Ceres 686-2-4

Shown with Optional Bottom Blast Fan

Technical Specifications

Extreme Height	133"/338 cm
Extreme Width	87"/224 cm
Extreme Length	173"/437 cm
Width on Floor	71.5"/182 cm
Length on Floor	170"/432 cm

Capacities*

Small Seed	200-375 BPH (5.4-10.2 MT/Hr)
Medium Seed	400-650 BPH (5.0-8.8 MT/Hr)
Large Seed & Wheat	650-900 BPH (17.68-24.48 MT/Hr)
Market/Pre Cleaning	1200-2000 BPH (32.65-54. MT/Hr)

Electrical Requirements

Main Fan Motor	15 H.P./11.3 Kw
Eccentric Motor	3 H.P./2.25 Kw
Vibratory Feeder Motor	½ H.P./.375 Kw

Features

- Heavy Duty Construction – Built to Last
- Uses Standard Clipper Screens
- Air Lock Trash Discharge Augers
- Front Door Holds in Screens
- Six Screen Decks - 2 in Top Shoe & 4 in Bottom Shoe, 18 Screen Sections – 54" x 26"

Air Output

8,400 to 11,000 CFM

Options

- Bottom Blast Fan (Included in existing frame)
- Electronic Control Package
- Grease Line Package

Note: *Capacities may vary depending on seed condition, moisture content, seed varieties, types and volumes of contaminants to be separated and the percentage of foreign material acceptable in the final product.

CLIPPER

1440 SOUTH ADAMS STREET, BLUFFTON IN 46714 (260) 824-3400, (800) 248-8318, FAX (260) 824-5463

info@atferrell.com www.clipperseparation.com

Clipper Seed Cleaners
Ceres 686-2-4
Seed Cleaner

INSTRUCTION MANUAL

A.T. Ferrell

Since 1869

A. T. FERRELL COMPANY, INC.
Manufacturers of Clipper Grain & Seed Conditioning Equipment
1440 South Adams Street
Bluffton, IN 46714 USA
Telephone: (260) 824-3400 Fax: (260) 824-5463
www.atferrell.com

WARNING!

Periodic attention MUST BE GIVEN to tighten all bolts and screws. Check weekly for the first few months of operation.

DO NOT OVER-TIGHTEN.

WARNING!

Do not attempt to work on, clean or service this equipment or open or remove any protective cover, guard, grate or maintenance panel until the power has been turned off and locked out and the machine has come to a complete stop.

OPERATING & PARTS MANUAL

A. T. FERRELL COMPANY, INC.
Manufacturers of Clipper Grain & Seed Conditioning Equipment

CERES 686-2-4
SEED CLEANER

Since 1869

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TABLE OF CONTENTS

WARRANTY

The A. T. Ferrell Company Inc. Manufacturers Warranty for the following product:

CLIPPER	Air Screen Cleaners, Seed Cleaners, Grain Cleaners, Scalpers, Vibratory Conveyers, Debearders, Laboratory Cleaners, Graders, E-Z Down Ladders, Roll Feeders, Vibratory Feeders, Loss in Weight Feeders, Augers, Bucket Elevators, Mixers and Blenders.

("CLIPPER" IS A REGISTERED TRADEMARK OF THE A. T. FERRELL COMPANY INC.)

The A. T. Ferrell Company Inc. hereby warrants each new product (other than Clipper Screens, a "Clipper Product") to be free from defects in Material and workmanship for a period of one (1) year from the date of shipment. The A. T. Ferrell Company Inc. will replace without charge any Clipper Product or part or component thereof, which is defective in material or workmanship (other than transportation charges, which shall be borne by the purchaser/user), if notified in writing of such defect by the purchaser/user within such period. The A. T. Ferrell Company Inc. liability for defective parts and components not manufactured by The A. T. Ferrell Company Inc. but included in the Clipper Products (such as electric motors, DC controllers and belts) is necessarily limited to the warranty or guarantee provided by the manufacturer or supplier of such parts or components. The A. T. Ferrell Company Inc. reserves the right to require the purchaser/user to return the defective Clipper Product or part or component thereof to The A. T. Ferrell Company Inc. factory for inspection, as well as the right to determine the validity of any warranty claim in its sole discretion.

This warranty shall not apply and shall be void under the following conditions:

1. The Clipper Product has not been purchased from The A. T. Ferrell Company Inc. or an authorized representative of The A. T. Ferrell Company Inc.
2. The Clipper Product has been removed from its original installation site.
3. Any part of the Clipper Product has been altered, modified, or changed, except by The A. T. Ferrell Company Inc. or with The A. T. Ferrell Company Inc. written authorization.
4. Attachments or devices unsuitable to the Clipper Product have been used on or in conjunction with it.
5. The Clipper Product has not been installed, used, operated, handled, or serviced in accordance with the applicable instruction manual.
6. The Clipper Product is a replacement part or component, which is installed in a previously sold (used) piece of equipment.

The A. T. Ferrell Company Inc. reserves the right to make changes in design or improvements in its products without obligation whatsoever to prior Purchaser-User of such products.

The A. T. Ferrell Company Inc. will pass on to a Purchaser-User only such warranty as it shall receive on products or components not of its manufactured from the manufacturer or supplier thereof.

This warranty is expressly in lieu of any other express or implied warranties, including any implied warranty of merchantability of fitness and of any other obligation on the part of The A. T. Ferrell Company Inc. and may not be altered, modified, or changed in any way except in writing by an officer of The A. T. Ferrell Company Inc.

The A. T. Ferrell Company Inc. shall not be liable for any loss or damage directly or indirectly arising from the use of its products or otherwise, or for any special or consequential damages of any nature.

MACHINE SPECIFICATIONS

CLIPPER CERES 686-2-4 SEED CLEANER

No. of Screenways in Cleaner.....6

Screen Size...(18 Sections).....54" x 26.25"

Extreme Height.....132.64"

Extreme Length.....171.41"

Extreme Width.....87.64"

Length on Floor.....170.00"

Width on Floor.....71.51"

Height Where Seed Enters.....131.53"

CFM Requirements - 2000 RPM (BACK FAN)..... 8400-11,000

Shipping Weight (With Bottom Air).....12500

Approximate Capacities (Bu. Per Hr.)*

Seed Grain.....400-700

Beans & Wheat..... 600-1000

Market/Pre-Cleaning.....2000- 3000

Horse Power Requirements:

Main Fan.....15 HP, 3 Phase, 230/460 Volt, 60 Hz, 1800 RPM

Mechanical Vibratory Hopper..1/2 HP, AC, 460 Volt,(460 Volt, 60 Hz, 3 Phase Input)

Eccentric/Auger .....3 HP, 3 Phase, 460 Volt, 60 Hz, 1800 RPM (460 Volt, Inverter)

Bottom Fan (Optional)..3 HP,3 Phase, 460 Volt, 60 Hz, 1800 RPM

*All Capacities will vary depending on variety of grains/seeds cleaned, amount of foreign material removal and moisture content.

SECTION I

INTRODUCTION

Congratulations! You have just made a great investment in your processing system with the purchase of a quality built Clipper Seed Cleaner. Please take the time now to familiarize yourself with your machine by utilizing this Instruction Manual.

This manual will prove to be useful in operating your new Clipper Seed Cleaner, however we cannot possibly answer all questions about the operation this manual. We will try to give you basic information on the installation of your cleaner, various adjustments for greater efficiency and a list of screen suggestions for top performance from your cleaner.

There is nothing complex about the operation of a good seed or grain cleaner. The operator has to familiarize himself with the machine and take the time to study the shapes and characteristics of the different commodities to be cleaned.

A commodity is cleaned by separating the good marketable product from all impurities. From a mechanical point of view, poor cleaning in most cases, is caused by lack of proper screen sizes, improper use of screens, or faulty air regulation of the cleaner.

Screen perforations in the top shoe should be just large enough to let the commodity being cleaned fall through readily, and small enough to scalp off foreign material such as sticks, stems, chaff, larger seeds, or grain other than the product being cleaned. For most commodities a round hole top screen is recommended.

Screen perforations in the bottom shoe screens remove foreign material smaller than the product being cleaned. Any immature kernels, sand, dirt, or small weed seeds drop through the bottom two screen and the good commodity passes over the bottom two screens. For most commodities, an oblong sifting bottom screen is recommended.

Multiple screen cleaners permit normal top and bottom separations, plus additional separations by shape. Screen recommendations for cleaning grain and seed are furnished with this manual.

The purpose of air separations are to remove all possible light material without waste of good grain or seed, and to control dust. Detailed instructions for regulating and controlling the air separations are given in this manual.

GENERAL MAINTENANCE

Be sure all shaft and eccentric bearings are properly lubricated with a good grade of pressure grease. For cleaners operating in extreme seasonal ambient temperatures the type of grease used should take into account the seasonal temperature changes. The cleaner should be lubricated at regular intervals depending on the location of the bearing.

Eccentric Shaft, Back Fan Shaft, & And Bottom Fan Shaft Bearings

Bearings should be lubricated after every 750 hours of operation. One or two pumps on a **standard hand pump grease** gun is sufficient. High-pressure air operated grease guns are not recommended

DATES: _____

_____

_____

Hopper Drive Shaft

Bearings should be lubricated after every 300 hours of operation. One pump on a **standard hand pump grease** gun is sufficient. High-pressure air operated grease guns are not recommended

DATES: _____

_____

_____

LOCATION

Careful consideration must be given to selecting the proper location for the cleaner The best results in efficiency and convenience will be experienced if proper location is made. All models should be fastened to a solid, level floor or foundation.

THE ENTIRE BASE OF THE MACHINE SHOULD BE SUPPORTED, 3/4-8 grade 5 bolts are recommended. If an existing machine is being replaced, in almost all cases the existing mounting stand will not be built heavy enough to support the new machine being installed.

The cleaner should be placed with the fan discharge facing an outside wall, particularly if the dust collection system is outdoors. By facing the air discharge to the outside wall, extra elbows will be eliminated, this will effectively increase the efficiency of the cleaner. Distance to the outside wall will vary according your building requirements, although it is recommended that shorter air duct runs be used.

The screens are inserted and withdrawn at the front of the cleaner. Be certain to allow for enough clearance for the operator to make screen changes. The largest single piece screen is 54" x 26-1/4". As well, ample room needs to be made available for the operator to make adjustments and service the machine. Do not install spouting in a position that will interfere with the controls or maintenance. Eventually worn parts must be replaced, it is essential that enough space is allowed to pull all shafts and spouts.

The cleaned grain discharges from the under side of the cleaner, so it should be placed on a floor with a pit or basement underneath so that an elevator with its receiving spout three or four feet below the floor can be used to raise the grain. If the elevator cannot be placed below the floor surface, and there is sufficient head room, the cleaner may be placed on a solid platform high enough above the floor to allow the grain to flow into the elevator or sacking spout. Screenings and air liftings discharge from built-in spouts and augers inside the cleaner. Provisions must be made to handle the evacuation of this material.

The Cleaner Vibratory Hopper is a feeder mechanism - not a storage bin. Cleaners work best when equipped with a surge bin above the hopper to provide a steady supply of the commodity to the hopper. The grain supply to the hopper may be by spout from bins located above or by means of an elevator leg. Spouts must have a fall of at least seven feet in ten to provide free flow and should be carried directly at an angle instead of making right angle jogs.

AIR DISCHARGE

Improper air duct installation from the cleaner to the collector causes up to 90% of the difficulties in conjunction with improper air movement. Sharp turns, improper transitions, poor connections, and poor collection equipment will all contribute to air deficiency in a cleaner. Improper air clearance also results in a very dirty, dusty plant operation. The Ceres back fan develops sufficient velocity so that cyclone-type collectors or dust houses can be used to settle the dust and chaff from the air discharge of the cleaner. The following are a few of the common errors found in processing facilities and how each can be avoided or corrected.

Refrain from installing elbows which have a sharp change of direction. Back pressures are created at such points. In most cases, light chaff will be dropped into the pipe and finally plug the entire run. A rule of thumb used at our plant is that the inside radius of the elbow would be **at least two and one half times** the recommended diameter of the air pipe.

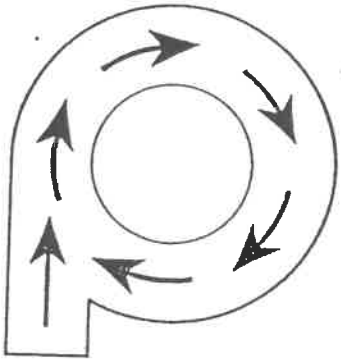
CFM Requirements - 2000 RPM.....8400-11,000 22-24" Diameter Pipe

The final source of trouble is the cyclone itself. If it is either too large or too small, or isn't designed properly, or has a cap over the pipe discharging from the top of it, or in some other way causes back pressure or pressure drop, or turbulence that interferes with the cycloning action of the air inside the collector, the cleaner air system or the collector system may not function properly.

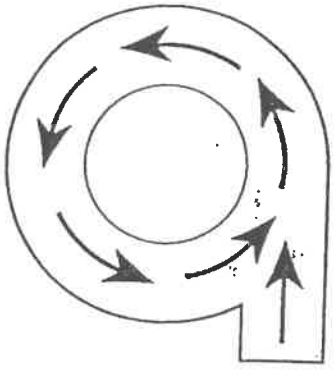
DUST COLLECTOR

INFORMATION TO AID IN SPECIFYING

THE AIR ROTATION DIRECTION IS SPECIFIED, AS VIEWED LOOKING DOWN FROM ABOVE. COLLECTOR:



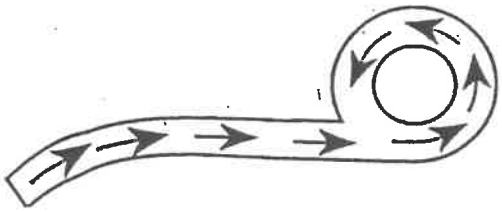
CLOCKWISE (ROTATION)
Figure "A"



COUNTER CLOCKWISE (ROTATION)
Figure "B"

NOTE: Order using terms - **clockwise** and **counter clockwise** only.

CORRECT



INCORRECT

When planning an installation:

1. Avoid sharp bends and compound curves as they reduce the velocity and encourage back pressure.

2. Install the cyclone as near to the cleaner as possible to eliminate length of air travel and extra cost for excess ducting.

FIELD WIRING INSTRUCTIONS

GENERAL

Cleaner drives and variable controls are available for NEC Class II, Division I, Group G or Class II, Division II, Group G applications. For additional drive installation instructions, see the manual section for field wiring.

NEC CLASS II, DIVISION II, GROUP G INSTALLATION

The motors and drive controls supplied with the cleaner meet the requirements of the National Cod for this type of installation. The customer power and field wiring requirements are shown on the wiring drawing . All field wiring and electrical components must adhere to the NEC and/or local electrical code requirements, and are not the responsibility of the manufacturer.

The following instructions apply to CLIPPER Conquest cleaner installations where National Electric Code requirements of Class II, Division II, Group G (T E F C motors, NEMA 4 enclosures) apply.

The installer should refer to wiring drawing (T E F C) for wiring (shown in dashed lines) and power requirements (disconnects, motor starter/relay. All field wiring and electrical components must adhere to the NEC and/or local electrical code requirements, and are not the responsibility of A. T. Ferrell Company hereafter referred to as the manufacturer.

Low voltage wiring between AC motor controllers, operator stations or RPM pickup leads must not be combined with high voltage power wiring in common conduits. Movement of factory installed electrical components can affect warranty.

IT IS RECOMMENDED THAT SOME TYPE OF SURGE PROTECTION IS INSTALLED ON THE INCOMING POWER SOURCE TO PROTECT MOTORS AND CONTROLLERS FROM POWER SURGES. PLEASE CHECK WITH LOCAL AUTHORITIES AND CODES.

CLEANER DRIVES

Main Fan Motor – (15 HP, 1800 RPM, 230/460 Volt)

The main fan drive consists of a 15 HP, 1800 RPM, 230/460 Volt, 3 Phase, 60 Hertz, TEFC motor and belt drive. Wiring and motor controls are not supplied by the A. T. Ferrell Company (See wiring drawing)

Mechanical Vibratory Hopper Drive TEFC (460 Volt)

The hopper drive consists of a 1/2 Hp, 3 Phase, TEFC AC motor and 460 volt AC inverter. Wiring between the drive motor and AC inverter is not supplied by A. T. Ferrell Company (See wiring drawing). The AC inverter has not been mounted on the machine by the factory The motor and controller have been factory tested and adjusted. No further adjustment of the motor controller should be required at the installation site. 460 Volt, 3 Phase , AC power supply is required by the installer for the AC inverter. **If 230 Volt power is required the unit must be ordered that way.** The instruction manual for the AC inverter is shipped with each cleaner for reference and should be referred to if control difficulties should arise.

Eccentric / Augers Drive (Electronic Variable Speed 460 Volt)

The eccentric drive consists of a 5 Hp, 1800 RPM, 460 Volt T E F C motor, belt drive and 460 Volt AC inverter. Wiring is not supplied by A. T. Ferrell Company (see wiring drawing). Refer to the instruction manual before installing field wiring. The motor and controller have been factory tested and adjusted. No further adjustment of the motor controller should be required at the installation site. The operator control station is not mounted on the cleaner by the factory. A 460 Volt AC power supply is required by the installer for the motor controller. **If 230 Volt power is required the unit must be ordered that way.** The instruction manual for the AC inverter is shipped with each cleaner for reference and should be referred to if control difficulties should arise. .

VARIABLE SPEED BOTTOM FAN 460 VOLT

The bottom fan drive consists of a 3 HP, 460 Volt, 1800 RPM, T E F C motor, belt drive and an AC inverter. The power input on the inverter is 460 Volt. . **If 230 Volt power is required the unit must be ordered that way.** The motor and controller have been factory tested and adjusted. No further adjustment of the motor controller should be required at the installation site. The AC inverter is not mounted to the machine and wiring is not supplied by the A.T. Ferrell Company, Inc. Please refer to the instruction manual for the AC inverter that is shipped with the cleaner for questions and should be referred to if control difficulties should arise.

SECTION II

HOW TO REPLACE BOTTOM BLAST FAN SHAFT

1. Remove the belt guard cover and belts, then record shaft and drive sheaf location.

   NOTE:_____

2. Loosen the lock collars on the pillow block bearings. Loosen the set screws in the fan spiders.

3. Loosen bolts that hold blades to spiders

4. Move shaft to one side and file down burrs made in shaft by set screws and remove shaft.

5. Do not bolt blades tightly to spiders before inserting shaft or you may have trouble with alignment.

6. Set shaft location and fan spider location as recorded in step 1 and tighten lock collars. Tighten spider set screws and tighten down fan blades.

7. Replace drive sheaf, belts and belt guard cover.

8. **Check periodically for tightness on bolts and set screws.**

HOW TO REPLACE BOTTOM BLAST FAN

1. Remove the belt guard cover and belts, then record shaft and drive sheaf location.

   NOTE:_____

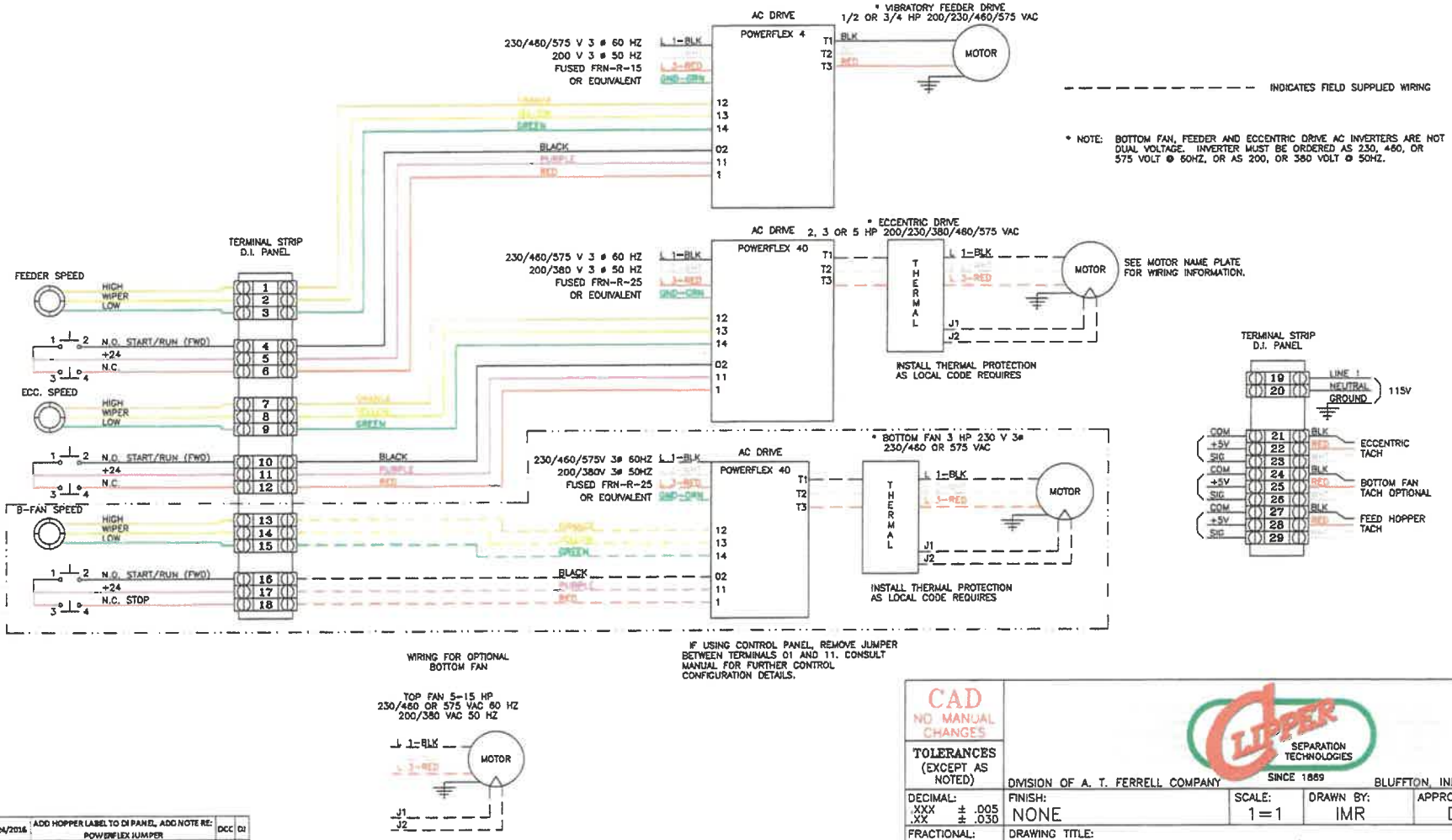
2. Loosen the lock collars on the pillow block bearings. Loosen the set screws in the fan spiders.

3. Open the Fan Maintenance door and unbolt the blades from spiders.

4. Move shaft to one side and file down burrs made in shaft by set screws. Remove shaft and spiders.

5. reverse steps 1 through 4 to reassemble.

6. **Check periodically for tightness on bolts and set screws.**



E	F160104	6/24/2016	ADD HOPPER LABEL TO DI PANEL, ADD NOTE RE: POWERFLEX JUMPER	DCC	DJ
D	F110132	6/14/2011	CHANGE AC FROM BALDOR TO ALLEN BRADLEY	JLM	DJ
C	F100248	11/8/2010	J3-1, J3-2, J3-3, J2-8, J2-9, J2-11, & J3-24 WAS J4-1, J6-2, J4-3, J4-8, J4-9, J4-11 & J4-12	DJ	DJ
B	F000107	10/16/2000	BALDOR BTM FAN INVERTER WAS WOODS	DJ	DJ
A	P960064	10/2/1996	RELEASE	DJ	DJ

CAD
NO MANUAL CHANGES

TOLERANCES (EXCEPT AS NOTED)

DECIMAL: .XXX ± .005, .XX ± .030

FRACTIONAL: ± 1/32

ANGULAR: ± 1/2°

CLIPPER SEPARATION TECHNOLOGIES

DIVISION OF A. T. FERRELL COMPANY — SINCE 1889 — BLUFFTON, INDIANA, U.S.A.

FINISH:	SCALE:	DRAWN BY:	APPROVED BY:
NONE	1=1	IMR	DPR

DRAWING TITLE: FIELD WIRING DIAG. NG AC W/BTM FAN&MECH FD AC

DATE:	SIZE:	DRAWING NO.:	SHEET:
6/14/11	B	F91002005-2	1 OF 1

HOW TO CHANGE ECCENTRIC SHAFT AND OR ECCENTRIC ASSEMBLIES

1. Record location of all parts including shaft and eccentric assemblies.

   NOTE_____

   NOTE_____

   NOTE_____

2. Remove drive pulley and belt.

3. Remove bolts fastening pitman arm to shoes (RECORD LENGTH FIRST) .

   NOTE_____

   NOTE_____

   NOTE_____

4. Unscrew pitman arms from eccentric assembly

5. Remove bolts from outer and center bearings. Loosen lock collars.

6. Shaft with attached bearings can be removed from either side.

7. Remove keys, file set screw burrs, and oil shaft lightly.

8. Assemble by reversing above steps.

SECTION III

CHOOSING THE RIGHT SCREEN

The scalping screens are ordinarily chosen with an opening large enough to quickly drop the good commodity through and direct the "overs" or scalpings off the screen end. The sifting screens are selected with an opening that is just small enough to hold up the commodity and drop the "fines" through.

When selecting screens for any kind of seed or grain, it is always necessary to take into consideration the condition of the commodity and the foreign material (FM) mixed with it. It is frequently necessary to use screens that will remove a small percentage of the good commodity with the foreign material in order to make the end product marketable.

It is advisable to have an assortment of our hand testing screens. By testing a 1,000 gram sample or 1 pound that is representative of the material being processed, you can determine in advance the exact perforation size of mesh to use and what separation can be made with the screens. You can also determine what benefit would be derived from re-circulating any part of the material stock which cannot be improved by any change in setting in the original run.

If you do not have the proper screens to clean a particular lot, send us a 1-2 pound sample and we will make a screen selection for you. Send your samples to: A .T. Ferrell Company, Inc., 1440 South Adams Street, Bluffton, IN 46714.

PLACING SCREENS IN CLEANER

When removing blanks and splitters for the first time it is advisable for you to mark each part with the location of where the part came out of the machine. For example "Top Shoe, Top Screen, Back 9" Blank ".

Screens may be withdrawn or replaced from the front of the cleaner by removing the front door and any additional blanks and/or splitters. The three-piece screens slide in the screenways and are removed one section at a time. A screen puller is used to reach the inner screen sections. Insert the flat tab of the screen puller between the screen and the brush carrier with the rod part of the puller sticking up. Once the rod has been inserted behind the cross stick turn the puller back 90 degrees so the rod part of the puller is facing up and pull out screen. Screens should be cleaned before storing.

When placing screens back into the machine, it is best to start on the bottom set of screens in each shoe. When replacing the screen sections slide each section into the screenway but do not slide completely into the screenway. Leave the end of each section out slightly beyond the end of the screenway so that the next section can be placed with the lip in the correct downward or overlapping position.

When all of the screen sections and accessory pieces have been correctly positioned, slide them back as far as possible against the screen stops and secure. The lips on all screens will always be facing down hill and should be lipped over the next screen.

PRODUCT DISCHARGES

Before operating this equipment be sure that all discharges are properly spouted so that all material is efficiently transported from the machine.

The CERES REFERENCE ILLUSTRATION shows each of the product discharges. The discharges are as follows:

1. Top Shoe Discharges: There are two scalping discharges included (item 3) that discharge out the side towards the front of the machine.

2. Bottom Shoe Discharges: There are two discharges included (item 4) that discharge out the side of the bottom shoe.

3. Air Discharges: There is one air setting calibrated gate control for each of the top (item 9) aspiration and bottom (item 8) aspiration. All air discharges from one air duct located on the side and at the back of the machine (item 10).

4. Clean Grain Discharge: The good product is discharged out the bottom of the machine and across the width of the cleaning shoe.

TRIAL RUN

WARNING!

Do not attempt to install, connect power to operate, or service this machine without proper instruction and until you have been thoroughly trained in its use by your employer.

THE FOLLOWING ARE GENERAL GUIDELINES ONLY. YOUR SETTINGS WILL MAY VARY FROM THESE

With the proper screens in place and a supply of commodity to be cleaned in the storage bin hopper above the cleaner, you are now ready to make an initial run to get the correct regulations of the feed, shoe shake, and air separations.

Please refer to the REFERENCE ILLUSTRATION to reference the following numbers. With the power off on to the inlet hopper (1) start the main fan, optional bottom fan if ordered (700 RPM) (item 6) and eccentric/augers (12) (400 RPM), drives. Open the false air valve doors (13) at the rear of the machine to an 6 inch wide opening. Set both the top (9) and bottom (8) calibrated air valve controls on 5.

ADJUSTMENTS

ITEM NUMBER 1 - MECHANICAL VIBRATORY INLET HOPPER - VARIABLE SPEED

Start the hopper drive to 500 RPM. Open the hopper gate until about 1/3 to 1/2 of the top screens in the top shoe is covered. If the hopper speed must be increased to near its highest speed return this speed to half the maximum and open the hopper gate a couple of holes. Variations to this will occur if you are trying to run a close tolerance between seed size and hole size of screen.

Please watch the air set up youtube video on our website

www.atferrell.com go to the CLIPPER page more youtube videos

AIR SETTINGS

Take a sample of the product coming out of the top (11) settling chamber auger. The top air is set properly when a very small amount of good looking seed is present in this discharge. This seed usually will be the lightest of the good seed. If there is an excess amount of good seed, open the top back bypass doors (13) until the trash discharge looks about right with a few good looking seed in it. **Please wait at least 45 seconds for the adjusted setting to be discharged out the siftings discharge augers** From this point open or close top (9) air valve at the rear of the machine to fine tine. If there are no good looking seeds in the top discharge close the top back bypass doors (13) until the trash discharge looks about right Again from this point open or close top(9) air valve at the rear of the machine to fine tune. Repeat this procedure for the bottom (7) settling chamber except the bottom set of doors (13) will be the adjustment. After setting the bottom air some small adjustment may be required to the top valve to get optimum performance. The goal is to have the back(13) false air valve doors opened as wide as possible to keep the top(9) air and the bottom (8) air from affecting each other when adjustment is required. When the feed rate from the inlet hopper(1) is increased or decreased the air must be readjusted.

BOTTOM BLAST FAN

After making proper adjustments to the top (9) and bottom (8) air valve as described above, on models that have the bottom blast option now refer to the ribbon flutter indicator fastened over a small round opening in the side of the back settling chamber. The flutter ribbon indicates the balance condition of the bottom blast fan relative to the bottom air valve (8), and the air pressure situtation within the back settling chamber. If the ribbon stands out from the back settling chamber, the back (8) suction valve must be opened until the ribbon is sucked inward at about a 30% angle. If the ribbon is being sucked too far inward, the back (8) suction valve must be closed(but never fully closed) and/or the bottom fan speed must be increased until the ribbon is at a inward 30 % angle and the siftings from the bottom siftings discharge auger is as desired. This final and extremely selective separation by the bottom fan, when properly adjusted, will greatly improve the quality, purity, and appearance of your product. **NEVER RUN THE BOTTOM SHAFT ABOVE 975 RPMS.**

WARNING!

Periodic attention MUST BE GIVEN to tighten all bolts and screws. Check weekly for the first few months of operation.

DO NOT OVER-TIGHTEN.

WARNING!

Do not attempt to work on, clean or service this equipment or open or remove any protective cover, guard, grate or maintenance panel until the power has been turned off and locked out and the machine has come to a complete stop.

NOTES