

Climber Systems

Rice De-husking Machine

Technical Manual



Acknowledgement

The following manual is a technical reference for the provided machine, equipped for the task of dehusking Brown rice. The manual is responsible for guidance for operation and repair and does not account for any aid or collateral damage caused beyond the content of the journal. Furthermore the pictures and illustrations shown in the following journal are for illustrative purposes only and may differ to the actual device. For any possibility of event beyond the content of the journal, it is advised to contact the manufacturer.

The journal is written under the technical guidance of Mr. Anil Gosavi and all Design and Technical rights held by Climber Systems.

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1. Pre Installation requirements *

- a. Single phase 230V, 10 Amp Power supply with proper earthing.
- b. Levelled floor area.
- c. 8 to 10% of moisture in the material for de-husking (paddy).

2. Safety Considerations

- a. Disconnect Electrical connection while replacing or redressing the machine tools.
- b. Ensure handgloves and mask during re-dressing of the tool.
- c. Do not run the machine with the covers off (Risk of moving parts)
- d. Ensure there are no children or animals in the vicinity of the machine.
- e. Place rat covers at the Air duct openings and close the hopper opening when the machine is not in use.
- f. Ensure gap between the tools even if the machine is idle, (do not press the tools against each other)
- g. Ensure firm locking of the tool lock once the machine is calibrated.
- h. Under any conditions of vibration due to a stone between the tools, stop the machine, remove it and recalibrate the machine.
- i. For any assistance beyond the content of the manual contact the manufacturer

3. Installation instructions

- a. Unpack the machine
- b. Put on the rubber boots provided in the box
- c. Open the machine front cover, To find a half duct part with mounting tools(bolt, nuts, washers)
- d. Connect the duct piece to the duct attached to the machine
- e. Bolt the front cover properly
- f. Plug the machine into the power socket.
- g. First start the MCB, then the blower button(B) and then the tool Button(T)
- h. While turning the machine off, reverse the order of operation used for initiation.
- i. The machine is ready for operation.

4. List of parts with exploded view

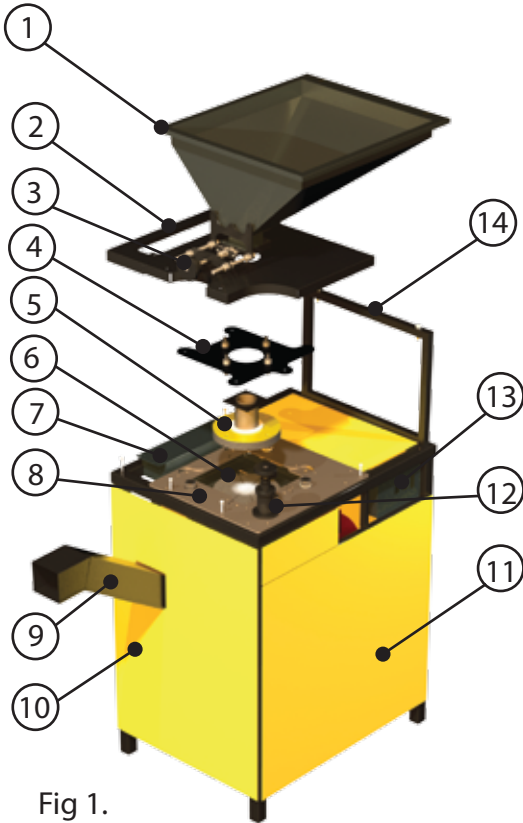


Fig 1.



Fig 2.

1. Hopper
2. Top Cover
3. Hopper Throat Assembly
4. Tortoise Plate
5. Upper tool
6. Bottom Tool
7. Tool Box
8. Top Plate
9. Duct
10. Machine cover

11. Machine Right Side Cover
12. Pedestal (Tool Adjuster)
13. Switch Box
14. Hopper Frame
15. Machine Back Cover
16. Blower
17. Door Adjustment Screw
18. Door
19. Machine Lheft Side Cover

5. Calibration Instructions

A. Rice Flow Adjustment

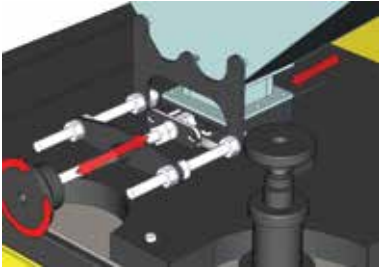


Fig 3.

Rotate the wheel of the hopper throat assembly (Part 3; fig No 1).

Rotate clockwise to open the throat and counter clockwise to close.

This will control the flow of rice input through the hopper

B. Tool Space Adjustment

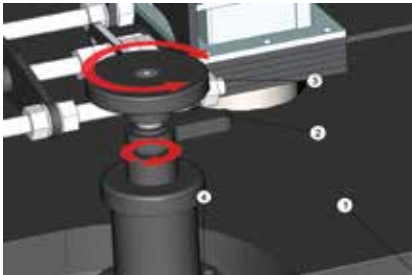


Fig 4.

For the tool space adjustment we use the pedestal (Part 12; fig No 1)

Steps:

- A. Unlock the pedestal wheel((2); Fig no 4).
- B. Rotate the wheel(3) counter clockwise to widen the space between the tools, and clockwise to bring the tools closer.
- C. Calibrate the required space between the tool by putting some of the paddy in the hopper, maintain the distance between the tool until you get a ratio of 70/30 for brown rice to paddy.

Once ensured lock the pedestal wheel(2).

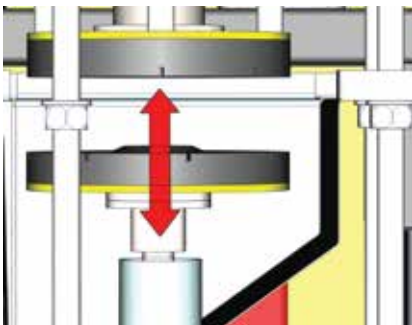


Fig 5.

C. Blower Door Adjustment

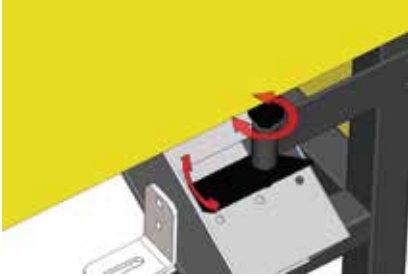
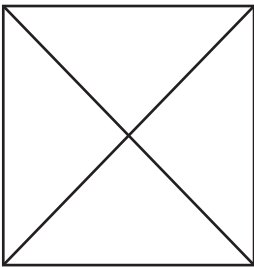


Fig 6.

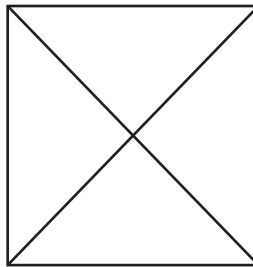
- A. Observe the bolt provided, as shown in figure 2. (Part 17)
Rotate the bolt clockwise to decrease the air flow, and counter clockwise to increase the air flow.
- B. Determine the allowance of the air flow based if you see the husk or the breakage of rice.
- C. The shutter should be open to the point where only husk obtained, if there rice seen from the bottom vent, decrease the flow of the air.
- D. With following calibration achieved plug the machine to the rated power outlet, and put the raw rice in the hopper for husing.

*Note: The process of filling and getting the output could be repeated until a small portion (relatively 1%) of the paddy is observed in the output, which suggests recalibration of the tool.

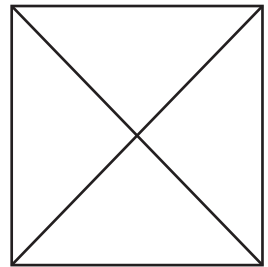
D. Graphical Demonstrations



a. Assembly and operation



b. Calibration



c. Maintenance

6. Maintenance Instructions

A. Tool Change

After a cycle of 4.5 to 5* tons of paddy, it is suggested for changes in tool for further optimised results. (*cycle limit is subjected to type of rice)

The following steps could be employed in the procedure to dismantle the tools:-

1. Unlock the bolt as shown in figure 7.
2. Remove the hopper (Bolt Size M12) ((2) ; Fig no 7)
3. Remove the Top cover ((5) ;Fig no 8) by undocking the bolts (M8) as shown in Figure 8
4. Remove the tortoise Plate by undocking the bolts (M12) as shown in Figure 9
5. Observe the following parts to be replaced; the Top tool (B) attached to the Tortoise plate(A)
6. Remove the top tool by undocking the Bolt as shown in Figure 9
7. Take the new Top tool and attach it to the Tortoise Plate
8. Remove the Bottom tool shaft as shown in figure 10
9. Remove the bottom tool by undocking the bolts on the shaft plate
10. Fix the new bottom tool on the bottom plate shaft
11. Insert the shaft down
12. Then Fix the tortoise plate
13. Fix the top cover (5)
14. Place the hopper properly on the throat pipe and fix it to the hopper frame

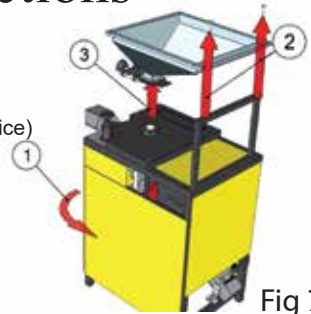


Fig 7.

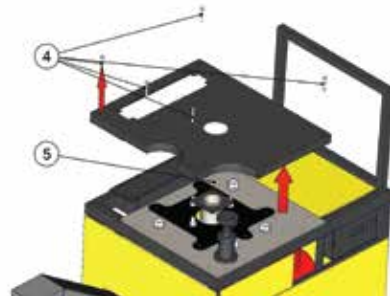


Fig 8.



Fig 9.

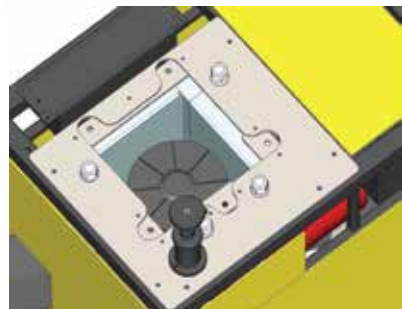


Fig 10.

B. Regrooving

*The following case is needed in the event the machine is seen to be; not in function. In this case the tools need to be grooved by grinding, to the necessary dimensions as specified in the figure below.

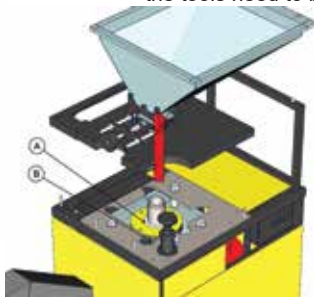


Fig 11.

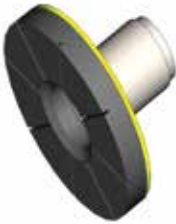


Fig 12.

Following procedures are to be applied for the same:-

1. Remove the tools as per the procedure suggested for replacement.
2. The tools need to be grooved at a 6mm depth X 3mm width as specified in the figure
3. Once achieved the tools could be placed back to the operating position in the same procedure as suggested above, and the machine should be recalibrated for proper functioning.

C. Gear Box Oil Change

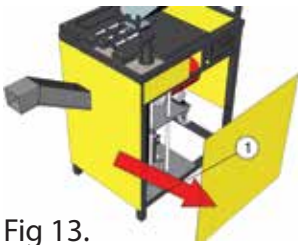


Fig 13.

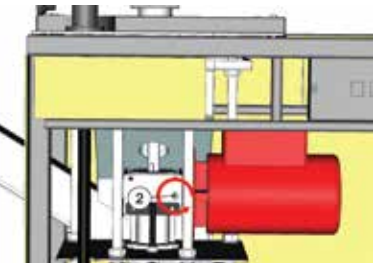


Fig 14.

1. Remove the right cover of the machine (1; Fig 13).
2. Locate the gearbox knob(2; Fig 14), open the knob with the Allenkey (Size:M8)
3. Close the knob if dripping is observed, if not refill the oil chamber with “20W40” oil used for two wheelers.
4. After the repair reassemble the machine in the reverse order used for dismanteling