Service Bulletin [1999-1]

Breather Vent and Split Oil Seal

(Applicable to 80, 100, and 120 cu. ft. Mixers)

The following SOP is designed To Prevent damage To The oil Seal By allowing for air To Be released from The gear guard as The oil and air heat up at The Same Time it allows The air and oil To cool down as new air enters The gear guard.

SET OF PARTS

Part No.	Description
114912	Vent - Breather 3/8-18 NPT
474082	Cover - inspection for breather vent
086781	Seal - 3.937 shaft, 4.937 OD, 0.500 W

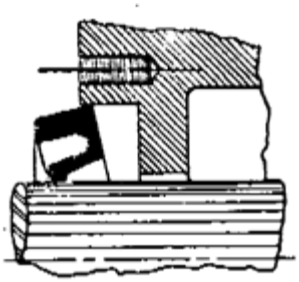

Figure 7

INSTRUCTION DRAWINGS

Part No.	Description
481199	Installation - Split oil Seal
234099	Gear guard assembly
356462	Drive Shaft assembly

SEAL ALIGNMENT TO DRIVE SHAFT

The seal should be centered on the shaft as close as possible, preferably within .003 inches Tir.

- One way this could be done would be to center the seal housing on the drive shaft using gage blocks and/or feeler gages.
- If The Seal is not aligned to the shaft properly, seal life is significantly reduced.

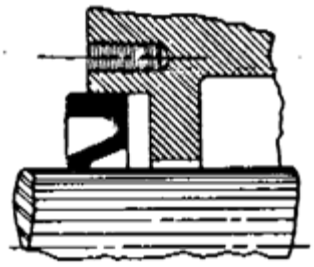

Figure 8

INSTALLATION INSTRUCTIONS FOR SPLIT OIL SEAL

A split oil seal should be installed with the split at the top of horizontal mounted shafts. To insure proper application and to prevent damage to the sealing lip of the split oil seal, the installation should be accomplished as follows:

1. See that the recess is thoroughly cleaned and that all burrs and sharp cutting edges are removed.
2. Apply grease or oil to the shaft.
3. Open split oil seal joint sideways and place it around the shaft at a point near the recess into which the seal is to be installed.
4. Start the sealing element into the recess at the top or upper side of the housing by lining up the sealing lip on both sides of the join as shown in fig. 7, compressing the leading edge of

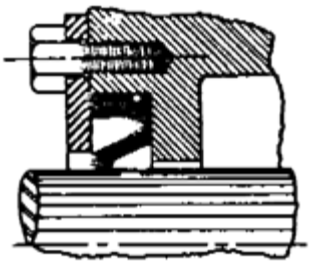

Figure 9

the split oil seal to enter the housing.

5. Continue this process around the entire periphery of the shaft until the sealing element is inserted in the recess.
6. Seat the element in the recess as indicated in fig. 8 by tapping the seal lightly with a hammer or block of wood, using care to prevent damage to the seal lip.

7. Bolt the cover plate tightly into position to compress the split oil seal in the recess (as shown in fig. 9). Cover plate should be sufficiently heavy to compress the sealing element firmly in recess. Screws or bolts should be as near as possible to the recess bore to prevent cover plate from dishing.

8. When the split oil seal replaces the conventional seal, the equipment recess depth may be greater than the thickness of the split oil seal, thus requiring a filler. Filler gaskets or a split metal washer may be used for this purpose.

9. When a split oil Seal is installed at the end of a plain or sleeve bearing, a drain or vent should enter the space between the seal and the bearing to prevent pressure building up at this point.

TROUBLE TIPS: This chart indicates possible sources of seal trouble on general applications.

CHECK FOR	POSSIBLE SOURCES OF TROUBLE	SUGGESTED SOLUTION
Nicks, cuts or tears in sealing lip	Rough finish on shaft	Finish shaft surface from 16 - 32 micro inch aa(0.40 - 0.80 micrometers). Remove all burrs.
	Improper installation	Using mounting tool to carry sealing lip over keyways, splines and sharp shoulders.
	Rough handling	Check methods of storing and handling. Seals deserve the same care as the bearing they protect.
Excessive wear or hardening of sealing element.	Rough finish on shaft	Finish shaft surface from 16 - 32 micro inch aa(0.40 - 0.80 micrometers).
	No lubrication	Be sure adequate lubrication is present.
	Pressure	Eliminate pressure by vents or drain-backs. Be sure vents are open. Drain-backs should be provided around bearings or away from helical gearing to prevent pressure build-up at seal face.
Damaged spring	Improper installation	Avoid excessive spreading of sealing lip and spring.
	Rough handling	Check methods of storing and handling.
Damaged case	Improper driving tools	Use proper tools of correct dimensions.

Breather Vent and Split Oil Seal

(Applicable to 80, 100, and 120 cu. ft. Mixers)

Excessive shaft wear	Abrasives	Be sure shaft is clean and that a slight amount of lubricant is applied when installing Split Oil Seal.
Scores in o.d. of seal	coarse machining	Give better finish to housing bore. Check for imperfect casting.
	Sharp corners on housing bore	Chamfer housing bore.
	Bore undersize	check housing bore diameter
Excessive leakage	Light fit on shaft	Check shaft diameter using mounting tools with thin wall.
	Abnormal spreading of sealing element	Do not apply over shaft shoulder more than 1/32" (0.80 mm) larger than shaft diameter.
	Excessive use of pre- installation lubricant	Use only slight amount of lubricant to apply and start seals.
	Presence of lead, helix or spiral from grinding in a direction causing an outward pumping action	Polish shaft with crocus cloth, if possible after grinding to reduce, eliminate or reverse direction of spirals.
	Cocked seals	Install seal at right angle to shaft surface. use proper driving tool. Properly prepare housing bore.
	Nicks, cuts or tears in sealing lip	See trouble tip number 1.
	Damaged spring	See trouble tip number 3.
	Damaged case	See trouble tip number 4.
	Dynamic runout	Check shaft runout.
	Plain on shaft at back of seal	Provide suitable mask so that paint will not solidify under sealing element forcing sealing lip away from shaft.
	Alignment	Seal to shaft. Alignment/concentricity.

Breather Vent and Split Oil Seal

(Applicable to 80, 100, and 120 cu. ft. Mixers)

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.

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.