	Industry / Set #	ID	OD	WI	WO	Application / Notes
S5	Set 5 / A5	1.379	2.562			AMC / AMX 2pc axle; Reverse Taper Bearing (requires preload)
S7	Set 7 / A7	1.564	2.875	.869	.841	Mopar / Ford Pick-Up; Reverse Taper Bearing (requires preload)
S9	Set 9 / A9	1.378	2.560	.811	.670	Chevy / BOP; IR# U298 / OR# U261L
S10	Set 10 / A10	1.564	2.875	.872	.730	IHC / Jeep / Ford 9"; IR# U399 / OR# U360L
S20	Set 20 / A20 / BR20	1.564	3.150	.872	.405	Ford 9"; IR# U399A / OR# U365L
S80	Set 80 / U497-904A3	1.765	3.150	1.045	.868	Jeep J4000 / Ford 9" (Deep Bore Ends); Use Outer Seal #21244CR

COMMON OEM BRAKE DIMENSIONS

DUTCHMAN AXLES
1250 E. Piper Ct. Meridian, Idaho 83642 Phone: 503.257.6604 Fax 503.253.6564

Description	HE	Offset	BE	Pilot	Flange
Ford Car (Linclon not included)					
10" Drum x 1 3/4" Shoes	SB SB	2 5/16	2 3/16	2.432	6 1/4
10" Drum x 2 1/2" Shoes	SB SB	2 1/2	2 3/8	2.432 | 2.531 | 2.777	6 1/4
11" Drum x 2 1/2" Shoes	BB BB	2 3/8	2 1/4	2.432 | 2.777	6 3/8
11" Drum x 2 1/2" Shoes	BB SB	2 1/2	2 3/8	2.432 | 2.777	6 3/8
Ford Truck					
11" Drum x 1 7/8" Shoes (5 x 5 1/2" BP)	BB BB	2	1 15/16	2.875	6 3/4
11" Drum x 2 1/4" Shoes (5 x 5 1/2" BP)	BB BB | BB SB	2 3/8	2 1/4	2.875	6 3/4
GM Car & S10 (Billet end conversions only)					
9 1/2" Drum x 2" Shoes (5 x 4 3/4" BP)	10/12	2 3/4	2 5/8	2.780 | 2.810	6 1/8
GM Car, 55-56; 11" Drum x 1 3/4" Shoes	55-56	2 3/8	1 1/8	2.810	6 1/8
GM Car, 57; 11" Drum x 1 3/4" Shoes	57	2 3/8	2	2.810	6 1/8
GM Car, 58-64; 11" Drum x 2" Shoes	58-64	2 1/2	2 1/4	2.810	6 1/8
Chev Impala / Caprice (Billet end conversions only)					
11" Drum x 2" Shoes (5 x 4 3/4" BP)	Trk/Imp	2 5/8	2 1/2	2.780 | 2.810	6 1/8
11" Drum x 2" Shoes (5 x 5" BP)	Trk/Imp	2 5/8	2 1/2	3.062	6 1/2
GM Truck C10, 65-73 (Billet end conversions only)					
11" Drum x 2" Shoes (5 or 6 lug)	Trk/Imp	2 7/16	2 5/16	3.093 | 3.562	6 1/2
GM C10, 74-80 & late model C15 (Billet end conversions only)					
11" Drum x 2 3/4" (5 or 6 lug)	Trk/Imp	2 7/16	2 5/16	3.093 | 3.562	6 1/2
BOP, 57-68					
11" Drum x 2" Shoes (5 x 5" BP)	57-64	2 13/16	2 11/16	3.062	6 1/2
(73 & up Vista w/ Set 10 bearings)	Wagonneer/YJ	2 7/16	2 11/16	3.062	6 1/2
Jeep Waggoneer, Cherokee 63-80 & J10 64-71					
11" Drum x 2" Shoes (6 lug)	Wagonneer/YJ	2 3/8	2 5/8	3.062	6 3/4
Jeep CJ & Willies 46-75 (Using Set 10 bearings)					
10" & 11" Drum x 2" Shoes	CJ	2 5/8	2 7/8	4.155	6 3/4
IHC, 61-73 (Using Set 10 bearings)					
11 Drum x 1 3/4" Shoes	BB BB Special	1 7/8	2 1/8	3.000	6 3/4
Mopar Car (8 3/4 rear ends w/ Set 7 bearings)					
10"/11" Drum x 2 1/2" Shoes (B & E-Body, 5 x 4 1/2" BP)	Mopar	2 1/2	2 9/16	2.810	6 1/4
11" Drum x 2" Shoes (C-Body, 5 x 4 1/2" BP)	Mopar	2 1/2	2 9/16	2.810	6 1/4
10" Drum x 1 3/4" Shoes (A-Body, 5 x 4" BP)	Mopar	2 1/4	2 5/16	2.308	5 1/2
Imperial, 65-72 (8 3/4 rear ends w/ Set 7 bearings & 5 x 5" BP)					
11" Drum x 2 1/2" & 3" Shoes	Mopar	2 1/2	2 9/16	3.070	6 1/2
Mopar Truck (8 3/4 rear ends w/ Set 7 bearings)					
10" Drum x 2" Shoes (2wd=4 1/2" BP)	Mopar	2 1/2	2 9/16	2.830	6 1/2
10" Drum x 2" Shoes (4wd=5 1/2" BP)	Mopar	2 1/2	2 9/16	3.562	6 1/2

ALL APPLICATIONS ARE APPROXIMATE AND SUBJECT TO CHANGE; REMEMBER, MEASURE TWICE AND CUT ONCE

"Bolt In Axle" Housing End Identifier

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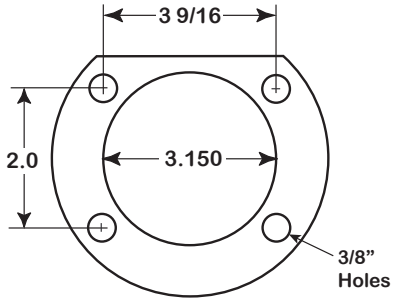
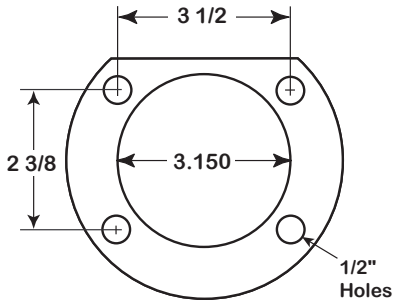
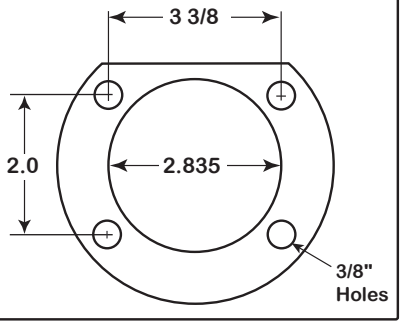
Big Ford-New Style



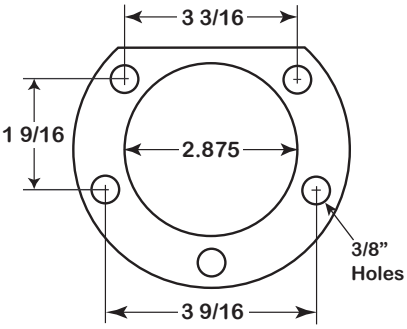
Big Ford-Old Style



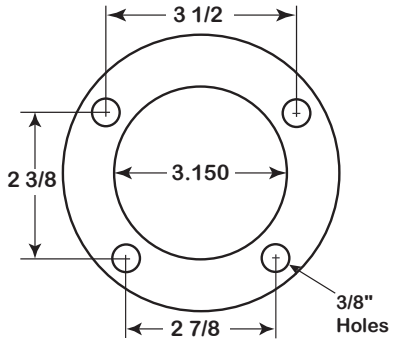
Small Ford



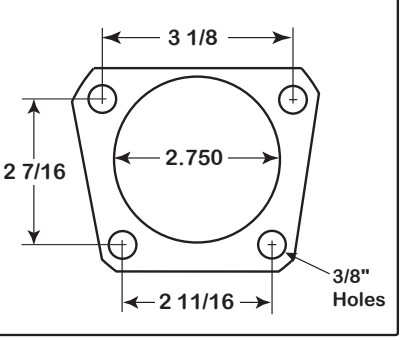
Mopar 8 3/4



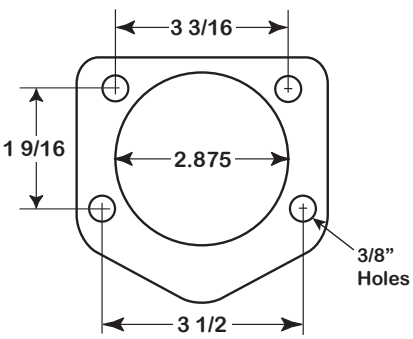
57-64 Olds/Pontiac



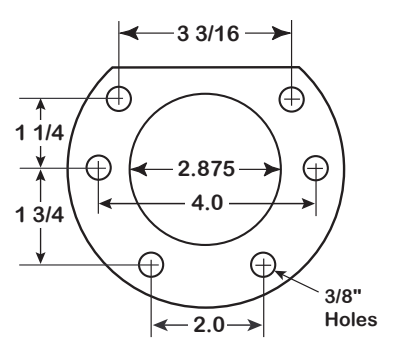
64 & up Buick/Olds/Pontiac



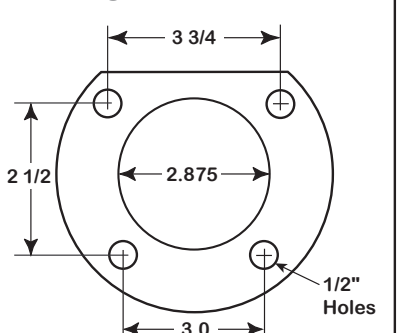
TJ



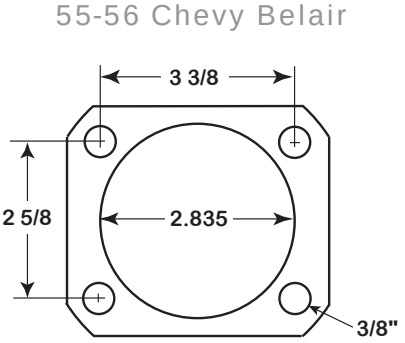
Jeep CJ



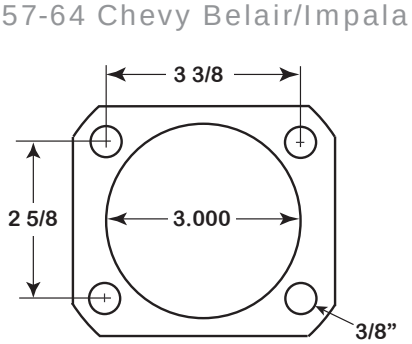
Wagoneer / YJ



55-56 Chevy Belair



57-64 Chevy Belair/Impala



Wagoneer