

## 4.5" (112# Thrust) Lower Unit Brush End Sealing

**Affected Models:** All motors with 112 Pound Thrust Lower Units, EO 1 Horse

**Serial Number Range:** N345MK00345 - Present

**Reason:** Explain Historic/Current Variations of 4.5" Diameter Brush Ends/Center Sections

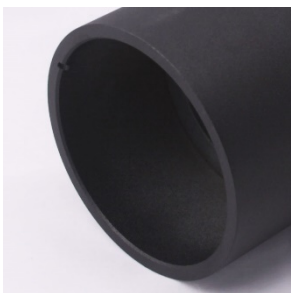
**Actions:** No Inventory or Product Updates required, Informational Only

**Related Part Numbers:** Center Section Assemblies: 2777242, 2777241, 2777250, 2777249, 2777248, 92-200-240, 2777345, 2777346, 2777347, 2777348, 2777343, 2777344, 92-200-340, 2777356, 2777353, 2777354, 2777357, 2777251, 2777252, 2777255, 2777258, 2777259, 92-200-351, 92-200-250  
Brush Ends: 92-300-150, 92-300-151, 92-300-155, 92-300-156, 92-300-175, 92-300-176  
Seal Kit: 2881450  
O-Rings: 701-107, 701-103, 701-098

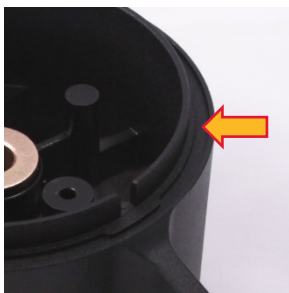
**Additional References:** Repair Manual Chapter Lower Unit Repair; 2004985 Seal Kit Instruction Sheet

**Explanation:** The seam between the Brush End and Center Section on 4.5" diameter Motor Lower Units has had some feature changes since release in late 2013.

1. (December 2013-June 2015) To prevent the potential for RF interference from errant timing a "Key" is stamped into the Center Section that locks into a notch in the Brush End; this Key system prevents timing changes/rotation of the brushes with respect to the magnets. To accommodate the Key system the O-ring used to seal the Brush End to the Center Section (701-107, 107MM x 1.78MM) was positioned in a thin groove machined into the face of the Brush End.



Center Section Face; Flat Surface, w/Key



Brush End; Arrow points to O-ring Groove



701-107 O-ring

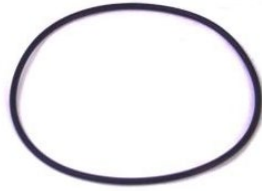
**Notice:** A small amount of marine grease applied to the O-ring groove retains and lubricates the O-ring so it does not bunch up if the brush end shifts during assembly.

2. (June 2015-July 2019) The groove on the sealing surface of the Brush End that retains the O-ring was made wider and deeper, a Thicker O-ring was used. This was done to make assembly easier; the thicker O-ring (701-103, 103MM x 3.00MM) is less likely to fall out of the deeper groove in the Brush End during assembly. This

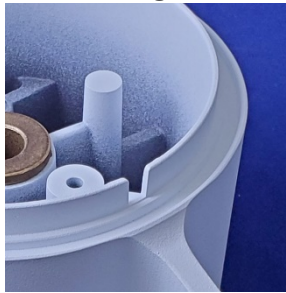
change made Brush Ends 92-300-150 and 92-300-151 obsolete since 92-300-155 and 92-300-156 are backward compatible as long as the correct O-ring is used.



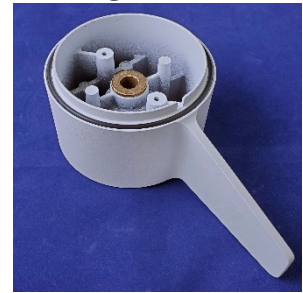
Keyed Center Section



701-103 O-ring



Close up of O-ring Groove  
92-300-156 Shown



92-300-156 Shown with  
O-ring 701-103 Installed

**Caution:** The thin O-ring (701-107) and thicker O-ring (701-103) are not interchangeable, the correct O-ring for the Brush End Installed on the motor must be used; if the incorrect O-ring is Used the motor will leak.

- (December 2017-July 2019) Elimination of the alignment key. Impacts that shift the Brush End in spite of the Key stretch the through bolts and cause leaking of the lower unit; this became a bigger issue than the potential RF interference.



Center Section Face; Flat Surface, w/Key

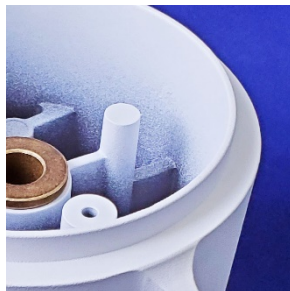


Center Section Face; Flat Surface, w/out Key

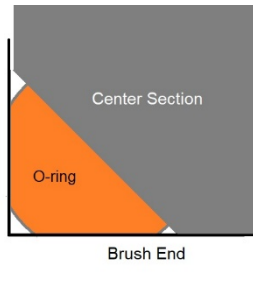
- (July 2019) With the alignment key gone it was no longer necessary to locate the O-ring in a machined groove. The O-ring sealing method used on most other lower unit O-ring seals could be applied to the 4.5" Diameter Brush Ends. This method wedges the O-ring (701-098, 98MM X 2MM, same as plain end O-ring) on three sides; the face and vertical of the Brush End, and a 45 degree chamfer at the center section. Using the same O-ring on both ends of the Motor Lower unit and an installation method common to most Minn Kota products is a process improvement.



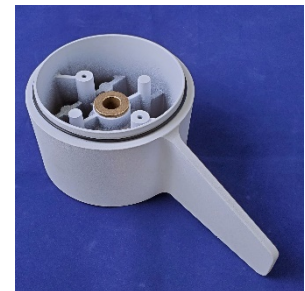
Chamfered Center Section,  
Chamfer between Arrows



Brush End Sealing Surface,  
92-300-176 Shown



Cross Section of Seal Between  
Brush End and Center Section



92-300-176 with O-ring  
701-098 Installed

**Caution:** Brush Ends 92-300-175/92-300-176 will not adequately seal if installed on a Center Section with a flat sealing surface, this is especially true for Center Sections with the "Key" stamped in. Brush Ends 92-300-155/92-300-156 will not seal installed on a Brush End with a Chamfered Sealing Surface.

To insure correct parts are available on repairs:

- 2881450 Seal and O-ring Kit includes one of each of the three O-rings that might be the correct O-ring; two Brush End O-rings will be discarded, Armature Seals and Thru Bolt O-rings and Plain End/Sonar End O-ring are not affected by these changes.
- Center Sections with a flat surface toward the brush end sub to a kit that includes a chamfered Center Section and a current Brush End.

**Notice:** Since parts may have been swapped out during various repairs it is recommended to visually check the Center Section to determine the correct Brush End.

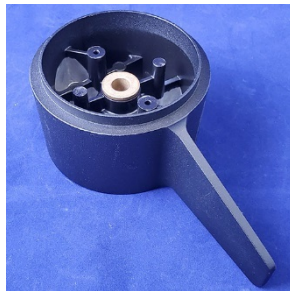
- There is a commitment to keeping these 92-300-155 and 92-300-156 available to avoid unnecessary replacement of Motor Lower Units/Center Sections.
- 701-107 is not available individually, 701-107 subs to seal kit 2881450. Since 92-300-150 and 92-300-151 sub to 92-300-155 or 92-300-156, making this change to O-ring 701-107 is the most effective way to insure no one attempts to install 92-300-155 or 92-300-156 without O-ring 701-103.

**Summary of compatible, currently available, parts for 4.5" Diameter Motor Lower Unit Repairs:**

**Motors Made After 7/2019, or w/Updated Center Sections:**



Chamfered Surface



92-300-175 FW Brush End

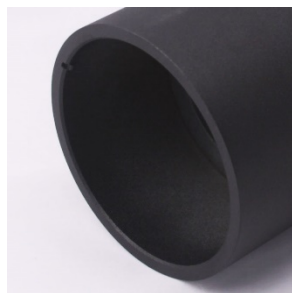


92-300-176 SW Brush End

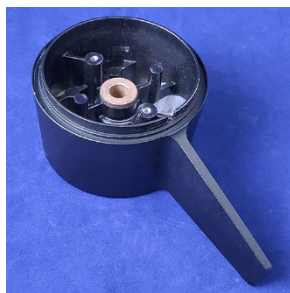


701-098 O-Ring

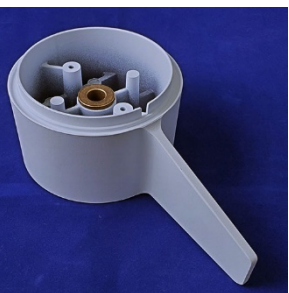
**Motors Made Prior to 7/2019 and without Updated Center Sections:**



Flat Surface, with or without Key



92-300-155 FW Brush End



92-300-156 SW Brush End



701-103 O-Ring