

**Gjesdal**

**mini**

**FIVEinONE**

**rotary**

**seed cleaner**



**Operator's  
manual**



## INTRODUCTION

The importance of clean seed has been recognized since the beginning of grain production. Uncleaned grain often contains a wide variety of weed seeds, off type grains, cracked and broken kernels, small stones and other material, as well as bits of straw and chaff. All of this material, commonly referred to as dockage, must be removed if the grain is to be used as seed.

To remove all "dockage" from a sample of grain, a number of cleaning methods must be used. A variety of cleaning equipment has been designed over the years, using different cleaning principles to perform very specialized cleaning functions.

Most will remember the fanning mills common on many farms years ago. These cleaners just could not remove all weed seed from the grain sample.

The Carter Disc Cleaner came along in the late 1920's and was used extensively for cleaning wheat, with fairly good results, but, again, it could not separate all weed seeds. Its specific function was based on length separation.

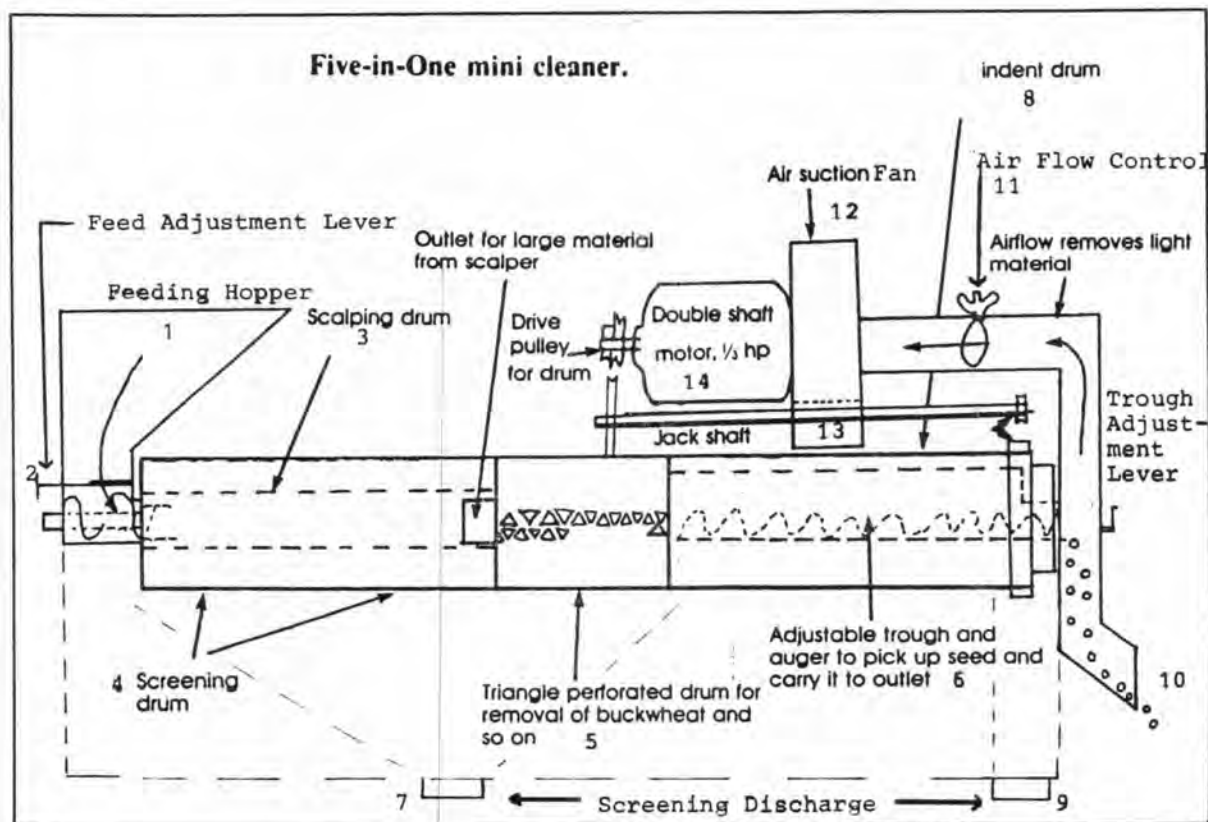
The need to place several cleaning operations in series became evident. This has been done for years at commercial seed cleaning plants.

There are numerous advantages to on-the-farm seed cleaning. There are reduced trucking costs. There is no risk of introducing new weed seeds to your farm. There is no time spent waiting your turn at a cleaning plant. And there is better use of your time while your seed is being cleaned.

The Mini Gjesdal Five-In-One cleaner is a small cleaner designed to clean small to medium sized lots of grain. It is ideal for cleaning seed from test plots, and pedigreed seed plots. It is large enough however to clean the total seed requirements of a small to medium sized farm.

In order to clean larger lots of grain with a low volume cleaner, it is important to consider carefully, how the cleaner will fit in your plans. To allow you to run the cleaner continuously for long periods of time, without constant supervision, you should try to eliminate the need for continuously running augers. The best system is the use of an overhead holding bin and lower bins for screenings and for clean seed, with the cleaner elevated somewhere in between. This allows you to run the cleaner for long periods of time, making the most use of gravity.

## HOW THE MINI GJESDAL CLEANER WORKS



The Mini Gjesdal Five-In-One Cleaner performs five cleaning functions.

1. The scalper screen takes out the coarse material.
2. The grader shell removes small seeds and cracked kernels.
3. \*The buckwheat screen removes additional small seeds.
4. The indent cylinder picks out the plumb seeds from the remaining grain.
5. The aspirator removes light kernels and chaff which may remain in the cleaned grain.

The capacity of the mini cleaner will vary depending on the seed samples, the variety of grain, and the type and amount of weed seeds to be cleaned out. The typical capacity will range from 4 - 10 bushels per hour.

\*There is no buckwheat screen for cleaning flax or rapeseed, but instead, the grader shell is extended the full length of these two screens.

Because grain flow is slow, it is desirable to set up the cleaner in such a way, that gravity is used as much as possible, and the running of augers is kept to a minimum.

Grain is collected preferably from an overhead bin, in a small collection hopper as shown in (1). It is important that the hopper is partially filled at all times, in order that the grain flow is uniform.

Feeding the cleaner is regulated by an adjustment lever and slide (2). A short auger flighting draws grain into the scalping drum (3) which is located inside the grader shell (4). The scalping drum removes very large material such as unthashed heads, straw etc., which is dropped to the screening collection pan and discharged at the screening discharge port (7).

The scalping drum is kept clean using several small rubber balls riding on the flow of grain in the grader shell which apply a light pressure on the outside of the rotating scalping drum.

The grader shell (4) removes small weed seeds and cracked and broken grain. This is the main grading function. The standard grader shell recommended for cleaning wheat when the cleaner is purchased is a  $5\frac{1}{2}/64$  slot. This screen may have to be changed depending on the grain you are cleaning, or the size of the kernels of the grain being cleaned.

The grain is moved gently along the grader shell to the buckwheat screen (5). Small material passing through these screens drop into a catch pan, and discharged at the screening discharge port (7).

The buckwheat screen continues the grading process, removing smaller seeds and broken kernels.

The grain now passes into the indent drum. Small indents, or pockets, pick up the kernels of grain, which are held in place by the centrifugal force of the rotating drum. As the kernels are raised to the top of the drum they begin to fall. A trough (6) which is adjustable and which contains an auger, now catches these kernels and moves them towards the clean grain discharge port (10).

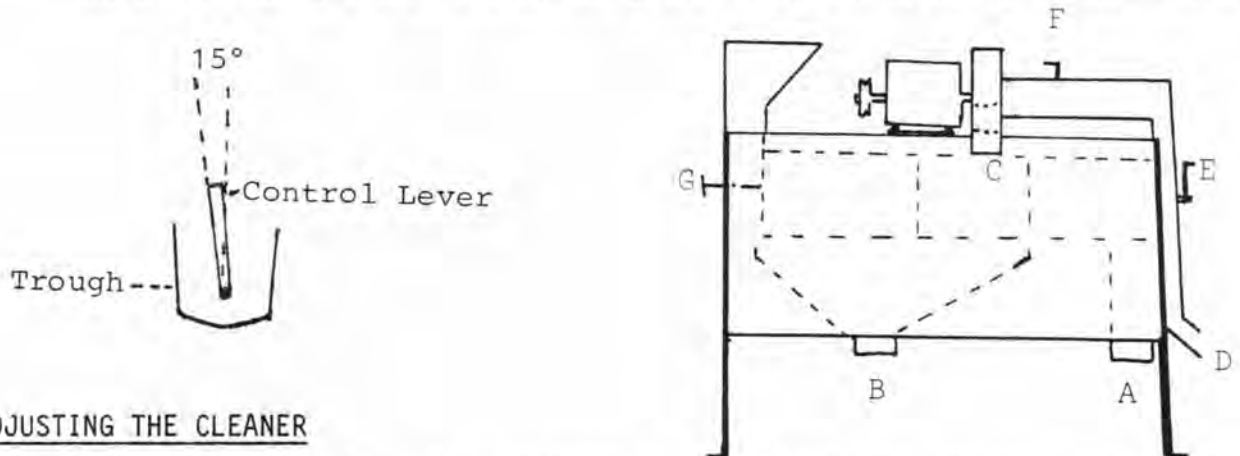
The indent drum is the place where wild oats and other material which has a similar thickness but is longer than the grain being cleaned, is removed, since these longer kernels do not fit in the indents, and therefore are not carried up as far to be caught in the adjustable trough.

As the grain proceeds into the discharge port (10) the final cleaning process takes place. Air is drawn up the discharge port by the fan (12). The air movement can be regulated by an adjustable damper (11). Light material is drawn up and discharged at the air exhaust port (13).



## PREPARING YOUR CLEANER FOR OPERATION

1. The cleaner must be set on a level surface. This is very important. When the cleaner is set on a level surface, the slope of the drum is about  $3/4$  inch on the length of the drums. Any change on this slope will interfere with the rate at which the grain passes through the cleaner.
2. Check the lever which controls the indent trough. It should be mounted so that the top of the lever is about  $15^\circ$  to the left of centre of the trough. See the diagram.
3. The standard screens and drums which are included when the cleaner is purchased are the screens recommended for cleaning a standard sample of wheat. This includes the  $10/64 \times 3/4$  slot scalper screen, the  $5 \frac{1}{2}/64$  slot grader shell, the .109 in. buckwheat screen and a number 18 indent cylinder. Other screens are available as options. Choose the correct screens for the grain you will be cleaning.
4. Check the R.P.M. of the drum. It should be rotating approximately 56 R.P.M. This can be determined easily by putting a piece of tape or other mark on the drum and counting the revolutions, using a stop watch.



## ADJUSTING THE CLEANER

1. When the grain flow has stabilized throughout the cleaner, check the screenings coming from screening port (A). If an excess of good seed is coming out as screenings, move the lever E to the right, wait several minutes and check again.
2. Check the clean spout D. If longer than desired seeds are coming through, move the lever E to the left and again wait a minute or two before checking the clean grain again.

When the correct setting is obtained, there should be a uniform length of seed coming out of spout D, and about one or two percent good grain along with the long seeds coming out of spout A.

3. Adjust the air flow F to a point where a small amount of good seed is drawn out along with the light material. Check at the aspirator discharge port C.

4. The mini cleaner is not designed to be a commercial cleaner. It is important that the quality of the seed cleaned is more important than the amount cleaned per hour. Do not overload the cleaner at the expense of clean seed. The normal capacity will vary between 4 - 10 bushels per hour.
5. If you cannot obtain a clean sample of grain, check the size of your screens. Depending on your grain sample, you may have to change to larger or smaller sized shells. Experienced cleaner operators like to remove 20 to 30% screenings in order to obtain a good plump seed lot.

### THE INDENT CYLINDER AND HOW IT WORKS

The indent drum cleans grain using a method very different from conventional screens, or fanning mills. Fanning mills and screens clean grain based on the weight and thickness of seed, whereas the indent works on the length and weight of different seeds.

There are two important forces at work in the indent cylinder. One is the centrifugal force, pushing the kernels of grain out as the drum rotates, and holding these kernels in the indents or pockets. The other is the natural force of gravity which pulls the grain down. As the grain is carried up the side of the indent drum, it will remain in place until the force of gravity is greater than the centrifugal force. By adjusting the trough inside the indent, you can catch the good, plumb seeds which are being carried up higher than the lighter seeds.

It is important that the speed of the indent drum is correct. An over speed indent drum will not allow any seeds to drop out of the pockets. By fine tuning the speed of the indent drum, you can regulate how high the seeds are lifted before gravity takes over and pulls the seeds out of the indent pockets. Since longer seeds fall out of the pockets sooner than the shorter seeds, the trough position may have to be adjusted so that only the desired length seeds drop into the trough.

To obtain the cleanest sample possible, you may have to experiment with the speed of the indent and the trough adjustment. A change of only two or three turns per minute will affect the work the machine is capable of doing. If your grain contains very plumb kernels, you may have to change to a larger indent shell. The #18 indent shell is recommended for most samples of wheat. For cleaning barley, where kernels are often larger, a #22 drum is recommended.

### KEEPING SCREENS FROM PLUGGING

Since the mini cleaner has a limited area to clean seed, it is important that no part of the screens are plugged. To keep screens from plugging two unique features are used.

1. Several small plastic balls are contained inside the grader shell. These balls ride up on the grain flow when the cleaner is in operation, exerting a light pressure on the scalping drum, which is rotating inside the grader shell. This light pressure pushes back any material stuck in the scalping drum, keeping it clear at all times.

2. A plastic roller held in place by a steel rod, exerts a light pressure on the outside of the grader shell. This light pressure forces any material stuck in this shell, back inside the grader shell, keeping it clear at all times.

### LOOKING AFTER YOUR CLEANER

To obtain a uniform, clean grain sample, it is important that the screens and shells are looked after, to keep a smooth, polished surface. Rust and corrosion is a cleaners worst enemy.

The machine should be kept dry at all times since rust in the indent pockets will seriously affect the functioning of the drum. A glazed surface on the screens, and especially in the indent drum is very important, in order to make precision separations. A new indent drum, or a cleaner which has been unused for a while should be run for a period of time to get the smooth polish back.

### CHANGING THE SCREENS

The entire drum, which includes the grader shell, the scalping drum, the buckwheat screen and the indent drum is easily removed by removing the end plate which supports the clean grain spout. There are seven nuts and one bolt to remove as shown on the diagram. Also remove the collar on the shaft at the hopper end of the machine. File the set screw burr after removing the set collar. The complete drum can now be removed by pulling gently. USE CARE WHEN REMOVING so as not to dent any part of the drum.

The drums can now be separated by removing the holding bolts, and the necessary drums replaced.

If desired, the end plate can be removed from the drum simply by loosening the allen screws which hold the trough control lever to the centre shaft. Then slide the end plate off the shaft. This makes the drums easier to handle.



To change drums remove the end plate by removing the 7 bolts indicated with an arrow.

CLEANER SHELL RECOMMENDATIONS FOR  
MINI FIVE-IN-ONE CLEANER

CROP	SCALPER	GRADER SHELL	*BUCKWHEAT OR CENTRE SCREEN	INDENT
Wheat or Red Winter				
Spring Wheat	10/64" x 3/4" slot	5 1/2/64" slot	.109 in.	No. 18
Optional	9/64" x 3/4" slot	5 3/4/64" slot		No. 19
Durum Wheat	10/64" x 3/4" slot	5 1/2/64" slot		No. 20
Optional	11/64" x 3/4" slot	5 3/4/64" slot		No. 19
(Extra Long Drum)		6/64" slot		No. 22
Barley	10/64" x 3/4" slot	5 1/2/64" slot	.090	No. 22
Optional	11/64" x 3/4" slot	6/64" slot	.097	
Rye	10/64" x 3/4" slot	5/64" slot	.090	No. 22
Optional	9/64" x 3/4" slot	5 1/2/64" slot	.083	No. 20
Oats	10/64" x 3/4" slot	5 1/2/64" slot	.090	No. 24
Optional	9/64" x 3/4" slot	5/64" slot		No. 22
Flax	Not available at this time	5 1/2/64" R.H.	Same as grader shell	No. 16
Optional		5 3/4 64" R.H.	Same as grader shell	No. 18
Rapeseed (Argentine)	6/64" R.H.	3 1/2/64" slot	Same as grader shell	No. 16
Optional	7/64" R.H.	4/64" slot	Same as grader shell	No. 18
Rapeseed (Polish)	5 1/2/64" R.H.	3/64" slot	Same as grader shell	No. 16
Optional	6/64 R.H.	3 1/2/64" slot		No. 13
Lentils Laird	10/64 x 3/4 slot	13/64" R.H.	.097	No. 22
Eston	10/64 x 3/4 slot	10 1/2/64" R.H.	.090	No. 19
Peas	It is not recommended to clean peas for seed purposes on this machine since the indent cannot be by-passed.			

\*The size of the buckwheat screen is the inscribed circle size. (the measure of the circle inside the triangle)



SPECIFICATIONS

Weight	230 lbs.	(105 kg)	
Dimensions	Height	38 inches	( 96.5 cm)
	Width	23½ inches	( 59.7 cm)
	Length	46¼ inches	(117.5 cm)
Capacity	4 - 10 bushels per hour (depending on the type of seed)		
Power	1/3 h.p. dustproof motor - 110 volt current		

SIMON DAY GUARANTEE

**GJESDAL FIVE-IN-ONE CLEANER**

**GUARANTEE**

The Gjesdal Five-in-One Grain Cleaner is made of the finest materials and is noted for its efficiency, mechanical simplicity and sound construction. This cleaner is built for minimum maintenance costs, maximum life, and outstanding cleaning performance.

All the parts of the Gjesdal Cleaner are guaranteed against faulty workmanship. Any part found to be defective will be replaced, at no charge, for a period of 90 days after date of purchase.

**FREE LABORATORY SERVICE:** CEA SIMON-DAY LTD. will be glad to test, free of charge, samples of any material you may wish to process through the Gjesdal Five-in-One Cleaner which are not included in the current scalper, grader and indent shell recommendations.