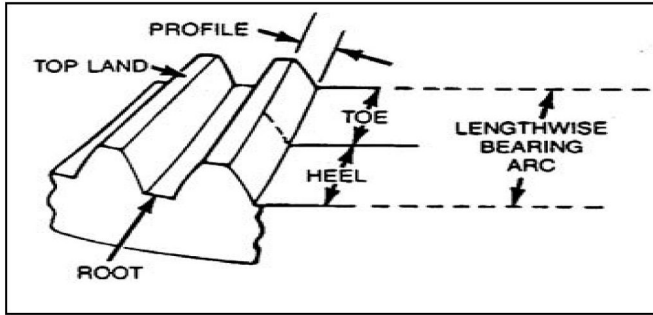




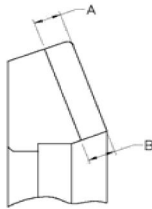
# RING GEAR AND PINION TOOTH PATTERN INTERPRETATION

The final pinion position will be verified by using the GEAR CONTACT PATTERN METHOD described as follows:

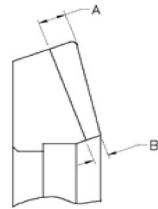


The TOE of the gear is the portion of the tooth surface at the end towards the center. The HEEL of the gear tooth is the portion of the tooth surface at the outer-end. The TOP LAND of a gear tooth is the surface of the top of the tooth. Every gear has a characteristic pattern.

## RING GEAR TOOTH PROFILE



FACE HOBBING  
(2 CUT)












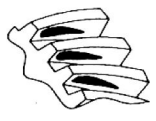
FACE MILLING  
(5 CUT)

There are two types of gears which are determined by the machining method. One is manufactured by FACE HOBBING, while the other one is manufactured by FACE MILLING. You must first determine the type of gear that you have in order to know which gear pattern chart to use as described in this bulletin. To do this, notice the depth of the ring gear tooth - dimension "A" and "B". If the gear was manufactured using the FACE HOBBING method, both "A" and "B" will be of equal depth. If the gear was manufactured using the FACE MILLING method, "A" will be larger than "B". Once the type of ring gear machining method has been identified, refer to the proper gear pattern chart.

**NOTE: WHEN MAKING CHANGES, NOTE THAT TWO VARIABLES ARE INVOLVED. EXAMPLE: IF YOU HAVE THE BACKLASH SET CORRECTLY TO THE SPECIFICATION AND YOU CHANGE THE PINION POSITION SHIM, YOU MAY HAVE TO READJUST THE BACKLASH TO THE CORRECT SPECIFICATION BEFORE CHECKING THE PATTERN. REFER TO PATTERN INTERPRETATION.**






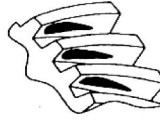



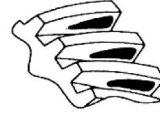
# PATTERN INTERPRETATION (RING GEAR)

## FACE MILLING (5 CUT)

DRIVE SIDE HEEL TOE	CONDITION	COAST SIDE TOE HEEL	CONDITION	ACTION REQUIRED
	<b>Desirable pattern.</b> The drive pattern should be centered on the tooth. There should be some clearance between the pattern and the top of the tooth.		<b>Desirable pattern.</b> The coast pattern should be centered on the tooth, but may be slightly toward the toe. There should be some clearance between the pattern and the top of the tooth.	None
	<b>Top heel contact</b>		<b>Top toe contact</b>	Backlash correct. Thicker pinion position shim required.
	<b>Root toe contact</b>		<b>Root heel contact</b>	Backlash correct. Thinner pinion position shim required.
	<b>Top heel contact</b>		<b>Top heel contact</b>	Pinion position shim correct. Decrease backlash.
	<b>Root toe contact</b>		<b>Root toe contact</b>	Pinion position shim correct. Increase backlash.

# PATTERN INTERPRETATION (RING GEAR)

## FACE HOBBING (2 CUT)

DRIVE SIDE HEEL TOE	CONDITION	COAST SIDE TOE HEEL	CONDITION	ACTION REQUIRED
	<b>Desirable pattern.</b> The drive pattern should be centered on the tooth. There should be some clearance between the pattern and the top of the tooth.		<b>Desirable pattern.</b> The coast pattern should be centered on the tooth, but may be slightly toward the toe. There should be some clearance between the pattern and the top of the tooth.	None
	<b>Top toe contact</b>		<b>Top heel contact</b>	Backlash correct. Thicker pinion position shim required.
	<b>Root heel contact</b>		<b>Root toe contact</b>	Backlash correct. Thinner pinion position shim required.
	<b>Top heel contact</b>		<b>Top toe contact</b>	Pinion position shim correct. Decrease backlash.
	<b>Root toe contact</b>		<b>Root heel contact</b>	Pinion position shim correct. Increase backlash.