Operating Manual

3 PT Lift Pulverizer

ECS House Industries INCORPORATED

Operating Manual

3 PT Lift Pulverizer

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3 PT Lift Pulverizer

General Information

The ECS House Industries, Inc. Pulverizer is the result of 35 years of experience in manufacturing tillage equipment. Farmers who own Pulverizers say they would not try to farm without one.

The Pulverizer, in one operation, will prepare a seedbed, break up clods, incorporate chemicals, level the ridges and fill in the small low places in your fields. Farmers say the Pulverizer will do the same leveling as a 40' land plane, but unlike a land plane, it will not pack the ground.

Due to the operating design of the Pulverizer, most clods are left on top of the ground. The smaller particles are worked closely together in the area of seed placement thus maintaining the capillary action of the moisture for maximum seed germination. (Works out air pockets in the seedbed.)

Working fields in the spring with vegetation 6" to 8" tall will leave most weeds on top of the ground with dirt knocked off the roots; as a result, the weed roots are exposed to the sun and air.

The reel is on the Pulverizer for breaking up clods and for incorporating chemicals. The reel will perform some cutting of trash.

The Pulverizer is designed to be pulled at a fast rate of speed, 5 mph to 8 mph is the recommended speed. At less than 5 mph the tool will not perform as designed. ECS House Industries, Inc. recommends the following tractor horsepower requirements for most ground conditions, working approximately 4 inches deep:

Working Width	Horsepower
10'	85-100
13'	100-115
14 ½'	125-140
19 ½'	150-175
26'-40'	200+

ECS House Industries, Inc. recommends the drag board be raised in the top adjustment slots so the board will not touch the ground when using the Pulverizer for incorporation of chemicals. Also raise the board so it will not touch the ground when working wet fields. The Pulverizer works well on fall plowed ground; on spring plowed ground, moisture can be sealed by the Pulverizer. The Pulverizer works well on old and newly ripped beds and land without primary tillage in the spring.

Never run the Pulverizer set lower in the front than rear. Horsepower requirements are increased tremendously and extra strain is put on the front reels.

Trash will not feed through reels as readily when the machine is set lower in the front.

The drag board is used to carry approximately 3” to 4” of dirt against it for the level finished seedbed. Rear baskets size clods, pack soil and level the seedbed.

Grease bearings after every use and at the end of each season to rid them of moisture. Check wheel bearings each season. Check all bolts for tightness once a week.

Assembly: 3 PT Lift Pulverizer

Step 1

Place center main frame bar in upright position.

Step 2

Lift wing in position to align bolt holes with center bar hinge plates.

Step 3

Align bolt hole with center bar and wing.

Step 4

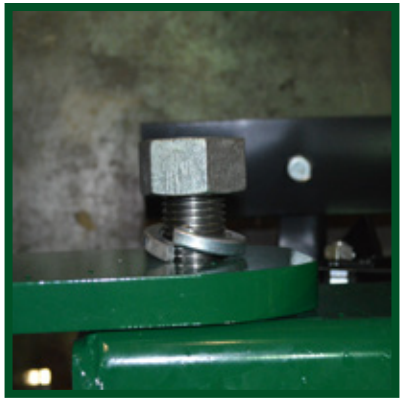
Place hinge bolt through hinge plates from front side to rear. Tighten.

Step 5

Align hinge bolt head with bolt hole.

Step 6

Attach hinge bolt using ¾ x 1 ¼ bolt and lock washer. Tighten.



Step 7

Place 1 ½ nut and lockwasher on backside of hinge bolt and tighten.

Step 8

Repeat steps 1 through 7 for opposite side. (Note: Wings are left and right handed.)

Step 9

Attach all thread adjustment clevis using (1) 1 ¼ nut, (1) 1 ¼ jam nut, and (2) flat washers. Tighten.

Assembly: 3 PT Lift Pulverizer

Step 10

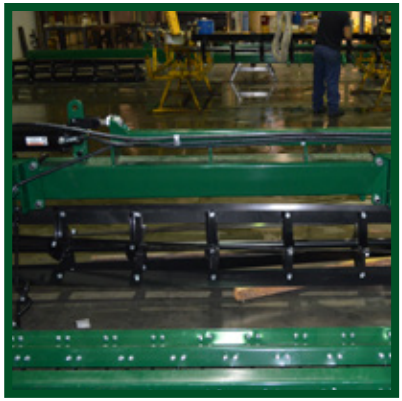
Attach cylinder pivot using (2) 1 x 3 ¼ pins and (4) cotter pins. (Note: Larger hole goes to the top.)

Step 11

Attach 4 x 16 cylinder to second hole in pivot plate from the bottom. Hydraulic ports should face rear of machine.

Step 12

Extend cylinder and attach to wing pivot bracket.



Step 13

Attach harrow hanger bars using (2) ⅞ x 7x7 u-bolts, lockwashers and nuts. (See additional info for spacing.)

Step 14

Attach dragboard mounting bracket and light bracket using (2) ¾ x 4 bolts, lockwashers and nuts. Run light wire along hanger bar using supplied loop and self-tapping screw. Lights and wire are placed on the most outer hanger bar on the center section of machine. (Note: Dragboard brackets are left and right, and bend should face in.)

Assembly: 3 PT Lift Pulverizer

Step 15

Attach harrows using (2) 15” drag link, (4) pull clevis, (4) ½ x 1 ¾ bolts, and (4) locknuts.

Step 16

Attach (4) harrow lift chain using (4) ⅝ x 1 ¾ bolts, lockwasher and nut.

Step 17

Pull harrow lift chain through chain pocket. Secure with lock pin.

Optional Dragboard Assembly

Step 18

Attach board springs using reinforcement plates on top of spring and under bracket with ½ x 3 bolt, lockwasher and nut. Tighten.

Step 19

Attach dragboard to board spring with ½ x 1 ½ bolt, with flatwasher on head side and locknut on top side. Tighten.

Assembly: 3 PT Lift Pulverizer

Optional Basket Assembly

Step 20

Attach springs and chains to basket arm.

Step 21

Attach basket frame to basket arm using basket clamp plate, ½ x 3 ½ bolts, lockwasher and nut. Tighten. Basket's tension is set by using the chain. (Note: See additional information for basket arm and basket assembly.)

Step 22

Attach slow moving vehicle sign and bracket on tab of center hanger bar using ½ x 1 ½ bolt, lockwasher and nut.

Step 23

Attach L-Bracket using ⅞ x 7x7 u-bolts, lockwashers and nuts.

Step 24

Attach GA wheel bracket to L-Bracket using ¾ x 4x7 u-bolts, lockwashers and nuts. Wing GA wheel using ¾ x 7x7 u-bolts, lockwashers and nuts. (Note: See additional info for GA wheel assembly and spacing.)

Assembly: 3 PT Lift Pulverizer

Step 25

Attach T-Mount bracket on tab of center bar using ½ x 1 ½ bolt, lockwasher and nut. Tighten.

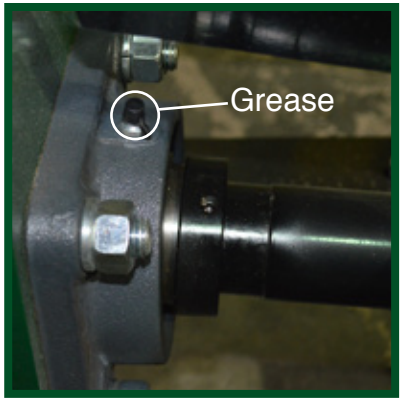
Step 26

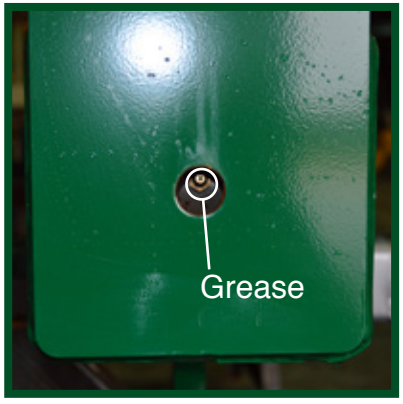
Attach ⅜ T to T-Mount bracket. Run hoses from T to cylinders. Run hoses from T to front of machine.
(Note: See parts list for hose lengths and fitting.)

Step 27

Attach safety lock using supplied washers and pull pins.

Pulverizer Grease Fittings





Note: Grease all fittings before or after each use.

To access the roller pin grease zirt, raise and secure the wing with the safety bar.

Operating Your Pulverizer

General Safety Practices

This machine has been designed for safe operation, but the following precautions must be exercised.

1. See that all protective devices on the tractor are in place and properly secured before starting to operate.

2. Before dismounting from the tractor to service or make Pulverizer adjustments, shut off the engine, remove the ignition key and lock the park brakes.

3. When transporting on the highway, be sure to operate the flashing warning lights on the vehicle.

4. The American Society of Agricultural Engineers recommends the use of clearance markers to reduce the possibility of night-time accidents. These are furnished with the Pulverizer. The customer must replace them when damaged or lost.

5. The machine is furnished with reflectors on the Pulverizer. The reflectors must be kept clean. (See next two pages for reflector locations.)

6. When transporting on the highway, it is mandatory that a hitch safety chain package with a 10,500-pound gross load capacity, as well as a safety hitch pin, be used with the tractor and Pull Type Pulverizer. The equipment is available at your implement dealer.

7. Escaping hydraulic fluid under pressure can have sufficient force to penetrate the skin, causing personal injury. Before disconnecting hose, be sure to relieve all pressure. Before applying pressure to the system, be sure all connections are tight and lines, pipes and hose are not damaged or crimped.

8. Hydraulic fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks. If injured by escaping hydraulic fluid, see a doctor immediately.

9. Never clean, lubricate or adjust a machine that is in motion.

10. Be careful when operating on hillsides as the tractor may tip sideways if it strikes a hole, ditch or other surface irregularity.

11. Only one person—the operator—should be permitted on the tractor platform while tractor and Pulverizer are in operation.

12. Never permit a person to ride on the drawbar of the tractor, and never permit a person to ride on the Pulverizer at any time.

13. When moving on public roads, or from field to field, lock the brake pedals together for simultaneous operation when making a stop. Avoid heavily traveled roads when moving the Pulverizer.

14. Comply with your state and local regulations governing highway safety when moving machinery on a highway.

15. The recommended tractor drawbar height for average conditions is 19 inches.

16. For tractors equipped with swinging drawbar, the drawbar should be secured in a fixed position in the center of the tractor.

To **LOWER** wings, connect the tractor hose to the wing lift cylinder hose. Extend the wing lift cylinder to its cull length – then remove the red wing lock up bar located at front of Pulverizer. (Picture No.1)

Picture 1

CAUTION: Make sure that no one is standing under the wings when lowering them. While the Pulverizer is in a raised position on its wheels, lower the wings to their down position. An orifice has been installed in the cylinders of each folding machine to regulate the speed when raising and lowering the wings to prevent damage to the wing hinges.

CAUTION: Be sure all cylinders are charged with oil before attempting to remove wing lock up chains.

Accident Prevention

No accident prevention can be successful without the whole-hearted cooperation of the person who is directly responsible for the operation of equipment.

To read accident reports from all over the country is to be convinced that a large number of accidents can be prevented only by the operator anticipating the result before the accident is caused and doing something about it. No power-driven equipment, whether it be transportation or processing, whether it be on the highway, in the field or in the industrial plant, can be safer than the person who is at the controls. If accidents are to be prevented—and they can be prevented—it will be done by the operators who accept the full measure of their responsibility.

It is true that the designer, the manufacturer and the safety engineer can help; and they will help, but their combined efforts can be wiped out by a single careless act of the operator. It is said that “the best kind of a safety device is a careful operator.” We ask you to be that kind of operator.

Operating Your Pulverizer

Machine Adjustments

1. Be certain that lockdown pins are removed before attempting to lower wings. (Picture No.1)

2. Warning: Reel bearing lock collars are installed by your ECS House Industries, Inc. Dealer. If it is ever necessary for you to loosen a lock collar to retighten, follow the below procedures:

3. First be sure the collar is up on the inner race of the bearing. Turn collar in the direction of the reel rotation. You will feel the collar tighten at this point. With a punch and a light hammer, tap the collar four times. This will tighten the collar as tight as necessary. Then lock the collar with the set screw. When lock collar is tight, further tightening can distort the inner race resulting in premature bearing failure.

4. CAUTION NO. 1: Extreme care must be exercised when hitching the Pulverizer to the tractor in order to prevent injury to the hands or fingers.

5. Connect the cylinder hose to the tractor's hydraulic system. Extend and retract the wheel lift cylinder to determine the position of the tractor's hydraulic lever relative to the movement of the cylinder ram. The proper connection for the hose to the tractor is when the tractor's lever is pushed forward thus retracting the cylinder ram. Make certain that the proper hose connection has been made to the tractor.

6. CAUTION NO. 2: FOLDING WINGS
   (A) Raise the wings to the fully folded position with hydraulics only.
   (B) Stop the tractor engine.
   (C) Stand in front of the Pulverizer and install the wing lock up bar painted red. (Picture No.1)

Picture 1

Machine Adjustments

7. The Pulverizer is engineered to operate at speeds from 5 to 8 mph. To operate properly, machines should be approximately 2” to 3” lower at rear; adjustments can be made with the hitch nose turnbuckle.

8. The harrows can be adjusted up and down with the harrow hanger chains (Refer to step 17). Harrow hanger chains must be very slack when Pulverizer is operating for harrow to distribute trash. There are times when the farmer may desire to use only the flex harrows. This is done by raising the reels clear of the ground with the wheel lift cylinder. The harrow lift chains must be lengthened. NOTE: The Pull Type Pulverizer transport wheels are used as gauge wheels when the machine is operating.

9. Board spring brackets have slotted holes for adjusting the dragboards up and down.

10. For rolling baskets in lieu of dragboards, refer to “Adjusting the Rolling Basket Kit.”

11. By adjusting the wheel carrying assembly, the reels on Pull Type Pulverizers can be raised and lowered; harrow hanger chains adjust the harrows up and down, and slotted holes at dragboard mount allow three individual adjustments, thus making the Pulverizer a very versatile farm implement.

12. The machine is designed to use a standard 8” stroke cylinder for depth control on all Pull Type Pulverizers.

13. Reel bearings are triple sealed and packed with grease at the factory. Reel bearings have a grease fitting plug, but are with zerk fittings. Grease each reel bearing before each use. Grease with a small hand gun only and replace bearing plug after greasing. Use No. 2 multipurpose lithium grease. CAUTION: Never turn bearing insert around in housing from direction installed at factory. Bearings cannot be greased if inserted backwards in housing. Wheel hub bearings should be removed once a season, at the time of storing the machine. Clean the inside of the wheel hubs with a safe solvent. Inspect the bearing and seals for satisfactory condition. New parts are available from your ECS House Industries, Inc. Dealer. Pack the bearings with No. 2 multi-purpose lithium grease. Keep the race and bearings free from foreign material. Reinstall the hubs and bearing and seals. Tighten the nut until there is noticeable drag when turning the wheel. DO NOT back the nut off. Secure the nut with cotter pin and reinstall hub cap. NOTE: Do not damage the seal when placing hub on the spindle.

14. With all cylinders extended, approximately two (2) gallons of oil are required to fill cylinders.

Operating Your Pulverizer

Adjusting the Rolling Basket Kit

1. After installing the basket kits on the working tool, make certain the baskets are moved as close to one another as possible.

2. Check to see that the front basket is at least ½" to 1 ½" higher than the rear basket.

3. Check tightness on all bolts on linkages and basket assemblies. NOTE: Check tightness on all lock collar set screws on basket bearings.

4. Check linkage chain tension. First apply two links of tension. Adjust tension as needed for different field conditions.

Setting the Pulverizer for Normal Field Operations

The Pulverizer should be operated 2" to 3" lower at the rear than the front. Under most normal conditions this is the correct setting. However field conditions are not always normal and therefore other adjustments may be necessary.

Trashy Fields

The Pulverizer will operate anywhere a field cultivator will work in trash. Speed is important when working a trashy field. (Minimum 5 ½ mph) Reels shed trash better when Pulverizer is 2" to 3" lower in rear.

Rocky Fields

Set Pulverizer for normal field operation. The reel is manufactured with a 2" solid axle. The blades on the reels are grader blade steel. The bearings are 1 15⁄16" triple sealed, self-aligning and greaseable. The Pulverizer has a larger axle and bearings than most discs. If the reel blades become bent or nicked, the operation of the tool will not be affected.

It is possible for a rock of the exact size to wedge between the blades of the reel as sometimes happens between disc blades. Also, it is possible for a rock of the exact size to wedge between the end of the reel blade and the bearing leg. If this should happen often, cut off 1" to 1 ½" of the end of the reel blades.

This will possibly relieve your problem without affecting the operation of the Pulverizer. Rocks do not hurt the harrows as they are flexible and self-cleaning. The dragboard is spring loaded and protects itself. Baskets are NOT recommended for moderate to heavy rocky conditions.

Wet Fields

As different from the recommendations of setting the Pulverizer in normal conditions, we recommend the Pulverizer be set to run level front to rear and not deeper than 2 ½". The reel will not work the dirt as much but also the reels will not ball up. If the field is almost too wet to work, but you would like to aerate the soil to aid drying, remove the reels and use the Pulverizer as a harrow. (Wing gauge wheels are recommended when used in this manner.) The Pulverizer can also be used to dry out the field in order to come back over it a day or two later at a deeper depth. Raise the dragboard so it will not touch the ground in wet fields.

Mucky Ground or Gumbo

Some ground will not accept a tool that does more than one operation at a time when it is being prepared for planting. The Pulverizer will do an excellent job on this type of ground if it is set to run level—front to rear—and adjusted not to run deeper the 2 ½". Most farmers working this type of ground recommend going over the field the first time with a field cultivator or disc and then on the following day using a Pulverizer; this action results in a beautiful seedbed. If using the Pulverizer behind a field cultivator the second day, we recommend that it be set in a normal operation position with the reels doing their normal work.

Gauge Wheels Available

MODEL NO. 0316
Gauge wheels with tires for mounting on 2 ½" x 2 ½" front tooth mounting bar of wing section. Will work on all model Pulverizers. Air tires to 60 pounds each.

MODEL NO. 0420 - Pull Type
Gauge wheels are hydraulic operated wing gauge wheels. Fits to rear of 4" x 6" tubing wing box frame. Tires are included. Four (4) special cylinders are supplied for main wheel assembly and for wing gauge wheels.

Troubleshooting

Circumstance	Cause	Solution
Horsepower requirement inadequate	Running too deep	Recommended depth 4” maximum
	Plows or shanks “digging in”	Level or tilt rear of machine 2” or 3”
	Machine too large for tractor	Follow manufacturer specifications
Reel will not carry dirt, or poor penetration	Speed too slow	5hp minimum recommended
	Machine too low in rear	Tilt machine forward but not past level
	Reels mounted incorrectly	When blade enters soil, angle should be on top; Reverse reels if necessary
One side “digs in,” other side “comes out”	Tire size or pressure is different	Check tire sizes and pressure
Harrow clog-up	Harrow lift chains are too tight	Harrow lift chains should be very loose when operating
Ridging on each end of dragboard	Dragboards too low	Raise dragboard to carry less dirt
Trash builds up in reels	Front of machine too low	Run machine level or with 2” to 3” tilt to rear
	Speed too slow	Increase speed
	Running too deep	Shallow machine slightly

ECS House Industries Inc.
Agricultural Equipment Warranty Agreement

This Is a Legal Contract Between You and ECS House Industries, Inc.

1. ECS House Industries, Inc. ("ECS") warrants directly to you that the agricultural equipment identified below will be free from defects in materials and workmanship appearing under normal commercial use and service for a period of twelve (12) months following your first use of the equipment or eighteen (18) months from the date of first delivery of said equipment to you, whichever period expires first, subject to the restrictions and conditions contained herein. The warranty contained herein does not extend to any purchaser of the equipment other than the original purchaser.

List of Warrantied Equipment:
a.
b.
c.

2. The warranty contained herein does not apply to any part(s) or component(s) not manufactured by ECS which are included and/or contained within the equipment supplied to you by ECS. Any warranty, if any, covering parts or components purchased by ECS which are included and/or contained within the equipment purchased by you from ECS is provided to you by the respective manufacturer(s) of such part(s) and/or component(s). ECS is not obligated to bear the cost of labor, lodging, removal of equipment, meals or transportation regarding any part(s) or component(s) not manufactured by ECS. Notwithstanding the foregoing statements, with regard to any part(s) or component(s) not manufactured by ECS which are included and/or contained within the equipment supplied to you by ECS and which are found by ECS to be faulty or defective, ECS agrees to facilitate and pursue all warranty claim(s) on your behalf with the manufacturer(s) of the faulty or defective parts(s) and/or component(s) and to bear the cost of shipping any such faulty or defective part(s) or component(s) back to the manufacturer thereof for evaluation during the warranty period set forth by this Agreement.

3. WARRANTY DISCLAIMER AND LIMITATIONS OF LIABILITY:
Your sole and exclusive remedy against ECS arising from your purchase and use of the equipment manufactured by ECS is limited to the repair or replacement of defective materials or workmanship. Within the warranty period, ECS will replace or repair any parts built and manufactured by ECS that have failed under normal use subject to the restrictions and conditions listed herein. Unless otherwise stated specifically herein, ECS will not be responsible for shipping or handling on parts returned pursuant to this warranty. All parts returned for warranty replacement or repairs must be returned within thirty (30) days of failure, have the proper serial number and have a RMA number attached.

ECS is only obligated to perform repair(s) or replacement(s) of defective material and/or workmanship pursuant to this warranty at an ECS facility or another place designated by ECS.

No warranty will be honored by ECS when, in the sole opinion of ECS, there is loss or damage resulting from any cause beyond the control of ECS, including, but not limited to, abuse, neglect, alterations or modifications, an accident, unauthorized repairs or attempted repairs, improper installation, use of the equipment in an inappropriate application or setting, or damages resulting from acts of God or governments, floods or fires, or other parties, specifically including, but not limited, to purchaser. ECS will not be responsible for failures of any kind due to lack of routine maintenance and/or upkeep.

All warranties as stated herein will be null and void upon failure of any kind that is determined by ECS to have been caused by lack of routine maintenance and/or proper fluid changes as required by the operator's manual and the specifications of the original equipment manufacturer.

All warranties stated herein will be null and void upon any failure due to or resulting from foreign objects coming in contact with any ECS equipment. All serial numbers shall remain intact and together as recorded and coordinated by ECS. All parts replaced during the warranty period shall be purchased from ECS and shall be the correct part for the correct model. ECS shall not be liable for any damage caused by corrosion to any material, part, or workmanship during the warranty period or any other time. This warranty is subject to any existing conditions of supply which may directly affect the ability of ECS to obtain materials or manufacture replacement parts. Any repair or replacement under this warranty shall not extend the original warranty expiration date.

EXCEPT FOR THE ABOVE WARRANTY, ECS MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, AND MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

It is agreed that ECS shall not be liable for any incidental or consequential damages experienced or claimed by you, including, but not limited to: loss of profits; loss of income; damage to equipment; damage to facilities; loss of or damage to your product(s) or crop(s); damages resulting from corrosion; the cost of rental equipment during any repair period; other commercial loss(es); attorney's fees; costs of litigation; or any liability that you may have with respect to any other person or entity.

4. TIME LIMIT ON COMMENCING LEGAL ACTION:
It is agreed that you have one (1) year from the accrual of the cause of action within which to commence any legal action arising from the purchase or use of the equipment, or be barred forever.

5. The parties hereby agree that the United Nations Convention on Contracts for the International Sale of Goods ("CISG") will not apply to this Agreement. Any dispute arising under or related to this Agreement shall be governed by and decided under the laws of the State of Arkansas, United States of America. Venue for any lawsuit and/or claim filed by any party to this Agreement in connection with or related to this Agreement shall lie solely with the courts of the State of Arkansas, United States of America.

6. To the extent that any provision of this warranty contravenes the law of any jurisdiction, such provision shall be inapplicable in such jurisdiction, and the remainder of the warranty shall not be affected thereby. This warranty shall become null and void upon the dissolution of ECS. This warranty supersedes and voids any and all previous warranty statements and guarantees issued by ECS.

ECS House Industries, Inc. I, the undersigned, have read the above-stated warranty agreement and understand and accept its terms and acknowledge receipt of a copy of the agreement.

By: _____ Date: _____ By:_____ Date:_____