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# Dehuller – Scarifier OPERATION AND SETTINGS



## KIMSEED Dehuller -Scarifier

The Dehuller was developed to meet needs in the experimental area of Agronomy. The machine effectively and efficiently Dehulls a wide range of seed types and is especially suited to hard coated seed types such as Serradella.

An upper stationary abrasive Disc (disc A) is gradually screwed downwards towards a lower rotating abrasive disc (disc B) until the seed hull is cracked away leaving the seed.

### Scarifier Option:

The machine can be used as Scarifier if the screw in Rubber Pad Plate is screwed into the upper stationary Disc ( disc A ). The upper disc A can be screwed down until correct scarification of the seed occurs without dehulling the seed.

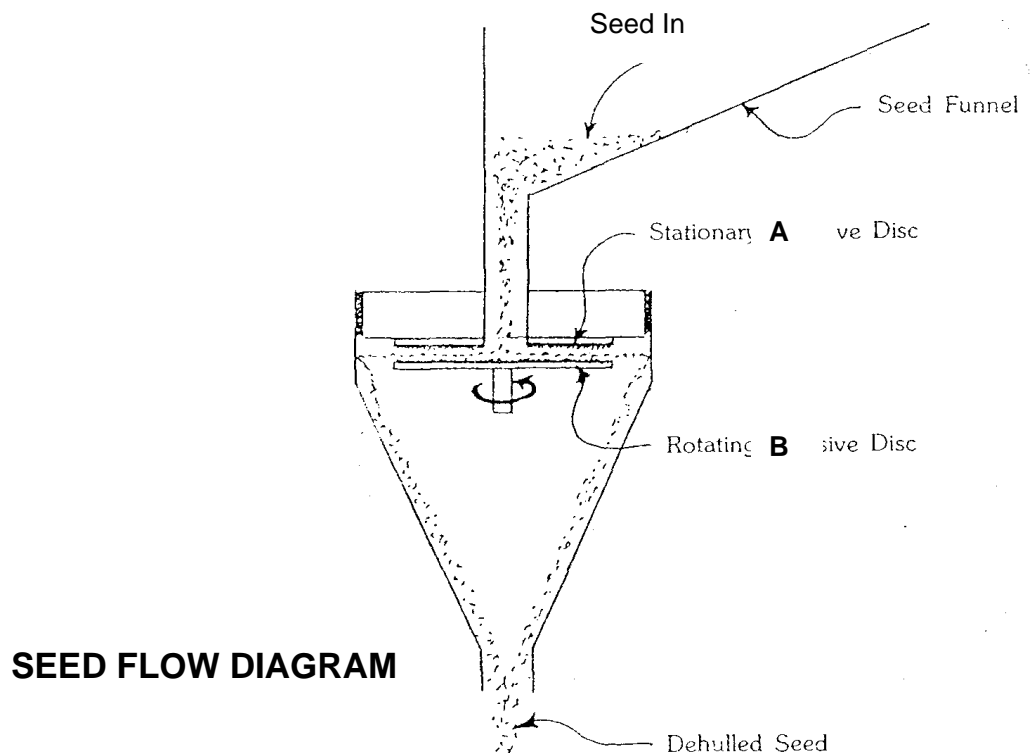
Seed may have to be fed through the machine again if more scarification is required for seeds with harder seed coats.

The rotating abrasive disc speed can be adjusted by changing the V belt ratios.

**SPECIFICATIONS** :Dehulling rate – 30 to 50 kg per hour  
Scarification rate – 30 to 80 kg per hour  
4 Speeds: 610 rpm  
1070 rpm  
1800 rpm  
3200 rpm

### Dimensions:

Electric Motor: 240V, 50 Hz 0.75 Kw 2.5amp  
Height 1170 mm x Length 675mm x Width 475 mm



## Set Up:

- 1) Machine must be switched off and disconnected from power source prior to any adjustments and feet adjusted to level the machine.
- 2) Screw the top assembly with stationary abrasive disc down until it touches the bottom disc attached to motor and gearbox. **(BOTTOM DISC MUST NOT BE ROTATING)**. This will be the zero mark.

Note : Unscrewing One Revolution of the top assembly, raises it 6mm.  
Each dimple hole mark = 0.75mm



- 3) Unscrew the top assembly back  $\frac{1}{2}$  a turn ( $180^\circ$ ) each  $\frac{1}{2}$  of a turn results in a gap adjustment of 3 mm. This initial setting will depend on the size of the seed to be dehulled. Larger seed will require a greater opening.

Note: For best results seed should be sized through a sieve.

- 4) Set V belt to the slowest setting to begin with. 610 rpm.
- 5) Switch Dehuller ON and feed a small sample of seed into the feed funnel, and allow it to pass through the Dehuller.
- 6) Check sample, if seed is dehulled but seed is damaged, continue to unscrew the top assembly (keeping in mind that each mark is equivalent to a gap of approximately 0.75 mm or 6 mm for a full turn) and try a new sample. Continue small adjustments until seed is dehulled and undamaged.

## Set Up: (cont'd)

For Harder Seed coats the rotating disc speed may have to be increased.

Gap Reference markings = 0.75mm

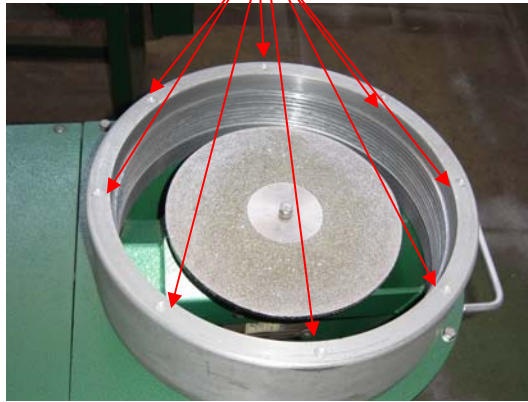


Photo with top assembly removed and diamond coated rotating disc fitted

- 7) When sample is Dehulled to your satisfaction, tighten the top assembly locking bolt



## **OPERATION:**

### **Size the seed:**

For best performance your seed should be sized through a sieve. The dehulling process is more efficient if the seed samples are a similar size and shape.

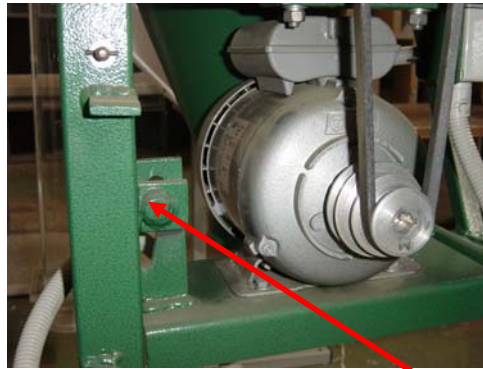
After you are satisfied with the settings, the Dehulling process can begin. Slowly pour seed into the feed chute and maintain a constant feed rate for optimum results. Check the dehulled seed regularly to ensure settings are correct and seed is not being damaged.

### **Speed adjustment:**

Speed adjustments are required depending on the seed being dehulled. A slower speed is generally used for harder seeds and a faster speed used for softer seeds. This increases or decreases the time the seeds remain in the Dehuller chamber.

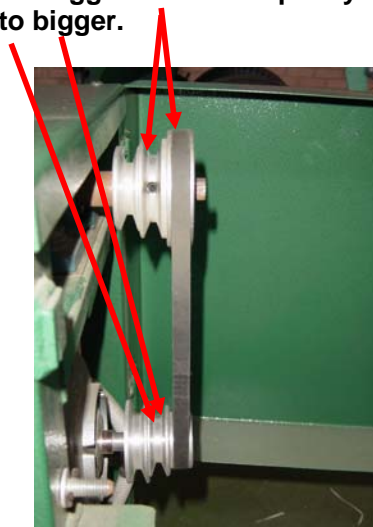
### **Adjustment:**

- 1) Turn Machine off, and disconnect from the mains power source.



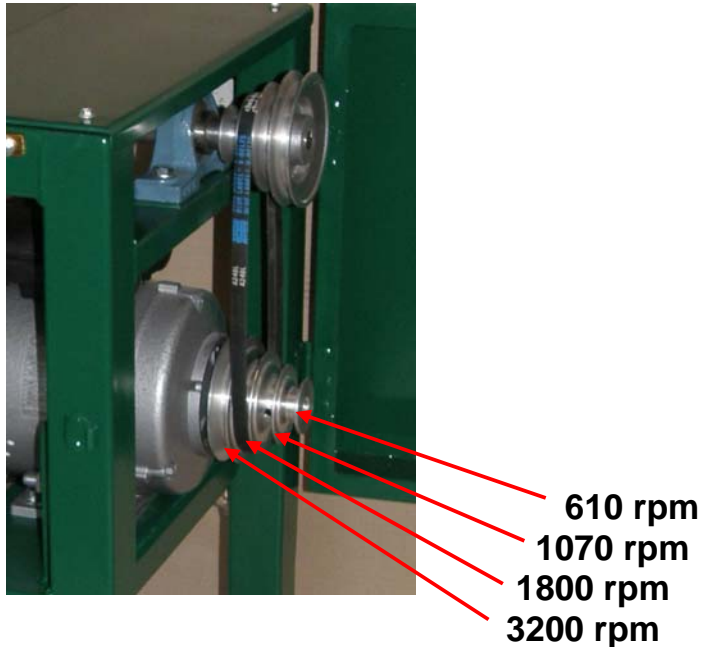
- 2) Open the belt cover and loosen belt tensioning bolt.

With care, slide belt from bigger to smaller pulley. Set one first and then the other set from smaller to bigger.



- 3) Tighten belt tensioning bolt allowing for some 5 to 10 mm slackness of the V belt. Close belt cover prior to recommencing Dehulling.

**View showing pulley sizes to speed**



**Note: 3200 setting to be used at 30 sec intervals only.**

## **MAINTENANCE Schedule:**

**10 hrs:** Rotating Disc can be cleaned with a brush & detergent and water.

**16hrs:** Clean abrasive surfaces due to a build up of seed residue. Can be washed with brush and detergent.

**40 hrs :** Top Stationary abrasive top disc: replace when surface becomes dull & loses abrasiveness. Discs are available in 24 and 60 grit. (See below)

**80 hrs:** Diamond abrasive disc : Clean only with a strong cleaner (degreaser)

**120 hrs:** Replace Rotating Abrasive disc.

**Grease the main thread at least every season.**

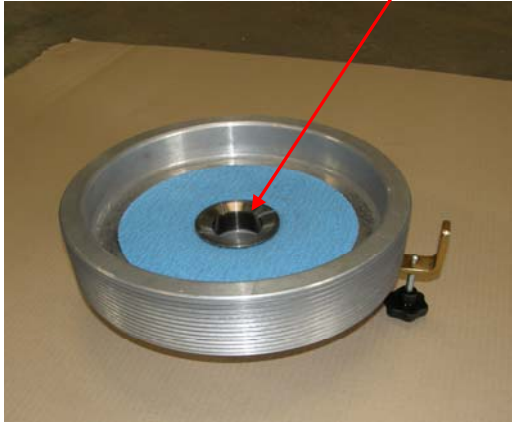
**Replacement parts:**

|                          |                    |
|--------------------------|--------------------|
| <b>Dehulling Discs:</b>  | <b>KDH GR 24</b>   |
|                          | <b>KDH GR 60</b>   |
| <b>V Belt:</b>           | <b>KDH A 23</b>    |
| <b>Scarifying Rubber</b> | <b>KDH R 260/6</b> |

## **Abrasive Replacement & Maintenance: Top Disc Replacement:**

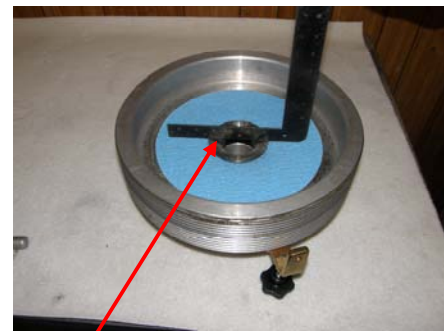
The top abrasive disc is replaced as follows:

- 1) Disconnect the machine from mains power source.
- 2) Remove top feed chute and unscrew top assembly and unscrew nut. The nut can be loosen by using a large screwdriver and rubber hammer.



Hold down nut

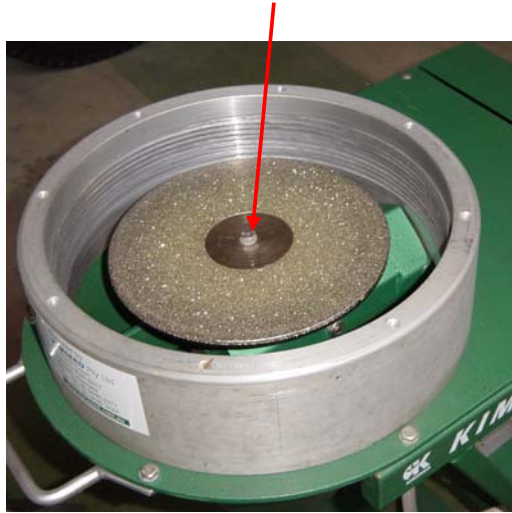
- 3) Remove glued on abrasive with a scraper and dissolve of the remaining glue with Mineral turps. Glue on a new abrasive disc and use a rubber hammer to gently hammer it flat. Refit the hold down nut. ( tighten with a large screw driver into the slots)



**Check Clearance of NUT.  
It must be below abrasive  
level by 1mm.**

#### 4) Rotating Abrasive Disc Replacement:

Unscrew hex head screw in the centre and remove the disc from the machine. Scrap of the abrasive and clean off remaining glue. Use contact adhesive to fit a new abrasive to the disc ( use high temp. water resistant contact adhesive). Hammer flat using a rubber hammer to get maximum grip. Refit the disc to the machine and tighten the hex head centre screw.



#### Optional Top Disc – Diamond:

If de-Huller is equipped with Top Diamond Disk, this only needs periodical cleaning

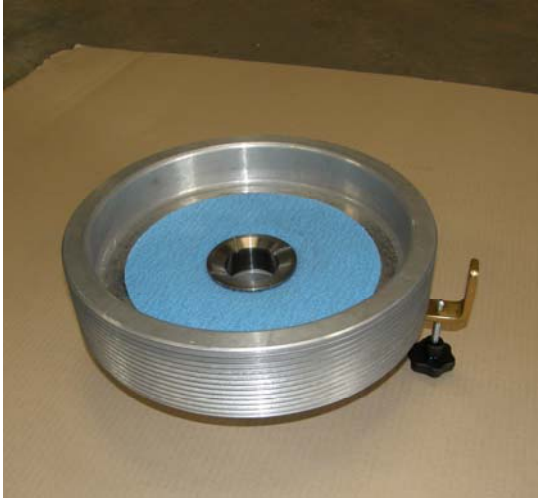


## **SCARIFIER SET UP:**

The Dehuller can be set up to scarify seed surfaces in order to increase moisture penetration and increased germination rates.

Follow the following instructions to set up the machine to scarify seed.  
Disconnect the machine from the Mains supply.

1. Unscrew the top and remove the abrasive holding screw



2. Grease thread and screw the Rubber Scarifying Disc into the top over the abrasive and tighten with the special fitting tool supplied.



Rubber Scarifying Disc



Tighten using special tool

## **SCARIFIER SET UP: ( cont'd )**

- 3. Screw down the Top Stationary Disc with the rubber scarifying disc fitted until it touches the abrasive rotating lower disc. You can tell if it is touching by looking into the top seed inlet hole. When it touched the abrasive disc, the disc begins to move. Stop screwing at this point.**
- 4. This position is the new ZERO CLEARANCE POINT.**



- 5. SIZE THE SEED to be scarified.**  
Sieve the seed to be scarified so that it is similar in shape and diameter. Unscrew the Top Stationary Disc so that it moves up and creates a clearance of approximately  $\frac{1}{2}$  half the seed size between the rubber and the bottom rotating disc. One dimple hole = 0.75mm of clearance.
- 6. Refit the feed chute and you are ready to begin scarifying your seed. Place a bucket under the machine.**
- 7. Set the belt speed to 610 rpm ( slowest)**
- 8. Plug the machine back into the mains power supply and turn it on. Slowly feed a hand full of the seed into the feed chute and begin scarifying a sample. Inspect the seed with a magnifying scope to check the surface. If the seed has been too damaged, the clearance must be increased slightly .**
- 9. For very hard seed coats, repeat the scarifying for a second time.**

**MAINTENANCE Schedule:** is the same as for Dehulling.