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1000-RENK1 REAR END NARROWING KIT

USE OF THIS TOOL REQUIRES BASIC MATH AND WELDING SKILLS

Kit Contents

1ea	1000-001-2	Alignment Shaft - 60" long x 1-1/2" OD
1pr.	1000-001-4	Outer Line Up Ford / Dana
1pr.	1000-001-5	Outer Line Up GM / Ford
1pr.	1000-002-1	Dana 60 Inner Puck 3.812"
1pr.	1000-002-4	Big 9" Ford / GM 12 Bolt Inner Pucks
1pr.	1000-002-2	Small 9" Ford / GM 10 Bolt Inner Pucks
1pr.	1000-002-8	Dana 44 / Chrysler 8-3/4 / 57-64 Olds Inner Pucks
1ea.	1000-004	Pinion Centerline Gauge

SAFETY

- **Wear protective clothing suitable for welding.**
- **Use a welding helmet with the correct shade of filter lens.**
- **Be sure housings are properly cleaned and degreased to remove flammables.**
- **Welding sparks can cause fires or explosions. Have a fire extinguisher nearby.**
- **Breathing welding fumes can be hazardous to your health. Be sure to have adequate ventilation.**

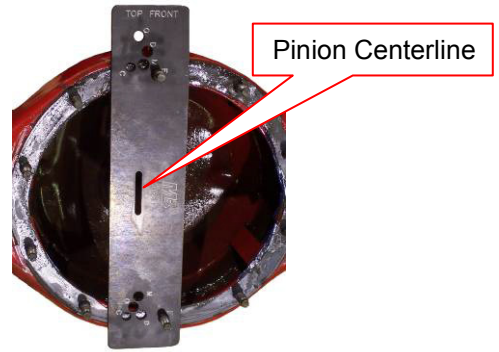
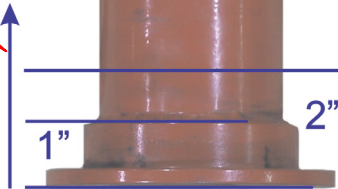
PREPERATION

1. Disassemble and clean housing. Use a good grease cutting solvent to remove the lube residue. Follow this with warm soapy water, such as from the car wash.
 - a. On "Drop Out" style housings, such as 9" Ford, you must remove the "Drop Out" and then clean the housing as described above. We recommend that you get a used "Drop Out" from a junk yard and use this for your fixture case. This way you will only have minimal work to re-setup your gears. Place the appropriate pucks into the carrier bearing locations. Screw the bearing cap bolts finger tight. Slip the bar through the assembly and then tighten the cap bolts. Remove the shaft.
 - b. On "One Piece" style housings, such as 12 Bolt & Dana, you will have to remove the ring gear carrier assembly, be sure to keep track of any shims. With the ring gear carrier assembly removed clean the housing as described above. Place the appropriate pucks into the carrier bearing location. Screw the bearing cap bolts finger tight. Slide the bar through the housing assembly and then tighten the cap bolts.
2. Determine the desired width, pinion offset and cut locations using the supplied work sheet. You might want to make copies of the work sheet for future jobs. There is an example on the back of the work sheet. This is a very critical step and care should be taken to get it right. Measure as many times as needed to be sure that you have all the correct numbers before moving to the next step.

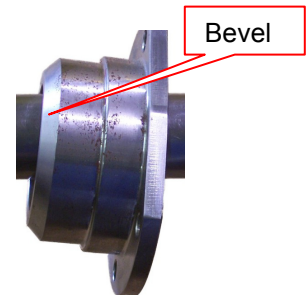
CUTTING

3. After you have determine the desired width, pinion offset and cut locations using the supplied work sheet you are ready to cut the ends off of your housing. We recommend cutting the existing ends off close to the bearing end between 1" & 2" back from the flange. If there are seals in the end be sure to cut behind them. The best cuts will be made with a **HORIZONTAL BAND SAW** or a **CHOP SAW**.

Cut 1" or 2" back from end.

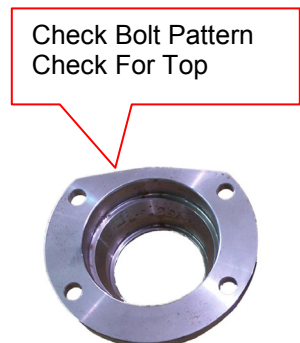
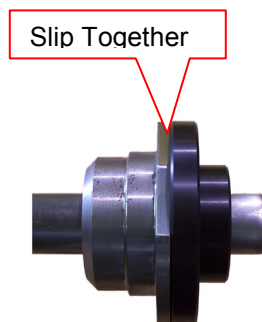
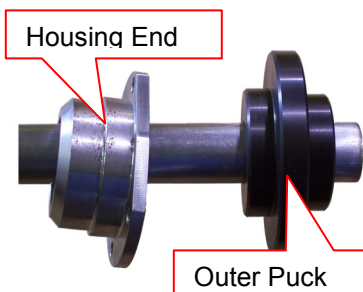


4. Bevel the housing tubes and the housing ends. This will assure a quality weld joint. The amount of bevel will be determined by the welding method, MIG or TIG. MIG will require a larger bevel than TIG.



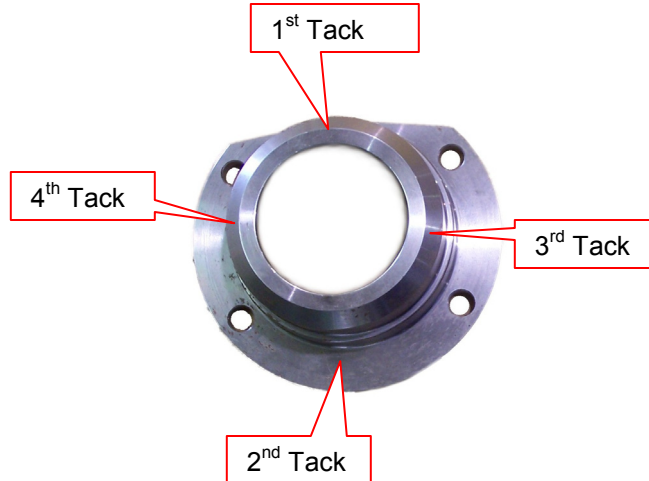
POSITIONING

5. Slide the bar into the housing and through the inner alignment pucks. Be careful not to jam the bar into the pucks as this may knock them loose or out of alignment. On "Drop Out" style housings, be sure the carrier assembly is bolted into the housing with a gasket.
6. Slide the housing end onto the shaft followed by the appropriate outer line up puck. Slip the puck into the housing end and then slide the assembly up to the end of the tube. Be sure to orient the housing end correctly in relation to the housing. Check that the bolt pattern is aligned correctly for the brakes you will be using.



WELDING

7. After you are sure that you have the correct dimensions and have the ends oriented correctly they can be tack welded. We recommend that you tack them in at least 4 places. The tacks should be located at 90° to each other. Tack both ends of the housing.



8. Double check all your measurements. When you are satisfied that every thing is correct go ahead and finish weld the ends. We recommend that you weld $\frac{1}{4}$ of the way around at a time; weld from **tack 1 to tack 3** then **tack 4 to tack 2**. Move to the other housing end and follow the same sequence. Now go back to the first end and weld from **tack 1 to tack 4** and then **tack 2 to tack 3** then move to the other end and complete the welding following the same sequence.

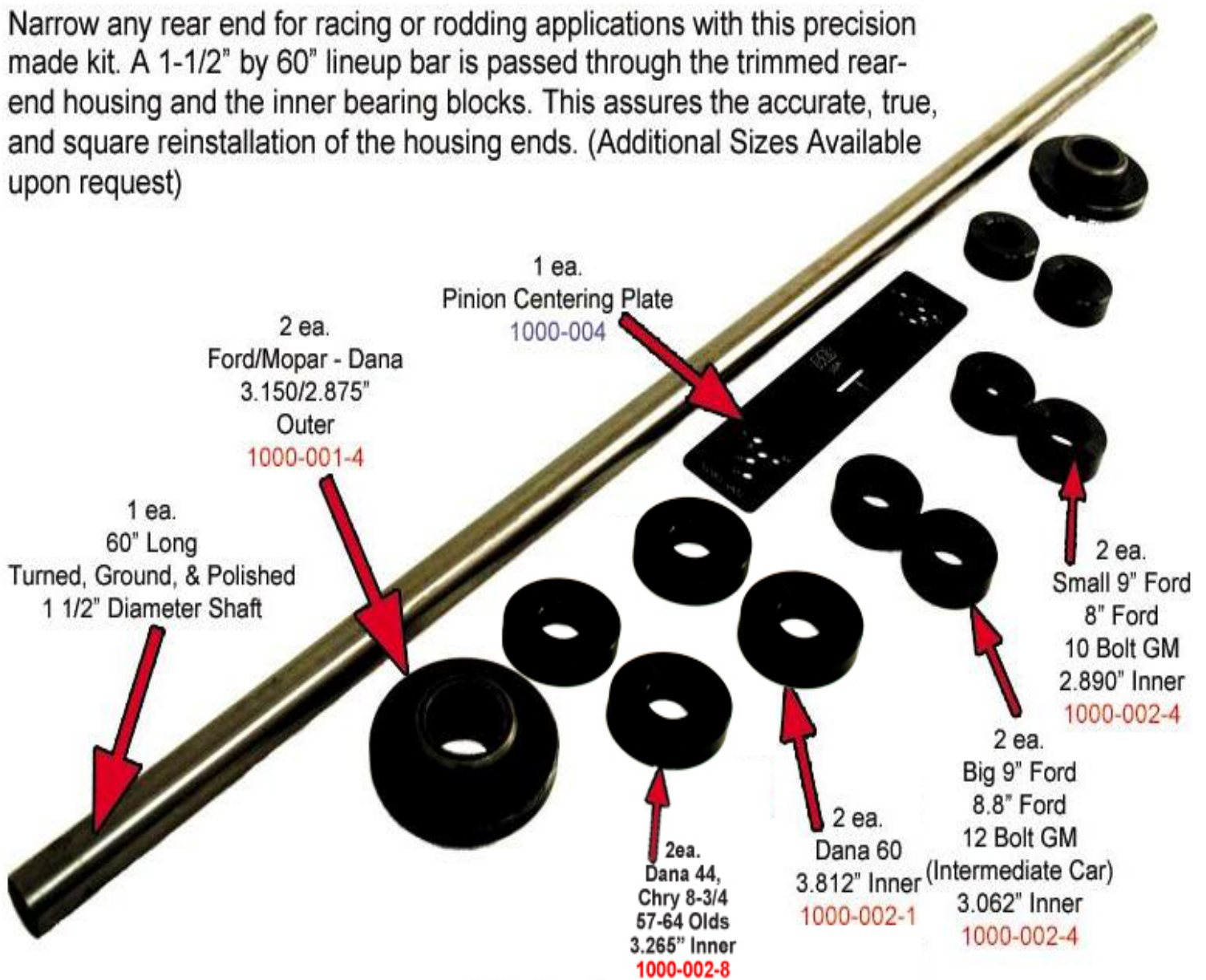
NOTICE

If you are going to be welding on brackets, back braces or other items we strongly suggest that all of this welding be done prior to putting the housing ends on. By leaving the ends to the last any heat induced warpage will be compensated for when the ends are installed. This will give you best possible results and the straightest housing.

9. After all welding is complete let the housing cool to room temperature before handling. **DO NOT artificially cool the welds with water, air or any other method.** Cooling too quickly may cause weld cracking and result in failure.

We appreciate your business and hope that you enjoy your new Mittler Bros. Product. If you have any questions or concerns please feel free to call us at 1-800-467-2464 for help.

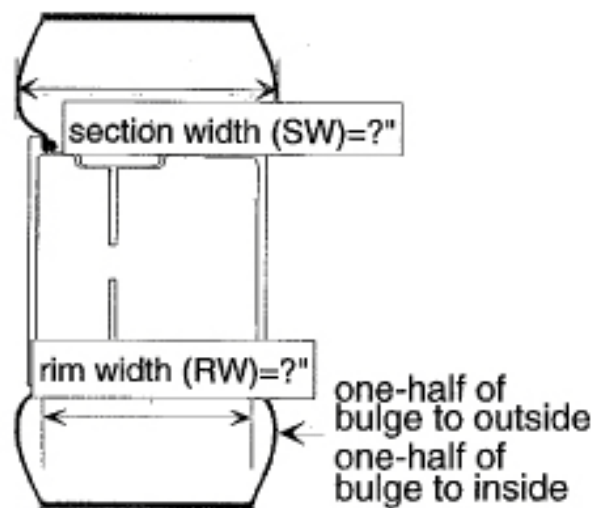
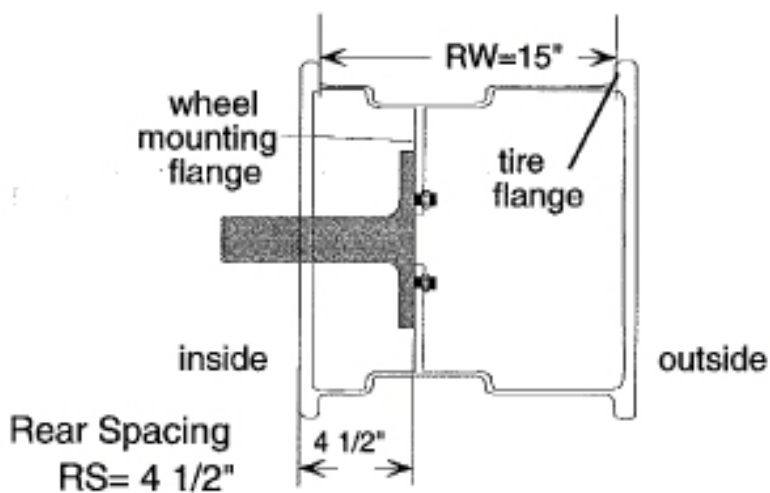
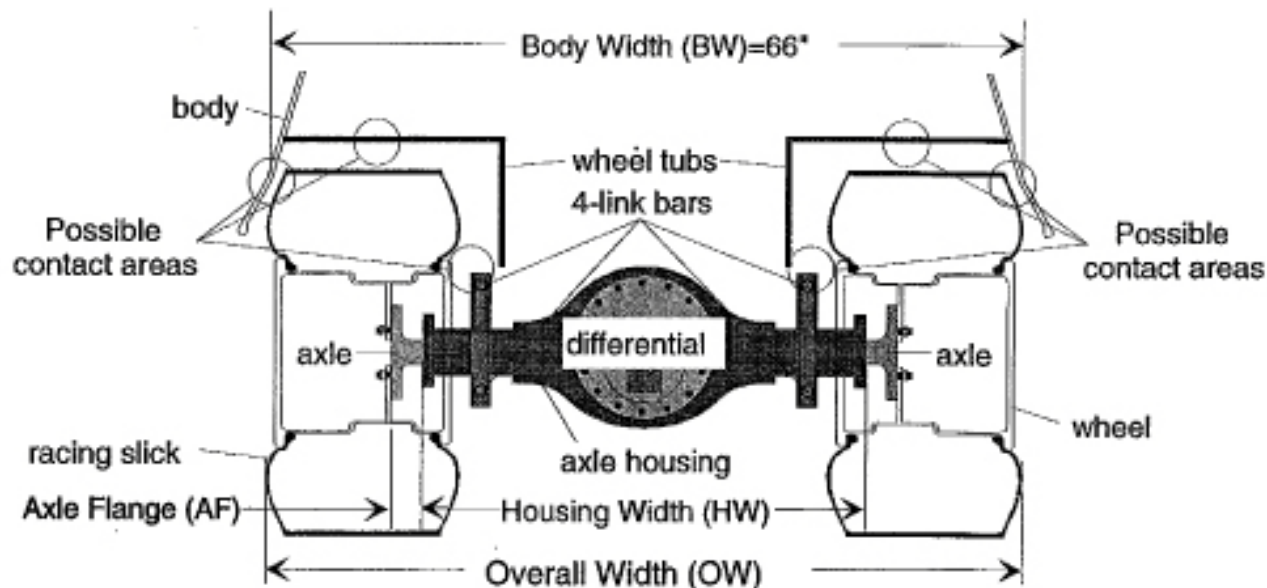
Narrow any rear end for racing or rodding applications with this precision made kit. A 1-1/2" by 60" lineup bar is passed through the trimmed rear-end housing and the inner bearing blocks. This assures the accurate, true, and square reinstallation of the housing ends. (Additional Sizes Available upon request)



Kit Includes:

Alignment Blocks Shown Above with **RED** Numbers,

CALCULATING REAR END WIDTH



ABBREVIATIONS

OW = Overall rear-end Width (incl. tires & wheels)

HW = Housing Width

AF = Axle Housing to axle Flange distance

RW = Rim Width (wheels)

RS = Rear Spacing (wheels)

SW = Section Width (tires)

FORMULAS

$$OW = HW + 2(AF) + 2(RW - RS) + SW - RW$$

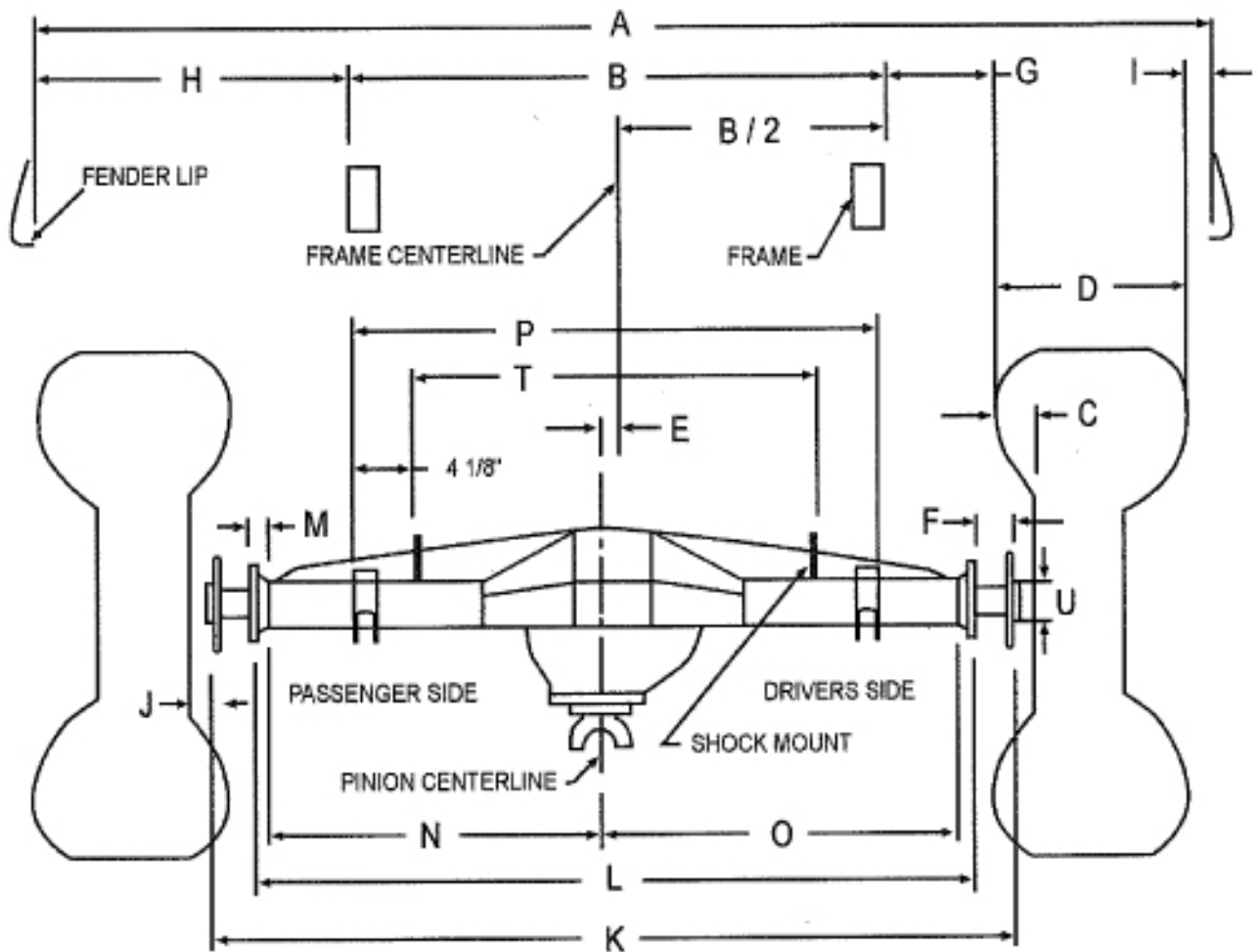
$$HW = OW - 2(AF) - 2(RW - RS) - SW + RW$$

$$SW = OW - HW - 2(AF) - 2(RW - RS) + RW$$

$$AF = \frac{OW - HW - 2(RW - RS) - SW + RW}{2}$$

Custom Fab Worksheet

S/O #	DATE	CUSTOMER	CAR YEAR / MODEL
HOUSING PART NUMBER	TIRE SIZE	WHEEL SIZE	BACK SPACING
HOUSING ENDS			DIFFERENTIAL
			SPLINE
STUD SIZE	BOLT CIRCLE		AXLE BEARING
1/2" 5/8"	5 on 4-1/2" 5 on 4-3/4" 5 on 5"		
BRAKE TYPE	SHOCK MOUNT PART #	WHEELIE BAR BRACKETS	AXLE VENT
		YES NO	YES NO
A	B	C	D
F	G	H	I
K	L	M	N
P	T	U	V
		BACK BRACE	
		YES NO	
		E	
		J	
		O	
		W	



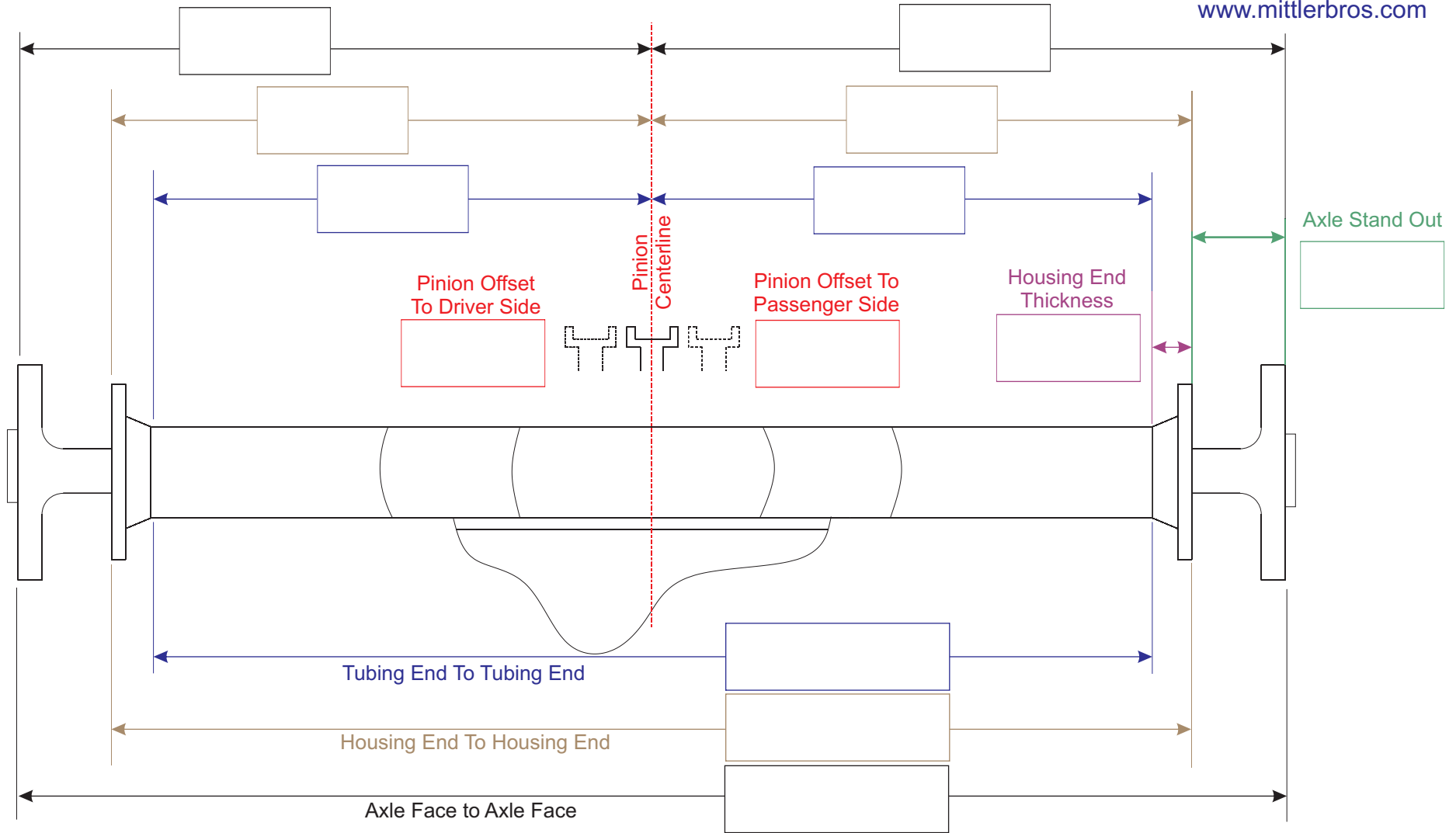
I HAVE PROVIDED THE ABOVE SPECIFICATIONS FOR MY CUSTOM REAR END AND I ACCEPT FULL RESPONSIBILITY FOR THEM.

SIGNATURE REQUIRED

Customer: _____

Date: _____

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Housing Type _____

Housing End Style _____

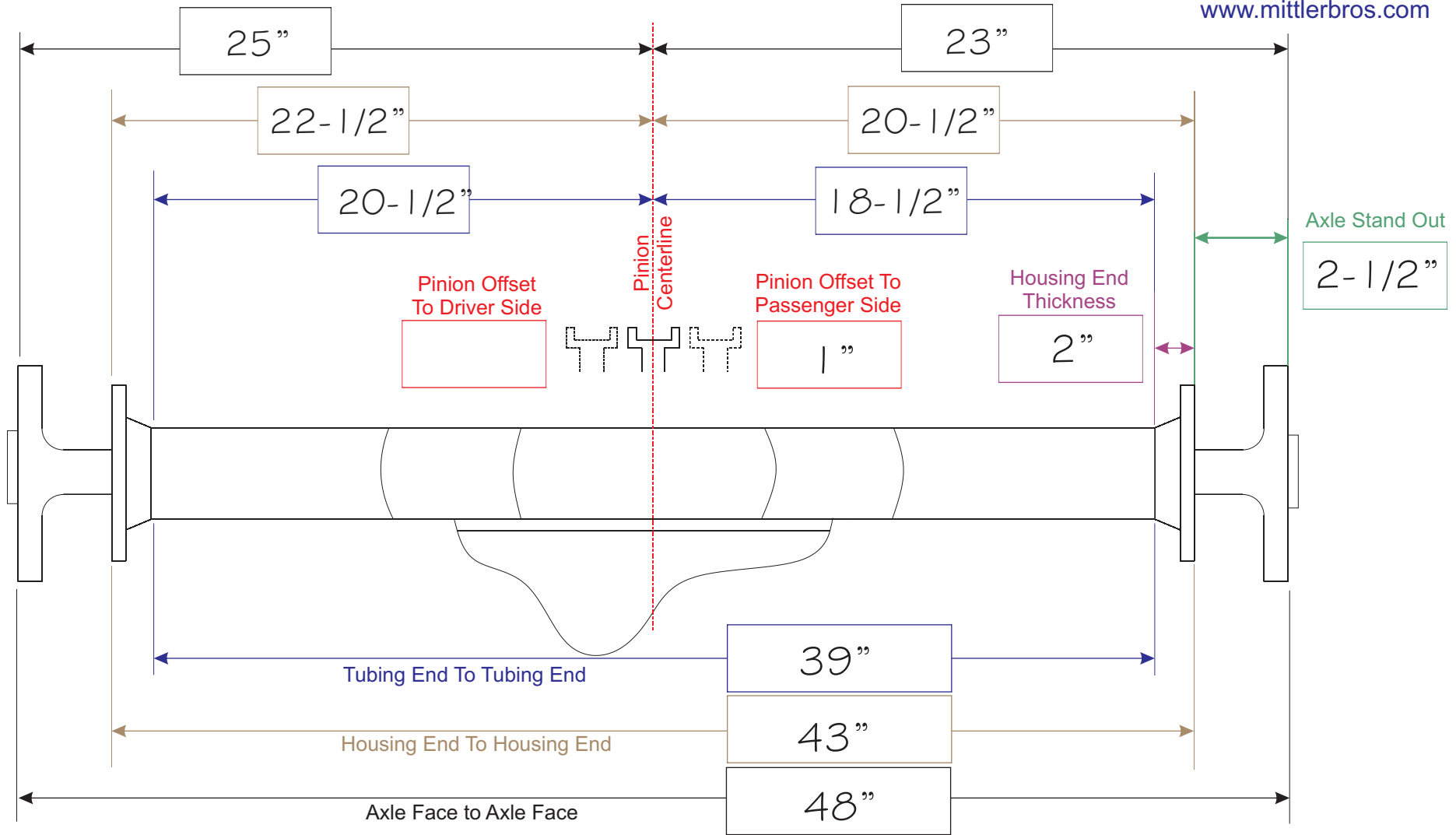
Housing End Number _____

Housing End Thickness _____

Notes: _____

Customer: Sample Date: _____

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Housing Type 9" Ford

Housing End Style Old Style Big Ford

Housing End Number 1000-253

Housing End Thickness 2"

Notes: _____

1" Pinion offset makes 2" difference

in measurement from pinion center

to either end