

TABLE OF CONTENTS

WARRANTY .....

SECTION I

Introduction.....

Location.....

Air Discharge.....

Field Wiring.....

SECTION II

How to Change Eccentric Shaft.....

Parts Lists.....

SECTION III

Choosing the Right Screens.....

Placing Screens in Cleaner.....

Product Discharge.....

Trial Run.....

General Maintenance.....

## 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 the Eclipse. 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 screen 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.

After the round hole top screen has removed the objectionable foreign material larger than the commodity being cleaned, the perforations of the lower two screens go to work. Both bottom screens must have the same screen size in them if the machine is set up as a split flow in the bottom two screens. The bottom two screens removes 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 separation is to remove all possible light material without waste of good grain or seed, and to control dust. 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. THE SHIPPING CRATE THAT THE MACHINE ARRIVES ON IS NOT HEAVY ENOUGH TO SERVE AS THE PERMANENT BASE.** 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 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 screen size is 24-1/2" x 22-1/4 ". 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 headroom, 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 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 surge hopper may be by spout from bins located on the floor above or by means of an elevator from a sink or 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. **The feed hopper works best when it is fed across the width of the hopper inlet opening.**

### 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 Eclipse bottom fan **DOES NOT** develop sufficient velocity for a cyclone-type collector to be used because of back pressure created by filters or cyclones. An in line booster fan can be used to provide the additional air required.

## **FIELD WIRING INSTRUCTIONS**

### Eccentric Drive 60 Hz

The eccentric drive consists of a 3/4 HP, 1800 RPM, 115/230 Volt, 1 Phase, T E F C motor and drive . Wiring has been supplied by the A.T. Ferrell Company, Inc. from the motor to the switch box. The motor has been wired for 115 Volt power unless otherwise specified.

### Eccentric Drive 50 Hz

The eccentric drive consists of a 3/4 HP, 1500 RPM, 200 Volt, 1 Phase, T E F C motor and drive . Wiring has been supplied by the A.T. Ferrell Company, Inc. from the motor to the switch box. The motor has been wired for 200 Volt power unless otherwise specified.

## **SECTION II**

### HOW TO CHANGE ECCENTRIC SHAFT AND OR ECCENTRIC ASSEMBLIES

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

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NOTE-----

2. Remove drive belts.
3. Remove bolts fastening pitman arm to the shoe
4. Unbolt pitman arm from eccentric assembly
5. Remove bolts from outer bearings. Loosen lock collars.
6. Shaft with attached bearings and sheaves can now be removed .
7. Remove sheaves, bearings, 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 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 sifting or finishing screens are selected with an opening that is just small enough to hold up the commodity and drop through the "fines".

Perforations in the top screen 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.

After the round hole top screen has removed the objectionable foreign material larger than the commodity being cleaned, the perforations of the lower two screens go to work. Both bottom screens must have the same screen size in them if the machine is set up as a split flow in the bottom two screens. The bottom two screens removes 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. If split flow is not desired in the bottom two screens the flow can be changed to be a scalp sift set up in the bottom two screens. In this case the second screen must be different than the bottom screen . To change to this set do the following

- 1 Take the pan out between the second and third screens.
- 2 Then change the blanks that slide into the second screenway. In the split flow setup a solid blank will be in the back and an open blank will be in the front. To change to the scalp sift setup, additional blanks have been included. Do not use the blanks you have taken out

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. Screen recommendations are located in this manual

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 six ounce sample and we will make a screen selection for you. Send your samples to: A.T. Ferrell Company, Inc. Seed Laboratory, 1440 South Adams Street , Bluffton, Indiana 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 screen, back 4” blank “**

Screens may be withdrawn or replaced from the front of the cleaner by dropping the front door down. The screens slide in the screenways and are removed with the ball tray. Screens should be cleaned before storing.

When placing screens, ball trays and blanks back into the machine after cleanup, it's best to start on the bottom screen. When placing the screen, ball tray and blanks into the screenway, slide each section into the screenway. After the screen and accessory pieces have been correctly positioned, slide them back as far as possible against the screen stops. The lips on all screens and/or blanks will always be facing down hill and should be lipped over the next screen or blank. The ball trays contain five balls per compartment and 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 Eclipse REFERENCE ILLUSTRATION shows each of the product discharges. The discharges are as follows:

1. Scalping Discharges: There is one scalping discharge included (item 1) on the shoe.
2. Siftings Discharges: There are two siftings discharges included (item 2 and 3) on the shoe.
3. Air Discharges: All air liftings trash discharges out of one spout (item 4) all air discharges from one air duct located at the back of the machine (item 5).
4. Clean Grain Discharge: The good product is discharged through the bottom of the machine (item 6).

## 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 internal gate inside the inlet hopper closed(8) start the machine Loosen the black knob that sets the location of the inlet air slides and set both the bottom air slides at 1/2 way. Please set the air slides at the same height on both sides. The eccentric(7) shaft speed is already set at 400 RPM at the factory.

### INLET HOPPER

Open the internal hopper gate until about 1/2 to 3/4 of the top screen in the shoe is covered. Variations to this will occur if 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 settling chamber discharge . The 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 the two air slide gates on the bottom fan until there are only a few good seeds in the settling chamber discharge. **Please wait 30 seconds for the adjusted setting to be discharged out the discharge.** If there are no good looking seeds in the discharge, open the slide gates until a small amount of good seed appears in the settling chamber discharge

### GENERAL MAINTENANCE /GREASE INTERVAL

Be sure all shaft and eccentric bearings are properly lubricated with a good grade of pressure gun grease. One pump on a standard grease gun is sufficient. **DO NOT OVER GREASE** All shaft and eccentric bearings should be lubricated after every **500 hours** of operation. There are 5 grease points on the machine. One on each side of the bottom fan, one on each side of the eccentric shaft and one on the main drive eccentric assembly. The front door has to be removed to access the eccentric assembly. Also on the pitman arm that hooks to the eccentric assembly there is a bushing on the opposite end that will need replaced periodically. 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 service.

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**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.**