

**FD2 Series FlexDraper® Headers**  
**REEL DRIVE MOTOR SEAL KIT (MD #311620)**  
**INSTALLATION INSTRUCTIONS**

The Reel Drive Motor Seal Kit (MD #311620) is used to repair high capacity reel drive motor (MD #273078). This document explains how to install the kit.

**NOTE:** The seal kit contains various sizes of unmarked seals. During disassembly, record the dimensions of all seals removed to ensure the correct seals get installed in the correct locations.

For an exploded view of motor MD #273078, refer to *Figure 1, page 2*.

**NOTE:** Keep your MacDon publications up-to-date. The most current version of this instruction can be downloaded from our Dealer-only site (<https://portal.macdon.com>) (login required).

**Installation Time**

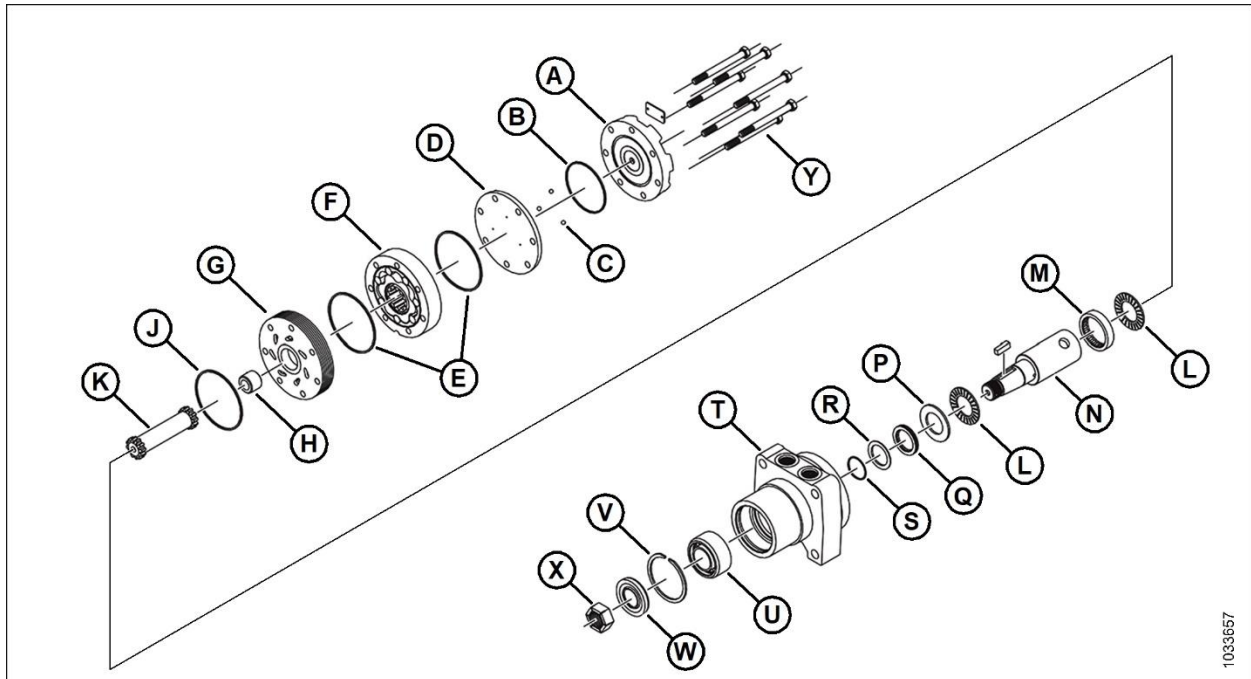
The approximate installation time is 1 hour.

**Conventions**

The following conventions are used in this document:

- Right and left are determined from the operator's position. The front of the header is the side that faces the crop; the back of the header is the side that connects to the combine or windrower.
- Unless otherwise noted, use the standard torque values provided in the header operator's manual and technical manual.

**FD2 Series FlexDraper® Headers**  
**REEL DRIVE MOTOR SEAL KIT (MD #311620)**  
**INSTALLATION INSTRUCTIONS**



**Figure 1: Exploded View – Motor MD #273078**

- |                       |                    |                         |                       |
|-----------------------|--------------------|-------------------------|-----------------------|
| A - End cover         | B - End cover seal | C - Steel ball (x3)     | D - Balance plate     |
| E - Body seal (x2)    | F - Rotor assembly | G - Manifold            | H - Drive link spacer |
| J - Housing seal      | K - Drive link     | L - Thrust bearing (x2) | M - Rear housing seal |
| N - Output shaft      | P - Thrust washer  | Q - Shaft seal          | R - Backup seal       |
| S - Metal backup shim | T - Housing        | U - 72 mm bearing       | V - Snap ring         |
| W - Dust seal         | X - Castle nut     | Y - Bolt (x7)           |                       |

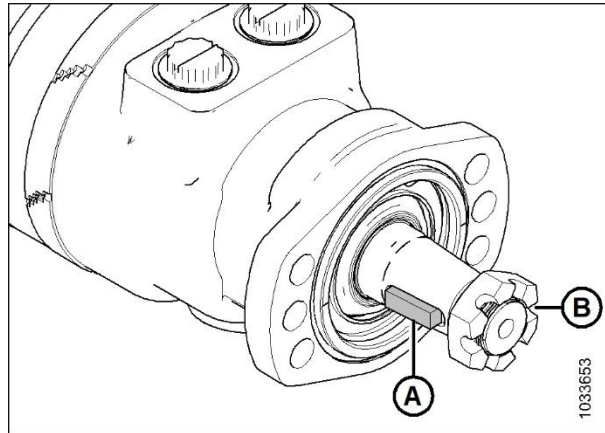
**FD2 Series FlexDraper® Headers**  
**REEL DRIVE MOTOR SEAL KIT (MD #311620)**  
**INSTALLATION INSTRUCTIONS**

**Installation Instructions**

To install the seal kit (MD #311620), follow these steps:

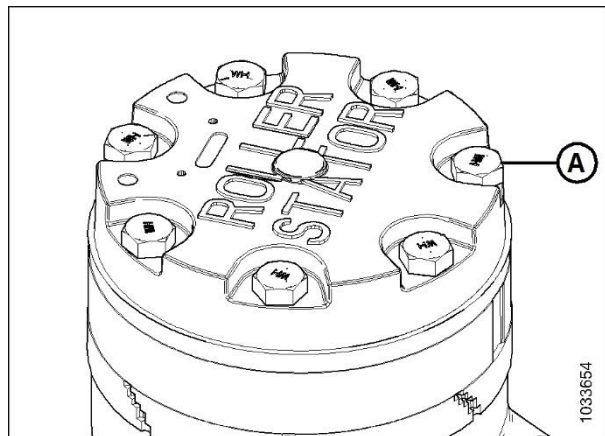
**Disassembling High Capacity Reel Drive Motor (MD #273078)**

1. Place the hydraulic motor on a clean workbench.
2. Use a paint marker to draw two reference lines in the shape of a “V” down the side of the motor to the end cover. This will ensure correct motor reassembly.
3. Remove key (A) and castle nut (B).



**Figure 2: Reel Drive Motor**

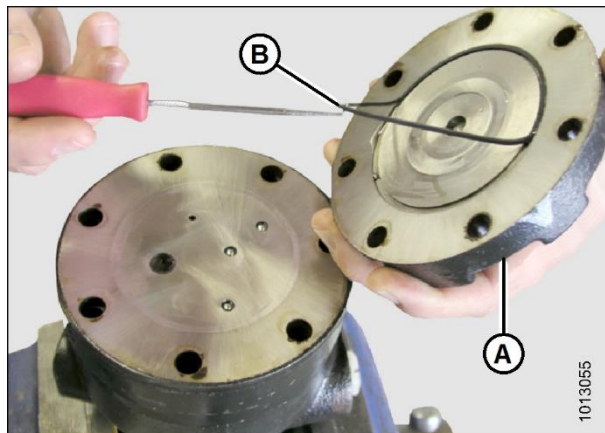
4. Place the motor in a vise, and clamp across the edge of the flange with the output shaft facing downwards. When clamping, use a protective device on the vise such as special soft jaws, pieces of hard rubber, or blocks of wood.
5. Loosen and remove the seven bolts (A) holding the motor assembly together.



**Figure 3: Reel Drive Motor**

**NOTE:** Record the dimensions of all seals removed during disassembly to ensure the correct seals are installed in the correct locations during reassembly. Seal kit contains various sizes of unmarked seals.

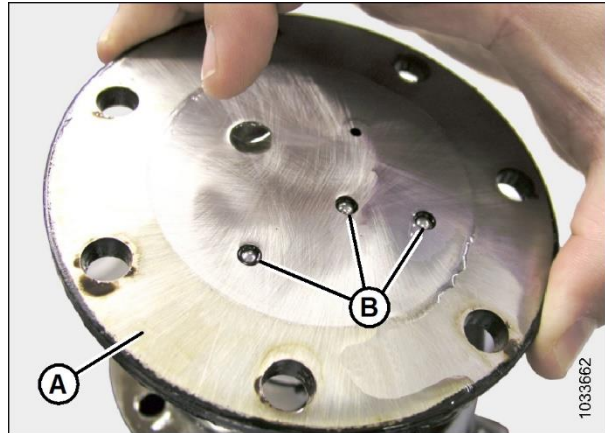
6. Remove end cover (A) from the top of the motor.
7. Remove and discard end cover seal (B) using a pick or small screwdriver.



**Figure 4: End Cover**

**FD2 Series FlexDraper® Headers**  
**REEL DRIVE MOTOR SEAL KIT (MD #311620)**  
**INSTALLATION INSTRUCTIONS**

8. Remove balance plate (A) from the motor. Ensure the three steel balls (B) located in the balance plate holes do not fall out.

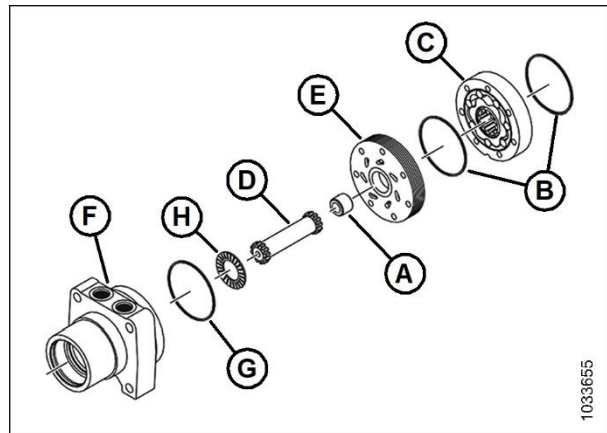


**Figure 5: Balance Plate**

9. Remove drive link spacer (A), and place it on a clean workbench.

**NOTE:** Some motors do not use a spacer.

10. Remove rotor seals (B) (one on each side of the rotor) using a pick or small screwdriver, and discard.
11. Remove rotor (C) from the housing, and place on a clean workbench.
12. Remove drive link (D) and manifold (E) from the housing (F), and place on a clean workbench.



**Figure 6: Reel Drive Motor**

13. Remove housing seal (G) using a pick or small screwdriver. Before discarding the old housing seal (G), compare it to the two housing seals included in the kit to determine which one to use for reassembly.

14. Remove thrust bearing (H), and place on a clean workbench.

15. Push up on output shaft (A) from the bottom until the driveshaft pops out of the top of the motor.

**NOTE:** If the output shaft does not pop out of the top of the motor when you push upwards, it may be necessary to tap upwards on the end of the driveshaft with a rubber mallet to free the driveshaft from the body.

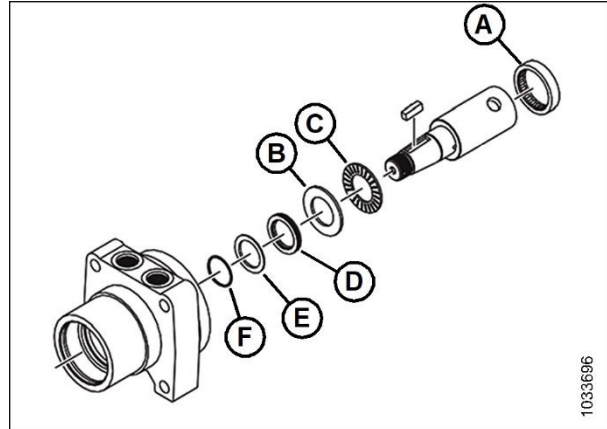
16. Remove the output shaft and place on a clean workbench.



**Figure 7: Output Shaft**

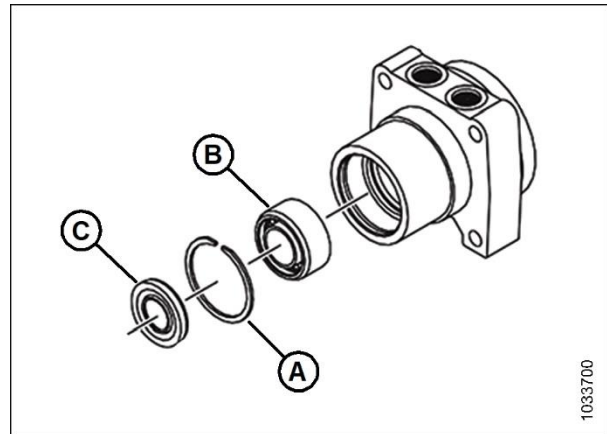
**FD2 Series FlexDraper® Headers**  
**REEL DRIVE MOTOR SEAL KIT (MD #311620)**  
**INSTALLATION INSTRUCTIONS**

17. Position the housing in the vise and use a slide hammer bearing puller to remove the rear housing bearing (A).
18. Remove thrust washer (B) and thrust bearing (C), and set aside.
19. Using a small screwdriver, carefully pry shaft seal (D), backup seal (E), and metal shim (F) from the housing bore, and discard.



**Figure 8: Reel Drive Motor**

20. Turn the housing over, and remove retaining snap ring (A) from the inner core of the housing.
21. Turn the housing over again. Using a drift punch through the rear of the housing, tap against the inner race of the 72 mm bearing (B) to remove the bearing through the top of the housing.
22. Pry dust seal (C) from bearing (B), and discard seal.



**Figure 9: Reel Drive Motor**

**FD2 Series FlexDraper® Headers**  
**REEL DRIVE MOTOR SEAL KIT (MD #311620)**  
**INSTALLATION INSTRUCTIONS**

**Assembling High Capacity Reel Drive Motor (MD #273078)**

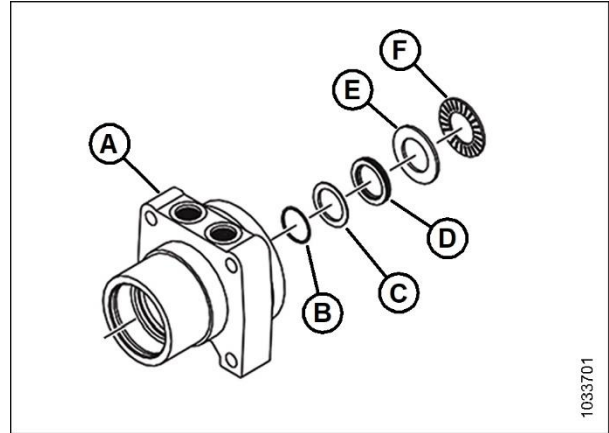
**NOTE:** When reassembling the motor, ensure the reference marks made during disassembly line up correctly.

1. Clean all parts in an oil-base solvent and dry using compressed air (For safety, observe all OSHA safety guidelines). Lightly coat all new seals in clean oil prior to installation.
2. Place housing (A) in a vise, with the seven bolt holes facing up.
3. Place metal shim (B) in the smallest diameter recess in the housing.

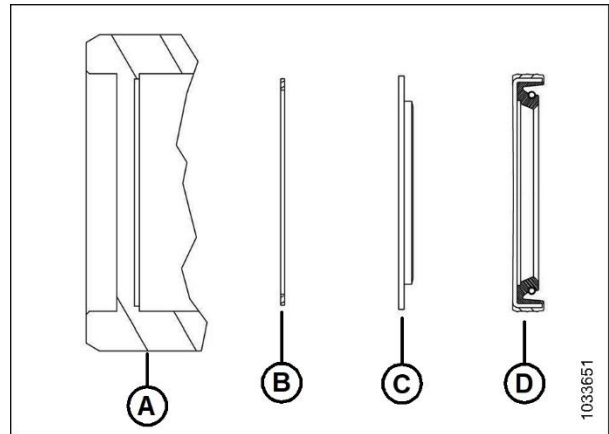
4. Install backup seal (C) into the housing, with the flat side facing down and the seal lip facing up.

**NOTE:** Refer to **Figure 11** for correct seal orientation.

5. Insert shaft seal (D) down into the housing, making sure that the lip on the seal faces up.
6. Install thrust washer (E) into the housing.
7. Using an arbor press, seat the shaft seal into the housing.
8. Install thrust bearing (F) into the housing.



**Figure 10: Reel Drive Motor**



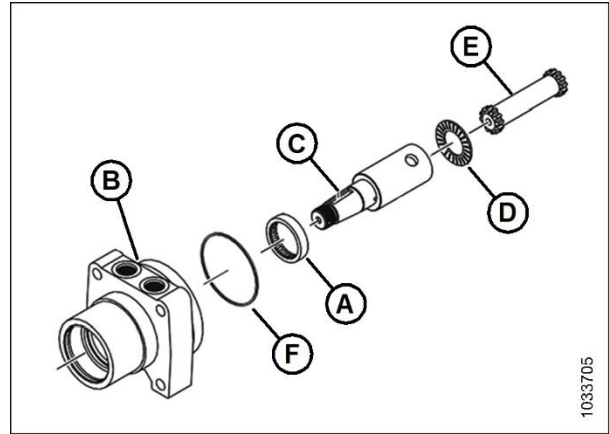
**Figure 11: Seal Orientation**

**FD2 Series FlexDraper® Headers**  
**REEL DRIVE MOTOR SEAL KIT (MD #311620)**  
**INSTALLATION INSTRUCTIONS**

9. Place the rear housing bearing (A) onto the rear housing bore. Press to a depth of 3.6 mm (0.14 in.) from the rear surface of the housing (B) to the top of the bearing (A).
10. Place shaft (C) down into the housing, and place thrust bearing (D) on top of the shaft.

**NOTE:** If shaft seals are properly seated against the housing, thrust bearing (D) will be flush with the rear surface of the housing.

11. While holding the shaft into the housing, place housing/shaft assembly in a vise with the shaft end down.
12. Install drive link (E) into the shaft. Ensure the end of drive link (E) with crowned splines goes into the shaft end.
13. Install housing seal (F) into the groove in the housing.
14. Place the manifold onto the housing. Ensure the side of the manifold with only seven holes is the side facing the housing.



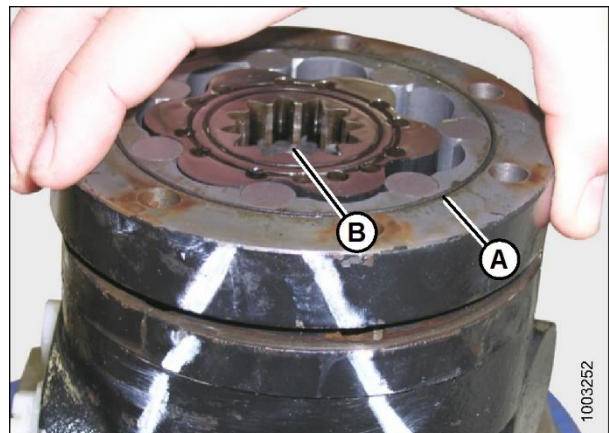
**Figure 12: Reel Drive Motor**

15. Install the body seals into grooves (A) (one on each side of the rotor).
16. Place the rotor onto the manifold. Ensure the side with chamfer in the splines is facing the manifold.
17. Place the drive link spacer on top of the drive link at opening (B) at the center of the rotor.

**NOTE:** Make sure the splines on the drive link and the splines on the rotor are properly engaged. If properly engaged, the top of the drive link spacer will sit flush with the top of the rotor.



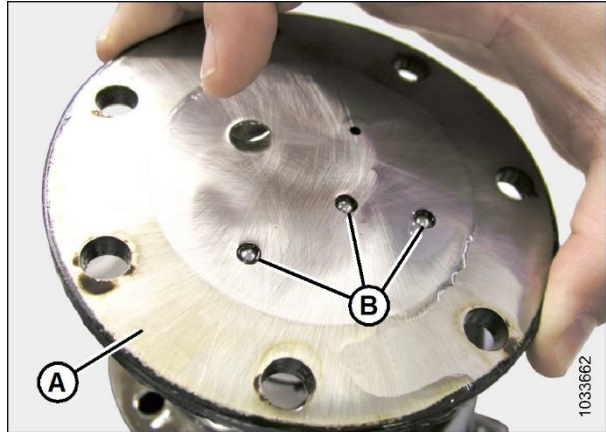
**Figure 13: Manifold**



**Figure 14: Rotor**

**FD2 Series FlexDraper® Headers**  
**REEL DRIVE MOTOR SEAL KIT (MD #311620)**  
**INSTALLATION INSTRUCTIONS**

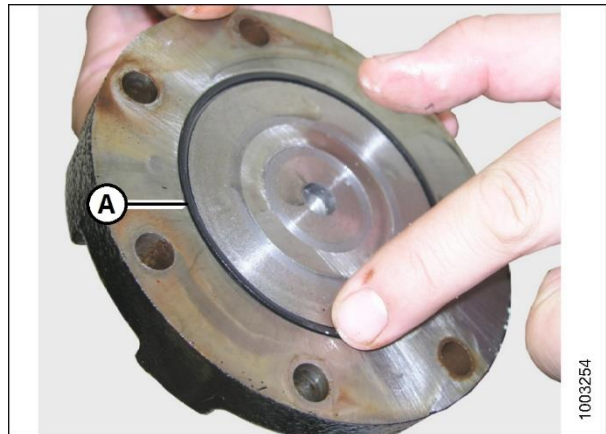
18. Install balance plate (A) onto the rotor. Ensure steel balls (B) are installed and are facing upwards.



**Figure 15: Balance Plate**

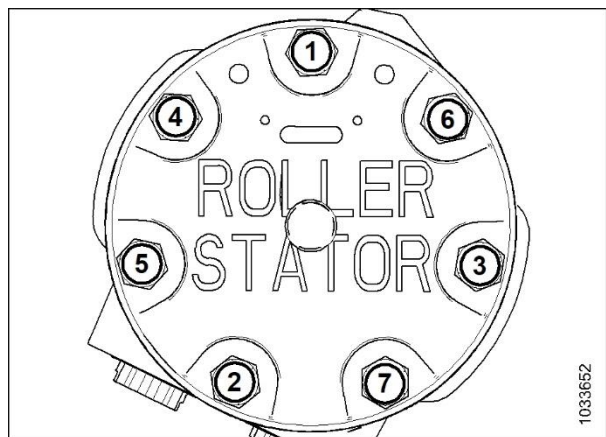
19. Install end cover seal (A) into the groove in the end cover. Place the end cover on the balance plate.

**NOTE:** Before proceeding to the next step, ensure all reference marks on the side of the motor line up correctly.



**Figure 16: End Cover**

20. Install the seven bolts and washers, and pre-torque to 14 Nm (10 lbf·ft).
21. Following the tightening sequence at right, torque all bolts to 68 Nm (50 lbf·ft).

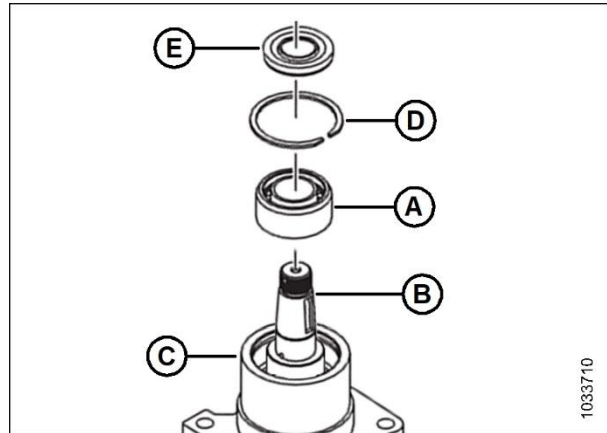


**Figure 17: Tightening Sequence**



**FD2 Series FlexDraper® Headers**  
**REEL DRIVE MOTOR SEAL KIT (MD #311620)**  
**INSTALLATION INSTRUCTIONS**

22. Remove the motor from the vise and place on work surface with the shaft facing up.
23. Place the 72 mm bearing (A) over the shaft (B). Ensure the side of the bearing with internal retaining ring faces down.
24. Carefully drive the bearing into the housing (C). Ensure the top of the bearing falls below the groove in the housing for the retaining ring.
25. Install retaining ring (D) into the groove in the housing. Ensure the retaining ring snaps into place.
26. Place dust seal (E) over shaft (B). Ensure the side with the lip faces up.
27. Use a rubber mallet to tap the dust seal into place.



**Figure 18: Reel Drive Motor**

© 2020 MacDon Industries, Ltd.

The information in this publication is based on the information available and in effect at the time of printing. MacDon Industries, Ltd. makes no representation or warranty of any kind, whether expressed or implied, with respect to the information in this publication. MacDon Industries, Ltd. reserves the right to make changes at any time without notice.