

**UPDATE ON MACHINERY DEVELOPMENTS FROM CHEROKEE**

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**Abstract**

As our customer needs change, Cherokee adapts by creating additions and improvements to our product line. This presentation includes a brief highlight of the improvements made for the 2013 gin season.

**Introduction**

Our customers are our best designers; At Cherokee we pride ourselves on our close relationship to our customers. We develop machinery and improvements to our existing machinery often out of customer request. As always our goal is to reduce installation and operating cost, increase efficiency and improve safety.

**Materials and Methods****Chieftain Down-Packing Press**

One of the highlights of the 2013 ginning season was the addition of the Chieftain Down-Packing press to Cherokee's product catalog. The press features a 16" double acting cylinder, 1/2" steel construction with two 2" and one 3" ring. The hydraulic cylinders of this press utilize linear variable differential transformers for precise positioning of the cylinders. A pressure transducer in the blind end of the main cylinder paired with the LVDT gives the press control system the ability to "strip" the boxes on pressure and position maintaining a uniform bale through the process. The box strip cylinders push from the bottom of the box rather than pulling, providing a smooth box strip function without the cylinder side loading seen on other down packing type presses. The total connected horsepower on this 45 bale per hour configuration is 237.5 providing an average 72 second cycle time.



Figure 1. Chieftain Press-Greene Gin Snowhill, NC

**Round-Up II**

Minor improvements were made to the already proven Round-Up II for the 2013 gin season. The first improvement was a minor hydraulic re-design allowing each clamp to have an independent pressure and flow control. The top section of the powered doors was removed and the remaining sections were lengthened slightly. Lastly a wider version was tested to accommodate a 10' wide module feeder.



Figure 2. Round-Up II Dooley County Gin Lilly, GA



Figure 3. Round-Up II at Keich-Shiver-Miller Gin in Monette, AR.



Figure 4. Operator Removing Wrap on a Round-Up II.

### **Vertical Cylinder Dryer**

A product initially introduced for the 2012 ginning season is the Vertical Cylinder Dryer. Inside the dryer, cotton is thrown from a rotating cylinder onto fingers that slope down towards the next rotating cylinder. There is a small gap between the fingers, allowing air to be pulled straight down through the fibers as the locks of cotton slide down toward the next cylinder. Minor modifications were made to the machine supports and catwalks to provide easier access. A 2013 installation of the machine saw capacities in excess of 50 bales per hour during the 2013 gin season.

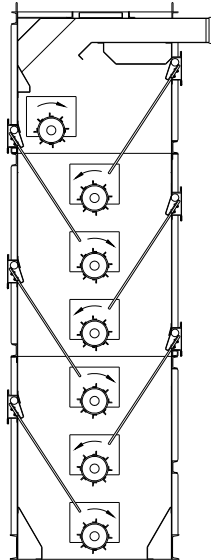


Figure 5. Vertical Cylinder Dryer Cross-Section



Figure 6. Vertical Cylinder Dryer Dooly Gin Lilly, GA





Figure 7. Vertical Cylinder Dryer over a 15 Cylinder Gravity Cleaner at Bernie Farmers Gin in Malden, MO.

**Savage 3 Saw Stick Machine**

Building on already successful technology, Cherokee introduced a 3 saw version of our already popular 2 saw stick machine. A retrofit was additionally introduced to convert existing Cherokee 2000 series Savage stick machines.

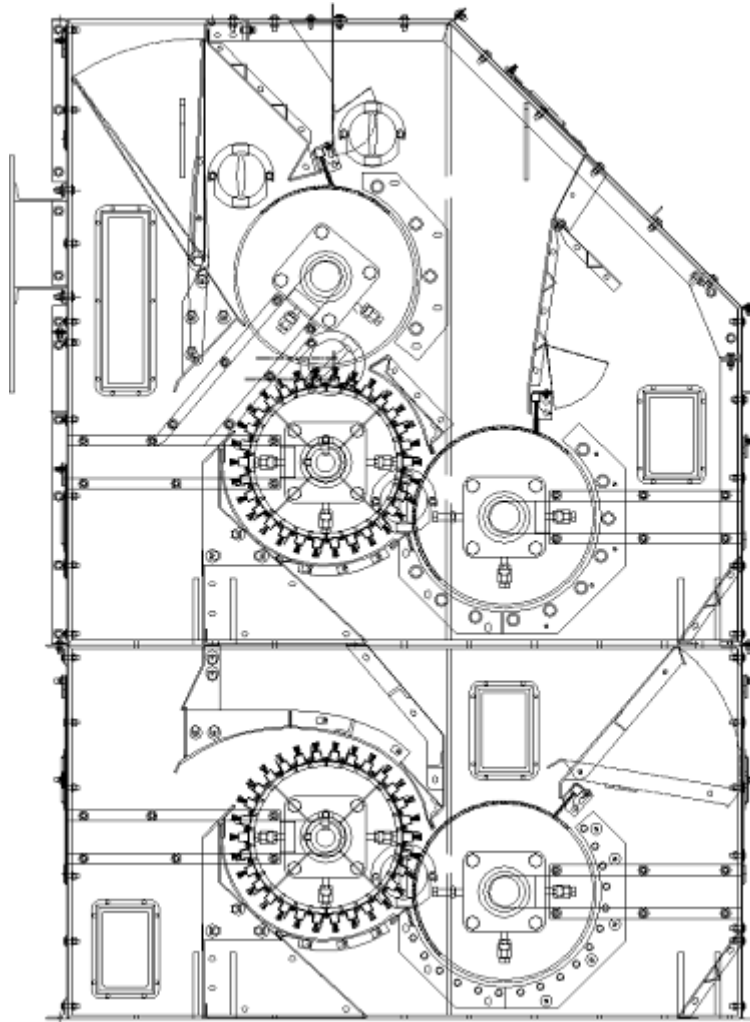


Figure 8. Cherokee Savage 3 saw stick machine line drawing

### **Conveyor Distributor**

In an ongoing effort to reduce installation and operating cost by eliminating machinery and horsepower, Cherokee has introduced a conveyor distributor application that directs the overflow cotton back into the feed control and first stage cleaning group. A "fire" door is located at the back of the module feeder to dump the material from the conveyor and a floor sweep was added to re-introduce the material to the first stage system from the floor. This application eliminates the need for an overflow hopper, separator, vacuum and fan.



Figure 9. Conveyor Distributor Dooly Gin Lilly, GA

#### **Lint slide moisture sensor**

Last season Cherokee installed and tested an incoming and after drying moisture sensor and presented the results at the 2013 Beltwide. This season we installed and operated a final moisture sensor located in the lint slide. A diagram of the installation can be seen below. Unfortunately there was not enough time complete the testing and publish the results. I hope to follow up with the testing results next year.

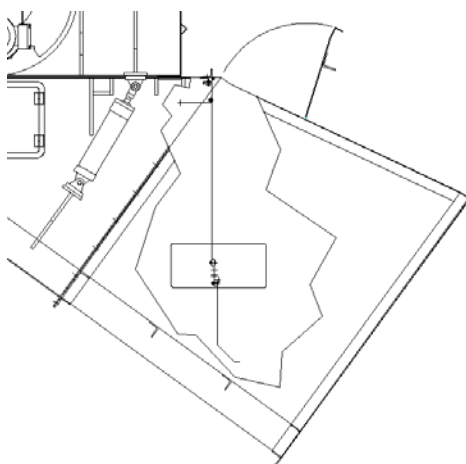


Figure10. Lint slide moisture sensor

#### **Magnum 244**

The workhorse of Cherokee's machinery line is the award winning Magnum 244 gin stand. In it's third season very little needed to be done. One minor improvement to the machine was the addition of an adjustable gear box mount on the agitator drive. This modification allows use of a laser alignment tool to more precisely align the gearbox to the outboard bearing reducing the vibration in the agitator.



Figure 11. Magnum Gin Line.

#### **142 Lint Cleaner**

The need to continually improve our machines led to some big changes on our 142" lint cleaner. For the 2013 season we gave the machine a facelift, it sports a new rigid, tubular frame. The guards of the machine have also been redesigned and incorporated into the frame of the machine. The 142 Lint Cleaner ships completely assembled ready for installation.





Figure 12. 142 Lint Cleaner 2013 Mid-South Farm and Gin Show

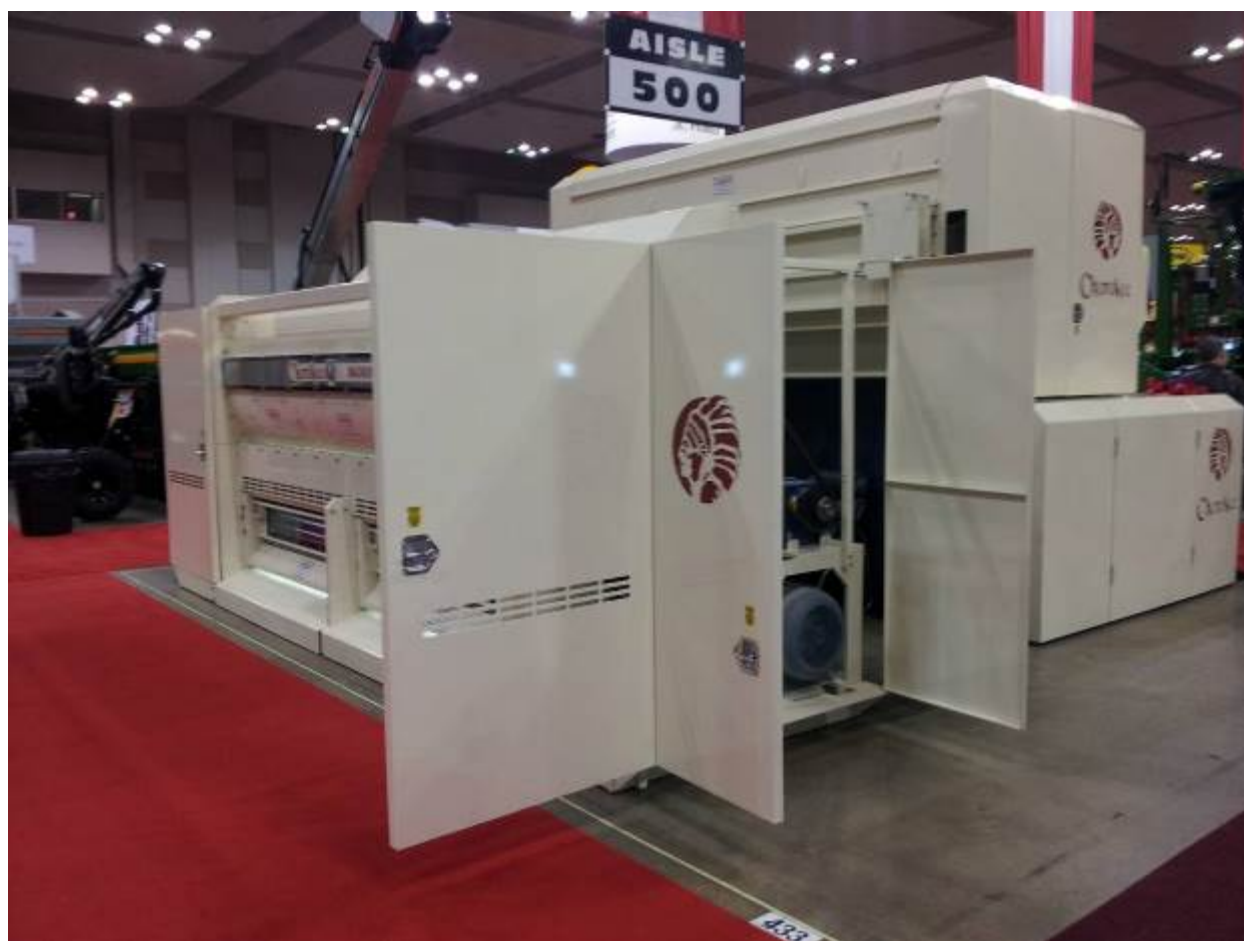


Figure 13. 142 Lint Cleaner 2013 Mid-South Farm and Gin Show

**Final Trash Fiber Reclaimer**

For the 2013 season Cherokee introduced a six foot version of our already successful fiber reclaimer. Previously available in an eight foot model, this machine proved to be more than was needed in a 45-50 bale per hour installation.



Figure 14. Final Trash Fiber Reclaimer.

**Summary**

As the needs of our customers change, Cherokee continues improve our machinery and custom control lines with the goal of providing Complete Ginning Solutions.