

# Installation Instructions

Model 144 and 180 Shredder Drive Shaft Replacement Kit  
112 9024 for Model 144SB & SS  
112 9025 for Model 180SB & SS

## Disassembly

1. Remove the output shaft guard.
2. Remove the belt guard cover, output shaft bearing lubrication hose and the top belt guard, see Figure 1.
3. Loosen the idler spring jam nut and back off the adjusting nut to relieve all spring tension.
4. Remove the idler push rod seal, see Figure 2. Disconnect the idler push rod at the idler arm.
5. Pull the idler push rod out of the spring bracket and remove the idler push rod and spring assembly.
6. Block or tie the idler pulley up to the back of the belt guard and remove the belts.

**NOTE:** The drive pulley is held on the shaft with a tapered bushing. The bushing has jack screw holes that are used to remove it. **Do not** attempt to remove the pulley with a gear puller as this could result in damage to the pulley.

7. Remove the three mounting capscrews, see Figure 3. Thread the capscrews into the three jack screw holes in the pulley. Tighten the three capscrews progressively and evenly until the pulley is loose on the bushing.
8. Remove the pulley and bushing from the shaft. If the bushing does not slip off of the shaft, wedge a screwdriver blade in the saw cut in the end or flange of the bushing (not the tapered surface) to spread the bushing.
9. Scribe a line on the output shaft bearing mounting bracket as shown in Figure 4 to establish the location of the bearing for reassembly.
10. Remove the two bearing lock collar set screws, two capscrews, lockwashers and hex-nuts securing the output shaft bearing.

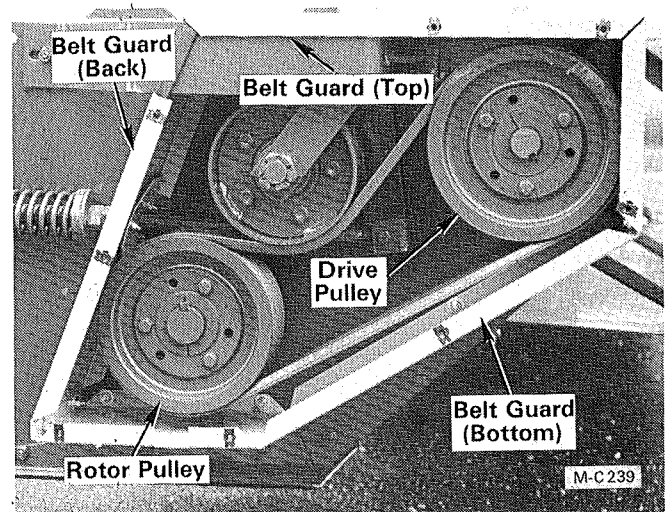


Figure 1

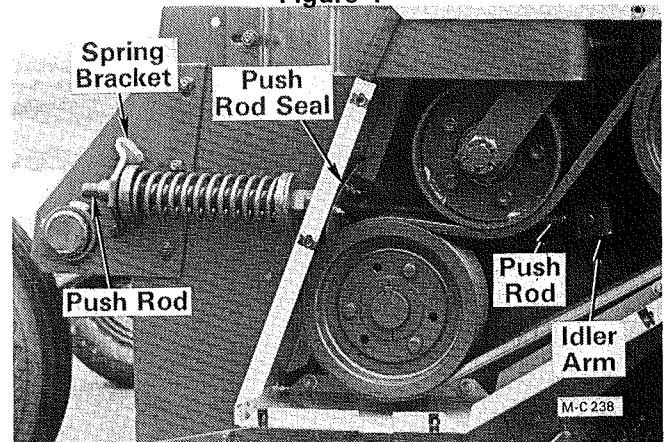


Figure 2

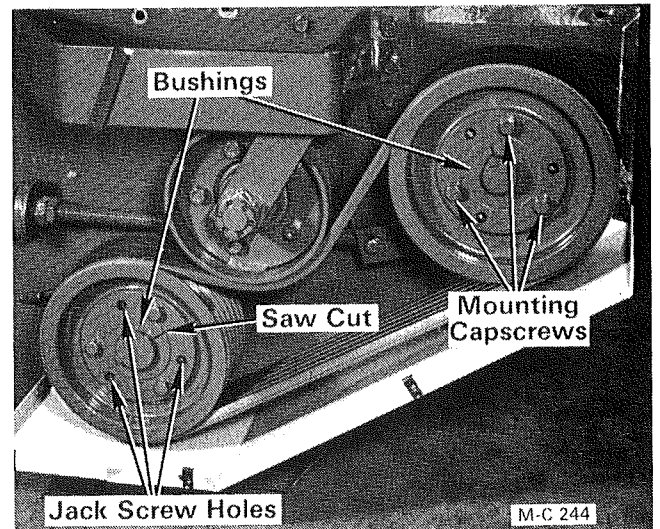


Figure 3

Lift up on the output shaft, remove and save the shim(s) from under the output shaft bearing, see Figure 5.

11. Clean the output shaft with emery cloth. Support the output shaft and pull the bearing off of the output shaft.
12. Remove the set screw and roll pin securing the output shaft to the universal joint. Remove the output shaft.

## Center Bearing Mount Installation

### Model 144

1. Remove the third  $\frac{1}{2}$ " cutter bar capscrew in from the right end plate. Remove the  $\frac{3}{8}$ " capscrew in the front cover directly above the cutter bar capscrew hole.
2. Install the center bearing mount with a  $\frac{3}{8}$ -16 x  $1\frac{1}{4}$ " capscrew (Grade 5), flatwasher and locknut at the top, and a  $\frac{1}{2}$ -13 x  $1\frac{1}{2}$ " capscrew (Grade 5), flatwasher, lockwasher and hex nut at the bottom, see Figure 6.

### Model 180

1. Remove the second stone guard support on the right side of the Shredder. Drill a  $\frac{13}{32}$ " hole through the front cover, see Figure 7.
2. Install the stone guard support in the new location with  $\frac{3}{8}$ -16 x 1" capscrews (Grade 5), flatwashers and locknuts, see Figure 6 & 7.
3. Remove the fourth  $\frac{1}{2}$ " cutter bar capscrew in from the right end plate. Remove the  $\frac{3}{8}$ " capscrew in the front cover directly above the cutter bar capscrew hole.
4. Install the center bearing mount with a  $\frac{3}{8}$ -16 x  $1\frac{1}{4}$ " capscrew (Grade 5) flatwasher and locknut at the top, and a  $\frac{1}{2}$ -13 x  $1\frac{1}{2}$ " capscrew (Grade 5) flatwasher, lockwasher and hex nut at the bottom, see Figure 6.

### Model 144 and 180

1. Place the new pillow block bearing on the center bearing mount with the lubrication fitting facing to the front, see Figure 6. Bolt the bearing to the bearing mount loosely with  $\frac{1}{2}$ -13 x  $1\frac{3}{4}$ " capscrews (Grade 5), SAE  $\frac{1}{2}$ " flatwashers, lockwashers and hex nuts. Loosen the two set screws in the bearing lock collar.

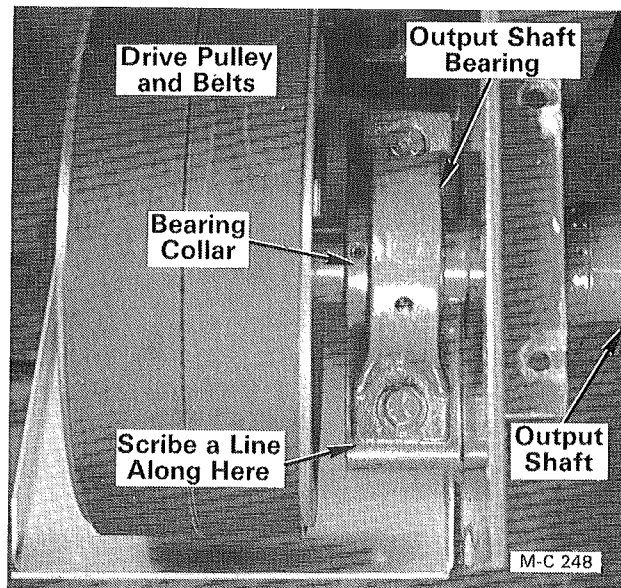


Figure 4

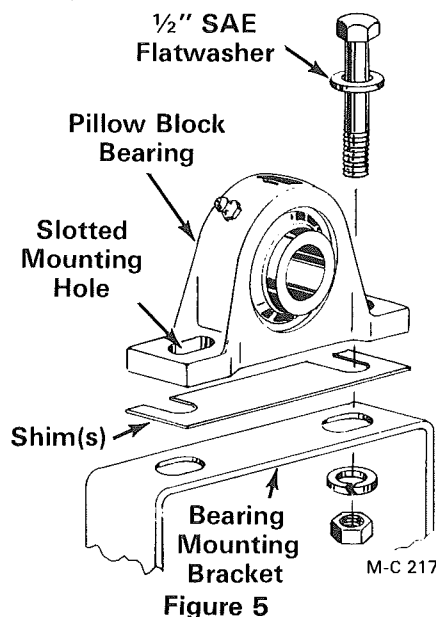


Figure 5

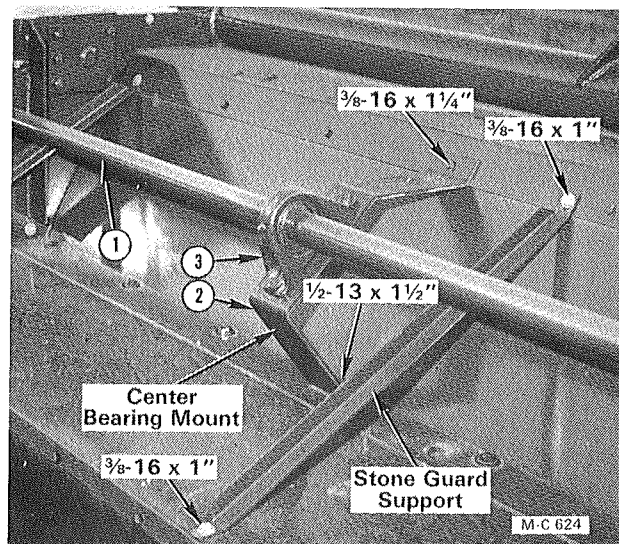


Figure 6 - Model 180SB Shown

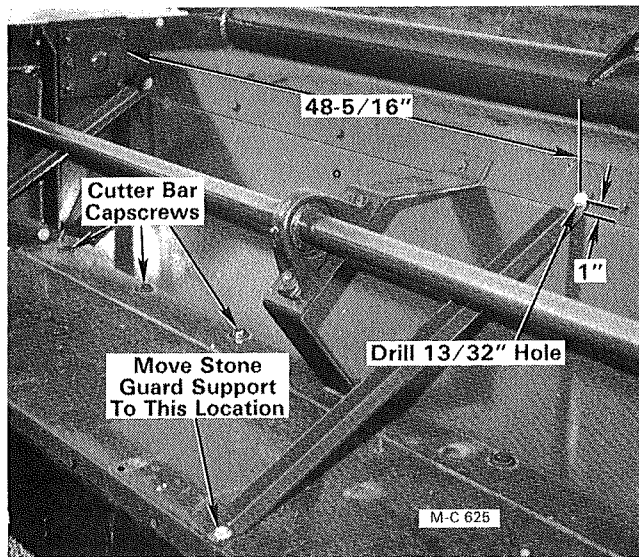
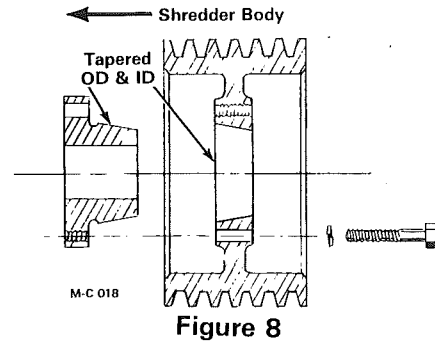


Figure 7 - Model 180SB Shown

## Reassembly

1. Slide the drilled end of the new solid output shaft through the pillow block bearing on the center bearing mount. Install a new  $\frac{3}{8}$ " x  $2\frac{1}{2}$ " key in the end of the output shaft.
2. Tap the output shaft into the output shaft universal joint until the drilled hole in the output shaft lines up with the hole in the universal joint end yoke. Tighten the set screw and install a new  $\frac{3}{8}$ " x 3" roll pin.
3. Install the output shaft bearing on the right end of the output shaft with the lubrication fitting facing to the front.
4. Lift up on the output shaft and place the shim(s) that were removed in disassembly on the output shaft bearing mounting bracket, see Figure 5. Bolt the bearing to the bracket loosely with  $\frac{1}{2}$ -13 x  $1\frac{3}{4}$ " capscrews (Grade 5), SAE  $\frac{1}{2}$ " flatwashers, lockwashers and hex nuts.
5. Align the edge of the output shaft bearing with the mark scribed on the mounting bracket made in step 9 of disassembly, see Figure 4. Tighten the output shaft bearing capscrews and two set screws in the bearing lock collar.
6. Check the fit of the new pillow block bearing to the center bearing mount. If there is a space between them add shims (supplied with the kit) as required under the pillow block bearing. Tighten the bearing mounting capscrews and the two set screws in the bearing lock collar.



7. Before installing the bushing and drive pulley thoroughly inspect the tapered bore of the pulley and the tapered surface of the bushing. Any paint, dirt, oil or grease **must** be removed.
  8. Place the bushing into the pulley from the back so that the bushing flange is to the inside, see Figure 8. The bushing and the bore of the pulley are tapered. Be sure to install the bushing into the large ID of the pulley tapered bore. If the bushing is installed into the small ID of the pulley, the pulley hub will crack when the mounting capscrews are tightened.
  9. Place the three capscrews through the open holes in the pulley and thread them into the bushing by hand. Do not tighten the capscrews.
- IMPORTANT:** The capscrew and bushing threads must be clean and dry. Do not lubricate.
10. Install the  $\frac{3}{8}$ " x 3" key in the output drive shaft. Slide the bushing and pulley assembly onto the shaft. If the bushing is too tight on the shaft, wedge a screwdriver blade into the saw cut in the end of the bushing to spread the bushing.
  11. Clean dirt and debris from inside the guard and in the pulley grooves. Dirt build-up in the pulley grooves can ruin the belts.
  12. Install the belts and move the pulley and bushing in or out until the belts are in alignment on the pulleys. Tighten the three capscrews evenly and progressively. Torque the capscrews to 60 ft. lbs.

**IMPORTANT:** The tightening force on the three capscrews is multiplied many times by the wedging action of the bushing tapered surface. Do not exceed the specified torque, or use a lubricant on the capscrew threads. To do so may create bursting pressures in the hub of the pulley.

13. Lower the idler pulley onto the belts. Install the idler push rod and spring assembly into the idler spring bracket, see Figure 2.
14. Connect the idler push rod to the idler arm and reinstall the idler push rod seal.
15. Turn the idler spring adjustment nut clockwise until the spring retainer is up to, but not tight against, the spring spacer, see Figure 9.
16. Install the top belt guard, output shaft bearing lubrication hose and belt guard cover, see Figure 1.
17. Cut out the back of the guard to fit over the center bearing mount and drill a  $\frac{3}{4}$ " hole in the front of the guard for access to the bearing grease fitting, see Figure 10. Install the guard.

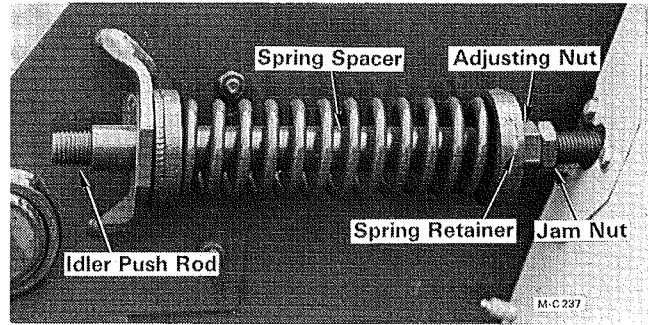


Figure 9

	144	180	
A	35-15/16"	38-15/16"	3/4" Hole
B	33-15/16"	36-15/16"	Cut Out

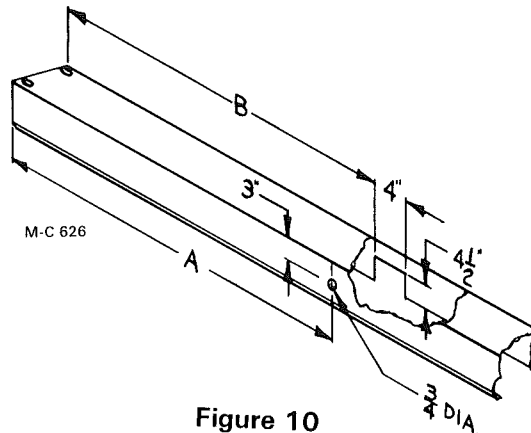


Figure 10

### Drive Belt Adjustment

1. With the Shredder running, look at the idler push rod, Figure 9, to see if there is any back and forth movement. If there is, the belt tension needs to be adjusted.



**CAUTION:** Disengage the PTO and stop the tractor engine before adjusting the drive belt tension.

2. Loosen the jam nut and tighten the adjusting nut one full turn, see Figure 9.
3. Run the Shredder and check for idler push rod movement. If there is back and forth

movement, stop the Shredder and tighten the adjusting nut one more full turn.

4. Continue this procedure until there is no back and forth movement of the idler push rod. Then tighten the adjusting nut one additional turn and tighten the jam nut.

### Drive Shaft Replacement Kits Consist of Parts and Hardware Listed Below

(Ref. No's. Shown on Figure 6)

Ref.	Part No.	Qty.	Description	Ref.	Part No.	Qty.	Description
1	111 5063	1	Model 144 Solid Drive Shaft	—	001 8257	5	1/2" SAE Flatwasher
	111 5064	1	Model 180 Solid Drive Shaft	—	000 8180	3	1/2" Lockwasher
2	111 3399	1	Solid Shaft Center Brg. Mt.	—	000 8163	3	1/2-13 Hex Nut
3	091 6001	1	Pillow Block Brg.-1 3/4"	—	001 8135	2	3/8-16 x 1" Hex-Hd. Capscrew - Grd. 5
—	001 2600	2	Bearing Shim - 11 Gauge	—	001 8144	1	3/8-16 x 1 1/4" Hex-Hd. Capscrew - Grd. 5
—	125 2918	2	Bearing Shim - 16 Gauge	—	001 8134	3	3/8" SAE Flatwasher
—	133 8161	1	1/2-13 x 1 1/2" Hex-Hd. Capscrew - Grd. 5	—	001 8149	3	3/8-16 Two Way Locknut
—	000 8278	2	1/2-13 x 1 3/4" Hex-Hd. Capscrew - Grd. 5	—	001 8281	1	Roll Pin 3/8" x 3"
				—	001 5136	1	Key 3/8" x 2 1/2"

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