



Crippen

Mfg. Company

Century Pro 488

Serial No. _____

Parts & Instruction Manual

Crippen Manufacturing Company

400 Woodside Drive
St. Louis, MI 48880

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Introduction

Welcome ...

You have made a wise and prudent purchasing decision. We are committed to making this a profitable decision and are looking forward to providing the type of service, dedication and cooperation you deserve. Our commitment to you is unwavering and your input is invaluable. We realize there are numerous applications, operational learning curves, installation limitations, and other potential problems we have not encountered; therefore, please feel free to call us **any time** because a successful operation is a team effort and we thank you for allowing Crippen Manufacturing Company to be part of your team.

Should you encounter any difficulties, please contact your local sales representative or Crippen Manufacturing Company immediately. This is **very important!** Continued operation when there is a problem could result in damage to other components.

Please take the time to read this "Installation Guide & Operator's Manual" to insure that your equipment is installed and operated in the proper manner. When this unit is installed and operated properly, it will provide years of trouble free and profitable service.

For your future reference and to expedite any parts or guarantee work with your machine, the model number, serial number, and date of shipment have been included below. Please fill in the numbers below to match the information that appears on the machine nameplate.

MODEL NUMBER _____
SERIAL NUMBER _____
DATE OF SHIPMENT _____

Warranty

Crippen Manufacturing Company will replace free of charge, within one year from date of shipment, any part which in its judgement has failed because of defective material or workmanship, providing the part has been shown to have been properly installed and operated. This warranty does not obligate Crippen to bear any transportation charges concerning the replacement of defective parts or the return of defective parts.

This warranty shall not apply to any part which shall have been repaired, altered, neglected or used in any way which, in Crippen's opinion, adversely affects performance; nor to replacement of normal service items.

This warranty and Crippen's obligation hereunder, is in lieu of all other warranties, expressed, implied or statutory.

Notice to Our Customers

Our equipment is inspected, tested, and packed before leaving our facilities in perfect condition.

When the equipment is received, it must be inspected by your staff for completeness and damage. If any discrepancies exist, a claim must be filed with the carrier. A carrier's inspection report must accompany any claims. This is a matter the customer should take up with the carrier who delivered the goods even if hidden damage is discovered later. The customer needs to verify damage further by photograph, after which the carrier's insurance company can authorize repair or replacement.

Without written authorization, we cannot accept any goods for return.

Contact our factory if you have a claim or if you require a "Return Goods Authorization".

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It is also important that you carefully check to make sure damage did not occur in shipment. **Any damage must be reported on the bill of lading/shipping document at the time of unloading.**

Important Notice!

Road transportation of this equipment from the factory to your location may have loosened the set screws and bolts.

Before running the equipment, check all set screws, bolts, bearing collars, and bushings to ensure they are all tight.

Re-check this hardware periodically as part of the regular maintenance.

Installing the Century Pro 488 Seed Cleaner

Connecting Drives / Installing Motor & Guards

There is one drive to connect at assembly: *motor shaft to fan shaft*. If your machine was supplied with a motor, have it connected by a qualified electrician following local and national codes. On machines supplied less the motor, an adjustable motor base and drive sheave has been provided. Bolt the motor in place on the adjustable motor base and slide the sheave onto the motor shaft, using the square drive key provided with the motor. Align this sheave with the existing driven sheave on the fan shaft and fasten securely. Install the V-belts provided and adjust the motor base for proper belt tension.

There are two eccentric shafts in this machine. The eccentric shaft drives the eccentric arms that push the shoe back and forth. The shoe is the large wooden box that the screens are in and shakes back and forth when the machine is operating. There are two main shoes in this machine. The top eccentric shaft drives only the top shoe and the bottom eccentric shaft drives the bottom shoe. There is a timing belt drive that connects the two shafts, consisting of two pulleys, a timing belt, and an idler. **Important!** The purpose of this timing drive is shaking the top shoe opposite the direction of the bottom shoe. The machine is timed at the factory. To be sure that your machine was timed properly, look at the keyways in the top shoe eccentric shaft when they are in the 12 o'clock (or straight up) position. Now look at the keyways in the bottom shoe eccentric shaft; they should be in the 6 o'clock (or straight down) position. Hold them in that position as you install the timing belt on the pulleys. The idler must push out on the belt toward the rear of the machine. Adjust it for proper tension; refer to drawing **#90008A14**. The adjustable idler for the countershaft to eccentric drive is on the bottom unit. The idler pulley goes on the inside of the drive and pulls down on the belt. This adjustable idler provides the control for the variable speed eccentric drive. This adjustable control can be changed so the eccentric shafts will operate from 270 to 320 RPM.

If the drive guards are shipped loose, they must be installed after the machine is assembled. Use the bolts provided to fasten the brackets in the pre-drilled holes in the machine frame. **Warning!** Never operate the machine without the drive guards in place. Severe injury could result. "Be a safe operator".

Bolting the Frame in Place

The machine frame must be set level and securely bolted to the floor or its support stand. After bolting in place, check again to see that the frame is level both front-to-rear and side-to-side. If needed, shim under one or more corners of the frame. Vibration caused by improper leveling will create undue stress resulting in early failure of some parts. During operation, if there is any excessive vibration or movement of the floor or machine support stand, additional supports and bracing must be installed under the floor or to the stand.

Clearance for Changing the Screens (refer to drawing #06612C02)

When installing the machine, allow room at the front where the screens are changed to remove the 44" long screen sections.

Clearance around Spouts & Cleaned Product Discharge

It is important that no spouting, chutes, or conveyors are attached directly to the discharge spouts. These spouts move back and forth a total of one-inch (1") as the machine is running. Clearance must be provided so there is room for these spouts to move freely. The hinged door on the airlifting spouts must swing freely. Failure to follow these instructions will result in excessive noise and vibration and may cause serious damage to the machine. Any chute or splash fence built around the cleaned product discharge must allow 5" clear space for air intake.

Garner Bin above Hopper

If you build a bin above the machine hopper, it must be supported so that the hopper does not carry its weight. It is permissible to add a short vertical extension, however. This extension should be no higher than 8" and may not have flared or tapered sides. It may be fastened directly to the hopper if, when it is full of seed, it does not add more than 60-lbs. weight. **Important!** Be sure to provide a safety guard at the hopper inlet to prevent the operator from coming in contact with the hopper agitator.

Initial Start-Up Procedure

1. Check motor rotation. A directional arrow is on the hopper feedroll shaft to show proper shaft rotation. All shafts of the standard machine rotate counterclockwise when facing the left side. **Remember:** the front of the machine is where the screens are changed. If the motor is rotating opposite this, change the wiring connections as required.
2. The machine is usually shipped with ball trays, balls, screens, and removable tailgate and tailboard in place. The tailgate is on the front of the top shoe and contains the spout for screen #1. The tailboard fastens to the front of the bottom shoe. If these parts are shipped separately, install them now. The ball trays are each labeled on the front and slide into position on the angle iron screen tracks on each side of the shoe. A spring latch hooks over a pin on each side of the ball tray at the front. Place four balls in each section of the ball tray and slide the screens over the top of the ball trays. Two ½" x 1½" wooden guides are provided for this. Slide the guides in between the screen and ball tray on each side. This prevents the screen from catching on the balls as it slides into the machine. On each side of the screens is a screen clamp that holds the screen in place. Lock the screen clamps onto the screens pulling the pistol grip over the front end of the screens. Fasten the tailgate securely in place. **Note:** refer to the operation section following regarding flow configurations.
3. Be sure all guards are in place! Turn the machine on. The eccentric shafts should run from 270 to 320 RPM. If you are unable to reach these speeds, turn the machine off and move the set collars on the eccentric drive adjustable idler as needed. Refer to drawing

#90007A14 for proper placement of the adjustable idler assembly. Turn the machine back on and run it at its maximum speed of 320 RPM.

4. Watch the machine run. The shoes should shake smoothly back and forth in line with the length of the machine. If there is any side-to-side or circular motion, additional supports, bracing, or shims are required as described above. All spouting and chutes added to take the various products away from the machine must clear the moving parts.

The machine is now ready to run your product

Operating the Century Pro 488 Seed Cleaner

Changing the Screens

Installing the screens is described in the installation section. The screens are changed from the front end of the machine. To remove the screens, take the tailgate and tailboard off and pull the screen clamp pistol grip off the end of the screen. A **J**-shaped tool is provided for this. Push the screen clamp toward the rear, releasing the screen. Slide the wooden guides between the screen and ball tray. The screen will now slide out of the machine. A long hook is provided to remove the rear sections. To put the screens into the machine, follow the reverse of the above instructions. **Caution!** Never turn the machine on with the ball trays and balls in the machine without screens on top of them! If this happens, the balls will come out of the machine.

For choosing the correct hole size in the screen to be used, please refer to the recommended screen size lists. It is suggested that you get a number of hand test screens in the most common sizes you will be using to also aid in choosing screens. These hand test screens and a convenient cabinet to hold them are available from Crippen Manufacturing Company.

Multi-screen Flow Configurations (refer to flow diagram)

There are six different ways the machine can be set up to clean and/or size seed and grain:

- *2-way parallel scalp; 2-way parallel sift*
- *2-way parallel scalp; scalp, sift*
- *progressive scalp, scalp; 2-way parallel sift*
- *scalp, sift; 2-way parallel sift*
- *progressive scalp, scalp; scalp, sift*
- *scalp, sift; scalp, sift*

Note: the screens are referred to by their position. Screen #1 is the first screen at the top, followed by screens #2, #3, and #4, with #4 being the last one at the bottom. Refer to drawing **#06612C02** for specific location of screens.

Screen #1 is a *scalper* screen in all flows. Screen #4 is always a *sifting* screen. Screens #2 and #3 can either *scalp* or *sift* the product. “Scalping” is done with a screen that has a hole size larger than the product that falls through the screen. Large material such as pods or straw stays on top of the scalping screen and is discharged at the low end. “Sifting” is done with a screen that has a hole size smaller than the product that stays on top of the screen. Small material such as fine weed seeds and inert material falls through the sifting screen and is discharged out the spout under the screen at the low end.

There are several removable flow dividers, blank pans, and transfer chutes that must be placed in the machine to set up the different flows. They are labeled for their screen position and for the flow configuration, such as “3-I” or “3-II”. Also, there are two gates in the flow

system that must be set to direct the product as required. There is one gate at the low end of the top shoe and above the spouts at the low end of screens #3 and #4 in the bottom shoe. There are two removable two-piece pans located in the machine. The pans under screens #2 and #4 are permanent; the first is located between screens #1 and #2, and the second is between screens #3 and #4. There is a 16" space at the high end of screen #1 for a flow divider or blank pan, and a 16" space at the high end of screen #3 for a flow divider, transfer chute, or blank pan, depending on how the flow is set up. A 14" space is at the high end of screen #4 for a blank pan.

Top Shoe for Configuration

As mentioned above, screen #1 is always a *scalping* screen. Screen #2 can be either *scalp* or *sift*. Converting to scalp or sift on screen #2 requires changing the tailgate and the position of the gate.

Scalp/sift – tailgate “A”. With this arrangement, the product falls through screen #1, lands on screen #2, and goes over it to remove small inert such as sand. The gate should be in the *open to spout* position for this flow.

Scalp/scalp – tailgate “B”. With this arrangement, the product falls through screen #1, lands on screen #2, and falls through it. The gate should be in the closed position for this flow. The siftings removed in the operation are discharged from the spout in the top shoe.

Parallel scalp – tailgate “B”. With this arrangement, the product is evenly divided between screens #1 and #2, and each screen performs a scalping operation. The large trash stays on top of the screen and is discharged out the tailgate spouts. The gate at the low end of screen #2 should be in the closed position. The blank pan should be in place between screens #1 and #2. The flow divider labeled 1-I should be in place at the high end of screen #1.

Bottom Shoe for Configuration

2-way parallel sift. With this arrangement, the product is evenly divided between the three screens in the bottom shoe and all screens perform sifting operations. The splits or other small inert are discharged out the spouts on the bottom shoe. The gate at the low end of screen #3 should be in the closed position. The blank pans should be in place between screens #3 and #4. Screen #3 should have the flow divider with chute, labeled 3-I on the front edge of the wooden frame, at the high end of the screen. Screen #4 should have a similar divider and chute labeled 4-I. Screen #4 should have the 14" blank frame.

Scalp/sift. Install the 16" blank pans labeled 3-II at the high end of screen #3. Remove the two-piece pan from between the screens. Put both gates in the *open to spout* position so that the scalping from screen #3 is being discharged from the spouts. The product going over screen #4 discharges out the rear into the bottom air flue. Screen #4's siftings discharge out the spout at the low end of the screen.

Hopper Feed Control (Standard Type “A” Hopper)

The inlet hopper for the machine is located at the high end of screen #1 and has two controls. Refer to drawing #90020A14 for specific locations. The control hand crank, which

is located on the side of the hopper and extends to the front of the machine, regulates the amount of product coming into the machine by changing the position of the feed gate. The feed gate is located above the feedroll, with a slanting ledge across the full-width of the hopper. Raising it increases the rate of feed. An arrow shows the direction to turn the control to increase the flow. The feedroll in a type "A" hopper rotates counterclockwise when facing the left side of the machine. This carries the product over the feedroll. The other control, located at the front of the machine in the center, operates the cleanout gate under the feedroll. When you have finished running the machine, this gate is lowered to clean any remaining product out of the hopper. Return the cleanout gate to its closed position before operating the machine. The cleanout gate may also be used to increase the rate of flow when the feed gate is in the full open position and more input volume is required.

Hopper Agitator

This machine is equipped with a hopper agitator. The agitator is located in the hopper and has rotating fingers that comb through the inferior material in the product being cleaned. This allows the bulky trash to flow through the hopper and onto a screen without bridging over and plugging up the hopper. **Caution!** Be sure the safety guard is in place above the hopper before operating the machine! Never reach inside the hopper while the machine is running! If you must reach inside the hopper for any reason, turn the power off and follow standard safety procedures!

Optional Electronic Feed Control

Machines with the optional electronic feed control on the hopper are equipped with an SCR controller, TEFC DC motor, and a gear reducer. By turning the knob on the controller, the speed of the feedroll is changed to increase or decrease the flow of product into the machine. The instructions above for the feed gate and cleanout gate still apply, but changing the speed of the feedroll is the primary control to increase or decrease the rate of feed with this option.

Optional Type "C" Hopper

The type "C" hopper is for cleaning rough, bulky products such as grass seed and includes the electronic feed control. It differs from the standard type "A" hopper. The feedroll rotates clockwise when facing the left side of the machine. This pulls the bulky product under the feedroll. The cleanout gate may be opened slightly as required to increase the flow. However, changing the speed of the feedroll is the primary control to increase or decrease the rate of feed with the type "C" hopper. A gate with a stiff rubber seal replaces the standard feed gate above the feedroll. This gate is kept in the lowered position with the seal in contact with the feedroll to prevent product from leaking over the top.

A separate constant speed gear motor drives the mixer and agitator. The mixer is in the top of the hopper directly under the inlet. It has paddles that mixes the product back and forth to prevent it from bridging over and plugging up the hopper. The paddles on each end next to the hopper side should push the product toward the center. The agitator is down inside the

hopper just above the feedroll. It operates same as the standard agitator described above. The mixer and agitator shafts rotate clockwise when facing the left side of the machine.

Fan / Air Controls (refer to drawing #90020A14)

There are two independently controlled fans on this machine. Both fans have a control with a hand crank to change the amount of air being drawn into the air flues. The fan on the right side is for the pre-air separation at the hopper. The fan on the left side is for the final-air at the product discharge. Turning the hand crank, located next to the airlifting spouts, changes the air volume. These spouts have a hinged discharge door that must swing freely. They are labeled "upper air lifting" and "lower air lifting". An air bleeder door is located on top of the machine for the upper air and at the rear for the lower air. By bleeding air in, it is possible to open the fan more, providing a higher air velocity in the air discharge pipes while maintaining the desired air separation. Refer to drawing #90019A14. Below the bleeder door on the lower air, there is an adjustable vertical metal apron across the full-width of the machine. Four bolts hold it in position. Sliding this apron inward reduces the opening size where the air is drawn into the machine. This increases the air velocity without changing the fan discharge. There is an adjustable air seal gate above the full-width chute where the product discharges into the final-air. It should be kept as low as possible, just above the flow of seed or grain. This gate prevents air from rushing in over the top of the product. Refer to drawing #90004A14.

Do not make "big" changes all at once when adjusting the air. A haft turn on the fan discharge hand crank is all that is required sometimes. Wait ten to fifteen seconds after making an adjustment to take a sample at the airlifting spout. This allows the material being lifted time to make its way from the high end of the spout to the discharge door. Increase the air until you find a little of the good product in the sample, then decrease it slightly.

Adjustable Speed Screen Shake

The speed that the screen shakes back and forth may be changed to obtain the best screening action on all kinds of seed and grain products. Changing the speed of the eccentric shaft does this. Speed range is 270 to 320 RPM. Faster speeds give a more lively action to move the product down the screen quickly. If a more gentle action is required, the speed is slowed down.

The speed is changed through a variable speed drive from the countershaft to the eccentric shaft. A spring-loaded variable speed pulley is located on the countershaft. There is an adjustable idler on the bottom unit for this drive. The drive itself is on the top unit. The idler pulley goes on the inside of the drive and pulls down on the belt. This adjustable idler provides the control for the variable speed eccentric drive. A hand crank on the adjustable idler changes its position that forces the belt to change the diameter of the spring-loaded pulley. This changes the speed of the eccentric shaft that shakes the shoe with the screens back and forth. An arrow indicates the correct direction to turn the hand crank. Refer to drawing #90020A14 for adjustment location and drawing #90007A14 for variable speed control arm assembly.

Drive Belt Tension

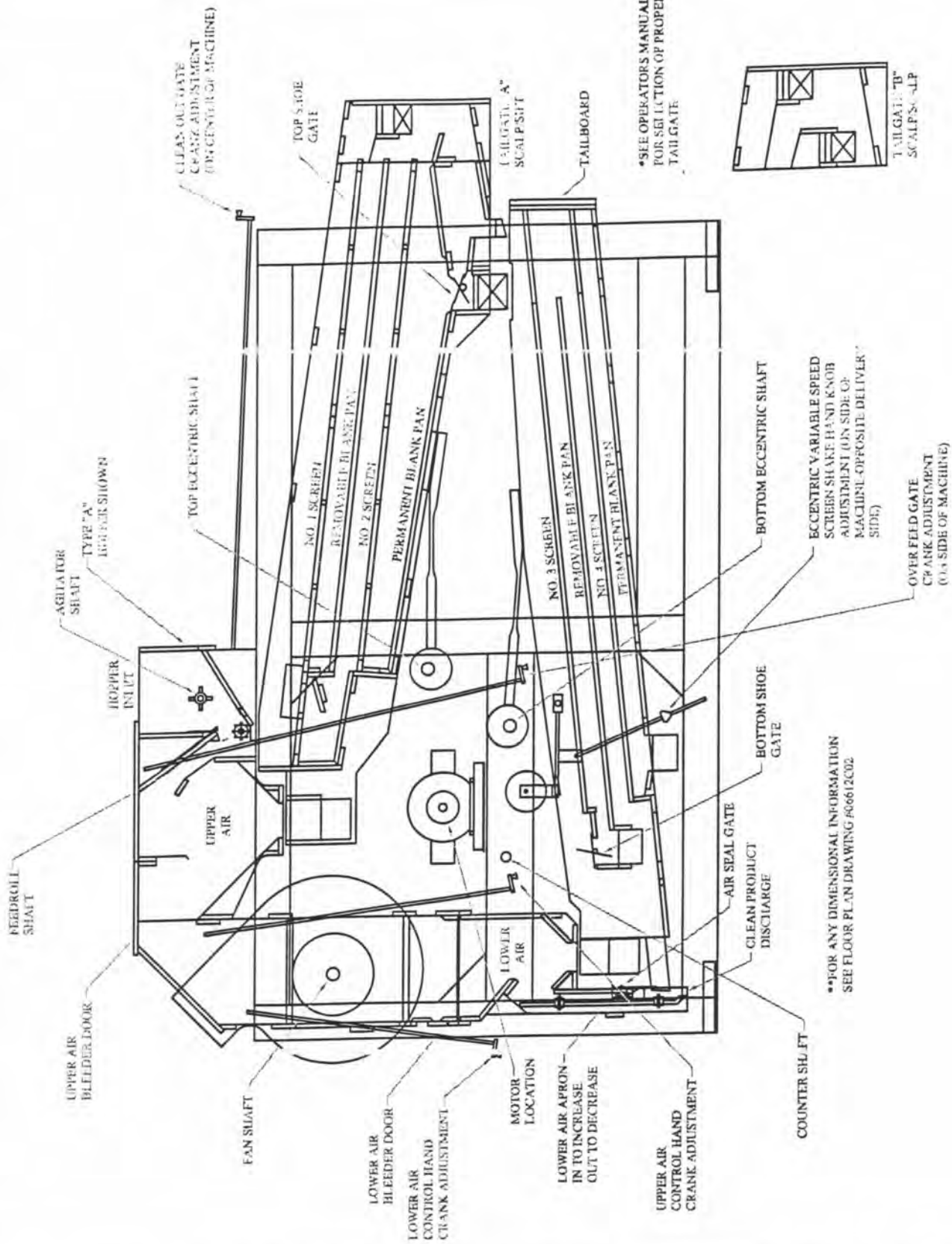
Use common maintenance practice to adjust the drives for proper belt tension. The motor has an adjustable base for this purpose. The adjustable screen shake, timing drive, and fan shaft to countershaft drives have individual adjustable idlers.

Applies only to machines shipped before December 1, 1997:

The fan shaft to countershaft drive uses a special link-belt to help absorb the shock created by the eccentric drives. After a short break-in period, remove an equal number of links from both belts to adjust for the required tension.

Chain Drives

The agitators on the standard type "A" hopper and all the shafts on the type "C" hopper are driven by #40 roller chain. Again, use common maintenance practice to adjust and lubricate these drives. In some applications, over-lubricating a chain drive will result in it collecting abrasive dust that causes it to wear out prematurely. A graphite-type lubricant may be required.



CRIPPEN MANUFACTURING COMPANY



400 Woodside Drive
St. Louis, Michigan 48880
Telephone: (517) 681-4323
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MODEL: CENTURY/PRO 488

DESCRIPTION: MACHINE IDENTIFICATION ILLUSTRATION

DRAWING NO.: 90020A14

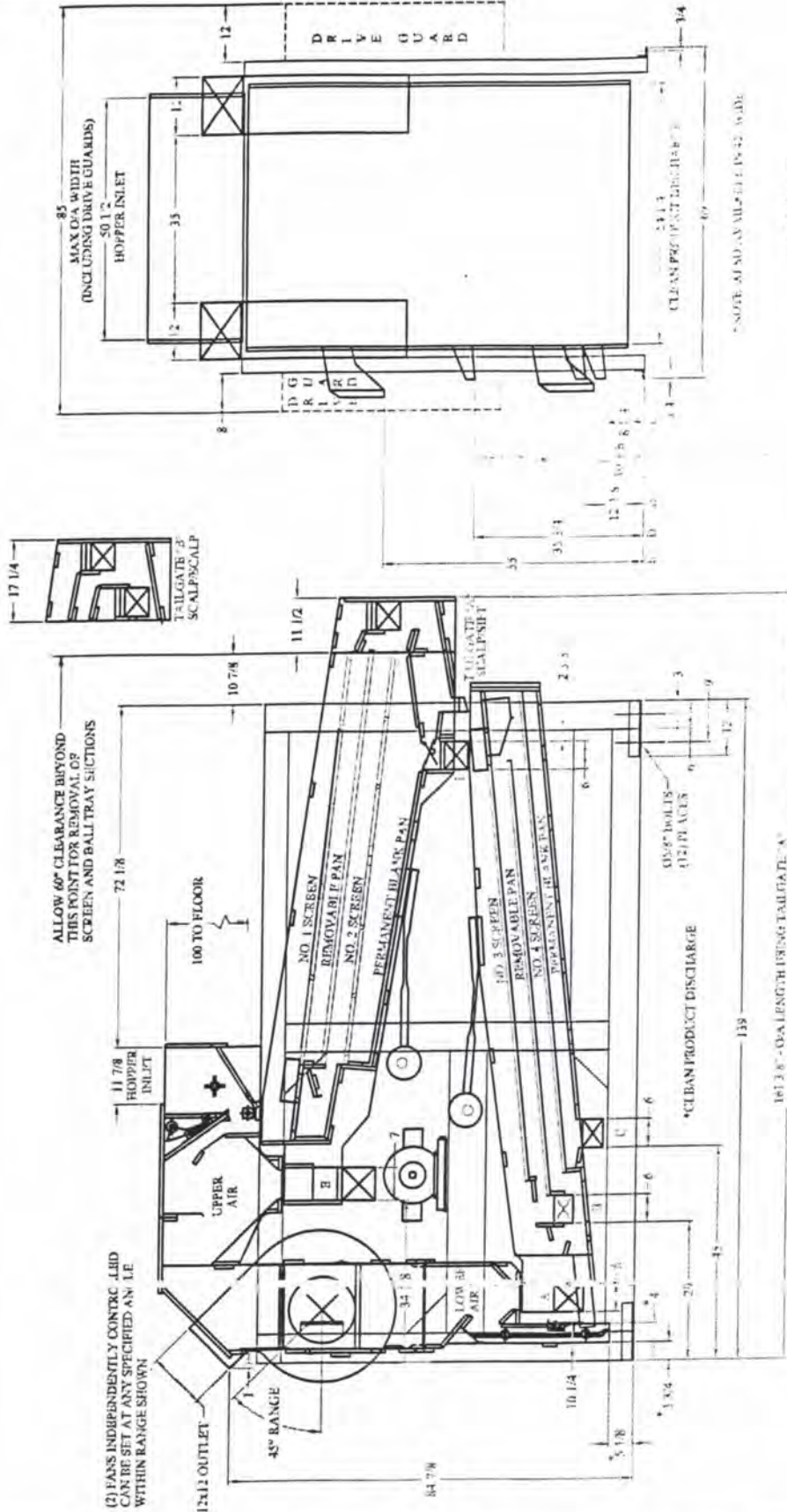
DATE: 12/29/97

DRAWN BY: J.S.

REVISION DATE: *

REVISED BY: *

NOTE: 1. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN INCHES AND DECIMALS THEREOF.
2. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE TO THE CENTERLINE OF THE PART UNLESS OTHERWISE NOTED.
3. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE TO THE CENTERLINE OF THE PART UNLESS OTHERWISE NOTED.



- LEGEND:
- A. LOWER AIR FLOW FUNCTION
 - B. NO. 1 SCREEN
 - C. NO. 2 SCREEN
 - D. NO. 3 SCREEN
 - E. UPPER AIR FLOW FUNCTION

NOTE: 1. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN INCHES AND DECIMALS THEREOF.

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MODEL: CENTURY/PRO 488	
DESCRIPTION: FLOOR PLAN	
DRAWING NO.: 06612C02	DATE: 11/13/96
REVISION DATE: *	DRAWN BY: J.S.
	REVISED BY: *

THIS KEYWAY TO
BE IN THE
"12 o'clock"
POSITION AS SHOWN

GROOVED
TIMING
PULLEY
(TOP ECCENTRIC
SHAFT)

TIMING
BELT
IDLER
PULLEY

TIMING
BELT

GROOVED
TIMING PULLEY
(BOTTOM ECCENTRIC
SHAFT)

THIS KEYWAY TO
BE IN THE
"6 o'clock"
POSITION AS SHOWN



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MODEL: AIR SCREEN CLEANERS

DESCRIPTION: TIMING DRIVE ILLUSTRATION

DRAWING NO.: 90008A14

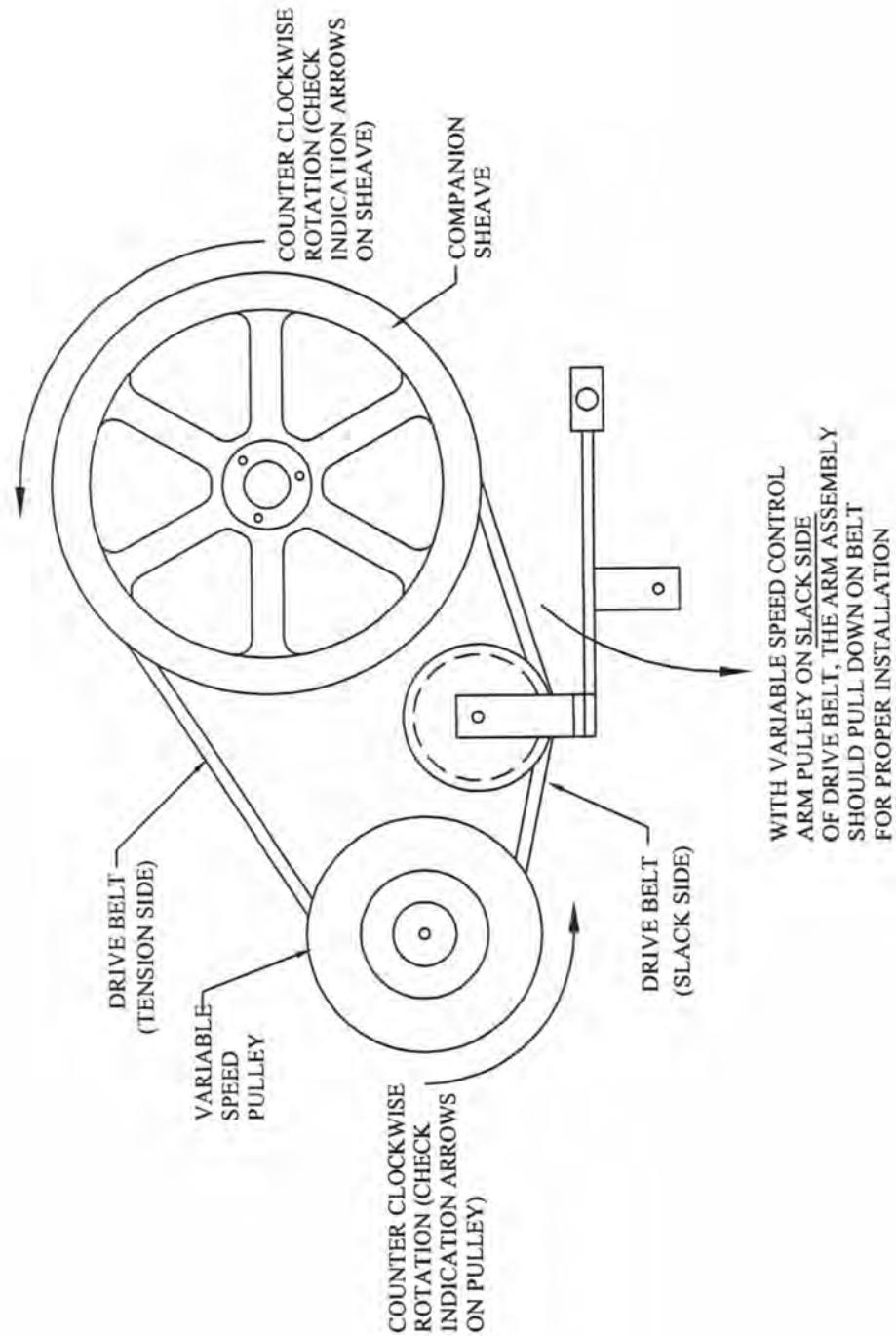
DATE: 12/19/97

DRAWN BY: J.S.

REVISION DATE:

REVISED BY:





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MODEL: AIR SCREEN CLEANERS

DESCRIPTION: VARIABLE SPEED CONTROL ARM ILLUSTRATION

DRAWING NO.: 90007A14

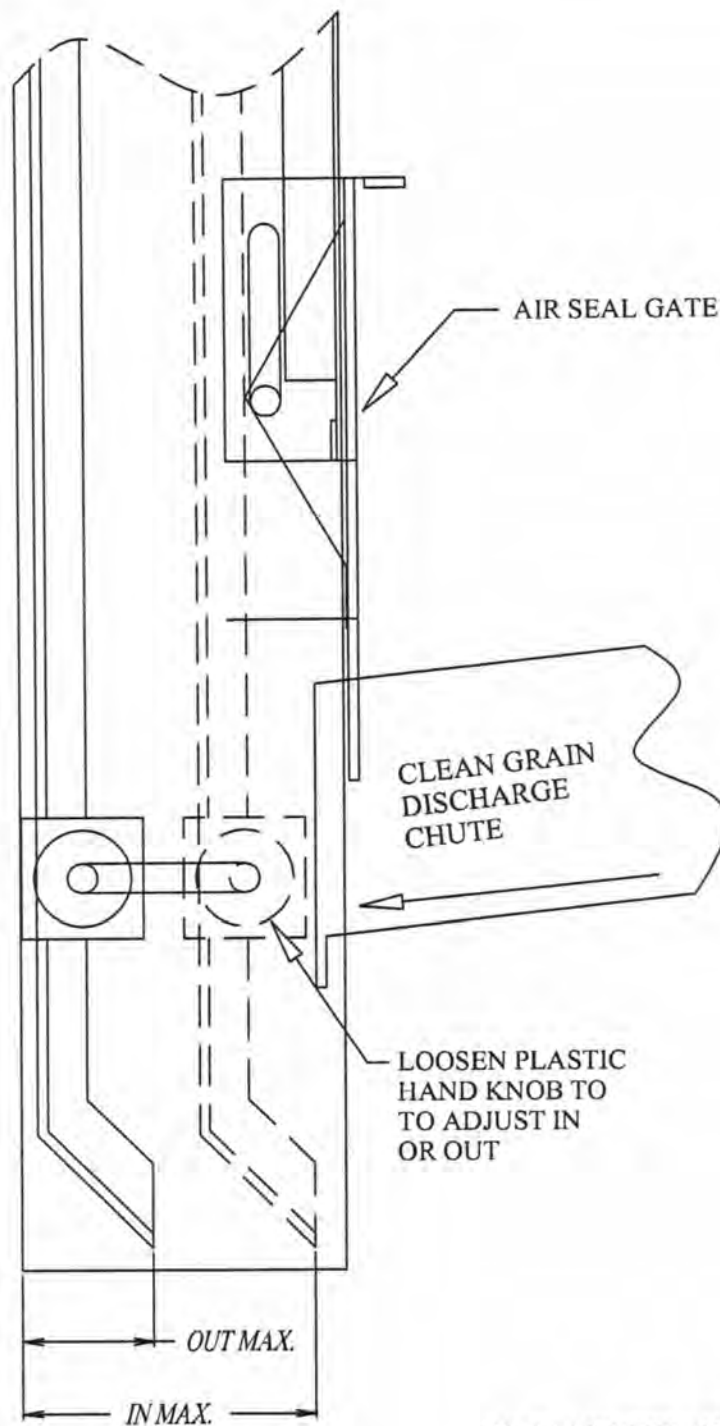
DATE: 9/10/97

DRAWN BY: J.S.

REVISION DATE:

REVISED BY:





MODEL NUMBER AND MACHINE SERIAL NUMBER MUST BE SPECIFIED ON ALL PARTS ORDERS.



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 Telephone: (517) 681-4323
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MODEL: AIR SCREEN CLEANERS

DESCRIPTION: LOWER AIR VELOCITY ADJUSTMENTS

DRAWING NO.: 90004A14

DATE: 12/18/97

DRAWN BY: J.S.

REVISION DATE:

REVISED BY:



Dust Collection Recommendations

Static Pressure

Our standard fan is designed to work with a typical cyclone dust collector and piping with a total static pressure (on the positive side of our fan) of under 2 inches. As an option, we offer high static fans that can overcome up to 5 inches of resistance. For special considerations, at your site, or questions, please contact our factory personnel at the St. Louis address, noted on the machine brochure and table of contents page of this booklet.

Our fan outlet air remains constant so that we can be certain the airborne particles do not settle in the dust and are transported to the collector(s).

Pipe Size

Our recommended pipe sizes are as follows:

Number of Fans	Fan(s) Output	Pipe Diameter Size (if combined)	
1	4,500 CFM	14 inches	
2	9,000 CFM	20 inches	
3	13,500 CFM	24 inches	CFM = cubic feet per minute

When planning a system, we calculate a line of velocity of 4,000 feet per minute to be certain the waste exhausted from the fan is conveyed through the piping system and all the way to the collector.

Note: Our calculations are based on an altitude of up to 1,500 feet above sea level. If your installation is at a higher altitude than this, please inform us so we can make a recommendation for increase power to accept the reduced air performance at your specific altitude.

Piping Suggestions

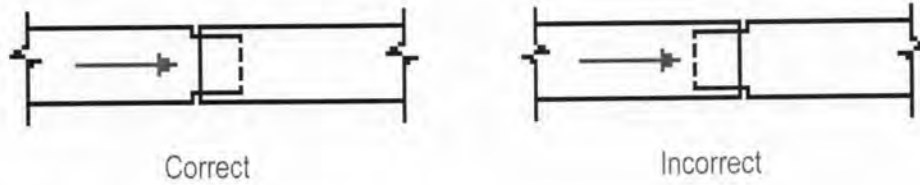
The fan outlet position(s) has been pre-set, at the factory at 45° from the horizontal, unless otherwise specified by the buyer at the time of the order. The rectangular fan outlet(s) is normally converted to round. The two fans' exhausts can be combined into one pipe by means of a set of "pants" that allows the two streams of airflow to merge without turbulence and can be acquired from our factory. Round, straight sections of piping should be made of 14 gauge (2 mm) thickness and wide sweep elbows, described in the "Wide Sweep Elbows" section, should be made of at least 10 gauge (3.5 mm) material for good wear characteristics.

Merging Dust Pipes

When two dust pipes are to be combined into one stream, it is critical that the airflow streams do not conflict, which can be achieved when using a typical transition resembling a pair of pants. Refer to drawing **#06539A14**.

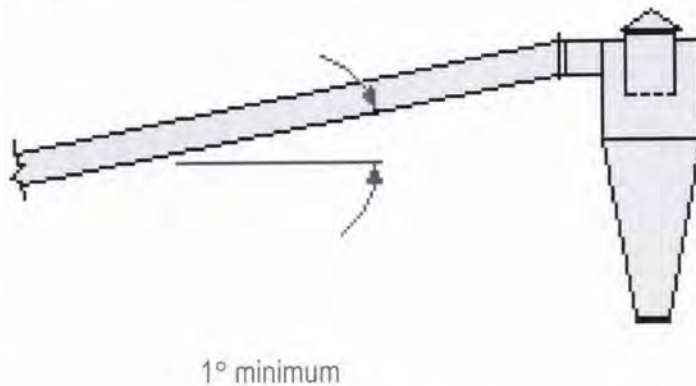
Piping Connections

To prevent unnecessary air pipe leakage and material buildup, where slip-joints are used, it is important to lap the connections in the directions of the airflow, as noted:



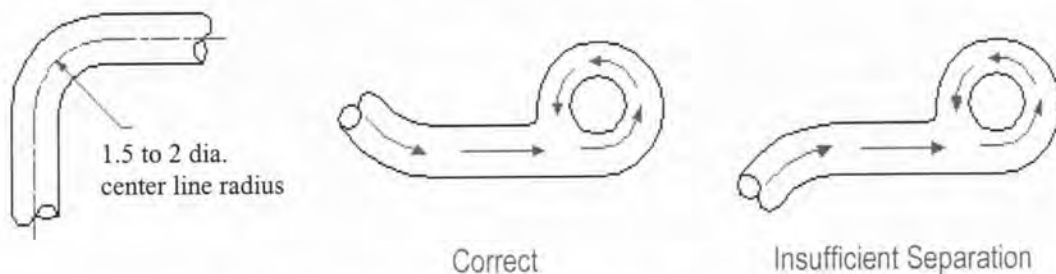
Piping Pitch

Piping should be sloped slightly uphill to the collector, rather than flat, to keep the bottom of the pipe clean, as illustrated:

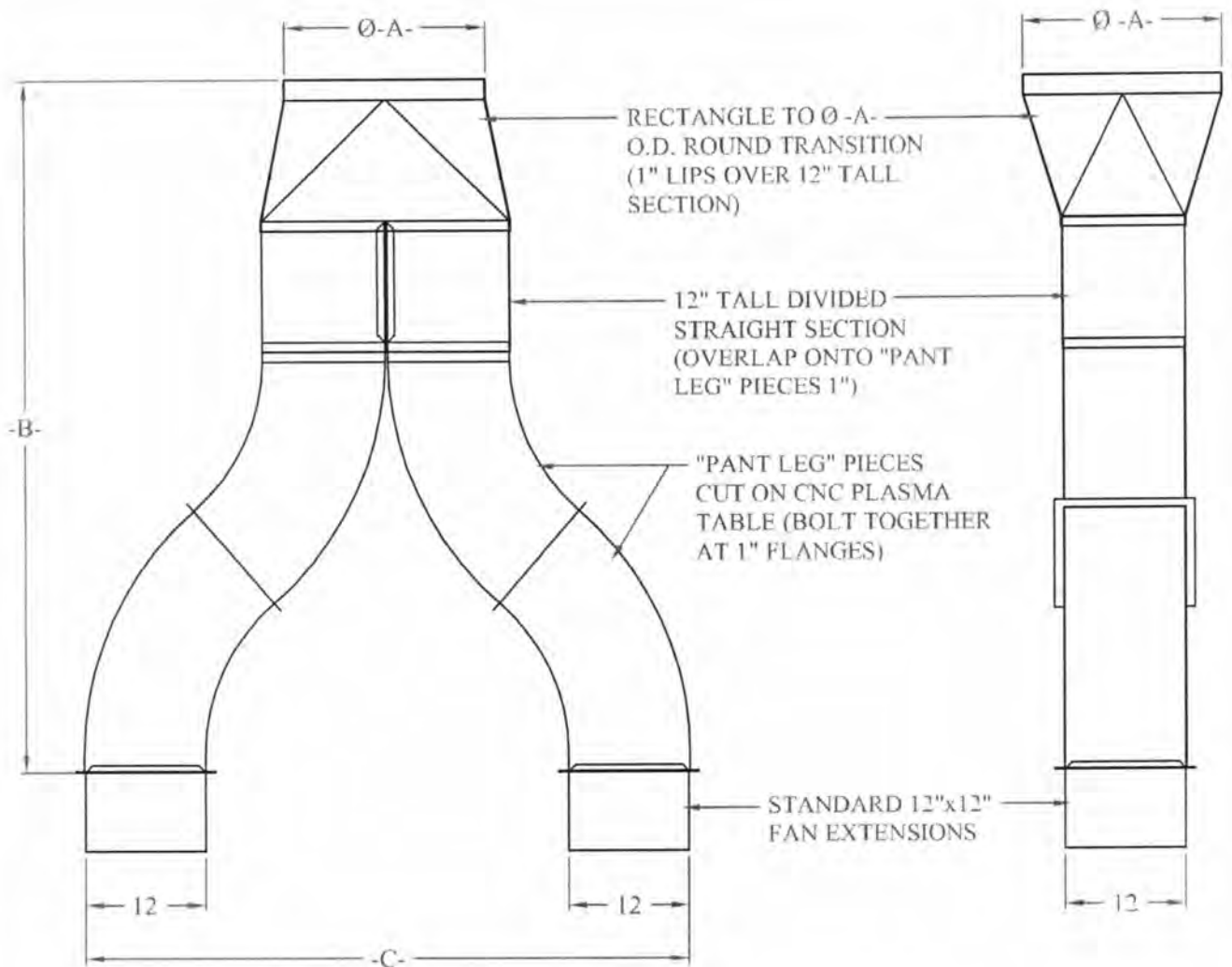


Wide Sweep Elbows

To reduce excessive static pressure and velocity drops in the piping system, elbows should be constructed with a radius of 1.5 times the diameter of the pipe and piping should run in a consistent pattern to avoid turbulence, as indicated:



A well-designed dust collection system can allow for efficient separation of dust and exhaust air as well as maximize the performance of the cleaner. If you have any questions, please contact our personnel, before installation.



SERIES	-A-	-B-	-C-
OMNI	20"	69 1/4"	60"
CENTURY	20"	68"	59"
DAKOTA	20"	68"	59"
LEGEND	20"	69 1/4"	60"
GX-372	18"	66 1/4"	50 3/4"

THIS DUCT WORK WILL
COMBINE (2) FANS TO
(1) ROUND OUTLET



CRIPPEN MANUFACTURING COMPANY



400 Woodside Drive
St. Louis, Michigan 48880
Telephone: (517) 681-4323
Fax: (517) 681-3818
Email: crippenmfg@crippenmfg.com

MODEL: AIR SCREEN CLEANERS

DESCRIPTION: OPTIONAL FAN DUCTWORK

DRAWING NO.: 06539A14

DATE: 9/5/96

DRAWN BY: D.L.

REVISION DATE: *

REVISED BY: *

Maintenance

Like all equipment, Crippen cleaners will require periodic maintenance. We have designed our equipment with this in mind. Wear items are easily accessible and routine maintenance can be performed with little loss of production time.



Belts

Belts should be checked periodically for wear or cracks. If a belt begins to show signs of wear, a replacement should be ordered and kept in stock.

Variable Speed Sheaves

Variable speed sheaves should be adjusted through their entire range on a weekly basis; this keeps them clean and in good working order. The threaded rod mechanisms will also be cleaned as the sheaves are cycled. This will keep the parts moving freely and assures ease of later adjustments.

Bearings

All bearings are a premium grade sealed type. They are greased before installation, but will require prudent greasing over their working life. We have found that over-greasing causes more failures than under-greasing; therefore, we recommend that bearings be greased once a year or every 1000 hours of operation.

If you suspect a bearing is failing, listen for unusual noise (knocking) during operation and feel the bearing for excess heat buildup immediately after shutting down and locking out the start/stop station. If the bearing is abnormally hot, then replacement is recommended as soon as possible.

Bolts

Check that the bolts on the eccentric drive arms and shoe hanger straps are securely fastened on a semi-annual basis. Refer to drawing **#90017A14**.

Note: Many of the above components are high wear items and will require periodic replacement. Other components generally will not require replacement unless they are subjected to above normal operating stress.

Safety



Before attempting to service or internally inspect the machine, lock out the start/stop station so that only the maintenance personnel have control of the machine.

Safety guards are provided with the machine to protect the operators and maintenance personnel from injury. Enclosures over belts, pulleys, and other moving parts should remain on the machine, unless service personnel are performing maintenance.

Lubrication Requirements

The main bearings on the machine are lubricated at the factory for the life of the bearing. However, it is permissible to add lubricant depending on how the machine is being used. Sodium-based greases are normally preferred for general purpose bearing lubrication. Excessive quantities of grease cause churning. This results in excessive temperatures and may cause a premature failure of the bearing.

The bearing housing should be kept approximately $\frac{3}{4}$ to $\frac{1}{2}$ full. Some bearing housing are supplied without a standard grease fitting to provide for re-lubrication.

A few other areas on the machine need regular attention. The various cranks, knobs, and other controls have a threaded part that should be kept oiled to keep them operating smoothly.

Re-lubrication intervals are very difficult to determine and vary greatly, depending on the machine's use and its environment. If plant practice or experience with similar applications is not available, consult your lubricant supplier.

Common maintenance practice must be followed to obtain the maximum life of any machine. There are many factors which affect the frequency of re-lubrication, such as a dusty environment and the length and frequency of machine use. Common practice in the seed and grain industries includes giving the main bearings on the machine a couple of pumps with a standard grease gun twice a year. Because of the wide range of machine applications, we are only able to give general instructions. Please consult with the Engineering Department at Crippen Manufacturing Company for any specific questions regarding operation and maintenance.

Preventative Maintenance Schedule

Daily

- Check for any audible or visible signs of rubbing or vibration that should not be present or that have not been observed previously
- Check the air valves and chambers for any obstructions

Weekly

- Check bearings after operation for heat buildup, seal leakage (greasing), and excessive movement or sloppiness
- Check bolts on the eccentric drive arms and shoe hanger straps
- Check bolts and chain tensions

Quarterly

- Check screens and collection pans for wear
- Check bearings for grease
- Lubricate the air control valve linkage
- Check motor amperage draw

Semi-Annual

- Check feed roll, contact plates, rubber balls, and all moving parts for wear
- Re-check parts inventory to be certain all essential components on hand for continuous operation

Parts Catalog

When ordering parts for Crippen cleaners, specify:

- ✓ Machine model number
- ✓ Serial number of machine
- ✓ Catalog number of part
- ✓ Part name
- ✓ Quantity



Pulley, Sheaves, Belting

When ordering a sheave (V-pulley) for a V-belt drive, send us the number on the sheave, as most sheaves are either stamped or embossed with a part number. Also, specify the exact outside diameter and size of the bore. To order a V-belt, specify the same number marked on the belt or specify for which drive the belt is used.

When ordering a pulley for flat belt drives, specify pulley outside diameter, width of face, and the bore.

To order flat belting, specify the belt width and length required.

Spouts, Pans

When order spouts, specify if the spout is at the end of a screen or in the pan immediately below the screen, screen location number in machine (highest screen is #1), and if spout delivers to *right* or *left* side of the machine.

For Model Century Pro 588-RH, Serial No. 65843-396

Ex.

(1) spout for end of screen #2

- or -

(1) spout in pan immediately below screen #3

When ordering a pan, specify overall width and length of the metal, machine model, and serial number.

Note: right or left hand is determined when standing at the front of the machine, facing the end where the screens are changed.

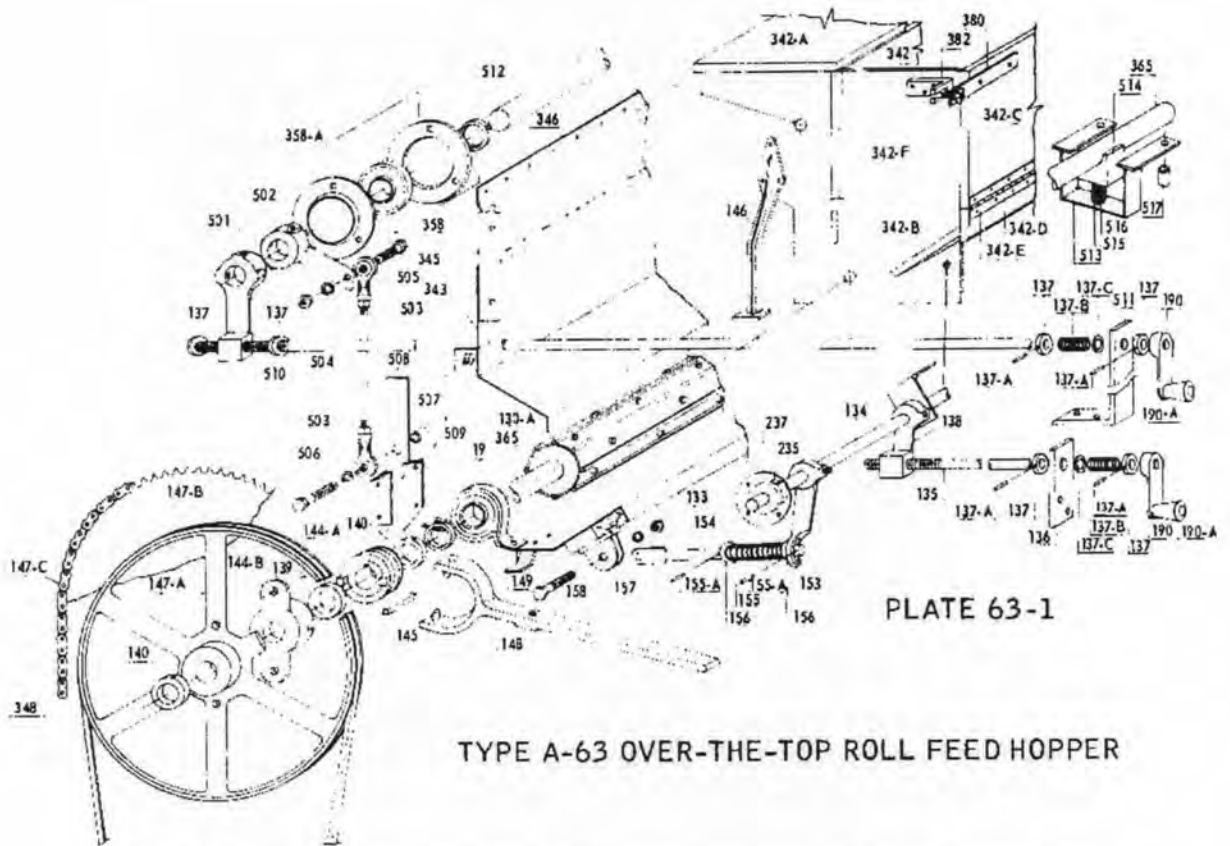


PLATE 63-1

TYPE A-63 OVER-THE-TOP ROLL FEED HOPPER

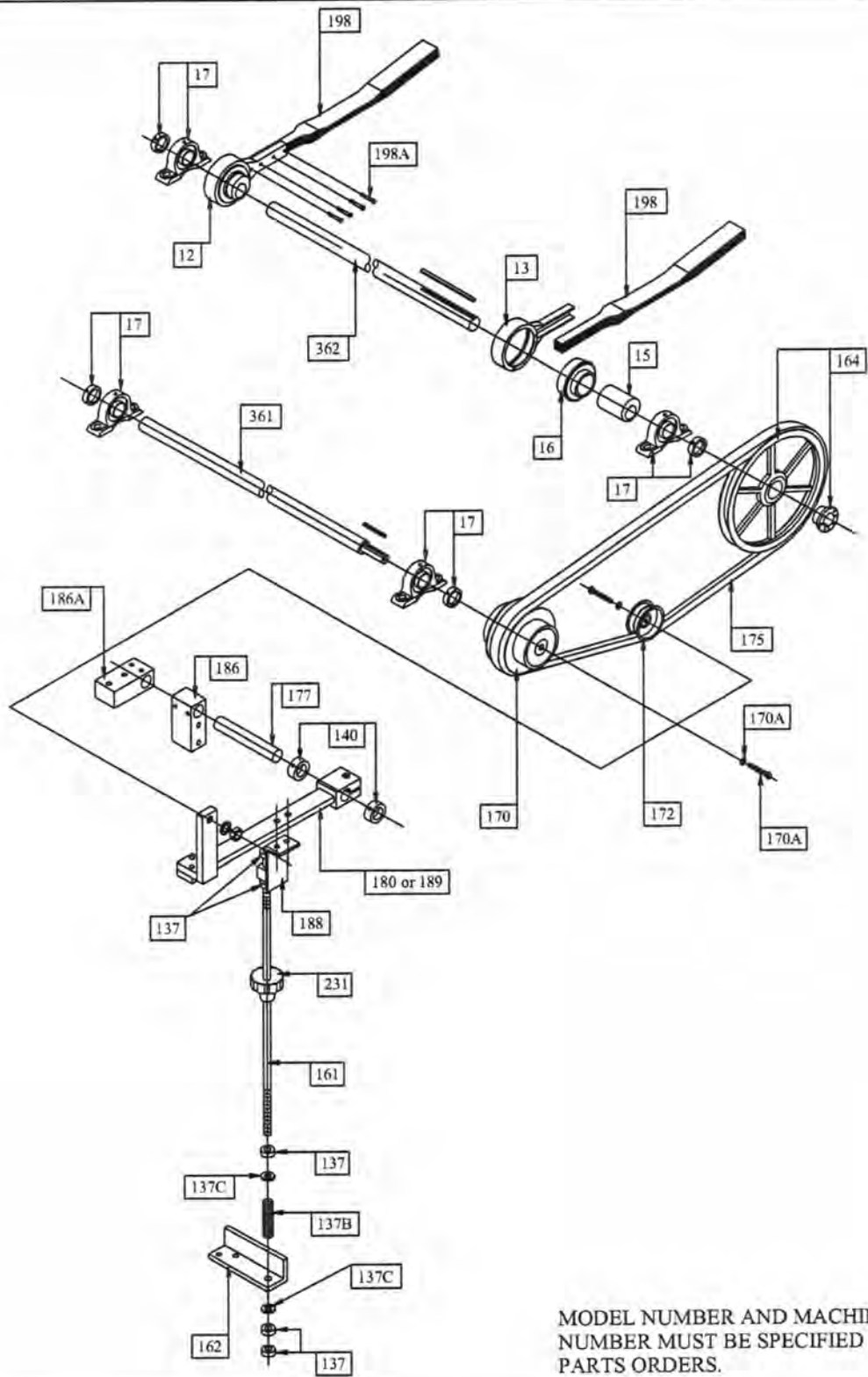
Model Number and Machine Serial Number must be specified on all Parts Orders

Cat. No.	Casting No.	ITEM
19		1" Rubber mounted ball bearing-pillow block & collar
130-A		Feed roll, combination peg & fin
133		Clean-out gate (#151 hinges & #157 brackets included)
134		Clean-out gate pivot rod, 5/8" dia.; specify length
135		Clean-out gate threaded control rod.
136		Clean-out gate control rod bracket; specify width & length
137		Control rod collar, 1/2" bore (#137A pin & set screws included)
137-A		Control rod collar pin
137-B		Control rod spring
137-C		Control rod spring retainer washer
138	F-669	Lever with swivel nut attached (Set screws included)
139		Clutch jaw floating collar 1" bore
140		Collar, 1" bore (Set screw included)
144-A	H-78	Clutch sleeve
144-B	H-79	Clutch jaw
145		Clutch key 1/4" Sq. x 1 1/2" Lg.
146		Hopper legs
147-A		Clutch Sheave
147-B		Clutch Sprocket
147-C		Hopper drive chain
148	H-82	Clutch lever
149		Clean-out gate stop

TYPE A-63 OVER-THE-TOP ROLL FEED HOPPER

Model Number and Machine Serial Number must be specified on all Parts Orders

Cat. No.	Casting No.	ITEM
151		Clean-out gate hinge (Not shown)
152		Clean-out gate pivot ass'y(Incl. parts #153,154,155,155A,156)
153	F-622	Slotted lever for clean-out gate (Set screws included)
154		Clean-out gate link rod (#155A pins included)
155		Link rod spring $\frac{3}{4}$ " O.D. x $3\frac{1}{2}$ " Lg.
155-A		Link Rod pin
156		Washer, spring retainer
157	G-139	Clean-out gate bracket
158		Link rod bolt $\frac{3}{8}$ "-16x $1\frac{1}{2}$ " machine bolt
190	F-669	Hand crank $\frac{1}{2}$ " bore(#137A pin, set screw & knob included)
190-A		Hand crank wood knob
235		Collar $\frac{5}{8}$ " bore (Set screw included)
237	B-39	Flange bearing $\frac{5}{8}$ " bore
342		Center crossboard
342-A		Cover board
342-B		Bottom board , covered with sheet metal
342-C		Front board (Upper section)
342-D		Front board (Lower section)
342-E		Front board hinge
342-F		Hopper end panels
343		Gate; above feed roll
345		Guide for #343 gate (Bolts included)
346		Cover for #343 gate (Screws included)
348		Hopper drive Ve-belt
358		1" Ball bearing and collar
358-A		Flanges for (#358 bearing)
365		Hopper feed roll shaft
380		Tailgate bracket, plain
382	F-681	Tailgate bracket with swivel bolt
501	M-49	Lever with swivel nut attached, 1" dia. hole (Set screws included)
502	M-49	Linkage lever, 1" dia. hole (Set screws included)
503	CTR-6	Linkage rod end bearings
504		Linkage rod (Jam nuts included)
505		Upper linkage bolt $\frac{3}{8}$ "-16x $1\frac{1}{4}$ " machine bolt (Nut & washers incl.)
506		Lower linkage bolt $\frac{3}{8}$ "-16 Machine bolt (Lock washer included)
507		Linkage spacer bushing
508		Slot cover
509		Slot cover guide
510		Threaded control rod for #343 gate(#190 hand crank attached)
511		Control rod bracket for #343 gate
512		Pivot shaft for #343 gate
513		Feed roll brake bracket
514		Feed roll brake wood block (Bolt included)
515		Feed roll brake spring
516		Feed roll brake washer
517		Feed roll brake spacer bushing



MODEL NUMBER AND MACHINE SERIAL NUMBER MUST BE SPECIFIED ON ALL PARTS ORDERS.



CRIPPEN MANUFACTURING COMPANY



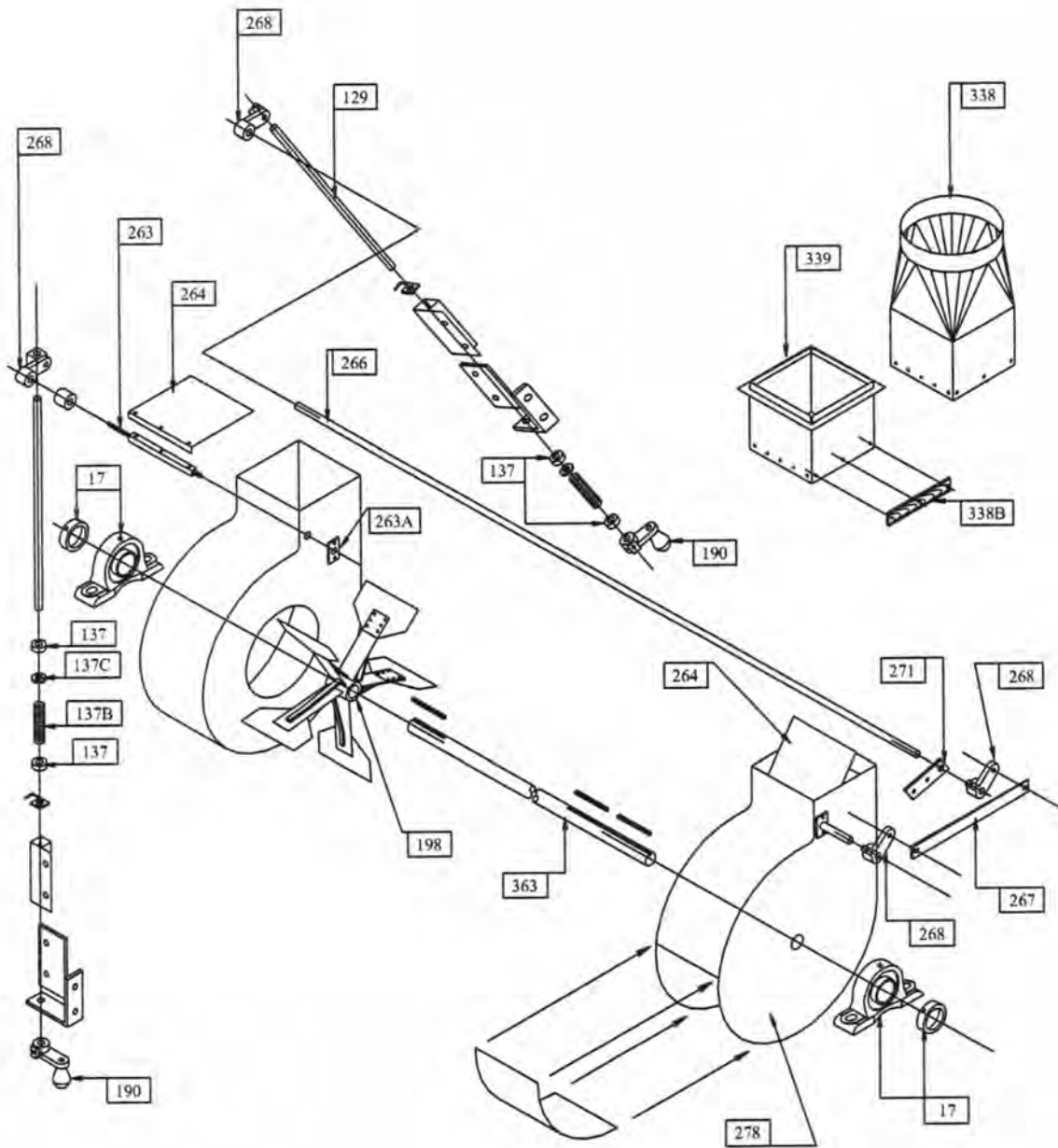
400 Woodside Drive
 St. Louis, Michigan 48880
 Telephone: (517) 681-4323
 Fax: (517) 681-3818
 Email: crippenmfg@crippenmfg.com

MODEL:		
DESCRIPTION: ECCENTRIC DRIVE ILLUSTRATION		
DRAWING NO.: 90025A14	DATE: 1/7/98	DRAWN BY: J.S.
REVISION DATE:	REVISED BY:	

Parts Listing – Eccentric & Countershaft

Refer to drawing #90017A14 on the Eccentric Drive Illustration

Part #	Description
13	Eccentric housing
15	Eccentric sleeve
16	Eccentric bearing
17	Ball bearing pillow block with collar; specify coinciding shaft
137	Control rod collar, ½" diameter bore, with set screw
137B	Control rod spring
137C	Control rod spring retainer washer
140	Collar, 1" diameter bore, with set screw
161	Eccentric speed control rod; specify length
162	Eccentric speed control rod bracket
164	Eccentric drive sheave and bushing
170	Variable speed pulley, for changing eccentric speed
170A	Variable speed pulley retainer bolt with lock washer
172	Variable speed idler pulley
175	Eccentric drive belt
177	Variable speed control arm, 1" diameter; length must be specified
180	Variable speed control arm, 12" overall length
186	Stub block with bolts and set screws
186A	Stub block with bolts and set screws
188	Variable speed control arm bracket with swivel nut
189	Variable speed control arm, 17" overall length
198	Eccentric arm; specify if for right or left hand side, when standing at the front of the machine where the screens are changed. If machine has more than one shoe, specify to which side the arm attaches. Ex. Right hand arm for lowest shoe; center arm for middle shoe; or left hand arm for highest shoe.
198A	Eccentric arm bolts
231	Hand knob, ½" diameter bore, pin included
361	Countershaft with keys; specify diameter and length
362	Eccentric shaft with keys



MODEL NUMBER AND MACHINE SERIAL NUMBER MUST BE SPECIFIED ON ALL PARTS ORDERS.



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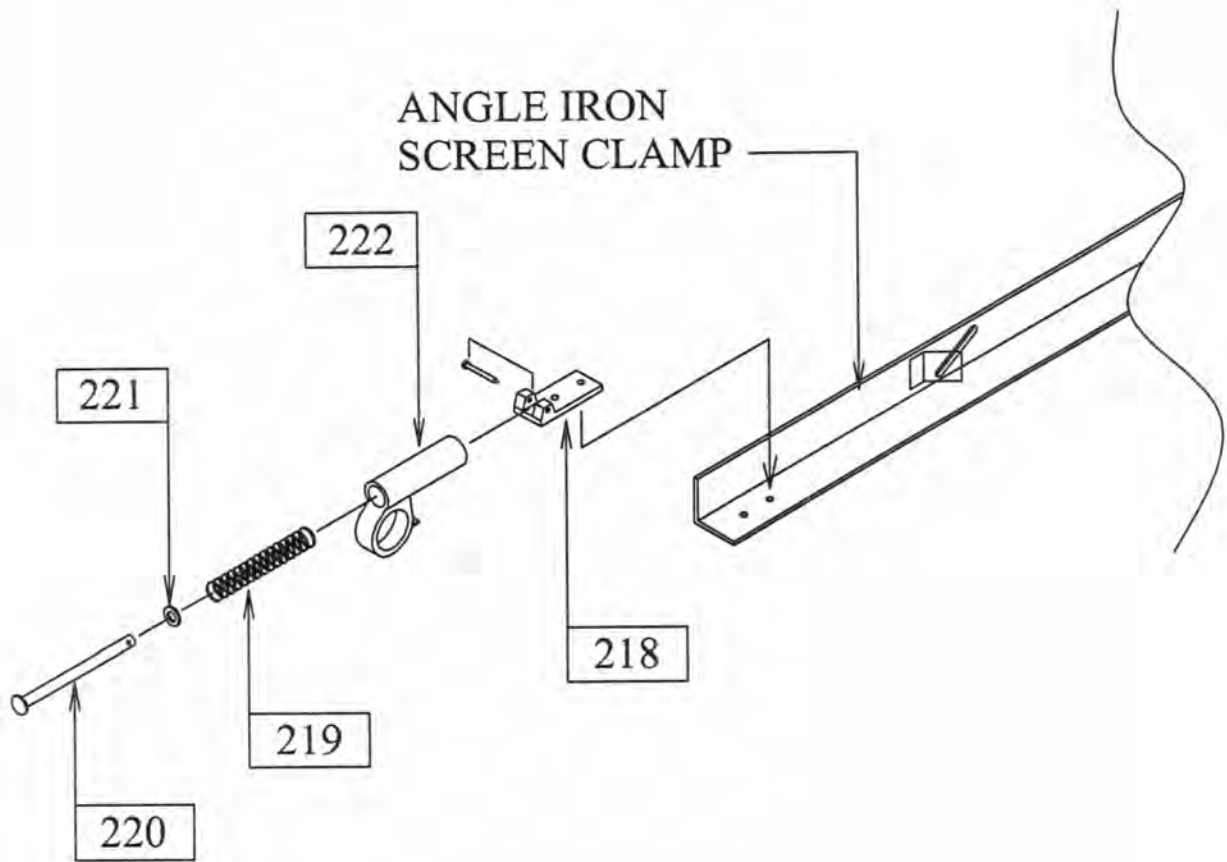
MODEL:		
DESCRIPTION: FAN ASSEMBLY ILLUSTRATION		
DRAWING NO.: 90026A14	DATE: 1/7/98	DRAWN BY: J.S.
REVISION DATE:	REVISED BY:	

Parts Listing – Fan Assembly

Refer to drawing #90018A14 on the Fan Assembly Illustration

Part #	Description
17	Ball bearing pillow block with collar; specify size
129	Fan damper control rod, ½” diameter; specify length
137	Control rod collar, ½” diameter bore, set screw and pin included
137B	Control rod spring
137C	Control rod spring retainer washer
190	Control rod hand crank, ½” diameter bore, set screw and pine included
263	Fan damper shaft, cotter pin included; specify width of damper
263A	Fan damper shaft end pad, screws included
264	Fan damper; width must be specified
266	Horizontal rod connecting fan damper control to opposite side of machine; specify length
267	Fan damper control connection link; overall length must be specified
268	Fan damper control connecting link lever with set screw; casting #F-669
271	Horizontal rod bracket, bolts included
278	Fan housing, 12”-wide
338	Fan outlet adapter for use with round pipe; specify width of fan housing
338B	Wood cleat for fan outlet
339	Fan outlet extension

ANGLE IRON SCREEN CLAMP



MODEL NUMBER AND MACHINE SERIAL
NUMBER MUST BE SPECIFIED ON ALL
PARTS ORDERS.



CRIPPEN MANUFACTURING COMPANY



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MODEL: AIR SCREEN CLEANERS

DESCRIPTION: SCREEN CLAMP ASSEMBLY ILLUSTRATION

DRAWING NO.: 90002A14

DATE: 12/18/97

DRAWN BY: J.S.

REVISION DATE:

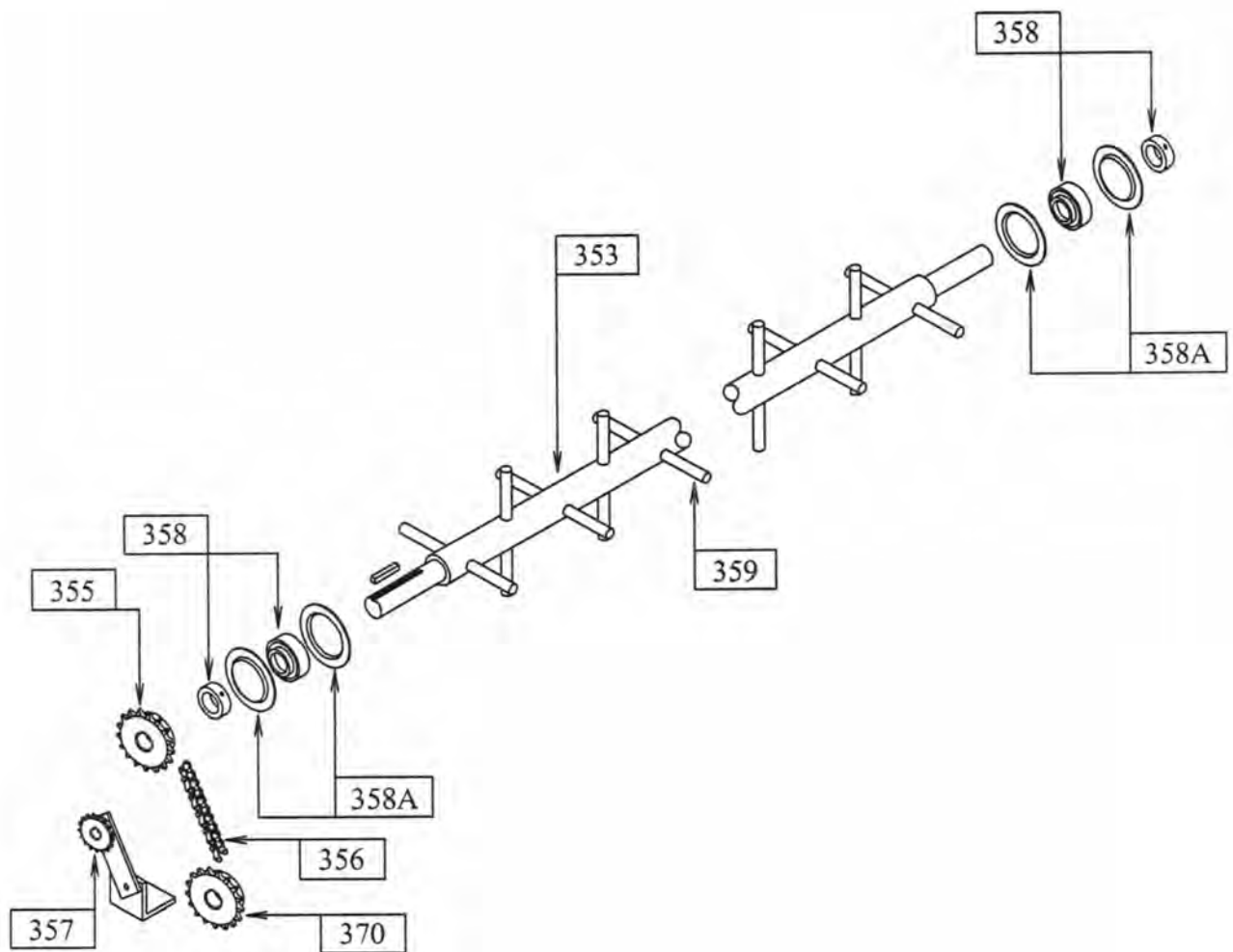
REVISED BY:



Parts Listing – Screen Clamp Assembly

Refer to drawing #90002A14 on the Screen Clamp Assembly Illustration

Part #	Description
218	Screen clamp anchor pad, bolts and rivets included
219	Screen clamp pistol spring
220	Screen clamp pistol rod, 1/4" diameter x 3 1/4" long, rivet included
221	Screen clamp pistol washer
222	Screen clamp pistol



MODEL NUMBER AND MACHINE SERIAL NUMBER MUST BE SPECIFIED ON ALL PARTS ORDERS.



CRIPPEN MANUFACTURING COMPANY



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 St. Louis, Michigan 48880
 Telephone: (517) 681-4323
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 Email: crippenmfg@crippenmfg.com

MODEL: AIR SCREEN CLEANERS

DESCRIPTION: HOPPER AGITATOR ILLUSTRATION

DRAWING NO.: 90003A14

DATE: 12/18/97

DRAWN BY: J.S.

REVISION DATE:

REVISED BY:



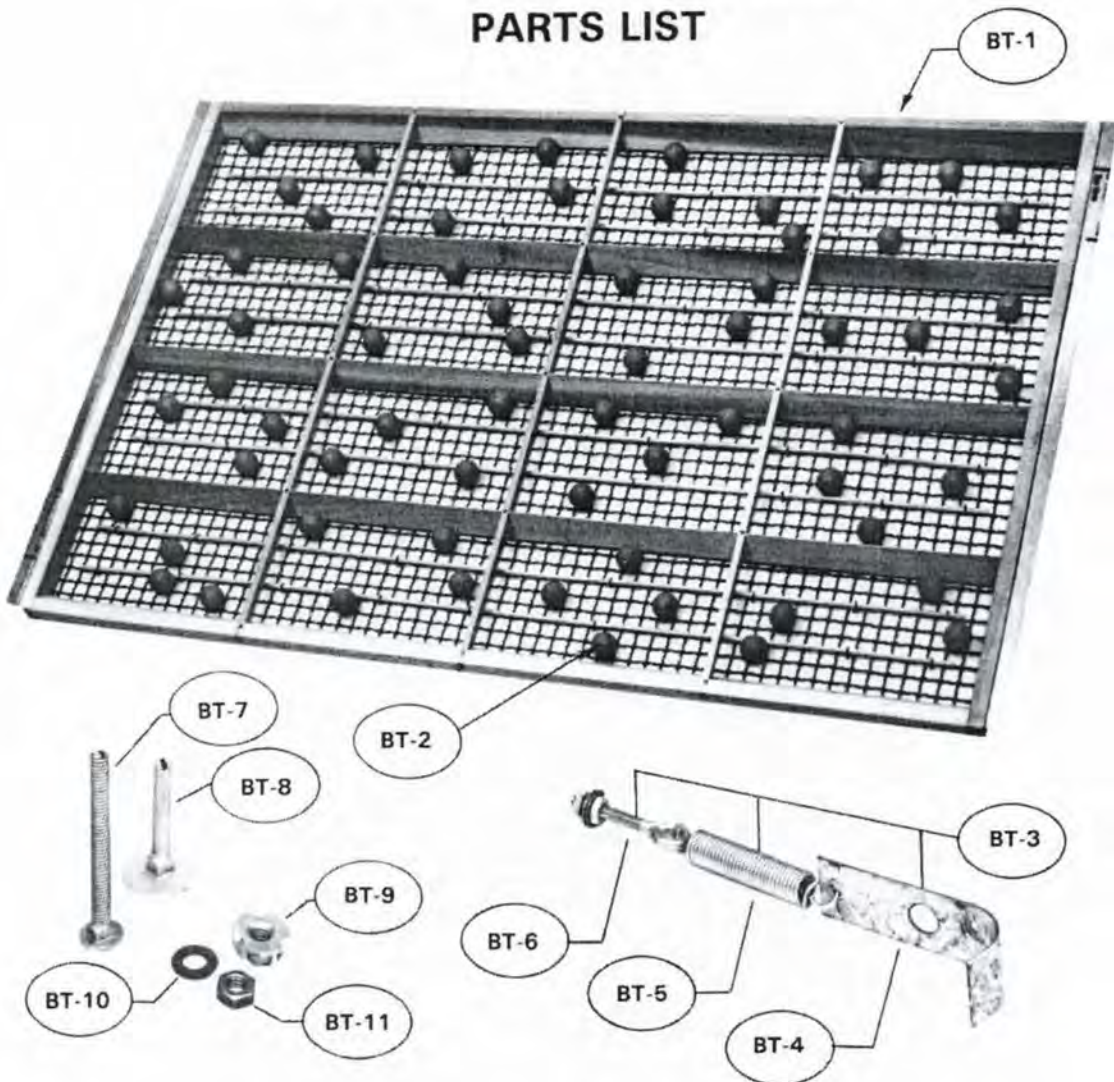
Parts Listing – Hopper Agitator

Refer to drawing #90003A14 on the Hopper Agitator Illustration

Part #	Description
353	Agitator with studs
355	Driven sprocket on agitator; number of teeth must be specified
356	Drive chain; quantity of links must be specified
357	Idler sprocket
358	1" diameter ball bearing and collar
358A	Flanges for #358 bearing
359	Stud for agitator shaft
370	Drive sprocket for agitator; number of teeth must be specified

BALL TRAY (Screen Cleaner)

PARTS LIST



Part No.	NAME
BT-1	Ball Tray Assembly complete; rubber balls not included. Machine Model No. and serial number must be specified. Also must specify whether ball tray is for No. 1 top screen, No. 2 screen, etc., and whether it is for the front or rear section of any 2-pc. screen; or front, middle, or rear section of any 3-pc. screen. Refer to the number marked on your present frame, for example "2F", or "4R", etc.
BT-2	Rubber ball, 1-3/8" dia., specify color and quantity.

Part No.	NAME
BT-3	Spring latch assembly complete; includes latch grip, eye-bolt, and spring.
BT-4	Latch grip
BT-5	Spring
BT-6	Eye-bolt
BT-7	Adjuster bolt, 5/16" dia., w/small head, slotted end.
BT-8	Adjuster bolt, 5/16" dia., w/large head, slotted end.
BT-9	"T" nut anchor, 5/16" threads.
BT-10	Flat washer, 5/16".
BT-11	Jam nut, 5/16" threads.

BALL TRAY PLATE
CRIPPEN MFG. CO.
ST. LOUIS, MICHIGAN
PRINTED IN U.S.A.

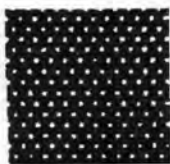


SCREEN LIST

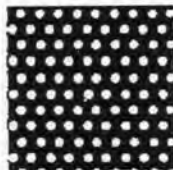
THE FOLLOWING SCREEN PERFORATIONS ARE THE PRINCIPAL SIZES CARRIED IN STOCK.

• **ROUND HOLES** •

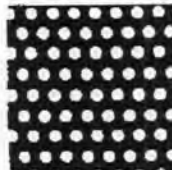
1/25	1/13 or 5/64	10-1/2 / 64	16/64 or 1/4	21 1/2 / 64	30/64
1/24	1/12 or 5 1/2 / 64	11/64	16 1/2 x 64	22/64	31/64
1/23	6/64 or 3/32	11 1/2 / 64	17/64	22 1/2 / 64	32/64 or 1/2
1/22	6 1/2 / 64	12/64	17 1/2 / 64	23/64	34/64
1/21	7/64	12 1/2 / 64	18/64	23 1/2 / 64	36/64
1/20	7 1/2 / 64	13/64	18 1/2 / 64	24/64 or 3/8	38/64
1/19	8/64 or 1/8	13 1/2 / 64	19/64	25/64	40/64 or 5/8
1/18 or 3 1/2 / 64	8 1/2 / 64	14/64	19 1/2 / 64	26/64	42/64
1/17	9/64	14 1/2 / 64	20/64 or 5/16	27/64	48/64 or 3/4
1/16 or 4/64	9 1/2 / 64	15/64	20 1/2 / 64	28/64	56/64 or 7/8
1/15	10/64	15 1/2 / 64	21/64	29/64	64/64 or 1"
1/14 or 4 1/2 / 64					



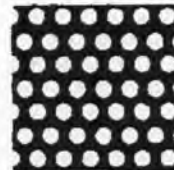
1/25



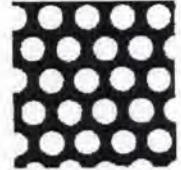
1/16 or 4/64



1/12 or 5 1/2 / 64



7/64



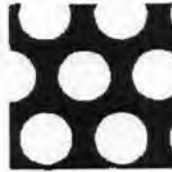
10/64



12/65 or 3/16



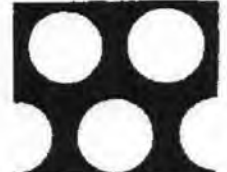
16/64 or 1/4



20/64 or 5/16



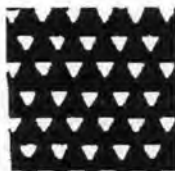
24/64 or 3/8



28/64

TRIANGLE HOLES

Single Spaced Holes



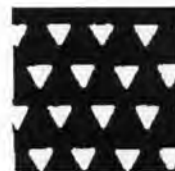
7/64 or 4 1/2 V



8/64 or 5 V



9/64 or 5 1/2 V



10/64 or 6 V

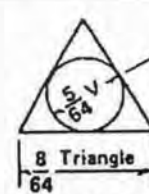
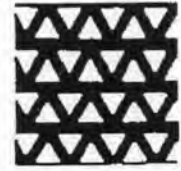
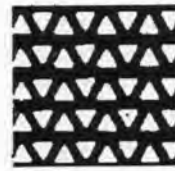


11/64 or 6 1/2 V



12/64 or 7 V

Double Spaced Holes



Di. of inscribed circle is 5/64" (0.078")
Called 5/64V or 5V

8/64 TRIANGLE = 5/64V (5V)

ALL SIDES EQUAL & MEASURE 8/64"

SCREEN LIST

THE FOLLOWING SCREEN PERFORATIONS ARE THE PRINCIPAL SIZES CARRIED IN STOCK

OBLONG HOLES			OBLONG CROSS SLOT
1/24 X 1/2	5/64 X 3/4 OR 1/13 X 3/4	11/64 X 3/4	7/64 X 3/4
3/64 X 5/16	5 1/2 X 1/4 OR 1/12 X 1/4	11 1/2 / 64 X 3/4	8/64 X 3/4
1/22 X 1/2	5 1/2 / 64 X 1/2 OR 1/12 X 1/2	12/64 X 3/4	9/64 X 3/4
1/20 X 1/2	5 1/2 / 64 X 3/4 OR 1/12 X 3/4	12 1/2 / 64 X 3/4	10/64 X 3/4
3 1/2 / 64 X 1/4 OR 1/18 X 1/4	6/64 X 1/2 OR 3/32 X 1/2	13/64 X 3/4	10 1/2 / 64 X 3/4
3 1/2 / 64 X 1/2 OR 1/18 X 1/2	6/64 X 3/4 OR 3/32 X 3/4	13 1/2 / 64 X 3/4	11/64 X 3/4
3 1/2 / 64 X 3/4 OR 1/18 X 3/4	6 1/2 / 64 X 1/2 OR 1/10 X 1/2	14/64 X 3/4	11 1/2 / 64 X 3/4
1/17 X 1/2	6 1/2 / 64 X 3/4	15/64 X 3/4	12/64 X 3/4
4/64 X 1/4 OR 1/16 X 1/4	7/64 X 3/4	16/64 X 3/4 OR 1/4 X 3/4	12 1/2 / 64 X 3/4
4/64 X 1/2 OR 1/16 X 1/2	7 1/2 / 64 X 3/4	17/64 X 3/4	13/64 X 3/4
1/15 X 1/2	8/64 X 3/4	18/64 X 3/4	16/64 X 3/4
4 1/2 / 64 X 1/4 OR 1/14 X 1/4	8 1/2 / 64 X 3/4	19/64 X 3/4	17/64 X 3/4
4 1/2 / 64 X 1/2 OR 1/14 X 1/2	9/64 X 3/4	20/64 X 3/4 OR 5/16 X 3/4	18/64 X 3/4
4-7/8/64 X 3/4	9 1/2 / 64 X 3/4	22/64 X 3/4	
5/64 X 1/4 OR 1/13 X 1/4	10/64 X 3/4	24/64 X 3/4 OR 3/8 X 3/4	
5/64 X 1/2 OR 1/13 X 1/2	10 1/2 / 64 X 3/4	32/64 X 3/4 OR 1/2 X 3/4	



3/64 X 5/16



4 1/2 X 1/2 OR 1/14 X 1/2



6 X 1/2 OR 3/32 X 1/2



8 X 3/4



12 X 3/4



16 X 3/4



3/8 X 3/4



1/2 X 3/4



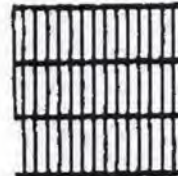
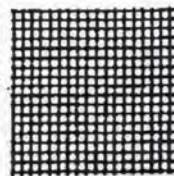
1/8" X 3/4" Oblong - Cross Slot

STAINLESS STEEL WIRE MESH

2 X 10	4 X 14	4 X 20	6 X 18	6 X 25	6 X 36
3 X 12	4 X 15	4 X 21	6 X 19	6 X 26	6 X 38
3 X 14	4 X 16	4 X 22	6 X 20	6 X 28	6 X 40
3 X 15	4 X 17	4 X 24	6 X 21	6 X 30	6 X 42
	4 X 18	4 X 26	6 X 22	6 X 32	20 X 18
	4 X 19	4 X 28	6 X 23	6 X 34	20 X 22
			6 X 24		

SQUARE WIRE MESH

10 X 10	24 X 24	36 X 36
12 X 12	26 X 26	38 X 38
14 X 14	28 X 28	40 X 40
16 X 16	30 X 30	45 X 45
18 X 18	32 X 32	50 X 50
20 X 20	34 X 34	60 X 60

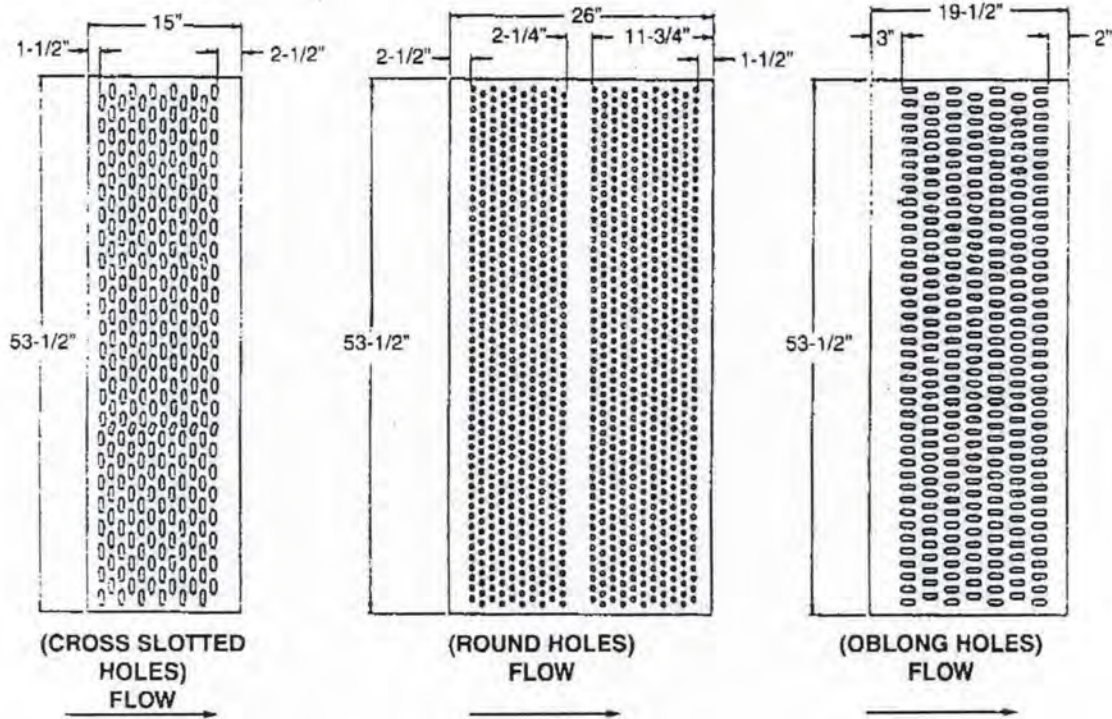


CRIPPEN MFG. CO., INC.

ST. LOUIS, MICHIGAN, U.S.A.

SHEET SIZES

THE FOLLOWING SCREEN PLATES ARE THE PRINCIPAL SIZES CARRIED IN STOCK



*PLATES CAN BE ALTERED TO FIT MOST FRAMES



12" X 12" HAND TEST SCREENS

* AVAILABLE IN ALL PERFORATED AND WIRE MESH SIZES

RACKS

12 SCREENS OR 24 SCREENS

Products & Services Available From Crippen Mfg. Co., Inc.

EQUIPMENT

- PRECISION AIR/SCREEN CLEANERS •
 - PRE CLEANERS •
- COMMERCIAL CLEANERS •
 - DEBEARDERS •
 - POLISHERS •
 - ASPIRATORS •
- GRAVITY SEPARATORS •
 - STONERS •
- BUCKET ELEVATORS •
- BELT CONVEYORS •
- VIBRATORY CONVEYORS •
- FLAT SCREEN GRADERS •
 - LENGTH GRADERS •

PARTS

- SCREENS COMPLETE FOR CRIPPEN & MOST OTHER CLEANERS
- PARTS & BALL TRAY CONVERSION KITS FOR ALL MAKES OF CRIPPEN EQUIPMENT
- COATED OVERCOVERS: FOR ALL MAKES & MODELS OF DENSITY EQUIPMENT
- PERFORATED SCREEN PLATES (STOCKED IN 3 SIZES)
- STAINLESS STEEL WIRE MESH SOLD BY LFT (42" WIDE ROLLS)
- ELEVATOR PARTS: BUCKETS, BELTS, BOLTS, DRUM & WING PULLEYS, VALVES & DISTRIBUTORS
- DRIVES: BELTS, SHEAVES, BEARINGS, MOTORS
- FAB WORK: BINS, SURGE HOPPERS, SUB FRAMES
- AUGERS: HELICOID & SECTIONAL SCREW, U TROUGH, HANGERS, HANGER BEARINGS, ETC.



Crippen Mfg. Co., Inc.

Mailing Address: P.O. Box 128, Alma, MI 48801

Plant Address: 400 Woodside Drive, St. Louis, MI 48880

Phone: 517-681-4323 • Fax: 517-681-3818 • USAWATS: 800-872-2474

Screen Suggestions for Commercial & Seed Cleaning

Four screen cleaners

Column 1 – top screen, upper shoe
 Column 2 – bottom screen, upper shoe
 Column 3 – top screen, lower shoe
 Column 4 – bottom screen, lower shoe

Three screen cleaners

Column 1 – top screen
 Column 3 – middle screen
 Column 4 – bottom screen

Two screen cleaners

Column 1 – top screen
 Column 4 – bottom screen

2nd screen of NW models can be used for either *top* or *bottom* work, *scalp* or *sift*.

Commodity	Column 1 Scalp	Column 2 Sift	Column 3 Scalp	Column 4 Sift
Grass Seed				
Alkaligrass	1/18	50x50	22x22	45x45
Bahiagrass, Argentina	8	15x15	1/16x1/2	1/13
Bahiagrass, common	9	12x12	1/14x1/4	1/15
Bahiagrass, Pensacola	6	17x17	1/18x1/4	1/17
Bentgrass	26x26, 28x28	60x60	28x28, 32x32	60x60
Bermudagrass, unhulled	1/18	32x32	6x24	6x38
Bermudagrass, hulled	1/25	38x38	28x28, 32x32	6x42
Bluegrass, Kentucky, scalped	1/16, 1/18	6x42	1/18, 24x24	6x40
Bluegrass, Merion, scalped	1/15, 1/16	6x42	1/16, 20x20	6x40
Blue panic	1/19	28x28	17x17	6x34
Bromegrass, smooth	12, 10	6x24	1/13x1/2	6x24, 10-tri
Buffalograss	18	8	17	1/16x1/2
Canarygrass, Reeds	1/12	6x24	2/64x5/16	1/16
Canarygrass, Moroccan	7	1/15, 1/14	1/14x1/2	1/14, 1/13
Carpetgrass	1/13	32x32	6x22	6x40
Dallisgrass	8, 7	16x16	7, 3/64x5/16	1/14
Fescue, Alta, Chowings, Ky.31, Meadow	3/64x5/16	6x32	1/22x1/2, 6	6x32
Fescue, creeping red	1/22x1/2	6x32	6, 1/24x1/2	6x32
Guineagrass	1/12	6x30	1/18x1/4	6x28
Harding grass	1/13, 1/14	6x30	1/22x1/2	6x26
Johnsongrass	8	1/17, 1/16	1/13x1/2	1/16, 1/22x1/2
Lovegrass, Boer	1/25	60x60	30x30	50x50
Lovegrass, Lehman	1/20	40x40	1/25, 32x32	36x36
Lovegrass, Sand	1/20	32x32	1/23, 1/25	6x34
Lovegrass, Weeping	1/24, 1/25	50x50	1/25, 6x32	40x40, 6x40

Commodity	Column 1 Scalp	Column 2 Sift	Column 3 Scalp	Column 4 Sift
Grass Seed (cont.)				
Orchardgrass	$\frac{3}{64}X^5/16$	6x32	$\frac{1}{22}X\frac{1}{2}$, 6	6x32
Redtop	28x28, 30x30	60x60, 6x60	30x30, 32x32	50x50
Redtop, Timothy	30x30	60x60, 6x60	6x34	50x50
Rescuegrass	16, 12	$\frac{1}{18}X\frac{1}{4}$	$\frac{1}{13}X\frac{1}{2}$	$\frac{1}{18}X\frac{1}{4}$, 9-tri, 10-tri
Rhodesgrass	6	6x36	$\frac{1}{12}$	6x34
Ryegrass	$\frac{3}{64}X^5/16$	6x32	$\frac{1}{22}X\frac{1}{2}$, 4x19	6x32
Sand dropseed	$\frac{1}{25}$	50x50	32x32, 6x36	45x45
Side oats grama	$\frac{1}{13}$	36x36	4x24	6x60
Sudangrass	10	$\frac{1}{15}$	$\frac{1}{12}X\frac{1}{2}$	$\frac{3}{64}X^5/16$
Sudangrass, Piper	10	$\frac{1}{13}$	$\frac{5}{16}/64X^3/4$, $\frac{1}{12}X\frac{1}{2}$	$\frac{1}{20}X\frac{1}{2}$
Sudangrass, sweet	11	$\frac{1}{12}$	$\frac{6}{64}X^3/4$	$\frac{1}{18}X^3/4$
Switchgrass, Blackwell	$\frac{1}{12}$	18x18	$\frac{1}{14}$	6x22
Timothy	$\frac{1}{20}$ to $\frac{1}{23}$	6x36	$\frac{1}{21}$ to $\frac{1}{25}$, or 20x20	6x34
Wheatgrass, Crested	$\frac{1}{16}X\frac{1}{2}$	6x32, 6x30	$\frac{1}{18}X\frac{1}{4}$	6x30
Wheatgrass, Intermediate	$\frac{1}{13}X\frac{1}{2}$	6x20, 6x18	$\frac{1}{14}X\frac{1}{2}$	6x18, 10-tri
Grains				
Barley, plump	19	$\frac{1}{13}X\frac{1}{2}$	$\frac{9}{64}X^3/4$, 12-tri	$\frac{5}{64}X^3/4$
Barley, thin	16	$\frac{1}{14}X\frac{1}{2}$, 12-tri	$\frac{8}{64}X^3/4$	$\frac{1}{13}X\frac{1}{2}$
Buckwheat	16	7	14	$\frac{6}{64}X^3/4$
corn, cleaning only	32	12	30	14
Hegari	14	$\frac{1}{13}X\frac{1}{2}$	12	$\frac{1}{12}X\frac{1}{2}$
Millet, Browntop	7	16x16	$\frac{1}{14}X\frac{1}{2}$	6x20
Millet, Cattail	7	16x16	6	$\frac{3}{64}X^5/16$
Millet, Finch	$\frac{1}{12}$	17x17	3x16	4x22
Millet, Proso	9, 8	14x14, $\frac{1}{14}$	8, $\frac{1}{12}X\frac{1}{2}$	3x16, $\frac{3}{14}$ (special wire)
Millet, Siberian	7	$\frac{1}{20}$	6	$\frac{1}{15}$
Milo, Maize	14	$\frac{1}{13}X\frac{1}{2}$	12	$\frac{1}{12}X\frac{1}{2}$
Oats, very large	24	$\frac{1}{16}X\frac{1}{2}$, 12-tri	$\frac{13}{64}X^3/4$	$\frac{1}{14}X\frac{1}{2}$
Oats, large	24	$\frac{1}{16}X\frac{1}{2}$, 12-tri	$\frac{11}{64}X^3/4$	$\frac{1}{14}X\frac{1}{2}$
Oats, small	18	$\frac{1}{16}X\frac{1}{2}$, 12-tri	$\frac{9}{64}X^3/4$	$\frac{1}{14}X\frac{1}{2}$
Oats, Bonda, Rodney, etc.	18	$\frac{1}{13}X\frac{1}{2}$, 12-tri	$\frac{9}{64}X^3/4$	$\frac{1}{12}X\frac{1}{2}$
Oats, Clinton, Ajax, etc.	18	$\frac{1}{15}X\frac{1}{2}$, 12-tri	$\frac{9}{64}X^3/4$	$\frac{1}{14}X\frac{1}{2}$
Oats, Mo.0-205	18	$\frac{1}{18}X^3/4$, 11-tri	$\frac{7}{64}X^3/4$	$\frac{1}{16}X\frac{1}{2}$, $\frac{1}{18}X^3/4$
Rice, unhulled, long grain	14, 12	6, $6\frac{1}{2}$	12, $\frac{7}{64}X^3/4$	$\frac{1}{15}X\frac{1}{2}$, $\frac{1}{16}X\frac{1}{2}$
Rice, unhulled, short grain	14	6, $6\frac{1}{2}$	12, $\frac{8}{64}X^3/4$	$\frac{1}{13}X\frac{1}{2}$, $\frac{1}{14}X\frac{1}{2}$
Rice, hulled	14	15x15	12	14x14
Rye	12	$\frac{1}{18}X^3/4$	12, $\frac{7}{64}X^3/4$	$\frac{1}{16}X\frac{1}{2}$
Rye, Florida Black	12	$\frac{1}{22}X\frac{1}{2}$	11	$\frac{3}{64}X^5/16$

Commodity	Column 1	Column 2	Column 3	Column 4
	Scalp	Sift	Scalp	Sift
Grains (cont.)				
Sorgo, Atlas	12	$\frac{1}{13}X\frac{1}{2}$	10	$\frac{1}{12}X\frac{1}{2}$
Wheat, plump	16	$\frac{5}{64}X\frac{3}{4}$, 12-tri	14, $\frac{9}{64}X\frac{3}{4}$	$\frac{5\frac{1}{2}}{64}X\frac{3}{4}$, $\frac{6}{64}X\frac{3}{4}$
Wheat, thin	14	$\frac{1}{14}X\frac{1}{2}$, 11-tri	12, $\frac{8}{64}X\frac{3}{4}$	$\frac{1}{13}X\frac{1}{2}$
Wheat, Durum	18	$\frac{5\frac{1}{2}}{64}X\frac{3}{4}$, 12-tri	16, $\frac{10}{64}X\frac{3}{4}$	$\frac{6}{64}X\frac{3}{4}$
Miscellaneous				
Cane	12	$\frac{1}{15}X\frac{1}{2}$	10	$\frac{1}{14}X\frac{1}{2}$
Coffee, unhulled	30	14, 16	28	$\frac{8}{64}X\frac{3}{4}$
Coffee, hulled	24	14, 16	22	$\frac{8}{64}X\frac{3}{4}$
Cottonseed, acid, delinted	20	$\frac{9}{64}X\frac{3}{4}$	18	$\frac{9\frac{1}{2}}{64}X\frac{3}{4}$, $\frac{10}{64}X\frac{3}{4}$
Cottonseed, mechanically delinted	22	$\frac{9}{64}X\frac{3}{4}$	20, 18	$\frac{9\frac{1}{2}}{64}X\frac{3}{4}$, $\frac{10}{64}X\frac{3}{4}$
Cottonseed, undelinted	40	$\frac{12}{64}X\frac{3}{4}$	36	$\frac{13}{64}X\frac{3}{4}$
Dichondra, hulled	$\frac{1}{12}$	6x22	$\frac{1}{14}$	6x21
Dichondra, unhulled	8	6x20	7	6x18
Flax, large	9	$\frac{1}{12}$	$\frac{3}{14}$ (special wire)	6
Flax, medium	8	$\frac{1}{13}$	3x16 (special wire)	$\frac{1}{12}$
Flax, small	7	$\frac{1}{14}$	$\frac{3}{17}$ (special wire)	$\frac{1}{13}$
Konaf	14	8	$\frac{8}{64}X\frac{3}{4}$	$\frac{1}{14}X\frac{1}{2}$
Safflower	18	8	$\frac{11}{64}X\frac{3}{4}$	$\frac{6}{64}X\frac{3}{4}$
Sesame	6	17x17	$\frac{1}{20}X\frac{1}{2}$	$\frac{1}{16}$, 6x24
Small Legume Seed				
Alfalfa	$\frac{1}{12}$, $\frac{1}{14}$	20x20	$\frac{1}{14}$, $\frac{3}{64}X\frac{5}{16}$	6x24
Alsike clover	$\frac{1}{18}$	24x24	$\frac{1}{19}$	6x32
Alyce clover	$\frac{1}{16}$	20x22	$\frac{1}{22}X\frac{1}{2}$	6x24
Beggarweed, hulled	$\frac{1}{12}$	18x18	$\frac{1}{18}X\frac{1}{4}$	6x24
Beggarweed, unhulled	14 to 20	18x18	9 to 14	6x24
Berseem clover	$\frac{1}{13}$	17x17	$\frac{1}{16}X\frac{1}{4}$	6x20
Bur-clover, hulled	$\frac{1}{12}$	20x20	$\frac{1}{13}$	6x22
Burnett	14	$\frac{1}{14}X\frac{1}{2}$	$\frac{9}{64}X\frac{3}{4}$	$\frac{1}{12}$
Button clover	7, 6	17x17	$\frac{1}{18}X\frac{1}{4}$	6x24
Crimson clover	6	20x20	$\frac{1}{13}$	6x22
Crotalaria, Giant Striata	8	14x14	$\frac{1}{14}X\frac{1}{2}$	6x22
Crotalaria, Intermedia	6	16x16	$\frac{1}{15}X\frac{1}{2}$	6x20
Crotalaria, Spectabilis	14	7, 7 $\frac{1}{2}$	$\frac{1}{12}X\frac{1}{2}$	7 $\frac{1}{2}$, 8
Guar	12	7	$\frac{8}{64}X\frac{3}{4}$	$\frac{1}{13}X\frac{1}{2}$
Hop clover	$\frac{1}{25}$	38x38	22x22	6x38
Hubam sweet clover, hulled	$\frac{1}{16}$	20x20	$\frac{3}{64}X\frac{5}{16}$	6x24
Hubam sweet clover, unhulled	7	20x20	$\frac{1}{14}X\frac{1}{4}$	6x24
Indigo, blanket	$\frac{1}{15}$	20x22	16x16	6x26
Indigo, carpet	$\frac{1}{15}$	20x22	16x16	6x26
Indigo, early	$\frac{1}{12}$	18x18	$\frac{1}{13}$	6x20

Commodity	Column 1 Scalp	Column 2 Sift	Column 3 Scalp	Column 4 Sift
Small Legume Seed (cont.)				
Indigo, Hairy	$\frac{1}{12}$	18x18	$\frac{1}{13}, \frac{1}{14}$	6x20
Lappa clover	$\frac{1}{16}$	22x22	$\frac{3}{64}X^5/16$	6x24
Ladino clover	$\frac{1}{20}$	26x26	$\frac{1}{21}, \frac{1}{22}$	6x32
Lespedeza, bicolor, hulled	7	$\frac{1}{15}$	$\frac{1}{13}X\frac{1}{2}$	4x16
Lespedeza, bicolor, unhulled	14	$\frac{1}{15}$	$\frac{1}{12}X\frac{1}{2}$	4x16
Lespedeza, common, unhulled	6	$\frac{1}{17}$	6x15	$\frac{1}{16}, \frac{1}{15}$
Lespedeza, common, hulled	$\frac{1}{14}$	6x24	$\frac{3}{64}X^5/16$	$\frac{1}{18}$
Lespedeza, Kobe, unhulled	8, 9	$\frac{1}{14}$	$\frac{1}{18}X\frac{3}{4}$	$\frac{1}{14}, \frac{1}{12}$
Lespedeza, Kobe, hulled	$\frac{1}{12}$	6x22	$\frac{3}{64}X^5/16$	$\frac{1}{16}$
Lespedeza, Korean, unhulled	6	$\frac{1}{17}$	6x15	$\frac{1}{16}$
Lespedeza, Korean, hulled	$\frac{1}{14}, \frac{1}{15}$	6x24	$\frac{3}{64}X^5/16$	$\frac{1}{18}$
Lespedeza, Scricea, unhulled	7	$\frac{1}{16}$	$\frac{1}{18}X\frac{3}{4}$	$\frac{1}{15}$
Lespedeza, Scricea, hulled	$\frac{1}{16}$	22x22	$\frac{3}{64}X^5/16$	6x26
Madrid sweet clover, hulled	$\frac{1}{15}$	22x22	$\frac{1}{16}$	6x26
Persion clover	$\frac{1}{18}$	22x22	$\frac{1}{19}$	6x30
Red clover	$\frac{1}{14}, \frac{1}{15}$	20x22	$\frac{1}{15}, \frac{3}{64}X^5/16$	6x24, 6x22
Sanfoin, hulled	9	12x12	4x8 $\frac{1}{2}$	6x14
Sanfoin, unhulled	20	8	$\frac{10}{64}X\frac{3}{4}$	$\frac{1}{12}X\frac{1}{2}$
Sesbasia	10	$\frac{1}{18}X\frac{1}{4}$	9, 8	$\frac{1}{18}X\frac{3}{4}$
Sour clover, melitotus, Indica, hulled	$\frac{1}{14}, \frac{1}{15}$	20x20	$\frac{1}{15}, \frac{3}{64}X^5/16$	6x24
Sour clover, melitotus, Indica, unhulled	$\frac{1}{12}$	20x20	$\frac{1}{18}X\frac{1}{4}$	6x24
Sub clover	10	$\frac{1}{22}X\frac{1}{2}$	7	4x16
Sweet clover, hulled	$\frac{1}{14}, \frac{1}{15}$	20x22	$\frac{3}{64}X^5/16$	6x24
Sweet clover, unhulled	7	20x22	$\frac{1}{14}X\frac{1}{4}$	6x24
Trefoil, Birdsfoot	$\frac{1}{16}$	22x22	$\frac{3}{64}X^5/16$	6x24
Trefoil, yellow or black medic, hulled	$\frac{1}{17}$	20x22	$\frac{3}{64}X^5/16$	6x30
Trefoil, yellow or black medic, unhulled	6	18x18	$\frac{1}{18}X\frac{3}{4}$	6x30
White clover	$\frac{1}{19}$	24x24	$\frac{1}{20}$	6x32
Large Legume Seed -- edible beans				
Cranberry beans	32	$\frac{14}{64}X\frac{3}{4}$	30	$\frac{16}{64}X\frac{3}{4}$
Great northern beans	26	$\frac{10}{64}X\frac{3}{4}$	24	$\frac{11}{64}X\frac{3}{4}$
Kidney red beans	30	$\frac{13}{64}X\frac{3}{4}$	28	$\frac{14}{64}X\frac{3}{4}$
Lima baby beans	32	17	30	19
Lima large beans	56	24	48	26
Lima regular beans	56	16	48	20
Navy pea beans	22	$\frac{10}{64}X\frac{3}{4}$	20	$\frac{11}{64}X\frac{3}{4}$
Pinto beans	26	$\frac{9}{64}X\frac{3}{4}$	24	$\frac{10}{64}X\frac{3}{4}$
Yelloweye beans	24	$\frac{11}{64}X\frac{3}{4}$	22	$\frac{12}{64}X\frac{3}{4}$

Commodity	Column 1	Column 2	Column 3	Column 4
	Scalp	Sift	Scalp	Sift
Soybeans				
Arksoy, Black Haw, Clemson, Lincoln, Perry, Ralsoy, S100 soybeans	22	$10/64X^{3/4}$	20	$11/64X^{3/4}$
Hawkeye & Ogden soybeans	24	$10/64X^{3/4}$	22	$11/64X^{3/4}$
Kingway soybeans	20	12, 11	18	$7/64X^{3/4}$
Laredo soybeans	16	10, $10\frac{1}{2}$	$9/64X^{3/4}$	$1/12X^{1/2}$
Laredo, small Tennessee	12	$9\frac{1}{2}$	$7/64X^{3/4}$	$5/64X^{3/4}$
Mammoth brown	26	$11/64X^{3/4}$	24	$12/64X^{3/4}$
Red tanner	18	11	$11/64X^{3/4}$	$6/64X^{3/4}$
Virginia brown	18	$10\frac{1}{2}$, 11	16	$7/64X^{3/4}$
Wilson	18	12	17	$6\frac{1}{2}/64X^{3/4}$
Woods yellow	28	$12/64X^{3/4}$	26	$13/64X^{3/4}$
Other Beans				
Mung beans	14	7	13	$8/64X^{3/4}$
Velvet beans	34	19	32	$9/64X^{3/4}$
Velvet beans, Osceola	40	24	36	$13/64X^{3/4}$, $16/64X^{3/4}$
Lupines				
Blue lupine	24	$9/64X^{3/4}$	21	$10/64X^{3/4}$
White lupine	22, 20	12	20, $13/64X^{3/4}$	$7/64X^{3/4}$
Yellow bitter lupine	20	12	$12/64X^{3/4}$	$6/64X^{3/4}$
Yellow sweet lupine	26	12	24	$6/64X^{3/4}$
Peas				
Austrian winter peas	18	$9/64X^{3/4}$	17	$10/64X^{3/4}$
Blackeyed peas	26	$10/64X^{3/4}$	24	$11/64X^{3/4}$
Caley or wild winter peas	14	$5\frac{1}{2}/64X^{3/4}$	12	$6/64X^{3/4}$
Canada field peas	20	$8/64X^{3/4}$	18	$9/64X^{3/4}$
Chick peas, Garbanzos	30	$11/64X^{3/4}$	26	$12/64X^{3/4}$
Cowpeas, large	22	12	21	$11/64X^{3/4}$
Cowpeas, medium	18	10, 11	16	$9/64X^{3/4}$
Cowpeas, small	14	9	12	$8/64X^{3/4}$
Cream peas	24	$8/64X^{3/4}$	22	$10/64X^{3/4}$
Pigeon peas	24	$9/64X^{3/4}$	23	$10/64X^{3/4}$
Miscellaneous -- Large legumes				
Lentils	18	10, 12	$7/64X^{3/4}$	10, 12
Vetch, hairy	14	$5\frac{1}{2}/64X^{3/4}$	12	$6/64X^{3/4}$
Vetch, purple	14	$5\frac{1}{2}/64X^{3/4}$	13	$6/64X^{3/4}$

Paint Specifications

To make it easy to touch up the paint on our equipment and paint accessories to match, we have prepared the following instructions.

Sherwin Williams developed the following formulas:

Blue: REX #F77V100
Description – Quick Dry
Clear (Base)

5-gallon formula (18.9 liters)
PG – 7 oz. 19/32
PB – 19 oz. 10/32
BU – 5 oz. 8/32
TW – 19 oz. 27/32
LB – 25/32

Yellow: REX #F77Y15
Sales #5010-04659
Description – Quick Dry OSHA Yellow

The paint should be easily obtained at any Sherwin Williams store by referring to the above-mentioned formula.

If you have any questions, please contact us.

Common Metric Conversions

Weight

Metric ton = 2,205 lbs
Kilogram = 2.2 lbs
Metric ton = 40 bu @ 56 lbs/bu
Metric ton = 49 bu @ 45 lbs/bu
Metric ton = 79 bu @ 28 lbs/bu
Quintal = 100 units of measure (220 lbs)

Short ton = .9072 metric tons
Pound = .45 kilograms
Bushel 25.4 kg @ 56 lbs/bu
Bushel 20.4 kg @ 45 lbs/bu
Bushel 12.7 kg @ 28 lbs/bu

Length

Meter = 3.28 ft
Meter = 39.37 inches
Centimeter = .39 inches
Millimeter = .039 inches

Foot = .3 meters
Inch = 2.54 centimeters
Mile = 1.609 kilometers
Inch = 25.4 millimeters

Volume

Cubic meter = 35.31 cubic ft
Cubic meter = 61,020 cubic inches
Liter = .2642 gallons
Barrel (rice) = 3.45 bushels
Gallons = 3.785 liters

Cubic foot = .28 cubic meter
Cubic foot = 1,728 cubic inches
Cubic foot = 28.32 liters
Bushel = .035 cubic meters

Density per Unit Volume

$\text{Kg/m}^3 = .0624 \text{ lbs/ft}^3$
 $\text{Gram/cm}^3 = 62.43$

$\text{Lb/ft}^3 = 16.02 \text{ kg/m}^3$
Ex. { Corn (56 lbs/bu) $45 \text{ lbs/ft}^3 = 720.90 \text{ kg/m}^3$
Rice (45 lbs/bu) $36 \text{ lbs/ft}^3 = 576.72 \text{ kg/m}^3$

Area

Hectare = 2.5 acres
Square km = .3861 sq mile
Square cm = .155 sq in.

Acre = .4 hectares
Square ft = .093 sq meters
Square meter = 10.76 sq ft

Heat

Kilogram calorie = 3,969 BTU

BTU = .25 kilogram calorie

Force

Lb/sq ft = 4.882 kg/sq meter
Lb ft = 1.356 Newton meter

kW = HP/1.341
N = .7376 lb ft

Velocity

Ft/min = .0183 km/hr
Mile/hr = 1.609 km/hr

Ft/min = .3048 meters/min
196.8 x meters/sec = fpm

Temperature

$C = (F - 32) / 1.8$ $F = 1.8 C + 32$
(BTU per lb (H₂O removed)) / 1.8 = Kcal per kg

Air Volume

Ft/min = .59 m³/hr

Pressure

1 bar = 14.3 psi

Converting Bushels per Hour (BPH) to Tons

Tons/hr = (BPH x product weight (per bushel)) / 2205

Fluids

Fl oz = 29.6 cc

Other – Screen Perforations

mm = #/64ths x .4

#/64ths = 2.52 x mm