

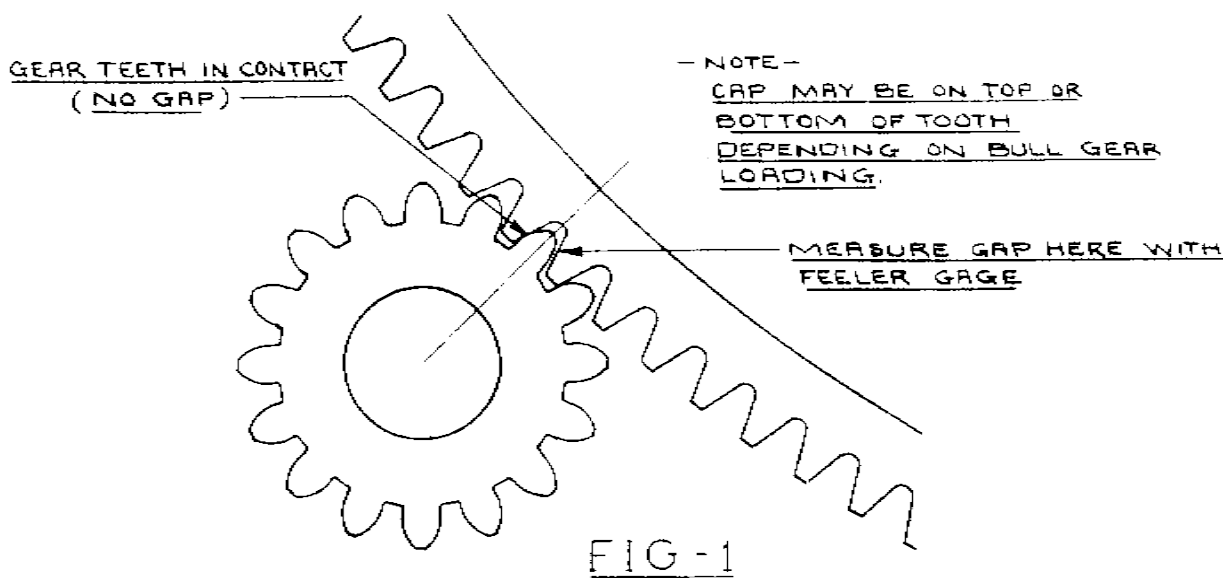
Bull and Pinion Gear Clearance and Alignment Procedure for MK3 Style Pinion Shafts

AT ALL TIMES WHILE ADJUSTING THE PINION, THE MACHINE SHOULD BE LOCKED OUT USING APPROPRIATE PROCEDURES.

Remove welded keystock (two pieces) from opposite of jam bolts. Replace all worn or damaged Pinion Assembly Parts. Follow Step 1 through Step 9 to obtain correct gear tooth alignment and backlash.

Step 1. Insure that the Pinion and Bull Gear teeth are free of debris that may be embedded in rust proof coating.

Step 2. At the location of maximum gear tooth engagement, place steel Feeler Gage stock on gap side of the center most tooth (See Figure 1). The gap side may be on the top or bottom depending on Bull Gear loading. Set backlash to .012 + .007/- .000 inch.

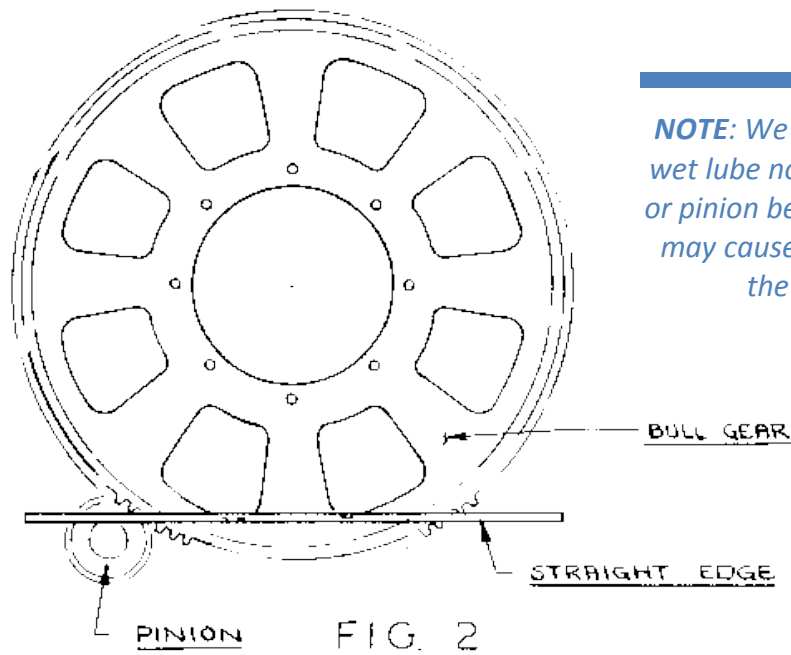
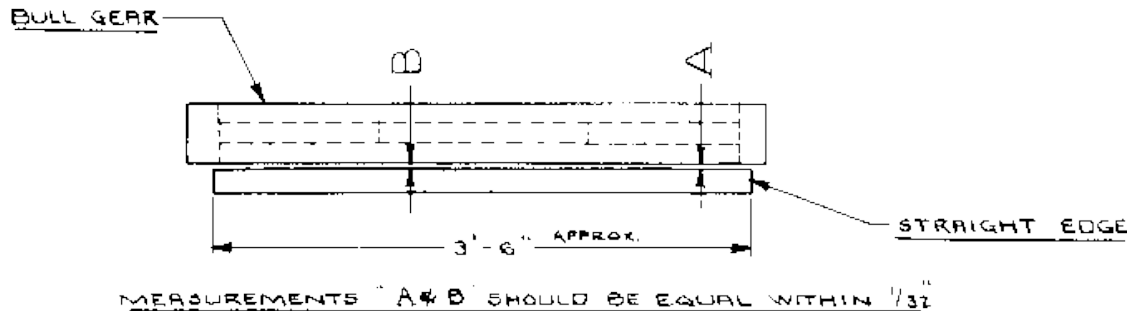


Step 3. Place a straight edge (approximately 3-1/2 feet long required) along the side of the Pinion Gear in a position that will allow a measurement to be taken from the front and rear of the Bull Gear edge to the straight edge. Measurements front and rear (A & B) should be equal within 1/32" to ensure the Pinion Shaft is aligned with the Cam Shaft (See Figure 2). A second measurement should be taken at approximately 45 degrees from the first measurement, followed by 2 more measurements at approximately 90 degree intervals. This will allow for the

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most correct alignment with consideration given to .025" face run out allowed in the Bull Gear.

Step 4. Use the Pinion Shaft assembly adjustments to adjust and achieve a slight "drag" on the Feeler Gage stock, and maintain the less than 1/32" difference from Step 3. This backlash should be checked at the four places where Step 3 is used.



NOTE: We strongly recommend that wet lube not be used on the bull gear or pinion because it attracts dirt. This may cause build up and pressure at the pinion drive point.

Step 5. Tighten the Pinion Shaft Bearing Holder bolts to ensure Pinion Shaft assembly will not move.

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Step 6. Spray paint (with light colored paint) the teeth on the Bull and Pinion gears. Hand rotate Bull Gear 360 degrees to visually verify full gear tooth contact.

Step 7. Position keystock opposite jam bolts and weld in place.

Step 8. Tighten all fasteners.

Specific Torque Values:	Bull Gear Bolts = 400 lb-ft
	Cam Stack Bolts = 1200 lb-ft
	Pinion Bearing Housing Bolts = 400 lb-ft

Step 9. When the machine is assembled and the Bull Gear is under a load, verify that gear tooth backlash is as listed in Step 2.

SPECIAL NOTE

Available bull gear part numbers for V3-12 concrete products machines

- Part number 477642, a one-piece bull gear, has replaced the previous bull gear (part number 264056 with indexable outer ring is no longer available). Please order part number 477642. In order to rotate this one-piece gear, the machine cams and the gear must be removed from the concrete products machine.
- If you require an indexable style gear, please order Set of Parts (SOP) number 648066. This set of parts includes the new indexable gear, a new hub and the hardware necessary for installation. It is not necessary to remove the machine cams when rotating the indexable gear.
- Both bull gears (one-piece and indexable gears) have a twenty degree pressure angle and will work with any of the pinion gears currently available. For more information contact the Besser Service Parts Center at 1-800-530-9991.

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SAFETY BULLETIN

This notice is issued to advise you that some previously accepted shop practices may not be keeping up with changing Federal and State Safety and Health Standards. Your current shop practices may not emphasize the need for proper precautions to insure safe operation and use of machines, tools, automatic loaders and allied equipment and/or warn against the use of certain solvents or other cleaning substances that are now considered unsafe or prohibited by law. Since many shop practices may not reflect current safety practice and procedures, particularly with regard to the safe operation of equipment, it is important that you review your practices to ensure compliance with Federal and State Safety and Health Standards.

IMPORTANT

The operation of any machine or power-operated device can be extremely hazardous unless proper safety precautions are strictly observed. Observe the following safety precautions:

Always:

- ✓ Be sure proper guarding is in place for all pinch, catch, shear, crush and nip points.
- ✓ Be sure that all personnel are clear of the equipment before starting it.
- ✓ Be sure the equipment is properly grounded.
- ✓ Turn the main electrical panel off and lock it out in accordance with published lockout/tagout procedures prior to making adjustments, repairs, and maintenance.
- ✓ Wear appropriate protective equipment such as safety glasses, safety shoes, hearing protection and hard hats.
- ✓ Keep chemical and flammable material away from electrical or operating equipment.
- ✓ Maintain a safe work area that is free from slipping and tripping hazards.
- ✓ Be sure appropriate safety devices are used when providing maintenance and repairs to all equipment.

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Never:

- ✓ Exceed the rated capacity of a machine or tool.
- ✓ Modify machinery in any way without prior written approval of the Besser Engineering Department.
- ✓ Operate equipment unless proper maintenance has been regularly performed.
- ✓ Operate any equipment if unusual or excessive noise or vibration occurs.
- ✓ Operate any equipment while any part of the body is in the proximity of potentially hazardous areas.
- ✓ Use any toxic flammable substance as a solvent cleaner.
- ✓ Allow the operation or repair of equipment by untrained personnel.
- ✓ Climb or stand on equipment when it is in operation.

It is important that you review Federal and State Safety and Health Standards on a continual basis. All shop supervisors, maintenance personnel, machine operators, tool operators, and any other person involved in the setup, operation, maintenance, repair or adjustment of Besser-built equipment should read and understand this bulletin and Federal and State Safety and Health Standards on which this bulletin is based.