Feed Auger Bumper Update Kit (MD #308187)
Installation Instructions
214608 Revision B
Original Instruction
Published in July 2019

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Introduction

The Feed Auger Bumper Update kit (MD #308187) is used to install a mounting surface for feed auger bumpers as well as
the bumpers themselves on 2016 and 2017 model year FM100 Float Modules.

This document explains how to install the kit. A list of parts included in the kit is provided in Chapter 2 Parts List, page 5.

Installation time

Installation time for this kit is approximately 6 hours.

Conventions

The following conventions are used in this document:

- Right and left are determined from the operator’s position. The front of the float module and header is the side that
  faces the crop; the back is the side that connects to the combine.

- Unless otherwise noted, use the standard torque values provided in the header operator’s manual and technical
  manual.

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).

NOTE:

This document is currently available in English only.
Summary of Changes

At MacDon, we’re continuously making improvements, and occasionally these improvements affect product documentation. The following list provides an account of major changes from the previous version of this document.

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Chapter 1: Safety

1.1 Signal Words

Three signal words, DANGER, WARNING, and CAUTION, are used to alert you to hazardous situations. Two signal words, IMPORTANT and NOTE, identify non-safety related information. Signal words are selected using the following guidelines:

⚠️ DANGER
Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

⚠️ WARNING
Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. It may also be used to alert against unsafe practices.

⚠️ CAUTION
Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may be used to alert against unsafe practices.

IMPORTANT:
Indicates a situation that, if not avoided, could result in a malfunction or damage to the machine.

NOTE:
Provides additional information or advice.
1.2 General Safety

⚠️ CAUTION

The following general farm safety precautions should be part of your operating procedure for all types of machinery.

Protect yourself.

- When assembling, operating, and servicing machinery, wear all protective clothing and personal safety devices that could be necessary for job at hand. Do NOT take chances. You may need the following:
  - Hard hat
  - Protective footwear with slip-resistant soles
  - Protective glasses or goggles
  - Heavy gloves
  - Wet weather gear
  - Respirator or filter mask
- Be aware that exposure to loud noises can cause hearing impairment or loss. Wear suitable hearing protection devices such as earmuffs or earplugs to help protect against loud noises.

- Provide a first aid kit in case of emergencies.
- Keep a properly maintained fire extinguisher on the machine. Be familiar with its proper use.
- Keep young children away from machinery at all times.
- Be aware that accidents often happen when the operator is tired or in a hurry. Take time to consider safest way. NEVER ignore warning signs of fatigue.
• Wear close-fitting clothing and cover long hair. **NEVER** wear dangling items such as scarves or bracelets.

• Keep all shields in place. **NEVER** alter or remove safety equipment. Make sure driveline guards can rotate independently of shaft and can telescope freely.

• Use only service and repair parts made or approved by equipment manufacturer. Substituted parts may not meet strength, design, or safety requirements.

• Keep hands, feet, clothing, and hair away from moving parts. **NEVER** attempt to clear obstructions or objects from a machine while the engine is running.

• Do **NOT** modify machine. Unauthorized modifications may impair machine function and/or safety. It may also shorten machine’s life.

• To avoid injury or death from unexpected startup of machine, **ALWAYS** stop the engine and remove the key from the ignition before leaving the operator’s seat for any reason.

• Keep service area clean and dry. Wet or oily floors are slippery. Wet spots can be dangerous when working with electrical equipment. Be sure all electrical outlets and tools are properly grounded.

• Keep work area well lit.

• Keep machinery clean. Straw and chaff on a hot engine is a fire hazard. Do **NOT** allow oil or grease to accumulate on service platforms, ladders, or controls. Clean machines before storage.

• **NEVER** use gasoline, naphtha, or any volatile material for cleaning purposes. These materials may be toxic and/or flammable.

• When storing machinery, cover sharp or extending components to prevent injury from accidental contact.
Chapter 2: Parts List

The following parts are included in this kit.
## PARTS LIST

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<th>Part Number</th>
<th>Description</th>
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<td>1</td>
<td>301912</td>
<td>BUMPER – FM100</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>301963</td>
<td>ARM – LH AUGER SUPPORT</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>308850</td>
<td>BAR – RH AUGER SUPPORT</td>
<td>1</td>
</tr>
<tr>
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<td>301993</td>
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<td>301994</td>
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<td>301992</td>
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<td>7</td>
<td>183204</td>
<td>O-RING – HNBR, GREEN</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>276180</td>
<td>PLATE – INDICATOR, RH</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>276183</td>
<td>PLATE – INDICATOR, LH</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>308056</td>
<td>PLATE – SPACER</td>
<td>1</td>
</tr>
<tr>
<td>A</td>
<td>136291</td>
<td>BOLT – RHSN TFL M12 X 1.75 X 35 8.8 A3L</td>
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</tr>
<tr>
<td>B</td>
<td>136431</td>
<td>NUT – HEX FLG CTR LOC M12 X 1.75-10</td>
<td>4</td>
</tr>
<tr>
<td>C</td>
<td>135900</td>
<td>BOLT – RHSN TFL M12 X 1.75 X 40 8.8 AA1J</td>
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Chapter 3: Installation Instructions

To install the Feed Auger Bumper Update kit, follow these procedures in order.

NOTE:
It is not necessary to remove the float module from the header, but it does make installation of the kit easier. Instructions for removing the float module from the header are available in the header operator’s manual and technical manual.

3.1 Removing Feed Auger

To remove the feed auger from the float module, follow these steps:

⚠️ DANGER
To avoid bodily injury or death from the unexpected start-up or fall of the raised machine, always stop the engine, remove the key, and engage the safety props before going under the machine for any reason.

NOTE:
Unless otherwise stated, retain all parts for reassembly.

1. To provide more room for working, if the float module is installed in a header, position the reel up and forward, and engage the reel safety props.

2. Shut down the engine, and remove the key from the ignition.

   NOTE:
The side flap deflectors have been removed for illustration purposes.

3. Place wooden blocks (A) under the auger to prevent the auger from dropping onto the feed draper and damaging it.

   NOTE:
The illustration at right shows the float module alone, not installed in a header. You can perform this procedure with the float module installed in a header, or detached from the header.

Figure 3.1: Blocks under the Auger
4. On the left side of the auger, remove four bolts (A) and inspection panel (B).

5. Remove the bolt and clamp (C) that hold the two covers (G) and (H) together. Discard clamp (C).

6. Remove the two bolts and washers (D) that secure the bottom cover. Discard one washer.

7. Remove bolts (E) and remove cover retainer (F).

8. Rotate top (G) and bottom (H) covers forward to remove. Discard both covers.

9. Loosen jam nut (C) and turn thumbscrew (D) counterclockwise to release the bolt holding sprocket (B) and preventing it from being raised up to release chain tension.

   **IMPORTANT:**
   Do **NOT** loosen thin nut (E) on the inboard side of the idler sprocket spindle.

10. Loosen idler sprocket nut (A), and raise sprocket (B) to the uppermost position to release the tension on the chain. Tighten nut (A) to hold sprocket in place.

11. Remove screw (F) and washer (G).
12. Remove two bolts and nuts (A).

13. Remove two nuts (A).

14. Use a pry bar at location (A) between auger support arm (C) and auger pivot (B). Pry the auger to the right.
NOTE:
Once the drum starts sliding to the right, the drive sprocket will fall off.

NOTE:
Chain removed from illustration for clarity.

15. Use a pry bar between the right support bar and the right auger pivot (B) to slide auger drum to the left, and then slide bolts (A) out of the pivot.

NOTE:
The right support bar is not visible in the illustration at right as it extends from the auger behind pivot (B). It is connected to the pivot with bolts (A).

16. Place feed auger (A) and chain on a workbench.
3.2 Updating Right End of Feed Auger

To update the right end of the feed auger, follow these steps:

NOTE:
Unless otherwise stated, all parts are provided in the kit.

1. Remove the three nuts (A) that secure the auger end cap cover (B) to the right assembly. The bolts and O-rings can remain in place. Retain nuts for reassembly.

2. Remove right cover (B) and discard.

3. Remove cap (A), and nuts (B). Retain for reassembly.


   NOTE:
   In the illustration at right, the clutch assembly is shown separate from the rest of the feed auger for clarity.

5. Remove timing plate (B). Retain for reassembly.

6. Remove square key (C). Retain for reassembly.

7. Remove right auger support bar (D).
8. From the right auger support bar, remove bolts (A), O-rings (B), bolts (C), O-rings (D), and bolts (E). Discard the auger support bar, and retain the bolts and O-rings for reassembly.

9. The new right auger support bar (A) (MD #308850) has two protrusions with two square holes in them. Position spacer plate (B) (MD #308056) over the smaller of the two protrusions, lining up the holes. Secure spacer plate (B) to bar (A) with two 40 mm long M12 carriage bolts (C) and two green O-rings (D) (MD #183204).

**NOTE:**
The top edge of spacer plate (B) should sit below the top edge of auger support bar (A), and the sides of spacer plate (B) should be parallel with the sides of auger support bar (A) as shown in the illustration at right.

10. Insert the two bolts (A) retained from Step 8, page 14 through the two square holes in auger support bar (B) on either side of the round center hole. The bolt heads should be on the opposite side of the auger support bar from spacer plate (C).

11. Insert two bolts (D) through the large square holes in auger support bar (B) and secure in place with O-rings (E). Bolts and O-rings are retained from Step 8, page 14.

12. Insert three bolts (F) through the small square holes in auger support bar (B) and secure in place with O-rings (G). Bolts and O-rings are retained from Step 8, page 14.
13. Position the new right auger support bar (A) over the auger shaft (B) in place of the old right auger support bar.

14. Reinstall square key, retained from Step 6, page 13, in auger shaft.

15. Position timing plate (A), retained from Step 4, page 13, over the auger shaft and on top of the right auger support bar. The holes in the sides of the timing plate fit over the bolts at locations (B). Secure in place with retained nuts.

**IMPORTANT:**
Ensure timing plat (A) is in the same position as the timing plate on the left end of the auger.

16. Torque nuts to 92–138 Nm (68–102 lbf·ft).

17. Apply medium-strength threadlocker (Loctite® 243 or equivalent) to the auger shaft threads, and then reinstall nut (A), retained from Step 4, page 13.

18. Torque nut (A) to 170 Nm (126 lbf·ft).

20. Install new right auger end cap cover (B) (MD #301994) and secure in place with one nut (C). The cover is provided in the kit; the nut is retained from Step 1, page 13.

21. Install one of the new FM100 bumpers (A) (MD #301912) onto bolt shafts (B) as shown at right. Secure in place with two M12 lock nuts (C) (MD #136431).

22. Torque nuts (C) to 68 Nm (50 lbf·ft).

23. Install right indicator plate (A) (MD #276180) as shown at right using two nuts (B) retained from Step 1, page 13.
3.3 Updating Left End of Feed Auger

To update the left end of the feed auger, follow these steps:

1. Remove the outermost left access cover (A), by removing the two bolts (B). Retain parts for reassembly.

   **NOTE:**
   The flighting was made transparent in the illustration at right so that it wouldn’t block your view of the cover and bolts.

2. Inside the drum, place a block (B) under the finger shaft (A).

   **NOTE:**
   The auger drum was made transparent in the illustration at right so that you can clearly see the finger shaft and block.


   **NOTE:**
   Not all of the bolts are visible in the illustration at right, and only one of them is labelled.

4. Remove left assembly (B).
5. Remove nut (A). Retain for reassembly.
6. Remove finger shaft crank arm (B). Retain for reassembly.
7. Remove woodruff key (C) from shaft. Retain for reassembly.

8. Slide hub (A) off shaft (D). Retain for reassembly.
9. Remove woodruff key from the shaft (D). Retain for reassembly.
10. Remove auger support arm assembly (B). Retain for next steps.

NOTE:
The hub bearing (E) may separate. If so, reassemble the bearing by pressing the inner race back into the bearing.

11. Remove washer (C). Retain for reassembly.
12. Remove nuts (A) and bolts (B) securing timing plate (C) to auger support arm (D). Discard auger support arm (D). Retain all other parts for reassembly.

13. Install new left auger support arm (A) (MD #301963) on top of timing plate (B), and secure in place with bolts (C) and nuts (D).

NOTE:
The auger support arm is provided in the kit. The timing plate, bolts, and nuts are retained from Step 12, page 19.
14. Install woodruff key (A) into lower machined slot in shaft (B).
15. Install shaft (B) through auger support arm assembly (C).
   Align woodruff key (A) with the slot in the timing plate.
16. Install washer (D).
17. Insert two 35 mm M12 carriage bolts (E) (MD #136291) through the two empty holes in the auger support arm indicated in the illustration at right. Secure in place with two green O-rings (F) (MD #183204).
18. Position a tube (not provided in kit) over the inner race of bearing (H) and use it to press the hub assembly (G) onto shaft (B).

**NOTE:**
If you do not press against the inner race of the bearing while assembling these parts, the bearing may separate. If it does, press the inner race back into the bearing.

19. Install woodruff key (C) into shaft.
20. Install finger shaft crank arm (B).
21. Apply medium-strength threadlocker (Loctite® 243 or equivalent) to threads, and then install nut (A). Torque nuts to 161–178 Nm (119–132 lbf·ft)
22. Slide left assembly (E) into the drum. Align pivot pin (C) with the bushing in pivot block (A).

**NOTE:**
The auger drum was made transparent in the illustration at right so that you can clearly see the finger shaft and block.

23. Remove wooden block (B) supporting finger shaft (D).

24. Install six bolts and washers (A).

25. Torque to 91 Nm (67 lbf-ft).

26. Install the outermost left access cover (A), and secure with two bolts (B).

**NOTE:**
The flighting was made transparent in the illustration at right so that it wouldn’t block your view of the cover and bolts.

27. Torque to 8.5 Nm (75 lbf-in).
28. Ensure finger timing indicator (A) is positioned the same as the right side finger timing indicator.

Figure 3.34: Drum Access Cover
3.4 Reinstalling Feed Auger

To reinstall the feed auger in the float module, follow these steps:

⚠️ DANGER

To avoid bodily injury or death from the unexpected start-up or fall of the raised machine, always stop the engine, remove the key, and engage the safety props before going under the machine for any reason.

1. Place the auger on the wooden blocks (A) on the feed draper.

   **NOTE:**
   The side flap deflectors have been removed for illustration purposes.

   **NOTE:**
   The illustration at right shows the float module not installed in a header. You may be installing the feed auger in a stand-alone float module or in a float module installed in a header.

2. Align right pivot (B) and the auger mount support. Secure in place with two nuts (A).

   **NOTE:**
   The auger mount support is not visible in the illustration at right as it extends from the auger behind pivot (B).

3. Install the endless chain onto sprocket (B) on the left side of feed auger (A).
4. Place drive sprocket (A) into chain (B) and align the sprocket onto the shaft.

**NOTE:**
The shoulder of drive sprocket (A) should face the auger.

5. Align the drive housing from the auger mount bracket. Install the two bolts and nuts (A).

6. Remove the blocks from under the auger.

7. Rotate the auger in reverse to take up the slack in the lower strand of the chain.

**IMPORTANT:**
Do **NOT** loosen thin nut (C) on the inboard side of the idler sprocket spindle.

8. Turn adjuster thumbscrew (D) clockwise to move idler sprocket (B) until it is **FINGER TIGHT ONLY**.

**NOTE:**
Do **NOT** overtighten.

9. Tighten idler nut (A) and torque to 258–271 Nm (190–200 lbf-ft).
10. Tighten jam nut (A).
11. Apply medium-strength threadlocker (Loctite® 243 or equivalent) to threads of screw (B).
12. Install washer (C) and secure it with screw (B).

13. Position new bottom cover (G) (MD #301992) and secure with retained washer and bolt (C).
14. Position new top cover (D) (MD #301993).
15. Install inspection panel (B) and secure with four bolts (A). Tighten bolts (A) and torque to 2.7–4.1 Nm (24–36 lbf-in).
16. Install cover retainer (F) and secure with two bolts (E).
3.5 Installing Left Bumper and Indicator Plate

To install the bumper (MD #301912) and indicator plate (MD #276183) provided in the kit on the left end of the auger, follow these steps:

1. On the left end of the auger, install bumper (A) (MD #301912) on bolt shafts at location (B), and secure in place with two M12 hex flange nuts (MD #136431).

2. Torque nuts to 68 Nm (50 lbf·ft).

3. Position left indicator plate (C) (MD #276183), and secure one end in place with one 16 mm M6 hex flange head bolt (D), retained from Step 6, page 10.

4. Secure the other end of left indicator plate (C) in place with one 16 mm M6 hex flange head bolt (E), retained from Step 5, page 10.

5. Ensure timing plate (F) points to the same letter on the indicator plate as the timing plate on the right end of the auger.

Figure 3.43: Bumper and Indicator Plate Installed on Left End of Feed Auger
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