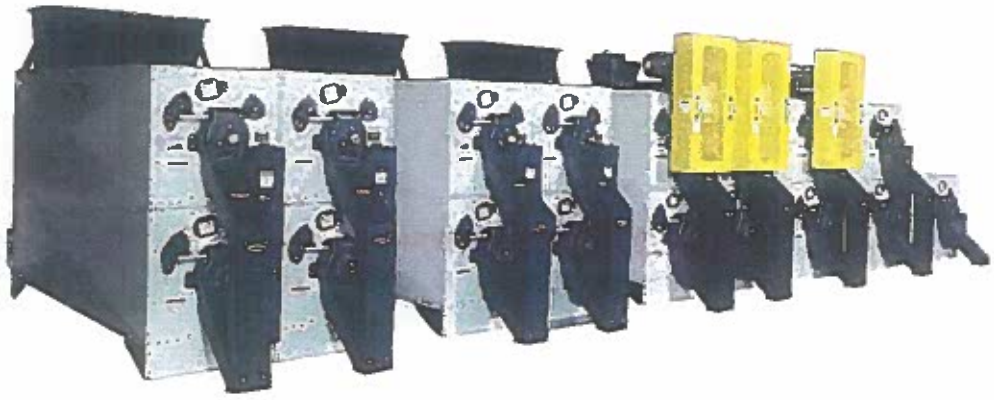
Premier

By: ArrowCorp

*50 CLEVELAND AVE SW*
*NEW BRIGHTON, MN. 55112*
*651-636-7323*



# LENGTH SEPARATOR AND MAINTENANCE
# PRG13-SF LP (PYRAMID)
# SN# 3534

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|---|---|
| **MODE** | **PRG13-SF LP (PYRAMID)** |
| **SER. NUMBER** | **SN3534** |
| **DATE PURCHASED** | **MAY 2016** |
| **INDENT SIZES:** | |
| **TOP ROW** | **CA18W1127-1-5L** |
| **BOTTOM LEFT** | **CA14W1127-1-5L** |
| **BOTTOM RIGHT** | **CA20W1127-1-5L** |
| **VOLTAGE** | 230/460V |

**MECHANICAL SPECIFICATION:**

**NOTES:**

**READ MANUAL TO FAMILIARIZE YOURSELF WITH THE PROPER OPERATION AND INSTALLATION OF YOUR MACHINE**

**DO NOT OPERATE MACHINE WITHOUT ALL GUARDS AND PANELS IN PLACE**

**USE CAUTION:**
**SAFTEY LOCKOUTS WHEN PERFORMING MAINTENANCE AND INSPECTION OPERATIONS**

**KEEP HANDS AND LOOSE FITTING CLOTHING AWAY FROM ALL MOVING PARTS, INLET AREA'S AND DISCHARGES**

**YOUR FAILURE TO FOLLOW PROPER SAFTEY PROCEDURES MAY RESULT IN INJURY OR DEATH**

**INTRODUCTION:**

This manual has been prepared for your use to familiarize yourself with the safe operation and maintenance of your Premier Length Separator. In some instances, the following information has been generalized because more specific information can only be gained by actual experience. Please give the following information your careful consideration.

The PRG Model indent machines use a basic cylinder that is carefully designed to separate serial grains and seed for a length separation only. A large variety of indent sizes are available, and along with the ability to control all aspects of the separation by speed, trough and retarder adjustments, giving you total control over your product separation. These units are built as modules to allow for easier cylinder changeover or replacement. Machines are supplied with cylinders that are either tapered or straight based on customer request.

The PRG Modular design will give you greater flexibility and you have the ability to combine multiple units both in width and height which will increase versatility and capacities.

**NEW PRODUCT IDEAS:**

Do you have an idea for improved Grain or Seed machine? Our policy is to seek out ideas from both within and outside our company. We would like to help you promote your ideas.

**CONSULTING:**

We would like to help you with any cleaning, grading or separation problems you may encounter. Our Seed Lab has a full assortment of indent sizes ready to help determine a proper size indent for your application. This service is available at no charge to you.

Please send requests and samples to:

PREMIER GRAIN CLEANER CO.
50 CLEVELAND AVE S.W.
NEW BRIGHTON, MN 55112
OR CALL 651-636-7323

OR
ARROWCORP INC.
61 AIRPORT ROAD
WINNIPEG, MANITOBA
R3H OV5
1-800-661-5500

## CLEANING THEORIES

Length separation is achieved using an indent machine or separator. The indent separator has become a standard in grain and seed processing industries due to their higher capacities and lower costs. When looking at the indented cylinder from the discharge end, the rotation is usually counter clockwise. The indent cylinder in the "Superior" size is about 85" long with an approximate diameter of 23". Running through the center of the cylinder is a catch trough and screw conveyor.

The size of the indents in the cylinder determines the length of the material that will fit inside. Indent sizes are given in a numerical value and are stamped on the outside of each cylinder on the intake end usually near the long seam. The higher the numerical value, the larger the indent or pocket size. Indent sizes start from a 2.5 (1MM) up to a #44 pocket. Numerical designations usually correspond to 64's of an inch. (I.E. # 19 = 19/64 DIA.) *This machine is equipped with one indent cylinders, #12 pocket.*

**Indented cylinders are designed to lift material the size of the pocket and smaller.** The rotation of the cylinder at speeds between 46-50 rpm causes the material that fits inside the pocket to be lifted up by centrifugal force until gravity takes over and causes the lifted product to drop into the central trough. The angle of the trough can be changed to catch more or less of the lifted product called "liftings". Material that is not lifted and continues through the machine will discharge out of the "tailings" spout. Material at this point is kept separate thus providing two length separations. *ArrowCorp and Premier highly recommend that this Modular machine be equipped with a VFD speed control to allow the operator to fine tune the separation.*

Usually two length separations are not sufficient because we desire three lengths.

1. Shorter than desired product.
2. Desired product.
3. Longer than desired product.

This machine is arranged with a SEEDS cylinder, and equipped with a #12 indent cylinder which is sized to lift only short weed seeds and cracked wheat. Good product that is not fit into the #10 pocket is tailed out to clean product.

## INSTALLATION: GENERAL

Cylinder units should be mounted on a level floor free from vibration. If mounting requires a stand, make sure it is mounted securely to maintain a square and level surface. Allow ample space for housekeeping and maintenance on indent units. For best results allow adequate space on discharge end of machine to make cylinder changes.

The motor for your PRG indent machine is usually a dual voltage motor, however the frequency control is voltage specific. If you are in question please contact our factory or your sales representative.
Electrical hookups should be made by a qualified electrician following local building and safety codes. A disconnect or lockout devise is suggested.

Carefully check rotation of cylinder. *Rotation should be counter clockwise looking on the discharge end of the machine.*

## SEQUENCE OF OPERATION:

Product is typically choke-fed into the intake hopper, product passes through the intake manifold where the product can be controlled via the feed gate. (Some units may be fed by an aspirator)

Product then flows through intake casting and into the intake cone of the cylinder. Product that is the size of the indent and smaller is lifted by the rotating cylinder pockets. As the cylinder rotates and reaches to top of the arc the product that had been "lifted" into the indent pockets will simply fall into the trough and be conveyed forward to the "liftings" discharge casting and spout.

Cylinder rotation is counter clockwise looking at the discharge end of the machine. The purpose of the grainline blades are to help maintain a burden depth of product in the rotating cylinder unit. The product sometimes has a tendency to wash up and down in the rotating assembly. The grain line blades help push material toward the discharge end of the machine.

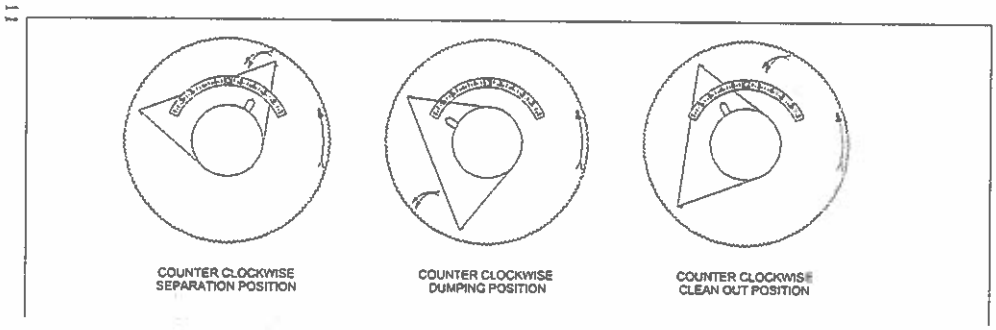
The retarder is used to dam up the product at the discharge end of the machine to allow for the burden depth of the product to build toward the intake end of the cylinder to maintain a consistent depth in the cylinder and make the best use of the surface area lifting the product within the cylinder. This step helps offer as much product as possible to seek empty indent pockets for the separation.

Product that has not been lifted by the indents is then considered a "tailing" or "tailing" and is pushed past or over the retarder and discharges from the cylinder unit into the tailings spout.

It is recommended that the dust control port be used on each cylinder unit for dust control and housekeeping.

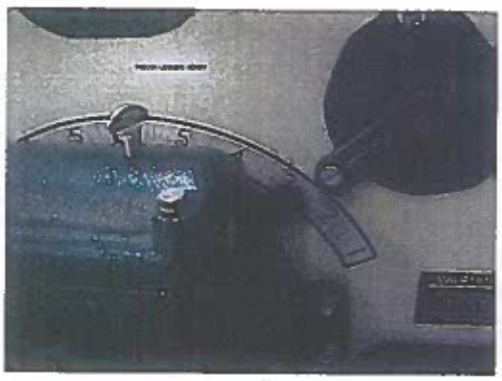
The location of the separating edge of the trough can be adjusted by loosening the trough adjustment thumb screw and turning the leading edge into (toward) the rotation of the cylinder. This along with indent size, speed and retarded settings are all factors in determining the best performance of your indent machine.

GENERAL TROUGH SETTING




## CONTROLS AND START-UP:

**TROUGH CONTROL**: The trough control thumb screw keeps the adjustment at the desired setting. To move the trough leading edge, loosen the trough locking screw counterclockwise until the hand wheel moves freely. ***FIGURE 1*** Counterclockwise rotation of the hand-wheel will move the leading edge of the trough into the direction of the cylinder (To the right). Clockwise rotation of the hand-wheel will move the leading edge of the trough away from the product. To aid in the adjustment of the trough a numbered trough decal is used as a reference for you to record your settings. Please remember to lock the thumb screw when you have found your desired settings. For start-up, setting should be 3 1/2 or 4.




**INSPECTION COVER**: A viewing window or spring loaded access cover is provided to assist in the setting of the speed, trough setting and viewing operation of your machine. Do not remove the viewing panel.

**RETARDER CONTROL**: To control or dam material in the machine the retarder can be set as desired. On light material the retarder may sometimes be fully extended. On start-up the optimum setting is to hold the material so it is at a consistent depth all the way to the intake end of the machine. Start-up setting is recommended to extend the retarder to 1/2 of the discharge opening.

**SPEED**: The frequency control if equipped on a new machine is set at the factory. Parameters such as ramp up speed, deceleration speed and overload settings. These can be adjusted to your needs more specifically as you become more familiar with your machine. Speed is easily controlled by the up and down arrows on the keypad. We recommend watching the speed and settings very closely on start-up, the goal should be to run your product as fast as possible to achieve the best capacity out of your Premier indent machine. (If speed is too fast product will not fall into the trough, however you want to have it drop into the trough away from the leading edge as far as possible.) It is suggested that the machine never be shut down with product remaining in the cylinder.

**SPEED RECOMMENDATIONS:**

**#8 INDENT THROUGH #23 INDENT 45-52 RPM**

**#26 INDENT THROUGH #36 INDENT 40-46 RPM**

**FEEDGATE:** Feed gate should be fully closed for start-up. When machine has reached it full speed, slowly open feed gate until you hear product dropping into the indent cylinders. Visually check for product flow through view ports and see that product is distributed evenly into the machine. It may take significant time for the proper setup of machine. That each cylinder is getting the same balanced flow and trough and retarder settings are consistent.

**ALL OF THESE SETTINGS ARE RECOMMENDATIONS FOR GENERAL START-UP. ACTUAL SETTINGS CAN BEST BE DETERMIDED BY EXPERIENCE. IT IS STRONGLY RECOMMENDED THAT YOU THE END USER KEEP A DETAILED RECORD OF CONTROL SETTINGS AND VARIOUS PRODUCTS FOR FUTURE REFFERANCE.**

**SETTINGS TAKE A FEW MINUTES TO ACTUALLY AFFECT THE FLOW AND MATERIAL.**

**ADDITIONAL ADJUSTMENTS:**

Check samples from liftings: If too much large grain or seed is being lifted, move the trough setting pointer to a higher number. This will raise the leading edge of the trough. If the lifted material is to small or not enough of total product, lower the leading edge to a smaller number.

When tailed material is checked: If short material is present in long material being tailed, it is necessary to extend the retarder further.

**IF THE MACHINE LOSES POWER AND SHUTS DOWN BEFORE PRODUCT FLOW HAS BEEN SHUT OFF, USER MUST CLEAN OUT EXCESS PRODUCT IN MACHINE BEFORE RESTARTING. DAMAGE CAN RESULT IN STARTING THE MACHINE THAT IS OVER BURDENED. THIS WILL CAUSE PREMATURE WEAR ON GEARBOXES THE FREQUENCY CONTROLS AND BEARINGS TRYING TO OVERCOME THE MASS THAT EXEEDS NORMAL OPERATING LOADS.**

**STOPPING AND CLEANOUT:**

Shut off feed gate to stop flow into machine.

Move trough to dump position (all the way left)

Adjust retarder fully closed (not extended into opening)

Run machine till all products clears the cylinder and shut down.

## DO NOT PERFORM ANY MAINTENANCE ON THIS MACHINE WHILE IT IS RUNNING.

Excessive amounts of dust or grains around machine should be removed daily.

Material caught in retarder seal (if so equipped) should be removed daily.

After the first week of operation a general inspection of machine should be made. All set screws should be checked for tightness. Belts if so equipped. Please check periodically.

**BEARINGS**, Cylinder Bearings are pre-lubricated prior to installation. No further lubrication is required.

**FRICTION ROLLERS:** Are sealed for life bearings. These bearings are larger than the industry standard. The bearings can be replaced.

**GEARBOXES WITH DIRECT DRIVE UNITS:** Gearboxes are used in your Premier Grain Cleaner. They offer great service factor and with proper up-keep and maintenance will provide many years of service. To maintain the ease of gearbox change out, once every six months it is recommended that your maintenance personnel loosen one of the 7/16" bolts mounted on the torque arm and slide the gearbox unit toward the end of the machine. Apply a liberal amount of anti-seaze to the shaft and slide the gearbox back and forth several times. This will prevent feritic corrosion and allow the gearbox to float on the shaft more easily.

**GEARBOXES UNITS INLINE HELICAL:** Your Premier Grain Cleaner machine is supplied with either a **BOSTON** gearbox Please follow warranty information provided with your manual and information packet.

**GEARBOX NOTE:** Gearboxes will generally run hot upon initial startup. From the Boston Gear catalog "THE MOTOR GEARBOX WILL RUN HOT WITH INITIAL SETUP AND BREAK IN.
THE BOSTON GEAR BOOK TELLS OF THE RANGE UPON STARTUP OF 160 DEG ON A DOUBLE REDUCTION GEARBOX. ON A SINGLE REDUCTION GEARBOX APPROXIMETELY 225 DEG. NORMAL TEMPERATURE SHOULD OPERATE BETWEEN 150-160 DEG."

**THE FREQUENCY DRIVE:** On your indent machine if mounted from our factory, is programed for your use. Should the customer supply his own VFD then contact the factory for recommended settings for acceleration and deceleration rates to be programmed you're your VFD. (**THE FREQUENCY DRIVE ON YOUR INDENT MACHINE IF IS VOLTAGE SPECIFIC. IF IT NEEDS REPLACEMENT YEARS DOWN THE ROAD PLEASE BE AWARE OF THE REPLACEMENT VOLTAGE.**)

**X-PROOF APPLICATIONS:** Electrical panels in x-proof applications are built by certified U.L. OR CA. Approved panel builder. It is highly recommended that a qualified electrician provide support for any replacement. These Frequency drives are linked together for overload protection.

**CAUTION:** In sub-zero weather conditions, shut off flow to all spouts or upline equipment and let all product run out of machine. **Never start machine with product in the cylinders**. Damage to drive components and drive shafts/conveyors may occur. If machine happens to shut down or be turned off under load product must be cleaned out before restarting the machine.

**FOR ANY FURTHER QUESTIONS PLEASE CONTACT YOUR SALES REP. PREMIER GRAIN CLEANER CO. OR ARROWCORP.**

Premier Grain Cleaner Co.
50 CLEVELAND AVENUE S.W.
NEW BRIGHTON, MN 55112
Phone: 651-636-7323
Fax: 651-636-8466

# *WARRANTY*

THE FOLLOWING DOES NOT SUPERSEDE OR ALTER THE POLICY STATED IN THE GENERAL CONDITIONS OF SALE OF PREMIER GRAIN CLEANER CO EQUIPMENT. RATHER IT IS EXTRACTED FROM THAT POLICY AS A GUIDE FOR THIS MANUAL.

EQUIPMENT WARRANTY:

THE EQUIPMENT IS WARRANTED TO THE PURCHASER TO PERFORM WITHIN THE LIMITS SPECIFIED IN THE CONTRACT. IF PERFORMANCE IS NOT AS WARRANTED, THE PURCHASER MUST NOTIFY THE COMPANY IN WRITING WITHIN 30 DAYS OF ITS FIRST USE, STATING WHEREIN PERFORMANCE IS NOT WARRANTED. A REASONABLE TIME SHALL BE ALLOWED THE COMPANY TO REMEDY THE ALLEGED DEFECT, AND THE PURCHASER WILL RENDER ALL NECESSARY AND FRIENDLY ASSISTANCE. IN THE EVENT INSTALLATION OF THE EQUIPMENT WAS COMPLETED BY THE PURCHASER, THE COMPANY'S OBLIGATION UNDER ITS PERFORMANCE WARRANTY SHALL BE LIMITED TO FURNISHING REPLACEMENT EQUIPMENT F.O.B. POINT OF SHIPMENT.

ANY REPAIRS OR MODIFICATIONS NOT SPECIFICALLY AUTHORIZED BY THE COMPANY IN WRITING SHALL NOT BE THE RESPONSIBILITY OF THE COMPANY.

THE COMPANY WILL REPAIR OR REPLACE WITH A SIMILAR PART ANY EQUIPMENT OR PART THEREOF OF ITS OWN MANUFACTURE WHICH PROVES DEFECTIVE IN WORKMANSHIP OR MATERIAL WITHIN ONE YEAR OF DATE OF SHIPMENT. THIS WARRANTY IS NULL AND VOID, AND THE COMPANY SHALL IN NO WAY BE LIABLE, IF ANY PART OR PARTS NOT MANUFACTURED OR SUPPLIED BY THE COMPANY ARE USED IN THE EQUIPMENT, OR IF THE EQUIPMENT IS NOT INSTALLED AND OPERATED IN ACCORDANCE WITH THE CONTRACT. ALL COSTS, OTHER THAN REPAIR OR REPLACEMENT OF THE DEFECTIVE EQUIPMENT, ARE THE RESPONSIBILITY OF THE PURCHASER.

IN THE EVENT THE EQUIPMENT CANNOT BE MADE TO OPERATE BY THE PURCHASER OR COMPANY WITHIN THE LIMITS SPECIFIED IN THE CONTRACT, THE PURCHASER MAY REMOVE AND RETURN SUCH OF THE EQUIPMENT AS IS OF COMPANY MANUFACTURE, FREIGHT

PREPAID AND IN ACCORDANCE WITH THE "RETURNED GOODS" SECTION BELOW. THE COMPANY WILL ISSUE CREDIT FOR THE RETURNED EQUIPMENT, ALTHOUGH CREDIT SHALL BE LIMITED TO THE PURCHASE PRICE THEREOF, LESS INSTALLATION, DISMANTLING CHARGES, FREIGHT AND TAXES, AND LESS A REASONABLE DEDUCTION FOR THE PURCHASER'S USE OF SAID EQUIPMENT.

THE WARRANTY DOES NOT COVER PRODUCTS, SERVICES, ACCESSORIES, PARTS, OR ATTACHMENTS NOT MANUFACTURED OR SUPPLIED BY THE COMPANY EXCEPT TO THE EXTENT OF THE WARRANTY GIVEN BY THE ACTUAL MANUFACTURER OR SUPPLIER. LOSS OF BUSINESS BY THE PURCHASER IS NOT COVERED BY THE WARRANTY.

RETURNED GOODS:

BEFORE ANY EQUIPMENT IS RETURNED, THE PURCHASER MUST RECEIVE THE COMPANY'S WRITTEN AUTHORIZATION FREIGHT SHALL BE PREPAID BY THE PURCHASER.

AUTHORIZED RETURNS OF NEW AND UNUSED EQUIPMENT SHALL BE SUBJECT TO A CHARGE OF 15% OF THE NET SELLING PRICE IN ADDITION TO WHATEVER RESTOCKING CHARGES ARE NECESSARY TO RESTORE THE MATERIAL TO A SALEABLE CONDITION. REQUESTS RECEIVED FOR RETURN OF EQUIPMENT LATER THAN 30 DAYS AFTER SYSTEM START-UP SHALL NOT BE CONSIDERED.