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MACHINE SPECIFICATIONS

CLIPPER CONQUEST 586 GRAIN-SEED CLEANER

No. of Screenways in Cleaner….....5

Screen Size.....……15 Sections- 54" x 26"

Extreme Height.....….....114”

Extreme Length.....…..... 161-3/16”

Extreme Width.....….....….87-1/4”

Length on Floor.....….....….160”

Width on Floor.....….....71½"

Height Where Seed Enters.....113"

CFM Requirements - 1800 RPM.....…6000

Shipping Weight (Without Bottom Air).....….....7000

Shipping Weight (With Bottom Air).....….....7700

Approximate Capacities (Bu. Per Hr.)*

A. Seeds & Grass.....150

B. Seed Grain.....250-350

C. Beans & Wheat.....…400-600

D. Scalping …….…….. 1500

Horse Power Requirements:

A. Main Fan.....10 HP, 3 Phase, 230/460 Volt, 60 Hz, 1800 RPM
A. Main Fan.....10 HP, 3 Phase, 200/380 Volt, 50 Hz, 1500 RPM
A. Main Fan.....10 HP, 1 Phase, 230 Volt, 60 Hz, 1800 RPM
A. Main Fan.....15 HP, 3 Phase, 230/460 Volt, 60 Hz, 1800 RPM
A. Main Fan.....10 HP, 3 Phase, 230/460 Volt, 60 Hz, 1800 RPM , Ex-Proof
A. Main Fan.....10 HP, 3 Phase, 200/380 Volt, 50 Hz, 1500 RPM, Ex-Proof
A. Main Fan.....10 HP, 1 Phase, 230 Volt, 60 Hz, 1800 RPM, Ex-Proof

B. Mechanical Vibratory Hopper……. 1/2 HP, Dc, 180 Volt,
(230 Volt, 1 Phase, input)
B. Mechanical Vibratory Hopper……. 1/2 HP, Ac, 230 Volt,
(230 Volt, 60 Hz, 3 phase Input).
B. Mechanical Vibratory Hopper……. 1/2 HP, Ac, 460 Volt,
(460 Volt, 60 Hz, 3 Phase Input)
B. Roll Feed Hopper.....1/2 HP, 90 Volt, DC "115 Volt 1 Phase, input"
B. Hopper for the E Series.....1/2 HP, 3 Phase, 230/460 Volt, 60 Hz, AC

C. Eccentric/Auger…..…....3 HP, 180 Volt, DC (230 Volt ,1 Phase, input)
C. Eccentric/Auger …..……3 HP, 3 Phase, 230/460 Volt, 60 Hz, 1800 RPM
C. Eccentric/Auger …..……3 HP, 3 Phase, 230 Volt, 60 Hz, 1800 RPM
(230 Volt, 3 Phase Inverter)
C. Eccentric/Auger …..……3 HP, 3 Phase, 460 Volt, 60 Hz, 1800 RPM
(460 Volt, 3 Phase Inverter)
C. Eccentric/Auger …..……3 HP, 3 Phase, 200/380 Volt, 50 Hz, 1500 RPM

D. Bottom Fan (Optional).....3 HP, 3 Phase, 230 Volt, 60 Hz, 1800 RPM
D. Bottom Fan (Optional).....3 HP, 3 Phase, 200 Volt, 50 Hz, 1500 RPM
D. Bottom Fan (Optional).....3 HP, 3 Phase, 460 Volt, 60 Hz, 1800 RPM
D. Bottom Fan (Optional).....3 HP, 3 Phase, 380 Volt, 50 Hz, 1500 RPM

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

SECTION I

INTRODUCTION

We cannot possibly answer all questions about the operation of CLIPPER CLEANERS in 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 time to study the shapes and characteristics of the different commodities to be cleaned.

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

Perforations in the top two screens 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 and larger seeds, or grain other than the product being cleaned. For most commodities a round hole top screen is recommended.

The top shoe in the Conquest 586 can be set up 3 different ways.

!st option The product can be split between the two screens. The good product works its way through the screen and the oversize trash stays on top of the screens and is rejected off the end of the screens into the discharge spouts. Perforations in the top two screens 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 and larger seeds, or grain other than the product being cleaned. For most commodities a round hole top screen is recommended. This is called a Spilt-Scalp separation

2nd option All the product is discharged onto the top screen. The top screen normally will have a bigger hole perforation then the second screen. The good product passes through the top screen and then also through the bottom screen onto the shoe bottom. Oversize trash is discharged off the top screen into the top trash spout. The product that stays on top of the second screen usually will be smaller then the top screen trash. This can be trash or in some cases this screen will be used as a sizing screen to take off large seed.
This is called a Scalp- Scalp separation

3rd option All the product is discharged onto the top screen. The good product passes through the top screen and onto the bottom screen. Oversize trash is discharged off the top screen into the top trash spout. The second screen sifts out undersized trash which drops onto the shoe bottom and is discharged out the divided sand spouts that are bolted onto the bottom of the shoe. The product that stays on top of the bottom screen is discharged off the end of the screen into a spout that directs it top the bottom shoe. This is called a Scalp- Sift separation

Multiple screen cleaners permit normal top and bottom separations, plus additional separations by shape.

After the round hole top screen or screens has removed the objectionable foreign material larger than the commodity being cleaned, the perforations of the lower three screens go to work. The bottom screens removes foreign material smaller than the product being cleaned. Any immature kernels, sand, dirt, or small weed seeds drop through the bottom three screens and the good commodity passes over the top of the screens. For most commodities, an oblong sifting bottom screen is recommended.

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.

LOCATION

Careful consideration must be given to selecting the proper location for the cleaner or the best results in efficiency and convenience cannot be expected. 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 a exiting machine is being replaced, in almost all cases the exiting mounting stand will not be built heavy enough to support the new machine being installed**.

The cleaner should be placed with the fan discharge opening facing, and a short distance away from an outside wall. Screens are inserted and withdrawn at the front of the cleaner. Allow clearance for the operator to make screen changes. The largest single piece screen is 54" x 26". Allow room around the cleaner 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 so allow room 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 carried below the floor, 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 in the cleaner. Provision must be made to handle this material.

The Cleaner 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 on the floor above or by means of an elevator from a sink of dump hopper on the same level or lower than the cleaner. 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 trunking installation from the cleaner and into the collector causes up to 90% of the difficulties in conjunction with improper air movement. Sharp turns, improper junctions, 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 Conquest 1800 RPM 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 plants 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 should be **at least two times the recommended diameter** of the air 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.

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 DC or 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.

CLEANER DRIVES

Main Fan Motor

The main fan drive consists of a 10 HP, 1800 RPM, 230/460 Volt, 3 Phase, 60 Hertz, TEFC motor and belt drive. Wiring and motor controls are not supplied by A. T. Ferrell Company (See wiring drawing)

Main Fan Motor

The main fan drive consists of a 10 HP, 1500 RPM, 200/380 Volt, 3 Phase, 50 Hertz, TEFC motor and belt drive. Wiring and motor controls are not supplied by A. T. Ferrell Company (See wiring drawing)

Main Fan Motor

The main fan drive consists of a 10 HP, 1800 RPM, 230 Volt, 1 Phase, 60 Hertz, TEFC motor and belt drive. Wiring and motor controls are not supplied by A. T. Ferrell Company (See wiring drawing)

Main Fan Motor

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 A. T. Ferrell Company (See wiring drawing)

Main Fan Motor

The main fan drive consists of a 15 HP, 1500 RPM, 200/380 Volt, 3 Phase, 50 Hertz, TEFC motor and belt drive. Wiring and motor controls are not supplied by A. T. Ferrell Company (See wiring drawing)

Mechanical Vibratory Hopper Drive

The hopper drive consists of a 1/2 Hp, DC motor and DC controller. Wiring between the drive motor, motor controller and DC operator station is not supplied by A. T. Ferrell Company (See wiring drawing). 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. 1 Phase , 230 Volt AC power supply is required by the installer for the DC controller. The instruction manual for the DC motor controller is shipped with each cleaner for reference and should be referred to if control difficulties should arise. Contact your nearest Baldor sales center for controller service/repair of motor controllers. Low voltage power should not be combined with high voltage power wiring in common conduits.

Mechanical Vibratory Hopper Drive TEFC (230 Volt)

The hopper drive consists of a 1/2 Hp, 3 Phase, TEFC AC motor and 230 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. 230 Volt, 3 Phase , AC power supply is required by the installer for the AC inverter. **If 460 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. Low voltage wiring must not be combined with high voltage power wiring in common conduits.

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. Low voltage wiring must not be combined with high voltage power wiring in common conduits.

Mechanical Vibratory Hopper Drive TEFC (20 Volt 50 HZ)

The hopper drive consists of a 1/2 Hp, 3 Phase, TEFC AC motor and 200 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. 200 Volt, 3 Phase , AC power supply is required by the installer for the AC inverter. **If 380 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. Low voltage wiring must not be combined with high voltage power wiring in common conduits.

Mechanical Vibratory Hopper Drive TEFC (380 Volt 50 HZ)

The hopper drive consists of a 1/2 Hp, 3 Phase, TEFC AC motor and 380 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. 380 Volt, 3 Phase , AC power supply is required by the installer for the AC inverter. **If 200 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. Low voltage wiring must not be combined with high voltage power wiring in common conduits.

Mechanical Vibratory Hopper Drive Ex-Proof (230 Volt)

The hopper drive consists of a 1/2 Hp, 3 Phase, Ex-Proof AC motor and 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 **and is not Ex-Proof rated**. The motor and controller have been factory tested and adjusted. No further adjustment of the motor controller should be required at the installation site. 230 Volt, 3 Phase , AC power supply is required by the installer for the AC inverter. The instruction manual for the AC inverter is shipped with each cleaner for reference and should be referred to if control difficulties should arise. Low voltage wiring must not be combined with high voltage power wiring in common conduits

Roll Feed Hopper Drive

The hopper drive consists of a 1/2 HP, 90 Volt, DC motor and DC controls. Wiring between the drive motor, motor controller and operator station is supplied by A. T. Ferrell Company (See wiring drawing). 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 normally mounted on the cleaner by the factory. 115 Volt, AC power supply is required by the installer for the DC controller. The instruction manual for the DC motor controller is shipped with the cleaner for reference and should be referred to if control difficulties should arise. Low voltage wiring must not be combined with high voltage power wiring in common conduits

Roll Feed Hopper Drive (Standard)

The hopper drive consists of a 1/2 HP, 1800 RPM, 230/460 Volt, 3 Phase, T E F C, AC motor. Wiring is not supplied by A. T. Ferrell Company (See wiring drawing).

Roll Feed Hopper Drive (50 Hertz)

The hopper drive consists of a 1/2 HP, 1500 RPM, 200/380 Volt, 3 Phase, 50 Hertz, T E F C, AC motor. Wiring is not supplied by A. T. Ferrell Company (See wiring drawing).

Eccentric / Augers Drive (Standard)

The eccentric drive consists of a 3 Hp, 1800 RPM, 230/460 Volt, 3 Phase, T E F C motor and belt drive. Wiring is not supplied by A. T. Ferrell Company (see wiring drawing).

Eccentric / Augers Drive (Electronic Variable Speed 230 Volt)

The eccentric drive consists of a 3 Hp, 1800 RPM, 230 Volt, 3 Phase, T E F C motor, belt drive and 230 Volt AC inverter **230 Volt, 3 Phase, AC power supply** is required by the installer for the motor controller.. **If 460 Volt is required, IT MUST BE ORDERED THAT WAY AT THE TIME OF ORDER ENTRY**. . The AC inverter is normally not mounted on the cleaner by the factory. 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 instruction manual for the AC inverter is shipped with each cleaner for reference and should be referred to if control difficulties should arise. Low voltage wiring must not be combined with high voltage power wiring in common conduits

Eccentric / Augers Drive (Electronic Variable Speed 460 Volt)

The eccentric drive consists of a 3 Hp, 1800 RPM, 230 Volt, 3 Phase, T E F C motor, belt drive and 460 Volt AC inverter **460 Volt, 3 Phase, AC power supply** is required by the installer for the motor controller.. **If 230 Volt is required, IT MUST BE ORDERED THAT WAY AT THE TIME OF ORDER ENTRY**. . The AC inverter is normally not mounted on the cleaner by the factory. 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 instruction manual for the AC inverter is shipped with each cleaner for reference and should be referred to if control difficulties should arise. Low voltage wiring must not be combined with high voltage power wiring in common conduits

Eccentric / Augers Drive (Electronic Variable Speed 200 Volt)

The eccentric drive consists of a 3 Hp, 1500 RPM, 200 Volt, 3 Phase, T E F C motor, belt drive and 230 Volt AC inverter **200 Volt, 3 Phase, AC power supply** is required by the installer for the motor controller.. **If 380 Volt is required, IT MUST BE ORDERED THAT WAY AT THE TIME OF ORDER ENTRY**. . The AC inverter is normally not mounted on the cleaner by the factory. 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 instruction manual for the AC inverter is shipped with each cleaner for reference and should be referred to if control difficulties should arise. Low voltage wiring must not be combined with high voltage power wiring in common conduits

Eccentric / Augers Drive (Electronic Variable Speed 380 Volt)

The eccentric drive consists of a 3 Hp, 1500 RPM, 380 Volt, 3 Phase, T E F C motor, belt drive and 380 Volt AC inverter **380 Volt, 3 Phase, AC power supply** is required by the installer for the motor controller.. **If 200 Volt is required, IT MUST BE ORDERED THAT WAY AT THE TIME OF ORDER ENTRY**. . The AC inverter is normally not mounted on the cleaner by the factory. 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 instruction manual for the AC inverter is shipped with each cleaner for reference and should be referred to if control difficulties should arise. Low voltage wiring must not be combined with high voltage power wiring in common conduits

Eccentric / Augers Drive (50 Hertz)

The eccentric drive consists of a 3 Hp, 1500 RPM, 200/380 Volt, 3 Phase, 50 Hertz, T E F C motor and belt drive . Wiring is not supplied by A. T. Ferrell Company (see wiring drawing).

230 VOLT VARIABLE SPEED BOTTOM FAN

The bottom fan drive consists of a 3 HP, 230 Volt, 3 Phase, 1800 RPM, T E F C motor, belt drive and a AC inverter. The power input on the standard inverter is 230 Volt, 3 Phase. **If 460 Volt is required, IT MUST BE ORDERED THAT WAY AT THE TIME OF ORDER ENTRY**. 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 A T Ferrell.. 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. Low voltage wiring must not be combined with high voltage power wiring in common conduits

460 VOLT VARIABLE SPEED BOTTOM FAN

The bottom fan drive consists of a 3 HP, 460 Volt, 3 Phase, 1800 RPM, T E F C motor, belt drive and a AC inverter. The power input on the standard inverter is 460 Volt, 3 Phase. **If 230 Volt is required, IT MUST BE ORDERED THAT WAY AT THE TIME OF ORDER ENTRY**. 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 A T Ferrell.. 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. Low voltage wiring must not be combined with high voltage power wiring in common conduits

200 VOLT 50 HERTZ VARIABLE SPEED BOTTOM FAN

The bottom fan drive consists of a 3 HP, 200/380 Volt, 3 Phase, 1500 RPM, T E F C motor, belt drive and a AC inverter. The power input on the standard inverter is 200 Volt, 3 Phase. **If 380 Volt is required, IT MUST BE ORDERED THAT WAY AT THE TIME OF ORDER ENTRY**. 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 A T Ferrell.. 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. Low voltage wiring must not be combined with high voltage power wiring in common conduits

380 VOLT 50 HERTZ VARIABLE SPEED BOTTOM FAN

The bottom fan drive consists of a 3 HP, 200/380 Volt, 3 Phase, 1500 RPM, T E F C motor, belt drive and a 380 AC inverter. The power input on the standard inverter is 380 Volt, 3 Phase. **If 200 Volt is required, IT MUST BE ORDERED THAT WAY AT THE TIME OF ORDER ENTRY**. 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 A T Ferrell.. 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. Low voltage wiring must not be combined with high voltage power wiring in common conduits

CONTROL PANEL

The following parts apply to machines that are equipped with a control panel mounted on the machine to vary speeds of the Eccentric Shaft, Bottom Fan and Inlet Feed Hopper.

FOR NEC, CLASS II, DIVISION II, GROUP G INSTALLATION

31012044* .....(1) Motor Controller 1/2 Hp(Hopper) 180 Volt, DC

31012045* .....(1) AC Inverter 1/2 Hp(Hopper) 230 Volt, AC

31012103* .....(1) AC Inverter 3 Hp (Eccentric Fan) 230 Volt, AC

31012103* .....(1) AC Inverter 3 Hp (Bottom Fan) 230 Volt, AC

31012020 .....(2 or 3) Potentiometer, 5K OHM

31008050 .....(2 or 3) Push Button Operator, Black (start)

31008051 .....(2 or 3) Push Button Operator, Red (stop)

31008060 .....(2 or 3) Contact Block N.O. w/Base

31008061 .....(2 or 3) Contact Block N.C. w/Base

31012019 .....(2 or 3) Potentiometer Operator 0-10 Indicator

31008043 .....(1) 3-Position Switch Knob (option)

F91002007 .....(1) 3-Position Switch Assembly (option)

31003506 .....(1) Digital Tachometer

31003507 .....(2 or 3) Speed Transducer

F91002010 .....(1) Speed Transducer

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.**

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

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 handful of grain or seed before cleaning, you can determine in advance the exact perforation size of mesh to use and what separation can be made with the screens, and also what will have to be done by the air. You can also determine what benefit would be derived from recirculating any part of the 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 sample and we will make a screen selection for you. Send your samples to: A T Ferrell Seed Laboratory, 1440 South Adams Street, Bluffton, IN 467l4.

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 top shoe spout and releasing the screen hooks. 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. A screen puller is used to reach the inner screen sections. Insert the flat tab of the screen puller between the screen and the ball tray with the rod part of the puller sticking up. Turn screen puller 90 degrees. This expands the gap between the screen and ball tray so that the rod part of the puller and be inserted behind the screen cross stick. 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 again and pull out screen. Screens should be cleaned before storing.

When placing screens, ball trays and blanks back into the machine after cleanup, its 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. After 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 with the screen hooks. The lips on all screens will always be facing down hill and should be lipped over the next screen.

Then slid the ball trays into the ball tray rails below that screen set. This will keep the balls in place in the ball trays. The ball trays containing five balls per compartment do not have to be removed for screen changes on current model cleaners. The balls should be checked periodically for wear. If the ball diameters are less than 1-5/16 inches, or have lost some of their bounce they should be replaced.

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

1. Scalping Discharges: There are two scalping discharges included (item 3 and 4)on the top shoe.

2. Siftings Discharges: There are two siftings discharges included (item 8 and 9) on the bottom shoe.

3. Air Discharges: There is one air setting calibrated gate control for each of the top (item 6) aspiration and bottom(item 7) aspiration. All air discharges from one air duct located on the side and at the back of the machine.

4. Clean Grain Discharge: The good product is discharged through the bottom of the machine (item 15) .

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 PROBABLY 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(10), optional bottom fan and eccentric/augers (5), drives. Open the false air valve doors (11) at the rear of the machine to a 8 inch wide opening. Set both the top(6) and bottom(7) air valve controls in the center holes. The eccentric(5) shaft speed is already set at the factory at around 395 RPMs. At eccentric speeds below 370 RPM screen blinding (plugging) may occur due to the decrease in ball movement under the screen decks. At eccentric speeds above 420 RPM ball transfer may occur due to the increase in ball movement under the screen decks**. NEVER RUN THE ECCENTRIC SHAFT SPEED ABOVE 420 PRMS.**

ITEM NUMBER 1 - ROLL FEED INLET HOPPER - VARIABLE SPEED

Start the hopper drive. Open the hopper gate to 4 on the hopper gate control. Increase the hopper speed until about 1/3 to 1/2 of the top screen 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 turns. Variations to this will occur if you are running a split-scalp setup or you are trying to run a close tolerance between seed size and hole size of screen.

ITEM NUMBER 1 - ROLL FEED INLET HOPPER - FIXED SPEED

Start the hopper drive. Open the hopper gate until 1/3 to 1/2 of the top screen is covered. Variations to this will occur if you are running a split-scalp set up or you are trying to run a close tolerance between seed size and hole size of screen.

ITEM NUMBER 1 - MECHANICAL VIBRATORY INLET HOPPER - VARIABLE SPEED

Start the hopper drive. Open the hopper gate to 1/2 open the hopper gate control. Increase the hopper speed until about 1/3 to 1/2 of the top screen 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. The lower you can run the vibratory speed and achieve the results you desire, the required work load of the vibrator unit will be reduced which should increase the working life of the unit. Variations to this will occur if you are running a split-scalp set up or you are trying to run a close tolerance between seed size and hole size of screen.

AIR SETTINGS

Take a sample of the product coming out of the top(6) 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, close top(6) air valve at the rear of the machine until there are only a few good seeds in the top settling chamber discharge. Please wait 10 seconds for the adjusted setting to be discharged out the siftings discharge augers. If there are no good seeds in the top discharge, open the top(6) air valve until a small amount of good seed appears in the top settling chamber discharge.

If you can not pull good seed out of the discharge auger close the top set back(11) false air valve doors to 6 inches and repeat above procedure. Repeat this procedure for the bottom(7) settling chamber except the bottom set of doors 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(11) false air valve opened as wide as possible to keep the top(6) air and the bottom(7) 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(6) and bottom(7) air valve as described above, on models that have the bottom blast option, close the bottom(7) air valve until you do not see any good seed coming out the siftings discharge auger. Start the bottom fan at a slow speed (400-500 RPM for most applications). Increase the bottom fan speed until a few good seeds appear in the bottom(7) siftings discharge auger. Now refer to the ribbon flutter indicator(9) 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(7), and the air pressure situation within the back settling chamber. If the ribbon stands out from the back settling chamber, the back(7) 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(6) 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 FAN SHAFT ABOVE 1050 RPMS**.

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 250 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:----------

Motor shaft bearings

Bearings should be lubricated once every year of operation. One pump 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 120 hours of operation. One pump on a **standard hand pump grease** gun is sufficient. High pressure air operated grease guns are not recommended

DATES:----------

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.