

CONTACT INFORMATION

Please keep this manual for future reference.

Bushel Plus Ltd.

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Bushel Plus is THE Harvest Optimization Company, setting the bar for helping farmers maximize their investment in yield, quality, and time.

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Thank you for choosing the Bushel Plus MiniCombine – The World's Smallest Combine!

This innovative tool allows you to save fuel and time. Leave the big expensive combine in the shed!

SAFETY INFORMATION

Before using your Bushel Plus MiniCombine

- Read and understand all labels, manuals, and safety instructions for the MiniCombine.
- Inspect the MiniCombine for damage. If you notice damage, do not use the MiniCombine and contact your local dealer for further support.

NOTE: Fully charge your battery prior to using the MiniCombine.

Operating the Bushel Plus MiniCombine

- WARNING! Wear appropriate PPE: Safety glasses should always be worn. Refrain from wearing loose clothing and ensure long hair is confined.
- Beware of your surroundings and keep a safe distance away from moving machinery.
- Before starting the machine, always place one hand on the main handle and the other on the door handle.
- Ensure there is a 5m radius clear of others as there may be flying debris.

Caring for your Bushel Plus MiniCombine

- To keep battery performance at optimum level, be sure to charge your MiniCombine every 4-6 months when not in use.
- Keep the MiniCombine clean. Avoid build-up of dust and dirt. Clean the MiniCombine with a blower at the end of each day of use.
- Protect the MiniCombine from moisture, cold, dew, or extreme heat.
 Do not leave the MiniCombine in the elements for long periods of time, including overnight.
- Reach out to your local dealer with questions regarding functionality, maintenance, or specific use.
- Any modification made to the MiniCombine outside of original replacement parts or official intended use of the machine will void all warranties. Please contact your dealer with inquiries.

Safety Label MiniCombine:



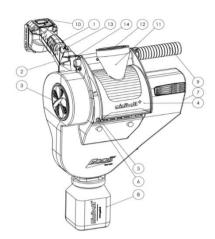
HOW THE BUSHEL PLUS MINICOMBINE WORKS

The Bushel Plus MiniCombine is a portable device for taking samples of wheat, barley, canola, sorghum, oats, soya, peas, field beans, and flax. This self-contained unit comes with 4 interchangeable concaves (no tools required), a lithium-ion battery and a variable-speed brushless motor. Samples collected are identical to a combine giving you the perfect sample size for moisture content tests and quality analysis. Quick and accurate crop samples are given in less than 5 minutes.

- Organization The MiniCombine frees up manpower and equipment, allowing sites to be organized more efficiently. You can easily select which parts of the crop are ready to harvest while the combine is already harvesting.
- Savings Unlike your combine, the MiniCombine is powered by a rechargeable battery and only takes the amount of grain needed for analysis, lowering sampling cost.
- Reliability The samples taken are identical to those taken with your combine.
- **Safety** Using the MiniCombine reduces the need to move heavy agricultural machinery around and reduces the risks of travelling on the open road.
- **Lightweight** Made of ABS the MiniCombine weighs just 3.3kg or 7.3lbs and is protected by a high-quality flight case.

PRODUCT OVERVIEW

- Grip handle (1)
- Battery indicator screen (2)
- Ventilation shutter (3)
- Sample door (4)
- Threshing harvester (5)
- *Concave (6)
- Air outlet duct (7)
- Sample container (8)
- Sample door handle (9)
- Lithium-ion battery (10)
- Sample funnel (11)
- Removable funnel lid (12)
- Variable-speed controller (13)



*Concaves

The following concaves are included with your MiniCombine:

- Concave with openings of 3.5mm x 7mm (1)
 - o special canola and other small seeds
- Concave with openings of 5mm X 20mm (2)
 - o wheat, barley, oats, buckwheat, rice, sorghum
- Concave with openings of 12mm x 32mm (3)
 - o special beans and other seeds
- Concave with openings of 10.5mm x 23.5mm (4)
 - o special peas, soybeans, and other seeds

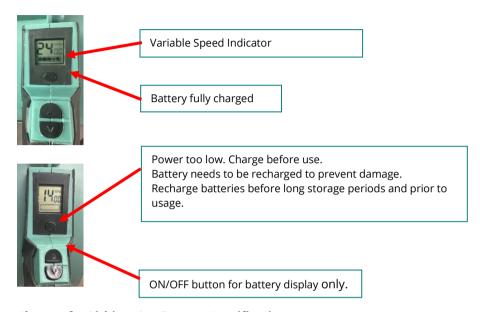








Battery Indicator on MiniCombine



Charger for Lithium-Ion Battery Specifications:

Input current: AC 100V to 240V, 50 to 60Hz

Working temperature: 0°C - 40°C

Charging time: 120 minutes (variable depending on the voltage and

frequency)

NOTE: This charger is designed for indoor use only

Lithium-Ion Battery Specifications:

Battery Lithium-Ion 14.4DCV 3000mAh 43.2Wh

Working temperature: 0°C to 40°C

NOTE: Replacement Li-lo battery Part # **MB-HRVSTR-BATT** (replacement

available from your local dealer)

PREPAIRING THE MINICOMBINE FOR USE

Charging the MiniCombine Battery:

- 1. The power cord must be plugged into an appropriate power outlet.
- 2. Insert the battery in the charger, making sure it is locked into place. See Figure 1
- 3. The red light remains on while charging is taking place. See Figure 2
- 4. When the battery is fully charged, the green light will show. See Figure 2
- 5. Remove battery when it is fully charged.
- 6. Unplug the charger.

WARNING: Do not put metal objects or fingers between the metal contacts of the charger.



Figure 1: Installing battery in charger



Figure 2: Battery Charger

WARNING: If battery leaks, dispose of according to local legislation. If any fluid comes in contact with skin and/or eyes, rinse for a minimum 15 minutes and seek medical attention if necessary.

- Only charge with the supplied charger.
- Protect the charger and battery from moisture.
- Re-charge the battery every 4-6 months when not in use to maintain warranty.
- Handle the battery with care and be careful not to drop it or break it.
- Do not charge the battery if the temperature is lower than 0°C or higher than 40°C.
- Recycle the battery at end of life.

NOTE: Be cautious when installing battery as pinch injury may occur.

Fitting and removing the battery in MiniCombine:

- 1. Ensure battery is fully charged prior to installing.
- 2. Place battery in location behind the handle of the MiniCombine it only fits one way.
- 3. Push the battery until it clicks into place.
- 4. To remove battery, press the locking button while pulling the battery out of the handle. See Figure 3



NOTE: Ensure the battery is charged every 4-6 months when not in use.

This will ensure proper function and compliance with the 12 Month Limited Manufacturer Warranty.

Figure 3: Removing battery

Start up:

 Press the button at the bottom of the screen to turn the MiniCombine on. See Figure 4



Figure 4: Power button

Checking the Battery Level:

- Ensure MiniCombine is turned on.
- Battery symbol is displayed on LCD screen. See Figure 5

NOTE: Recommendation – Charge battery when indicator reaches 20%.



Figure 5: Battery Indicator

Speed Variation:

- Press up arrow to increase speed and press down arrow to decrease speed
- Speed is variable from 1400 RPM to 2400 RPM
- 1700 RPM will show as the number 17 on the LCD screen, 1400 RPM as the number 14, etc. See figure 6



Figure 6: Speed Indicator

USING THE MINICOMBINE IN THE FIELD

How to take a sample:

- 1. Open the case and take out the MiniCombine.
- 2. Remove the sample container from the case. Remove the lid and screw the container about 1 turn on the machine into the opening at the bottom of the machine. **Do not over-tighten**. See Figure 7



Figure 7: Installing Sample Container

Install battery. Reference Page 9 - Fitting and Removing the Battery in the MiniCombine.

NOTE: Ensure battery is fully charged prior to use.

- 4. Holding the MiniCombine by the main handle, open the door by rotating the sample door handle with the other hand.
- 5. Adjust the speed control buttons according to the crop. Reference Page 14 Recommended Ventilation Settings.

- Once the speed is set, start the MiniCombine, pressing the trigger down.
- 7. Set the ventilation shutter at ½ to ¾ open. See page 15
- 8. Adjust this setting according to the result obtained. Check the ventilation setting by seeing if there are whole grains or broken grains coming out of the duct (in the latter case see page 15).

IMPORTANT: You should sample the crop with the MiniCombine running at a constant speed.

After taking samples, allow the MiniCombine to run for 6 - 8 seconds to ensure all sample material is free from the machine.

 To take a sample, ensure proper placement of the MiniCombine. The MiniCombine must be vertical when in use. (Grip handle must be horizontal) See Figure 8





Figure 8: Correct Position for Collecting Sample

- 10. Open the door by rotating the sample door handle. Before sampling vertically into the crop, the MiniCombine must be running at the selected speed. Reference Page 10 Speed Variation.
- 11. Take the MiniCombine down to the bottom of the head while slowly rotating the sample door closed. This will collect the desired sample. The sample door should only be closed for approx. 1 sec after sampling. Reference Figure 9

NOTE: Do not over rotate the sample door handle.



Figure 9: Collecting Sample

12. Repeat vertical movement until sample container holds desired number of heads. **NOTE:** Do not move ahead with the MiniCombine while you are taking a sample.

Make vertical sampling cycles. A sampling cycle lasts about 2 seconds.







It is essential to leave the MiniCombine at the selected speed for a few moments while the sample is taken, threshed and ventilated. If ventilation is stopped too early, you will have a badly threshed sample with chaff.

13. Once the heads are in the sample container, close the sample door by rotating the door handle and lift the MiniCombine towards yourself.

NOTE: Sampling time (to fill the sample container) for wheat or barley +/- 3 minutes. This timing will depend on yield. Smaller yields might take longer.

- 14. Check condition of the harvested sample:
 - a. Too much chaff, increase ventilation. Reference Page 15.
 - b. If losses are at the outlet of the ventilation duct of the MiniCombine, reduce the ventilation.

NOTE: The adjustment is correct if you can see a few grains floating in the duct.

c. Grains with unthreshed heads, increase the threshing harvester speed. If this persists, fit the cover plate (filler plate) over the concaves. Reference Figure 10

NOTE: This plate can create a cleaner sample but will reduce throughput.



Figure 10: Cover (Filler) Plate

15. To adjust cover plate:



After opening the rear trapdoor, loosen the thumbwheel.



Slide the plate: When **closed**, the oblongs of the concave are blocked. When **open**, the oblongs of the concave are visible.

NOTE: The MiniCombine is delivered with a 5mm x 20mm concave installed (specially for wheat and 6-row barley) with cover plate. Reference Figure 10

- 16. When the pot is full, unscrew it, empty it, and screw it back if you are taking another sample. Do not over-tighten the sample container.
- 17. If the crop is not ripe, it is more difficult to clean. You can pass the sample through the MiniCombine a second time. To do this, proceed as described below. During this operation, you can check the ventilation setting by seeing if there are whole grains or broken grains coming out of the duct; (in the latter case, see page 15).
 - Remove the lid from the sample funnel. (1)
 - Holding the machine by the sample door handle, take the full sample container and screw it back on the sample funnel. (2)
 - Leave the door open.
 - Take an empty sample container and screw it on to the bottom of the MiniCombine. (3)
 - Press the trigger to switch on and quickly close the door. (4)
 - The sample will be threshed a second time.









3



4



DISMANTLING/EXCHANGE OF CONCAVE

WARNING: It is essential to remove the battery before any work on the MiniCombine.

- 1. Remove the rear access door by releasing the two clips holding the plate. It is the trapdoor that holds the concave in place. (1)
- 2. In a seated position, hold the MiniCombine on your lap or between your knees. Take the tab located at the end of the concave between the thumb and forefinger. Make small rotational movements back and forth. At the same time, pull to extract the concave from its position, and remove the concave from the MiniCombine. (2)
- 3. Fit a new concave suitable for the new crop. Guide and press the concave with your thumb (or with four fingers) to clip it into the centre. In this operation, you may have to slightly rotate the thresher cylinder. A little effort on the concave may be required in this operation to insert it and guide it into its locations. Clip the rear access door back into place. (3)













RECOMMENDED VENTILATION SETTINGS

NOTE: These settings are given for information purposes only. They should be used as a starting point to be adapted to the variety and condition of the crop.

The speed of the fan can be adjusted with the arrows located under the LCD screen. Reference Figure 6

NOTE: Before turning the ventilation shutter, pull it out slightly









Figure 11: Closed

Figure 12: Minimum

Figure 13: High

Figure 14: Maximum

Ventilation closed (Figure 11)

Crops: rye grass (if necessary, block the shutter completely), flax, small seeds, canola, turnip, poppy seed, parsley, etc.

Thresher speed

Maximum for canola and rye grass

NOTE: Concave 3.5 x 7 for canola

Minimum ventilation (Figure 12)

This setting is used when the closed position does not give enough ventilation.

High ventilation (Figure 13)

Crops: barley, 6-row barley, wheat, spelt, peas, soya, fava beans, etc.

Thresher speed:

- 1400 to 1600 RPM for fava beans, peas, soya
- 1800 to 2400 RPM for barley and 6-row barley
- 1600 to 2200 RPM for wheat and rice

Maximum ventilation (Figure 14)

Crops: barley, 6-row barley, wheat, spelt, peas, soya, fava beans, etc.

Thresher speed:

- 1400 to 1600 RPM for fava beans, peas, soya
- 1800 to 2400 RPM for barley and 6-row barley
- 1600 to 2200 RPM for wheat and rice

NOTE: Reference Page 6 for list of concaves for each crop

CONCAVE: RECOMMENDATIONS FOR CANOLA AND PEAS

For greater versatility, the MiniCombine can be fitted with various concaves. Reference Page 6 for concave sizes.

The MiniCombine is fitted with a concave having holes 5mm x 20mm and a retractable cover plate. This is specially designed for wheat, barley, oats, buckwheat, rice, and sorghum. It may be suitable for other crops provided it gives satisfactory test results.

For Canola harvesting: Harvesting canola directly is difficult, and you cannot harvest canola directly. It is essential to cut whole plants. We recommend harvesting canola in the following ways:

- Thresh and strip the plants into a bucket or pail and transfer the sample obtained to the MiniCombine. Then screw the pot on to the funnel, thresh it and ventilate it with the MiniCombine.
- Use the Stationary threshing stand kit (photo below). Stationary threshing stand kit sold separately. Part # MB-HRVSTR-ST-TH-KIT



For Pea harvesting: Ensure MiniCombine is turned off. If the crop is lying on the ground, pinch off the stems with pods. Put the sample into the sample funnel and start the MiniCombine. If needed, pass the sample through a second time.

For Corn or Sunflower harvesting: The MiniCombine cannot harvest corn or sunflower. But you can use it to clean a sample by passing it through the MiniCombine.

NOTE: The Bushel Plus **Grain Shaker Box** helps you to check a sample of your grain for quality and cracked kernels within seconds. No matter where you are. This tool lets you check any size seed for cracks or quality. Contact your local dealer for pricing and availability.

Part #: BP-SHAKERBX-PL-02



ADJUSTMENTS

IMPORTANT: The thresher harvester and fan are fixed on the same shaft: because of this, when you vary the thresher cylinder speed, you also vary the ventilation speed. You must therefore take this into account when adjusting your settings. Adjusting the MiniCombine according to the type of crop is necessary to obtain a good sample.

TIP: So that the sample best reflects the actual situation, we recommend that you leave the sample in the pot with the lid on in the sun for a few minutes. This will homogenise the sample. This is because when the grain dries, the moisture level on the outside is not always the same as on the inside. If you measure the moisture of the sample, this will correspond to the moisture on the outside of the grain, which is not what you want. You must take this into account in your tests of natural phenomena depending on weather conditions.

Take your sample from several locations in the field: don't hesitate to go to the least ripe places (crop treatment paths, nitrogen connections, etc.).





FOR YOUR SAFETY AND THE CORRECT OPERATION OF YOUR MACHINE, USE ONLY GODÉ ORIGINAL SPARE PARTS AS SUPPLIED BY BUSHEL PLUS LTD.

CARING FOR YOUR MINICOMBINE



If any of your MiniCombine safety labels become damaged, worn, or illegible, these labels can be replaced free of charge by contacting Bushel Plus.

Cleaning

- Clean the machine with a blower at the end of each day of use.
- Do not use sharp objects to clean the MiniCombine.
- On a regular basis, check your MiniCombine to ensure no liquid has collected in your machine.

Storage

- Do not leave the MiniCombine in the elements for long periods of time, including overnight. Do not expose to moisture, cold, dew, or extreme heat.
- To keep battery performance at optimum level, be sure to charge your MiniCombine battery before storage and every 4-6 months when not in use.

LIMITED PRODUCT WARRANTY

- 1. LIMITED PRODUCT WARRANTY. The Bushel Plus MiniCombine (Equipment) is warranted to be free of all defects in workmanship or materials for one (1) year period from the date when the Equipment is purchased by the original end user. The warranty of Bushel Plus is limited to repair or replacement at the sole opinion of BUSHEL PLUS of any defective workmanship or materials. Bushel Plus's liability is limited to the cost of parts and labour required to repair or replace the Equipment. Bushel Plus may, at its sole option, require the end user to return the Equipment to Bushel Plus or its authorized repair depot. Where the repair is covered by warranty, as determined by Bushel Plus in its sole discretion, Bushel Plus shall pay for the cost of repair provided the Equipment is returned to Bushel Plus or its authorized repair depot. In the event that, upon inspection Bushel Plus determines that the repair is not covered by this warranty, the end user shall be responsible for all costs associated with any servicing, including shipping costs, parts and labour. This Limited Product Warranty contains the following exclusions and limitations:
 - a) Any warrant applicable hereunder is subject to Section Limitation of Liability and Damages below.

- b) This limited warranty is extended to the original end user only and is not transferable or assignable.
- c) This limited warranty does not cover damages to the Equipment caused by handling, shipping, transit, processing, or installation.
- d) Bushel Plus will not be liable for any damage or wear to the equipment set or abnormal operating.
- e) Conditions, accidents, abuse, misuse, unauthorized alterations, or repair, failure by the end user to properly service and repair the Equipment, the improper alteration or repair of the Equipment, or failing to install or operate the Equipment in accordance with the Owner's Manual, and Any use, misuse, alteration, modification, repair, or maintenance of the Equipment which is contrary to, or not in accordance with the manufacturer's operating instructions or any service bulletins issued by Bushel Plus, from time to time, will void this warranty.
- f) Any claim of a defect in the Equipment shall be deemed waived by the end user unless written notice thereof is given to Bushel Plus within thirty (30) days after discovery of the defect and within the applicable warranty period. The end user shall be required to provide proof of purchase in the event of making any warranty claim. Bushel Plus shall have a reasonable opportunity to investigate all warranty claims.
- g) The total liability of Bushel Plus is as set out herein, and Bushel Plus makes no implied warranties, including any implied warranty of merchantability of fitness for a particular purpose.
- h) Bushel Plus and their manufacturers reserve the right to modify this warranty statement at any time without prior notice.

2. LIMITATION ON LIABILITY AND DAMAGES.

GENERAL. NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR AMOUNTS REPRESENTING INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR PUNITIVE DAMAGES, INCLUDING LOSS OF BUSINESS OR OPPORTUNITY, OF THE OTHER PARTY ARISING FROM THE PERFORMANCE OR BREACH OF ANY TERMS OF THESE TERMS AND CONDITIONS. NONE OF BUSHEL PLUS, ITS AFFILIATES, ITS SUPPLIERS, ITS LICENSORS, AND THE DIRECTORS, OFFICERS, EMPLOYEES, AND AGENTS OF ANY OF THEM (THE "PROTECTED PARTIES") WILL BE LIABLE UNDER ANY CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER LEGAL OR EQUITABLE THEORY FOR ANY AMOUNTS IN EXCESS OF THE PURCHASE PRICE OF THE SERVICES IN THE 12 MONTHS IMMEDIATELY PRECEDING THE DATE OF THE EARLIEST CLAIM HEREUNDER, WHETHER FOR A SINGLE CLAIM, ACT, OR OMISSION OR FOR A SERIES OF RELATED OR UNRELATED CLAIMS. ACTS. OR OMISSIONS.

3. GENERAL

a. Assignment. Customer will not assign any part or all of this Agreement without Bushel Plus's prior written consent. Any attempt to assign in violation of this section is void in each instance. Bushel Plus may assign this Agreement (or any of its rights and obligations under the Agreement or any Proposal) to any of its Affiliates or in connection with any merger, consolidation, reorganization, sale of all or substantially all of its assets or any similar transaction.

- b. Governing Law/Venue. This Agreement is governed by the laws of the Province of Manitoba and the federal laws of Canada applicable therein, excluding its conflicts of law rules. Customer irrevocably submits to venue and exclusive personal jurisdiction in the federal and provincial courts in Brandon, Manitoba, for any dispute arising out of this Agreement, and waives all objections to jurisdiction and venue of such courts. This Agreement and associated documentation have been written in the English language, and the Parties agree that the English version will govern. (For Canada: Les parties aux présentés confirment leur volonté que cette convention de même que tous les documents y compris tout avis qui s'y rattaché, soient redigés en langue anglaise. (Translation: The parties confirm that this Agreement and all related documentation is and will be in the English language).
- c. **Severability.** If any provision of this Agreement is determined by any court or governmental authority to be unenforceable, the parties intend that this Agreement be enforced as if the unenforceable provisions were not present, and that any partially valid and enforceable provisions be enforced to the extent that they are enforceable.
- d. **No Waiver.** A party does not waive any right under this Agreement by failing to insist on compliance with any of the terms of this Agreement or by failing to exercise any right hereunder. Any waivers granted hereunder are effective only if recorded in a writing signed by the party granting such waiver.

Remedies. Customer acknowledges that any material breach of Section 3 by Customer would cause Bushel Plus irreparable harm for which Bushel Plus has no adequate remedies at law and would not be compensable by monetary damages alone. Accordingly, Bushel Plus is entitled to specific performance or injunctive relief for any such breach without posting a bond or proving actual damages, and without prejudicing any other remedies available to Bushel Plus.

Bushel Plus and their manufacturers reserve the right to modify this warranty statement at any time without prior notice.

CONTACT INFORMATION

Please keep this manual for future reference.

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Bushel Plus is THE Harvest Optimization Company, setting the bar for helping farmers maximize their investment in yield, quality, and time.

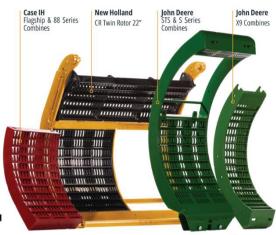
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Bushel Plus MAD Concaves™

INNOVATIVE BAR-AND-GRATE STYLE CONCAVES THAT INCREASE YOUR HARVEST CAPACITY, SPEED AND EFFICIENCY.

- Built to last Abrasion-resistant (AR-200) steel for extended wear.
- Reduce dockage and rotor loss.
- Save on fuel and improve your sample quality.
- Quick & easy-to-change split frame designs for John Deere STS/S Series, Case IH 88 Series, and New Holland CR Twin Rotor 22" combines.
- Speciality concave designs for wheat, corn, soybeans, pod-shatter canola and alfalfa.





Learn more about our products at BushelPlus.com

Bushel Plus MiniCombine™

SAVE FUEL AND TIME

Quick, easy crop sample collection.





Portable, battery-powered and easy to use. Quickly collect a moisture sample from multiple spots in the field.



Built-in threshing drum and interchangeable concaves for use in multiple cereal and oil seed crops.



Accurate results without wasting time and fuel bringing a combine, header and truck to the field.