



Customer Service Bulletin Commercial Business Group

Greensmaster® Flex 21 & DPA Cutting Unit Date: April 7, 2004

<u>Model/Serial Range:</u>	<u>Model Number:</u>	<u>Serial Numbers:</u>
	04200	210000101-240001000
	04610	230000101-230009999
	04611	230000101-230009999

Subject: Rollers slide instead of Roll.

Seal protection on these cutting unit rollers is maximized to protect the sealed bearings against the entry of moisture and debris, the primary reasons for bearing failure. This added protection helps to prolong life; however it also results in a naturally higher rolling resistance when compared to traditional rollers that are purged through greasing. The higher resistance combined with a number of other influences may contribute to a roller sliding instead of turning as expected. These influences include bedknife misapplication, seal damage, height of cut setting that is too low for the turf conditions, and perceptions based upon comparison to previous cutting unit models.

It is important to determine whether the rollers turn at the specified value (see step 7 of the seal installation procedure). Rollers that have higher resistance than specified will have trouble turning. If the roller is at specification, inspect the bedknife for signs that it is running in contact with the turf. A highly polished bedknife for example would indicate heavy contact with the turf. It is always desirable to maintain some clearance between the turf and the bedknife to prevent performance issues. If in doubt, the height can be raised .100 inch (2.5 mm) or more as a test to determine if the roller action is corrected by creating more clearance between the turf and the bedknife.

Note: Micro-Cut Bedknife (93-4262) is recommended below 1/8 inch (3.2 mm) height of cut and may also be need at higher height settings in some conditions.

If the roller functions properly at the higher setting, the issue is a result of the turf affecting the performance of the roller. The proper action is to raise the height, if Micro-cut Bedknife (93-4262) is already installed. If raising the height is not an option, a lower resistance design roller from later products or traditional greased rollers are options available to overcome this outside influence (see below). Contact your Toro Commercial Products Distributor if assistance with this issue is needed.

Sealed Bearing Rollers from later products

107-9036	Rear Roller - Flex 21
106-6945	Rear Roller - DPA
107-9037	Front Roller (close spaced Wiehle) - Both Flex 21 and DPA
107-9038	Front Roller (wide spaced Wiehle) - Both Flex 21 and DPA
107-9039	Smooth Front Roller - Both Flex 21 and DPA

Greased Bearings available

52-3170	Rear Roller (grease fittings on ends) - Both Flex 21 and DPA
104-2642	Rear Roller (grease fitting on outer diameter) - Both Flex 21 and DPA
94-8171	Front Roller (wide spaced Wiehle) - Both Flex 21 and DPA

SEAL INSTALLATION INSTRUCTIONS

For Greensmaster® Flex 21 and DPA Cutting Unit Rollers

Roller and seal performance can be checked with a spring scale or a torque wrench with the ability to read 6 in-lb (0.68 Nm) near mid-scale on the dial. If the rolling resistance exceeds this value, the roller will need to be corrected.

Seal installation procedures.

- 1) Use grease on the ID of the seal and shaft to ease installation. Grease on the OD of the seal is not required.
- 2) Before pressing the seal into position, smear some grease around the inside next to the bearing to help counter corrosion effects. Do not pack the area with grease or the seal will be difficult or impossible to install due to a hydraulic lock effect.
- 3) Correct any damage in the bore (especially the leading edge) before installing seal.
- 4) Try to push the seal into position or use a press to place a steady force onto the seal to avoid deforming the case of the seal. If at all possible, avoid the use of a hammer or and other object to strike the seal.
- 5) Use a seal installer designed for the job or a piece of tubing that can contact as much of the full surface of the seal as possible (from ID to OD). The seal installer can be metal or plastic.
- 6) Push the seal into position until it is flush to the outside bore. Do not go much beyond flush to avoid making contact with the 45-degree chamfer on the shaft.
- 7) Once the seals are in position, lightly tap the shaft back and forth to assist the seal section attached to the shaft in seeking a relaxed position. Turn the roller at least 10 revolutions and test the rolling resistance to be 6 lbs (0.68 mm) or less. This is done with a string wrapped around the roller and a spring scale. Hold the shaft in a vice.

NOTE: An alternative method is to use a 12 point metric socket (15mm) wedged over the end of the shaft. Once in place you can use a light-duty inch pound torque wrench to turn the shaft. Tools such as torque wrenches are most accurate when the desired value is near the midpoint of the scale, so be sure to use a torque wrench small enough to register accordingly.

- 8) If the roller is above spec, repeat the tapping and rolling of the shaft back and forth in an effort to relax the seal. The goal is to gain a relaxed state inside the seal (see cutaway picture attached).

