

GREENS REELS #14-21

Greensmaster® Flex 21

February 20, 2006

Reel Is Hard to Turn After Rebuilding

PRODUCT: Greensmaster Flex 21

<u>UNITS AFFECTED:</u>	<u>MODEL NUMBERS:</u>	<u>SERIAL NUMBERS:</u>
Greensmaster Flex 21	04021	210000101-240000999
Greensmaster Flex 21 Reel	04200	210000101-240000999

SUBJECT: Cutting unit reel is hard to turn due to heavy rolling resistance.

SITUATION: Reel shaft seals may be responsible for excessive rolling resistance of reels during rebuild. The condition is caused by the installer preloading the seals during installation. In many instances the seals will eventually break-in and cause no difficulty. However, in extreme cases, the excessive resistance could cause difficulties such as a slipping reel drive clutch.

CORRECTION: Use the instructions included with this bulletin to install the seals and confirm that the rolling resistance is within specifications. An alternative would be to convert to the current V-ring seal configuration as described in Greens Reels Bulletin 14-19, which has a lower rolling resistance.

Note: Be sure to inspect for proper mow and traction cable tension as identified in the Operator's Manual. Also, be aware that a traction cable set at the maximum tension will reduce the amount of tension available for the mow cable. Do not exceed maximum cable tension values.

PARTS: Any parts needed for rebuilding purposes are currently available through normal distribution channels.

WARRANTY: **Information Only.**

SRT CODE: The following code is for distributor planning purposes only.
079-14-052 Reel R&R (includes sharpening) 2.0 hours.

DISTRIBUTION: The attached Customer Bulletin may be copied to all customers having affected product, or instruct customers how to find Service Bulletins on the Toro home page at <http://www.toro.com>



Customer Service Bulletin Commercial Business Group

Greensmaster® Flex 21

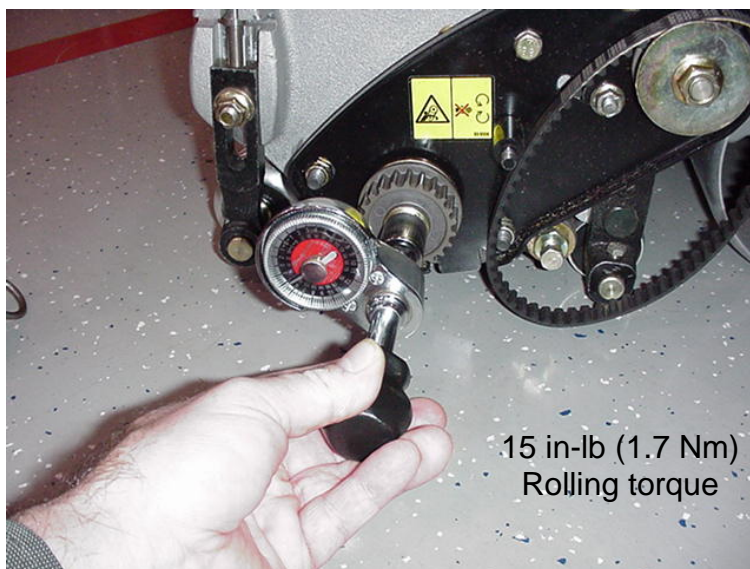
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<u>Model/Serial Range:</u>	<u>Model Number:</u>	<u>Serial Numbers:</u>
Greensmaster Flex 21	04021	210000101-240000999
Greensmaster Flex 21 Reel	04200	210000101-240000999

Subject: Rebuilding of reels for proper rolling resistance.

Incorrect installation of the reel seals may result in higher than expected reel drive forces which can affect the life of the reel drive clutch. The Reel Shaft Seal Installation procedure included with this bulletin may be helpful in performing a successful repair. Use this information as a supplement to the information found in the Service Manual.

Before operating a rebuilt cutting unit, the rolling resistance of the reel should be checked (no bedknife contact). The rolling resistance of the reel alone is approximately 15 in-lb (1.7 Nm). The addition of a Groomer will increase rolling resistance by about 6 in-lb (0.7 Nm). In other words, a new or rebuilt cutting unit with a Groomer installed should be about 21 in-lb (2.4 Nm). If the rolling resistance exceeds the specified value, the condition should be corrected.



Note: Be sure to inspect for proper mow and traction cable tension as identified in the Operator's Manual. Also, be aware that a traction cable set at the maximum tension will reduce the amount of tension available for the mow cable. Do not exceed maximum cable tension values.

Consider an Upgrade:

An alternative to this instruction would be to convert the seal package to the current V-ring seal configuration, which has a lower rolling resistance and is easier to install. Contact your local Commercial Products Distributor if you have any questions about converting or the following Seal Installation information in this bulletin.

Reel Shaft Seal installation for Flex 21 Reels Service Manual Supplement (04021/04200 serials 210000101-240000999)

To achieve an acceptable rolling torque at the reel, two of the original style **black Seal (99-3801)** are recommended at the inboard locations only. Make every effort to keep these seals from getting any grease in the inside diameter bore or the shaft may spin inside the seal, making it ineffective. Two of the tighter fitting **blue Seal (105-9945)** are used at the outboard locations and are unaffected by grease at the seal inside diameter.

Special Instructions for assembling (use drawing below as a reference):

1. Place all components inside the bearing housings (grease packed bearings, snap rings, wave washer, thrust washer and both seals). Push the seals in place by hand. Do not strike the seals during installation.
2. Slide the housing assembly onto the reel shaft until the bearing inner race contacts the reel shaft shoulder. Lubricant is recommended for ease of installation of the **blue Seal**, but the inside diameter of the **black Seal** must be completely free of lubricant.
3. Install the plow bolts and draw the tapered nuts against the housing in order to hold the housing and bearing in position. Do not draw the housing into position with the tapered nuts or the bearing/seal assembly can become damaged due to pre-loading.
4. Slide the spacer or install the reel nut on the reel shaft until contact with the inner race of the bearing is obtained. This step assures the inner race is 'square' to the reel shaft and prevents any possibility of bearing/seal damage due to misalignment.
5. Complete the installation of the housing assembly either by pushing the assembly on by hand (pressing against the face of both the seal and housing) or using the reel nut or spacer/pulley/nut to draw the housing assembly onto the shaft. In either case, use only light steady pressure to complete the installation.
6. Tighten the tapered nuts and turn the reel by hand a couple of revolutions.
7. Verify the reel requires 15 in-lb (1.7 Nm) of force or less to rotate.

