



Customer Service Bulletin Commercial Business Group

ProCore® 660 and 880

Date: December 20, 2004

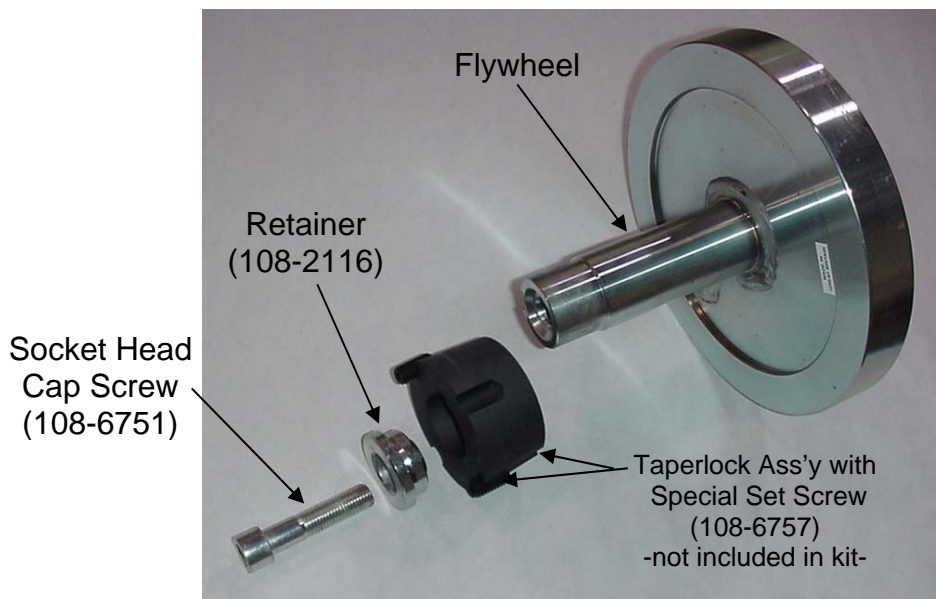
<u>Model/Serial Range:</u>	<u>Model Number:</u>	<u>Serial Numbers:</u>
	09701	200000001-240009999
	09702	200000001-240009999

Subject: Flywheel Shaft Wear Due to Operation When Loose

The Crankshaft Assemblies must be regularly maintained to ensure the drive components are securely retained in position. This maintenance is required after the first 10 hours of use, then every 50 hours thereafter. If the assembly is operated in a loose condition, the extreme forces associated with aeration will cause damage to the bearings and shaft of Flywheel (104-9893). The Operator's Manual addendum included with this bulletin is a more in-depth procedure that can be referenced to be certain the Crankshaft Assembly is properly secured.

This bulletin is also notification of a Crankshaft Assembly design change implemented in 2005 product. The change is an ongoing product improvement that makes this area more secure and is intended to reduce the maintenance required to care for the product. All future orders for the original Flywheel (104-9893) will cross-reference to Flywheel Replacement Kit (108-6756) which contains all of the necessary parts to convert one Crank Assembly (see picture below). A copy of the Installation Instructions for this kit is also included with this bulletin.

Further information regarding this topic is available by contacting your Toro Commercial Products Distributor.



Note:
Special Set Screw (108-6757) for the Taperlock Assembly is now available as a separate part and is listed in the current Parts Catalogs.

Operator's Manual Addendum for ProCore 440, 660 and 880 with serials 20000001-24000999

TORQUE TAPER LOCK ASSEMBLY

After first 10 hours of operation torque set screws securing taper lock bushings to driven pulleys to 37 ft-lbs (50 Nm) (2 each pulley, Fig. 28).

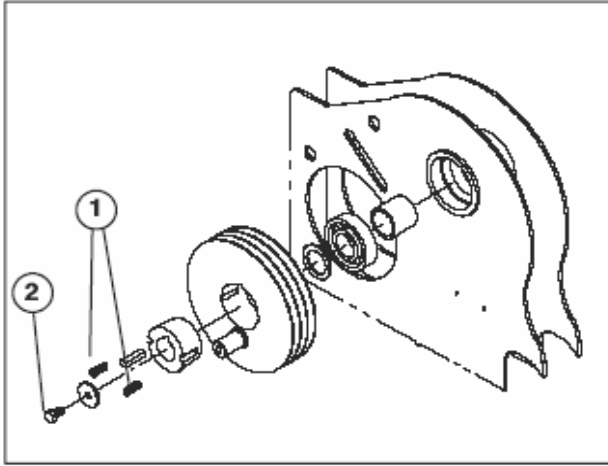


Figure 28

1. Bushing set screws
2. Bolt (M12)

Every 50 hours of operation, perform the following maintenance procedure to ensure proper bearing clamp load. Failure to perform this maintenance procedure can lead to pre-mature failure of crank shaft assembly resulting in an extensive repair.

Note: An upgraded crank asm is available after January 1, 2005 for the ProCore 660 and 880 that uses different procedures. See your Toro distributor for further information.

1. Remove belt tension from crank asm.
2. Position stomper arm on pulley side of crank asm at bottom dead center.
3. Remove M12 bolt securing the taper lock asm to the opposing crank arm (Fig. 28)
4. Remove taper lock bushing set screws from bushing. Install set screws in the removal holes and tighten until taper lock bushing is free from pulley. Remove setscrews from removal holes.
5. Use the "thick" assembly washer located in the frame under the bolt that holds the manual tube and torque the M12 bolt to 59-73 ft-lbs (80-100 Nm).
6. Install setscrews in taper lock bushing and secure. Torque setscrews in an alternating method to 37 ft-lbs (50 Nm).
7. Remove M12 bolt and replace the assembly washer with original "thin" washer. Retain the "thick" assembly washer for future use. Re-torque M12 bolt to 59-73 ft-lbs (80-100 Nm).
8. Install belt and adjust tension.

TORQUE JACKSHAFT SET SCREWS

After first 10 hours of operation, and every 50 hours thereafter, Torque set screws securing drive shafts to gear box shafts to 20-25 ft-lbs (26-32 Nm) (4 each side, Fig. 29).

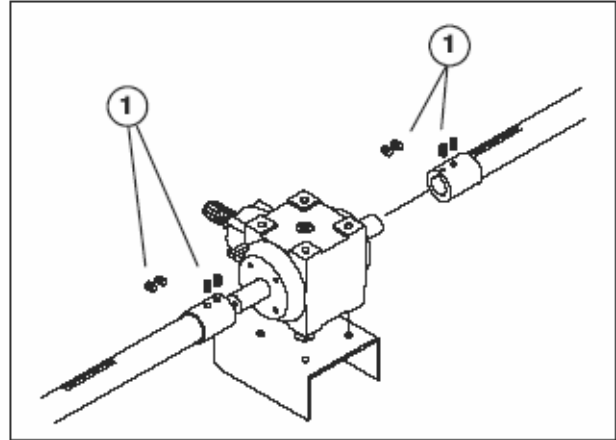


Figure 29

1. Drive shaft set screws



Flywheel Replacement Kit

ProCore 660 and 880 only (Models 09701 and 09702)

Part No. 108-6756

Form No. 3352-835

Installation Instructions

1. Loosen the jam nut securing the idler tube to the tensioner arm (Fig. 1).
2. Rotate the hex on top of the idler arm until all the spring tension is removed (Fig. 1).

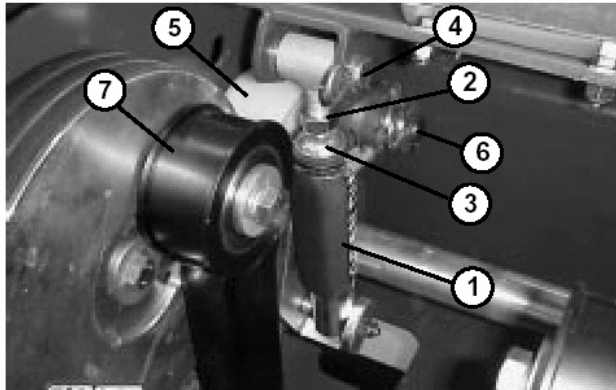


Figure 1

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|-------------------------------|---------------------------------|
| 1. Idler spring boot | 5. Idler pulley |
| 2. Jam nut | 6. Hairpin cotter & idler shaft |
| 3. Adjusting nut | 7. Tine arm assembly |
| 4. Idler pin & hairpin cotter | |

3. Remove the hair pin cotter and the idler pin securing the top of the spring assembly to the frame (Fig. 1).
4. Remove the hair pin cotter securing the idler pulley assembly to the idler shaft (Fig. 1). Remove the idler assembly from the shaft.
5. Remove the screw, lock washer and flat washer securing the top of the tine arm to the pulley (Fig. 1).
6. Remove the fasteners securing the bottom of the tine arm or roto-link arm to the bottom links (Fig. 2). Align the tine arm with the slot in the frame and slide off the crank pin.
7. Repeat steps 5-6 for the opposite arm of the crankarm assembly.

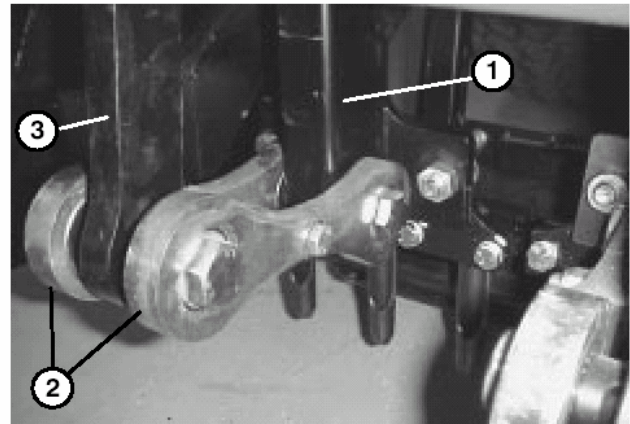


Figure 2

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|----------------|-----------------|
| 1. Tine arm | 3. Rotalink arm |
| 2. Bottom link | |

8. Remove the M12 bolt and the thin assembly washer securing the taper lock assembly to the opposing crank arm (Fig. 3). Discard.

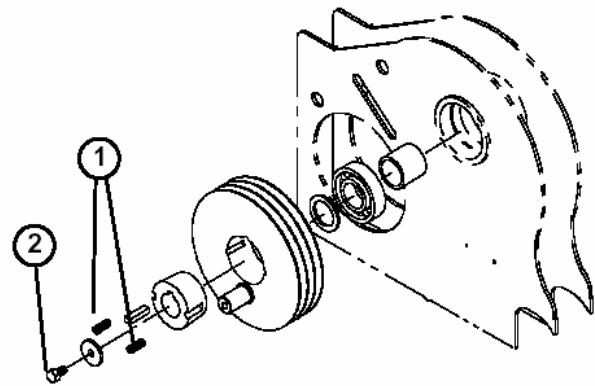


Figure 3

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|-----------------------|---------------|
| 1. Bushing set screws | 2. Bolt (M12) |
|-----------------------|---------------|

9. Remove the taper lock bushing set screws from the bushing. Install the set screw in the removal hole and tighten until the taper lock bushing is free from the pulley (loose assembly). Remove the setscrew from the removal hole (Fig. 3).
10. Remove the pulley, taper lock bushing, and key from the assembly and retain for later assembly.

11. Use a spare shaft or punch to slide inside the bearing housing while removing the crankarm assembly out of the bearing housing. This will prevent the inside bearing spacer from falling out of position.
12. Inspect both bearings. Replace if damaged.
13. Install the new crankarm assembly from the same direction as the previous assembly (Fig. 4).

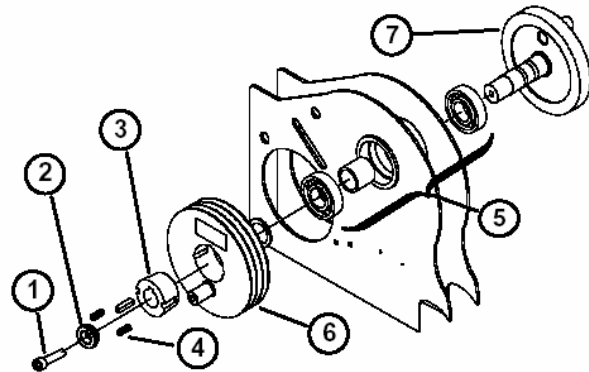


Figure 4

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|--|-----------------------|
| 1. Capscrew (M16 Thd., M14 Allen Wrench) | 4. Bushing set screws |
| 2. Retainer | 5. Bearing/Housing |
| 3. Taper lock bushing | 6. Pulley |
| | 7. Crankarm |

14. Clean the taper lock bushing and pulley taper of all dust, rust, and lubricants. The tapered joint should be completely dry.
15. Loosely install the original pulley, taper lock bushing, and key (Fig. 4). Start the taper lock setscrews in place but do not secure.
16. Install the M16 socket head capscrew and retainer and draw the taper lock into position by tightening the M16 socket head capscrew to 7–15 ft–lb (10–20 Nm) (Fig. 4).
17. Secure the taper lock bushing setscrews in an alternating method until both reach 37 ft–lb. (50 Nm) (Fig. 4). This may require several torque applications.
18. Complete the assembly by tightening the M16 socket head capscrew to 151–170 ft–lb (205–230 Nm) (Fig. 4). This torque will overcome the clamp load applied to the shaft by the taper lock bushing and insure the proper clamp load on the crankarm bearings.
19. Reinstall the belts on pulley.
20. Install the tine arm onto the crank pin.
21. Reinstall the bottom of the tine arms to the bottom links or to the roto-link arm with the fasteners removed (Fig. 2).
22. Reinstall the top of the tine arm to the pulley with the screw, lock washer and flat washer. Torque the screw to 166 ft–lb (225 Nm) (Fig. 1).

23. Secure the idler pulley assembly to the idler pivot shaft with the hair pin cotter (Fig. 1).
24. Secure the tip of the spring assembly to the frame with the idler pin and hair pin cotter (Fig. 1).
25. Adjust the belt tension. Refer Adjusting Belt Tension in the Operators Manual.