

Gjesdal **FIVE in ONE** **GRAIN CLEANERS** Simplifying the World of Grain Processing

M 700



A SEED CLEANING PLANT ALL IN ONE MACHINE*

NOTICE TO BUYERS

Thank you for your purchase of one of the finest grain cleaners on the market. A working partnership relationship is what we strive to achieve with each and every customer.

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By acceptance of this machine the original Purchaser acknowledges that this warranty and disclaimer herein before described are conditions of sale and that they constitute the entire agreement between the Vendor; SilverLine Mfg. Ltd. and the original Purchaser regarding warranty and/or any other liability or conditions.

The original Purchaser shall have 10 days after purchase date to accept this machine or advise SilverLine Mfg. Ltd., in writing, of any disagreement. No warranty will cover misuse or damage in any way and any machine may not be accepted for return which is not returned in factory original condition.

ATTENTION

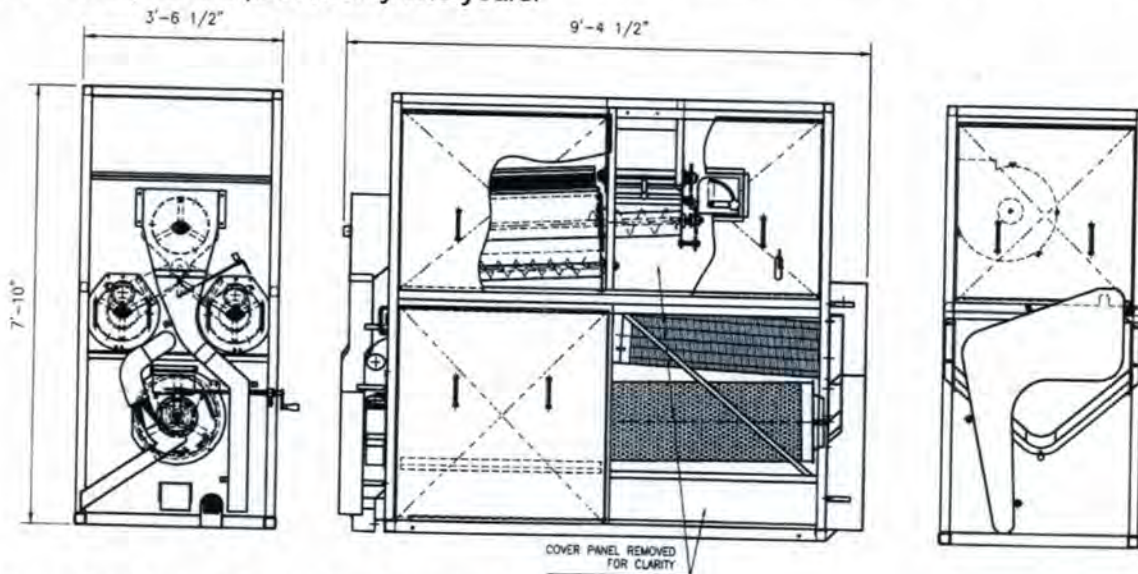
All warranties expressed or implied will be null and void if any other than SilverLine Mfg. Ltd. parts, components or accessories are used in Gjesdal or SilverLine grain cleaning units. SilverLine genuine parts, components and accessories are available by order, please call 1-306-856-4445.

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FIVEinONE

Gjesdal M - 700 Grain Cleaner

- On farm size seed cleaning machine of 70 - 90 Bph. Peas, upwards to 130+ Bph.
- The machine is powered by one 2 hp. single or three phase motor.
- By changing appropriate shells and drums it will process grains from alfalfa size to pea and chick peas.
- The machine is almost totally enclosed with internal air vacuum suction for dust control. There is a final air aspiration for the clean grain discharge.
- Incoming grain hopper has control gate discharge.
- The machine is equipped with 5 - 45" grader shells. First one is a scalping system which splits the grain flow equally to the next two parallel grader shells and into the following two shells. These last two shells and the first two maybe of any desirable perforation size to match the cleaning requirements. They are mounted end to end for easy mix and match.
- The indent shell is the final separation and normally would be a large pocket indent. The shell is a standard # 3 indent shell.
- All of the grader and indent shells are changed from the same end
- There is a speed adjustment control for both the indent and the aspiration fan.
- There is a clean grain oat seed discharge system and a pea seed discharge valve.
- The clean grain discharge and the screening discharge are at the same end of the machine, with the clean grain spout being at the side and the screening auger collection discharge being near the center.
- All screenings will be collected and discharged
- The machine is "User Friendly", easily cleaned out and with the convenience for grain change overs.
- This model Gjesdal 700 will be of the same high quality and performance that has been supplied to the seed industry for the past twenty one years.



Parts and accessories are only a phone call away. We carry, in stock, most parts required for your unit with few having to be ordered. Most, if not all, drive parts can be purchased at any agriculture machine dealership which include bearings, pulleys, belts and gears. This prevents you having unnecessary downtime which means money out of your pocket. At **SilverLine Mfg. Ltd.** we take pride in our workmanship. The grain cleaners are built and assembled on site near Outlook, in central Saskatchewan. Every unit goes through line testing and a run test to ensure that each unit meets our quality standards before leaving our shop. It's our reputation on the line and if you are not satisfied, we are not satisfied. Parts and accessories are only a phone call away.



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SilverLine

For more information contact your Grain Cleaning Specialist

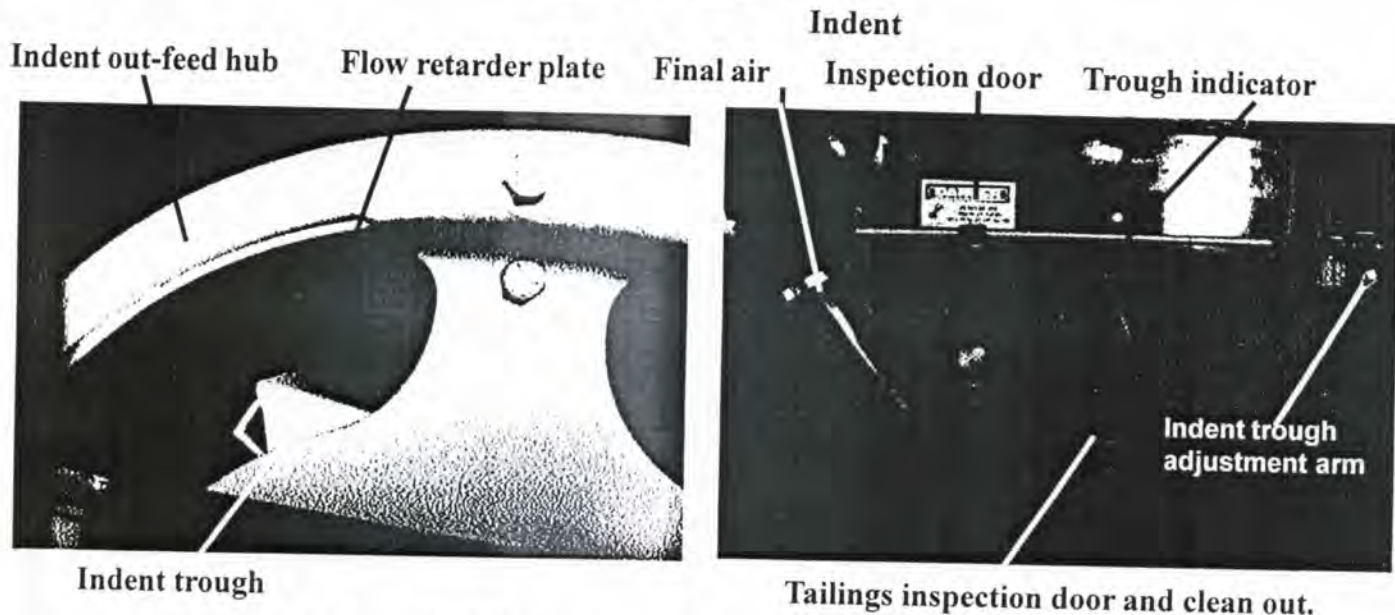
NOTICE: Please read the instruction manual entirely before Starting your unit. Understand and locate all danger and caution labels on the unit. Take note of all warnings in this instruction manual.

1. Enter product into the product hopper on the top of the unit. Make sure that the metering gate is closed.
2. Start the unit. The indent and grader drum should be rotating at a speed of 54 to 58 RPM if you are cleaning cereal grains. The speed adjustment is on the left hand side of the unit from the indent out-feed end. The rotation of the drum from the indent out-feed end should be **clock-wise** (the end with the flow retarder and the indent trough adjustment arm). A simpler way to check that the unit is running in the right direction is to make sure that the fan is blowing air not suction.
3. Set the air suction on the unit. The air valve for the dust control air in the unit is located on top of the primary air duct inside the unit beside the fan housing. Have this valve in the most open position (the adjustment lever will be parallel with the pipe).
4. Set the final air suction. The adjustment lever is located on the underside of the primary air duct directly below the receiving hopper air adjustment lever. Set this lever about half way open. This adjustment will be set at a position that you think is right.
5. The primary air suction adjustment lever is located on the left hand side of the unit from the indent out-feed end. The adjustment knob is located around eye level height. There is a cut out on the guard door for this adjustment. Have the primary air in the most off or closed position when starting. Once you have product flowing through the unit you can start opening up the primary air. Open the primary air just until you hear grain beginning to go through the fan. Close the primary air just a bit from this point. This should have the air set for the unit.
6. Introduce product to the unit. Open up the metering gate a little at a time ($\frac{1}{2}$ turn).
7. The product will flow into the scalper shell. Accept product will drop through the shell and down into the grader and indent drum. The tailings or larger coarse material will flow out the end of the scalper drum and down into the screenings chamber. If accept product is flowing through the scalper drum then, either the flow is too fast or the scalper's slope is too great and/or the screen is too small to allow the accept or good product to fall through.
8. Once the accept product has entered the grader and indent drum the grader will be removing small material from the accept product. If too much accept or good product is being removed from the grader screen, then we will have to change the screen to a smaller size.

9. The grain or accept product from the grader portion of the drum will now enter into the indent section. Once accept product has entered the large pocket indent go to the indent out-feed end of the unit. Here is an inspection door to see what is happening in the indent. * **DANGER - Do not extend anything into the operating area of the Indent inspection doors.** * Using a flashlight the accept product should be lifting in the receiving trough. If accept product is being thrown over the receiving trough reduce the rotation speed of the indent. If accept product is not being lifted enough either increase indent's rotational speed or move the receiving trough in the direction of the lifting product. Do not rotate trough past 35 on the dial indicator. At that point you must increase the rotational speed of the indent. The accept product should be dropping in the center of the receiving trough.

When looking in the indent inspection door you will see a green plate. The purpose of the plate is to hold back material in the indent to allow the indent significant time to lift the accept product out of the grain flow on the bottom of the indent into the trough.

Indent and flow retarder



Indent trough

Tailings inspection door and clean out.

The indent and grader drum should be rotating at a speed of 54 to 58 RPM if you are cleaning cereal grains. The speed adjustment is on the left hand side of the unit from the indent out-feed end. The rotation of the drum from the indent out-feed end should be **clock-wise** (the end with the flow retarder and the indent trough adjustment arm). A simpler way to check that the unit is running in the right direction is to make sure that the fan is blowing air, not suction.

Once accept product has entered the large pocket indent go to the indent out-feed end of the unit. Here is an inspection door to see what is happening in the indent. * **DANGER - Do not extend anything into the operating area of the Indent inspection doors.** * Using a flashlight, the accept product should be lifting into the receiving trough. If accept product is being thrown over the receiving trough, reduce the rotation speed of the indent. If accept product is not being lifted enough, either increase indents rotational speed or move receiving trough in the direction of the lifting product. Do not rotate trough past 35 on the dial indicator. At this point you must increase the rotational speed of the indent. The accept product should be dropping in the center of the receiving trough. Remember to set your flow retarder plates once you achieve the units cleaning volume of product. The flow retarder is located on the indent out-feed hub, just inside the inspection door for the indent.

Note - You have to have the unit turned off to adjust the flow retarder plates. Make sure the power supply is disconnected for this operation.

When looking in the indent inspection door you will see a green plate. The purpose of the plate is to hold back material in the indent(tailings) to allow the indent significant time to lift the accept product out of the grain flow on the bottom of the indent into the trough. Once you have the unit running with product flowing through it check the product (tailings or longs), that the indent is removing from the accept product. If there is too much accept grain in the screenings from the indent, you may want to slow the product flow down for the indent and/or the indent pocket size is too small for the accept product and/or the rotation speed of the indent is too slow. Check the sizing chart.

More often the problem will be wild oats or other larger material being lifted into the trough with the accept product. Other reasons could be that the indent pocket size is too large for the product that you are cleaning or

the indent is removing from the accept product (the tailings). If there is too much accept grain in the screenings (tailings) from the indent the following could be the problem;

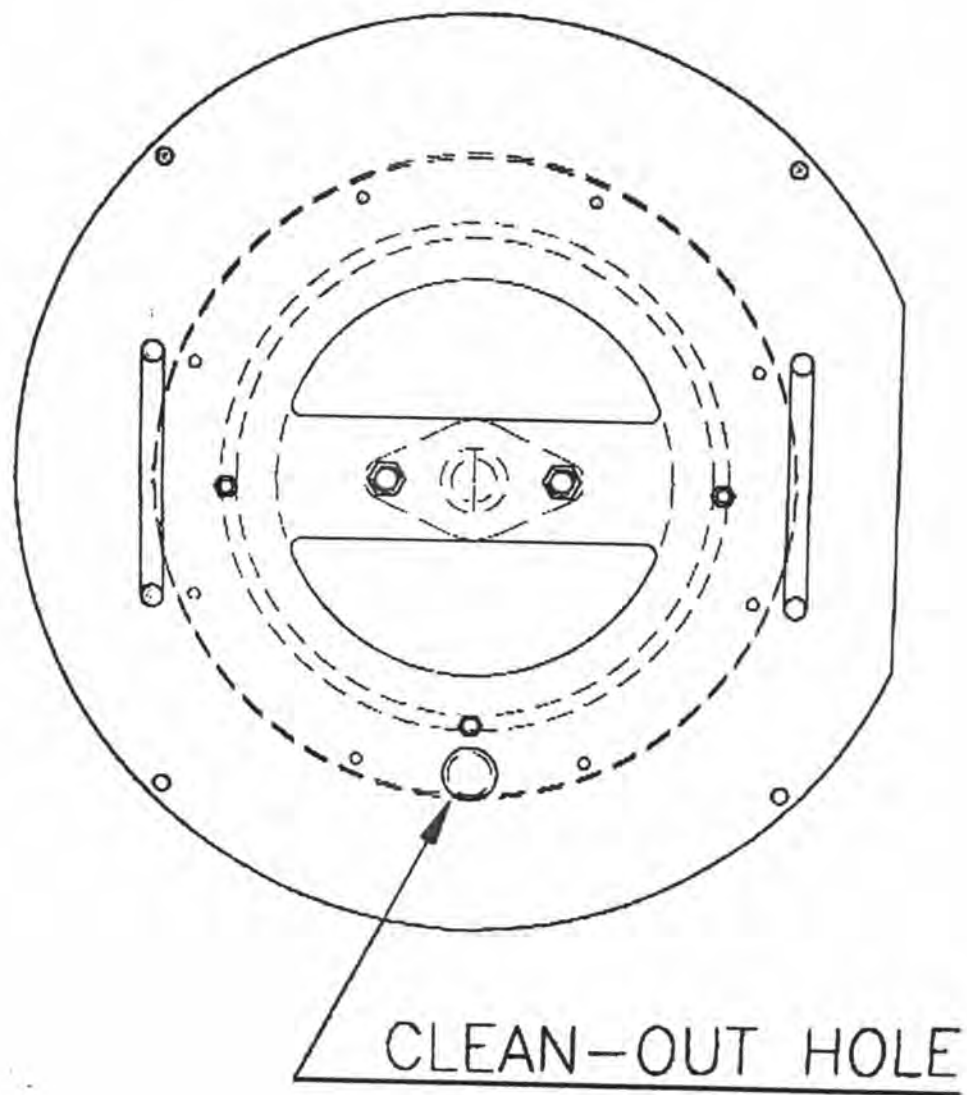
1. The product flow is too fast for the indent .
2. The indent pocket size is too small to lift the accept product. Check the sizing chart.
3. The indent rotation speed is too slow.

More often the problem will be wild oats and other larger material being lifted into the trough with the accept product. The reason could be one of the following;

1. The indent pocket size is to big for the product that you are cleaning
2. The indent trough is set to far down into the product lift area.
3. The indent speed is to fast.

Changing the indent

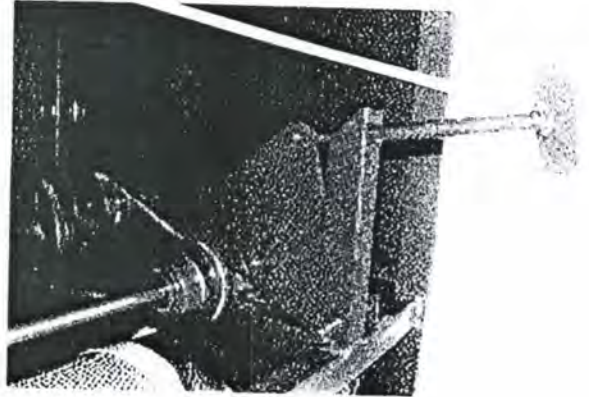
1. Remove the final air hose by loosening the hose clamp.
 2. On the indent trough adjustment arm, remove the quick pin from the working position. Remove the adjustment arm from the indent center shaft by loosening the pinch bolts on the bottom of the dial indicator arm.
 3. Remove the clean grain chute by unbolting it from the indent end plate.
 4. Remove the four bolts from the indent plate and pull the plate straight out.
 5. Loosen the indent drum drive belt. Loosen and remove the grader screens.
 6. At the in-feed end of the drum assembly, remove the grain in-feed chute with the three wing nuts. On the drum support bearing, loosen and remove the two large bolts. Support the drum assembly by placing a support in the screenings collection chamber; IE; blocking.
 7. Gently lift and pull drum assembly out the indent end. You will only have to pull the drum assembly out enough to have the indent portion clearing the unit. We find it simpler to remove the entire drum assembly.
 8. Remove the three bolts that attach the indent to the out-feed hub. Loosen the two set screws on the main bearing on the out-feed hub. Pull and remove the out-feed hub from the drum assembly.
 9. Remove the eight bolts attaching the indent to the center hub. Do not adjust or move center hub or indent auger trough on the shaft.
 10. Place on the new desired indent and reverse the above steps to reinstall. Be sure that the weld joint for the indent and the center hub match closely. This will line up the bolt patterns of the indent to the center hub.
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The above diagram shows a clean-out hole that is located on the Indent in-feed plate. Remove this plug for cleaning out the Indent seal plate when changing crop kinds or varieties. With the unit running, place a vacuum nozzle up against the clean out hole to remove any grain (s) that may be in the seal plate. Once cleaned out replace plug back into the clean out hole.

Important drives to be aware of;

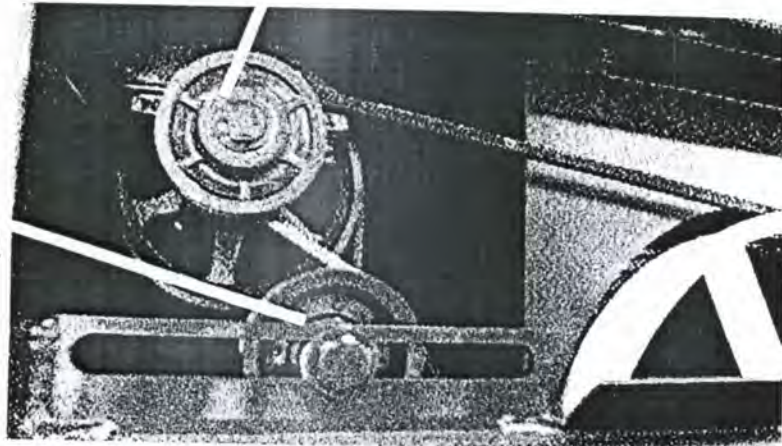
Indent and grader variable speed drive
Adjustment handle



Scalper shell variable speed
adjustable pulley (18 - 30 RPM)

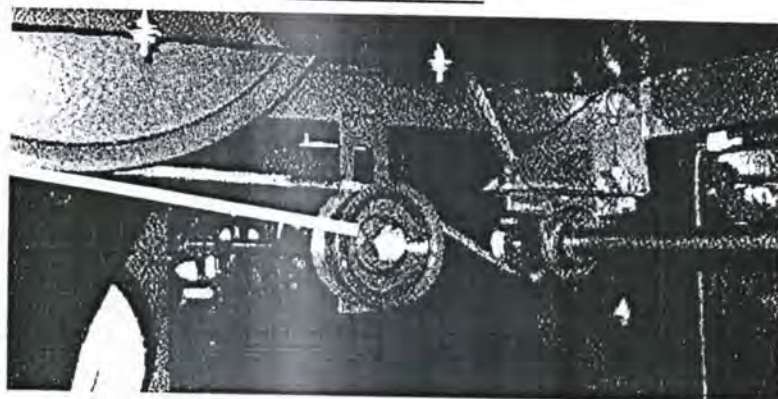
Ensure that the scalper drive belt is tight for even product flow.

(Tightener)



Metering hopper grain shaft
Drive system

Ensure that the Metering shaft drive belt is tight for even product flow.



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 types grains, cracked and broken kernels, small stones and other material, as well as bits of straw & 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 seeds from the grain.

The Carter Disk 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.

INSTALLATION DATA

Your Gjesdal Five-in-One Rotary Seed Cleaner is designed to work as a scalper, aspirator, and grader. A variety of sieves are available for a wide variety of seeds and there is also a variety of slotted and round hole grader shells. The two indent drums that come with the machine will cover a wide variety of seeds and additional drums are also available.

The machine must be set level and all moving parts must operate freely. Allow enough room for you to move around the machine. You will need 9 feet at the clean grain discharge end for the removal of grading shells and the indent drums.

A pipe, the same size as the 90-degree elbow used for the air discharge, should be used to carry the dust outside the building or into a dust bin. Where a dust bin is used, a large air outlet from the air bin is required so as not to restrict the flow of air from the cleaner. The cleaner can be set up permanently indoors or it can be used as a portable unit on a trailer with suitable conveyers to handle the seeds and screenings.

If this precision machine is operated out of doors, always cover it when not in use by a tarpaulin. A combination of moisture, rust and wet dust will seriously affect the cleaner's operation.

The purpose of this manual is to help you realize the benefits you expected when you bought this seed and grain cleaner. The way you operate and the care you give this precision cleaner will have much to do with its successful performance.

This manual has been carefully prepared and the information arranged and illustrated to make it as easy as possible for you to find the information you need.

Silverthorn's Seeds Ltd., or Harvey Gjesdal or your sales representative will be glad to answer any further questions you may have on the operation or care of this cleaner.

CAUTION:

All moving parts are dangerous. The guards are installed for your protection. Do not remove them. Do not wear loose clothing around machinery and keep children out of the work area.

The flow of uncleaned grain into the cleaner is controlled with the adjustable feed gate. Choose a sieve that has holes just large enough for the good grain to fall through before it reaches the lower end of the sieve. See page for recommended sizes of sieves and drums for various crops.

A uniform current of air is drawn through the flow of grain as it drops from the feed roller down to the sieve. This air flow can be adjusted by control lever #5 and should be set so a very small amount of good grain comes out of the aspirator auger #3 as you are then making maximum use of this separation. The larger material that does not fall through the sieve as fed down to the auger #3.

The smaller material which fell through the sieve is fed to the three grader shells where the thinner than desired material is removed. These thin seeds come out from an outlet between the two indent drums at the grader shell end of the machine.

The grain from the grader shells is now fed into the indent drum with the smallest pockets where the shorter than desired material is removed.



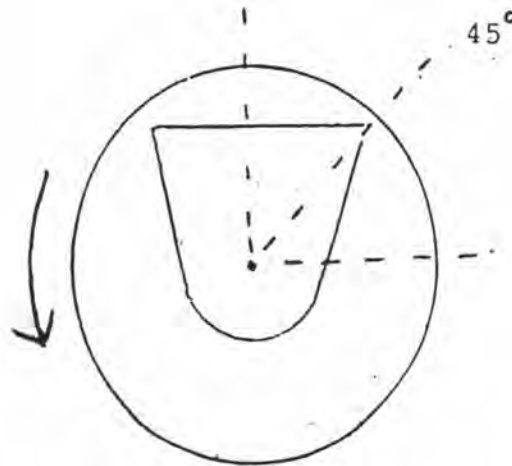
800

The pockets in this drum lift the short material into the trough in the centre where it is conveyed out at point #11. The good grain which remains in the bottom of this drum fall into the vertical auger #12 where it is fed into the drum with the large pockets.

This indent drum now lifts the desirable grain and places it in the trough where it is augered out at the clean grain spout #10.

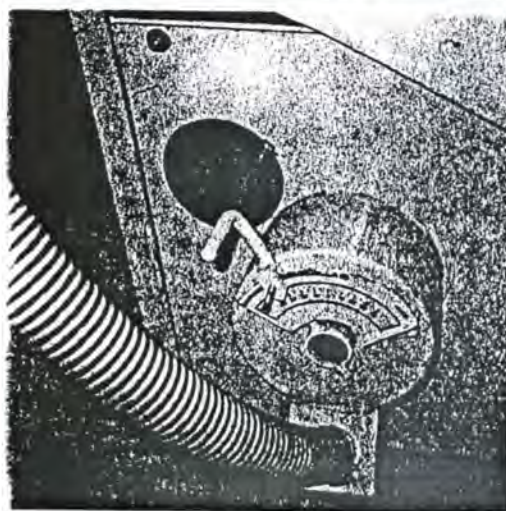
The long seeds remain in the bottom of the drum and are fed out at the lower end of this indent drum close to the point where the thin seeds are fed out.

The sieve and drums which are factory installed are quite suitable for cleaning all types of wheat and most barley varieties. For a starting speed to clean wheat set both indent drums to run about #8 RPM, if you start on barley set both drums at about 54 RPM. Next set the trough in both drums so the edge of the trough on the lifting side is about 45° as per diagram on next page.



CAUTION: Be careful not to dent any of the sieves; indent drums; or grader shells when you are handling them.

Caution: Be careful of moving parts. Do not place hands or lights inside the machine when the machine is running.



Use levers shown at left to set the troughs

Open round doors #14 to inspect the position of the trough in both of the indent drums.

Make sure all hands are clear and start up the machine. If the short material that is lifted does not fall into the conveyer trough on the small pocket drum, the separating edge may be too low. It is very important to wait a minute or two between each adjustment while the flow of grain stabilizes. Another very important adjustment is the speed of the drum since higher speeds generate more centrifical force and in turn lift the grain higher. Slower speeds will drop the kernels earlier.

SPEED

The efficiency of the machine is governed to a large extent by the speed. The grader shells operate at a constant speed of 56 RPM but there are important speed adjustments for the two indent drums. These drums usually turn less than one turn per second so you can count the turns and watch the second hand on a watch. Place a piece of tape on to the drum to aid count.



400

The speed of the indent drums can be regulated by the wing bolt handles at point #15 and should be adjusted each time you begin cleaning another seed lot. If the speed is too fast, the cylinder pockets will have a tendency to lift the longer material due to the centrifical force. If the speed is too slow, the cylinder pockets won't lift all of the shorter material and the capacity will be decreased.

OTHER CYLINDERS AND INDENTS

This precision machine is very versatile. As you become acquainted with the machine, many more uses will be found for it on the farm.

A wide variety of grader shells, sieves and indent cylinders are available for this cleaner. Carter Day Ltd. at Box 488 Winnipeg, Man. R3C 2J6 provide a laboratory service to help you choose the right drums and sieves. Simply send a three-pound sample of the seeds you wish to clean to the above address. Carter Day will advise you as to the proper shells and sieves to use. General shell recommendations for various crops are provided on page 14.

CLEANING VARIOUS CROPS

PEAS

Peas do not process well when passed through an indent drum. The 800 Gjesdal comes with a pea discharge hopper. Remove the catch hopper where the grader shells discharge into the small indent. Replace the removed hopper with the pea hopper which discharges the desired seed out the side of the machine.

OATS

The cleaning machine is equipped with a sieve; grader shells; and indent drums to process oats. The main change required with this crop is that the large indent will not pick up the desired seed into the trough. The desired oat seed will be discharged out the indent where wheat screenings normally come. A valve and lever are located on the clean seed discharge end. This valve must be moved over to direct the desired seed out the proper discharge spout.

CANOLA

Use a round hole in the scalping sieve just large enough to allow the desired seed to pass through. The slotted grader shells must be narrow enough to hold the desired canola inside. The standard indent drums should finish the separation process.

FLAX

Use a slotted scalping sieve with a slot perforation just wide enough to allow the flax kernels to drop through on edge. This will be approximately a 4/64 width. The grader shell should be a round hole small enough to hold the flax inside. The standard indent drums should finish the separation process.

CANARY SEED

This is an ideal machine to process canary seed. The grader shell dust control will remove a great deal of the fine dust which comes from this area of processing.

SAINFOIN

This crop is easily processed by the Model 800 cleaner. A problem with this crop is the immature seeds which are of similar size to mature seed; however they do not germinate. To do a total separation of this crop seed may require the use of a gravity machine as the final process.

ALFALFA AND CLOVERS

These crop seeds are difficult to process if they contain other seeds difficult to remove. A good processing job is more easily obtained on all crops if you start with a good quality product.

The standard shells and drums supplied with this machine will in most cases clean all wheat and barley types. A wide variety of shells; drums and sieves are available for many other crops.

OPTIONS AVAILABLE

- Bucket elevator as replacement for vertical auger.
- Screenings collection auger.
- Various size scalper sieves.
- Scalper sieve blank off panels.
- Proximity switches.

THE INDENT CYLINDER

The Indent Cylinder is designed primarily to make a separation by length, as is the disc type indent unit. But you will see that there are other physical characteristics that enter into the separation made by the cylinder indent as well. In addition to the indent size, the cylinder utilizes the forces of gravity and centrifugal force. The particles to be removed from the mass are loaded into the indent by a combination of gravity and centrifugal force. After locating themselves in the pockets they are retained by the centrifugal force to a point of the rotation of the cylinder where gravitational forces overtake and the material discharges from the indent and is dropped or falls into a Receiving Trough where it is conveyed to a discharge spout. The smaller particles are placed in the Trough and longer particles are discharged as "throughs". These pass out the far end of the cylinder, opposite from the feed and without being lifted by the indents.

For a particle to be lifted, its center of gravity must fall within the indent itself, otherwise it will tumble out. For some seeds the center of gravity is at, or near, the geometric center, and at others it is placed greatly from this geometric point. Therefore, it will depend which way a seed orients itself in the indent as to whether or not it is lifted, and the seeds must have the opportunity to enter the indent properly before being discharged as a "through". No matter what cylinder machine is used, there are five main sections or functional areas of the machine and each perform a definite part of the separational process.

1. THE CYLINDER ITSELF--- and this of course is the main element, in that it is the actual divider of the machine and all other parts simply aid the cylinder in accomplishing its purpose. As stated earlier the cylinder's function is to lift the smaller particles out of the grain mass the correct distance to most accurately and evenly make the desired separation. The cylinder is simply a thin walled tube with indents formed from the inside to the shape approximating a hemisphere. The indent sizes are usually listed in 64's of an inch similar to screen sizes used in screen machines. There are no other figures or letters normally used to describe the indents, other than this diametrical number.

It has been stated that the first cylinder was fashioned out of a hollow log by drilling from the inside a series of shallow holes. We feel that much progress has been made since this first attempt but the basic principle still remains.

The modern cylinder as we know it today utilizes a special steel which is precisely punched by large mechanical presses to the desired indent. This is usually done on the flat in small size sheets, as the pressure required for the formation of these indents is very great. These sheets are then handwelded together and rolled to form the tube and are then case hardened. It is this hardening of the cylinder that gives it its extremely long life. Were it not hardened its life expectancy would be very short.

2. THE RECEIVING TROUGH--- In different machines the shape of the Receiving Trough varies somewhat, but the purpose remains the same.-- To accumulate the lifted particles and convey them to a discharge spout. This Trough is adjustable in order to make the cut or separation at the exact point of particle size variation desired. This separation is usually made within an area of about 60 degrees to 45 degrees ahead of top dead center of the cylinder. By proper adjustment of this Trough very good flexibility of operation is possible, and we feel that it is the flexibility that gives the cylinder its definite advantage over competitive length separation equipment. Also this Receiving Trough is normally adjustable to the point that it can be dumped. This is extremely important when a unit of this type is used for seed cleaning and this allows the trough to be cleaned out.

3. THE RETARDER--- This is most easily described as a dam at the discharge end of the cylinder, and it should be of the adjustable type. In order to be most accurate the grain bank in a cylinder should be relatively uniform. Without the Retarder the grain mass would be less at the Discharge end of the cylinder due to the depletion of smaller particles and surging of the grain bank may result. By this we mean that the material will not roll as it should, but the entire mass will move or slide with the cylinder up to a point where friction will no longer support it, and then it all slides back in a single mass.

This will also occur in the cylinder if it is insufficiently loaded. By retarding the discharge of the cylinder, grain depth can be built up to the desired level and maintained at that point where best operation occurs. The adjustment of the Retarder will depend on the type of seed being processed. If the grain level is allowed to drop near the discharge end of the cylinder, inaccurate separation will result.

As the grain passes through the cylinder, we can readily see the following procedure taking place. The smallest particles are lifted out near the feed end of the machine. Sometimes with more than one particle located in a single Indent. As the grain progresses through the cylinder, the slightly longer particles are lifted into the Receiving Trough. The toughest division always takes place near the Discharge End after the small particles are depleted. If the cylinder is allowed to starve at that end, larger particles will be lifted if the grain bank is not maintained at a proper level. The Indent size cannot accurately perform a length separation unless sufficient depth of material is present. This same Retarder must also be designed so that it can be removed or displaced so that the Cylinder can be quickly and completely cleaned out. This, of course, is especially true where Cylinder Indents are cleaning seed.

4. FEEDER TO THE INDENT CYLINDER --- It is very important that the metering be constant if the separation to be accomplished is to be consistent. If the feed varies, all particles will not have the same length of time to be separated as did others. Also with an uneven feed your trough setting cannot be accurate due to the fact that for a heavier feed Trough settings should be lowered slightly and vice versa.

These five components are usually in a Housing consisting of an Intake Hopper or Spouting and also the Discharge Spouting from the Unit or to additional Cylinders. In this Housing are usually various visual inspection ports which allow the operator to actually view the internal operation of the unit, and assist in making necessary adjustments. This housing also incorporates the Trough Adjusting Mechanism and a Dial to indicate the Trough positioning. The Housing also usually includes the necessary drive for the cylinder itself -- whether singly or on multiple units.

We now come to the actual operation of the Cylinder Indent, and of course the first choice is the actual pocket size required. As mentioned previously the pockets are sized in 64's of an inch similar to screens and in the case of most units are available in pocket sizes from #4 to #36.

As you can see these would cover the majority of small seeds and cereal grains. Having chosen the pocket size required for the separation desired the actual cylinder speed is of next prime importance.

The average machine utilizes a cylinder of 23" diameter and according to quite a long formula the theoretical equilibrium SPEED for this cylinder is 55.5 RPM. At exactly this speed materials would cease to empty. However, several physical properties change our frictionless conditions by introducing friction of various amounts. This friction is dependent on the shape of seed, seed coat textures, size of seed and moisture content. Also the Specific Gravity of the seed has some effect on the separation. These frictional forces tend to cause particles to follow the circumferential travel further than calculated, so the speed must be reduced considerably below the theoretical 55.5 RPM. In actual operation cylinder speeds from 42 to 53 RPM are used; and as an example we have found that on wheat a top speed of 56 RPM is indicated.

Due to the fact that various seeds, moisture and surface conditions require a different speed for optimum separations, it is desirable to have each unit equipped with a Variable Speed Drive and this is now general practice in units that are being used for Seed Cleaning purposes. Whatever the motive power of the Cylinder Indent, it is of prime importance that the speed is constant. Any fluctuation in speed of the Cylinder will affect the the trough setting and separations radically.

After speed the most important operational setting is the actual Trough Adjustment. This, of course, is where the cylinder indent gets a great deal of flexibility. Naturally the lower your trough is set the larger the particles you pick-up and the reverse if it is raised.

Also, as mentioned previously the Trough Adjustment should be such that the Trough itself can be dumped into a clean-out position. This, of course, is a prime requisite if the unit is used for cleaning seed. The accuracy of the Trough setting is also dependent to some degree on the actual diameter of the cylinder. As you can see, the larger the diameter of the cylinder the more Trough movement you have available within the operating range.

The Capacity per cylinder unit is dependent on three basic factors.

- (1) The number of pockets or indents per square foot area -- and this is governed by the indent size.
- (2) The amount of cylinder surface that can be run under the grain bank in a given time -- and this is relative to the indent length of the cylinder. The cylinders are manufactured in various lengths.
- (3) The third factor governing capacity is the percentage of seed mass that must be lifted into the Receiving Trough.

Due to the wide variety of seed separations that are made on the Cylinder Indent, it is very difficult to give any statement as regards to capacity.

It should also be pointed out that when cylinders are replaced or a machine is brand new, that in some instances, it is desirable to run a coarse grain, like barley, through the cylinders to absorb the oil that is used as a rust preventative for shipping purposes -- or wash the cylinders in solvent. If a small dusty type seed is cleaned with the cylinders in this condition, it is quite possible that the indent pockets will become plugged. Also, when the unit is handling an oily material such as flax, the indents may have a tendency to fill up with dust imbedded in the oil. Thus the effective depth of the indent is lowered, and periodical scouring may be needed.

Compared to other methods of length separation of grain, the Cylinder Indent utilizes the case-hardened punched indent, steel cylinder enjoys a relatively long life. As the cylinder indent wears, it will be necessary to lower the Trough slightly and/or increase the speed slightly; because as the pocket shoulder wears down the degree of friction in the Cylinder is less. Cylinders will quite often make reasonable separations even when worn to the point of being perforated on the shoulders. The amount of grain or seed that can be put through any given cylinder is a difficult thing to pin down, due to the various soil conditions the grain is grown in, moisture content and seed surface texture. The life of a cylinder on cereal grains will vary anywhere from one half million up to two or three million bushels. Where a unit is used first in the cleaning line-up, the cylinder life is less than it would be if it is further down the line due to the fact that all the sand, stones and abrasive material in the grain goes to the cylinder indent first.

The Indent Cylinder Unit is no better than the operator running it, and if you will take the time to understand the operation of your unit and allow a reasonable amount of time, after making adjustments, so that the machine can settle down to these adjustments; we are sure you will find that the Indent Cylinder -- regardless of make -- will do a job for you and will do this job with a minimum of attention and service for an extended period of time.

We trust this has given you a better understanding of the design and operation of one of your basic units.

GJESDAL CLEANER SHELL RECOMMENDATIONS FOR VARIOUS CROPS

Crop	Scalper Shell	Grader Screen	Grader Screen	Indent Shell
Wheat- Red Spring		5-3/4 /64 x 3/4" slot	7V	No. 20
Durum Wheat	10/64" x 3/4" slot			
	10/64" x 3/4" slot	6/64" x 3/4" slot	7V	No. 20
Barley	11-64" x 3/4" slot			
	10/64" x 3/4" slot	6/64" x 3/4" slot	7V	No. 20
Oats	11-64" x 3/4" slot			No. 22
	10-64" x 3/4" slot	5-1/2" x 3/4" slot	6V or 7V	No. 20
Rye		5/64" x 3/4" slot		No. 22
Flax	10/64" x 3/4" slot <input type="checkbox"/>	5/64" x 3/4" slot	6V	No. 20
<input type="checkbox"/> Canola - Argentine	5/64" X 3/4" Slot	5-1/2" Round hole	SAME	No. 16
	6/64" Round hole	3-1/2" slot	SAME	No. 10
-Polish	7/64" Round hole			No. 16
<input type="checkbox"/> Lentils**	5-1/2" Round hole	3/64" Slot	SAME	No. 10
	11/64" x 3/4" slot	13 Round	SAME	No. 20
<input type="checkbox"/> Peas	20 Round No. 22	5-1/2" slot		No. 22
<input type="checkbox"/> Canary seed	20-24/64 Round	10-13/64 x 3/4" slot	SAME	N/A
<input type="checkbox"/> Alfalfa	9/64 Round	4-41/2" Round	SAME	No. 16
& Sweet clover	3/64 x 5/16" slot	1/20" Round	SAME	No. 6.5
Mustard				
<input type="checkbox"/> Sainfoin	Similar to Canola	5-1/2 slot	SAME	No. 22
<input type="checkbox"/> Tame Buckwheat	16/64 Round	10/64 slot	SAME	No. 20
<input type="checkbox"/> Fababeans	15/64 Round	12-14/64" slot	SAME	No. 20
				N/A

* Specifications subject to change with crop varieties and without notices.