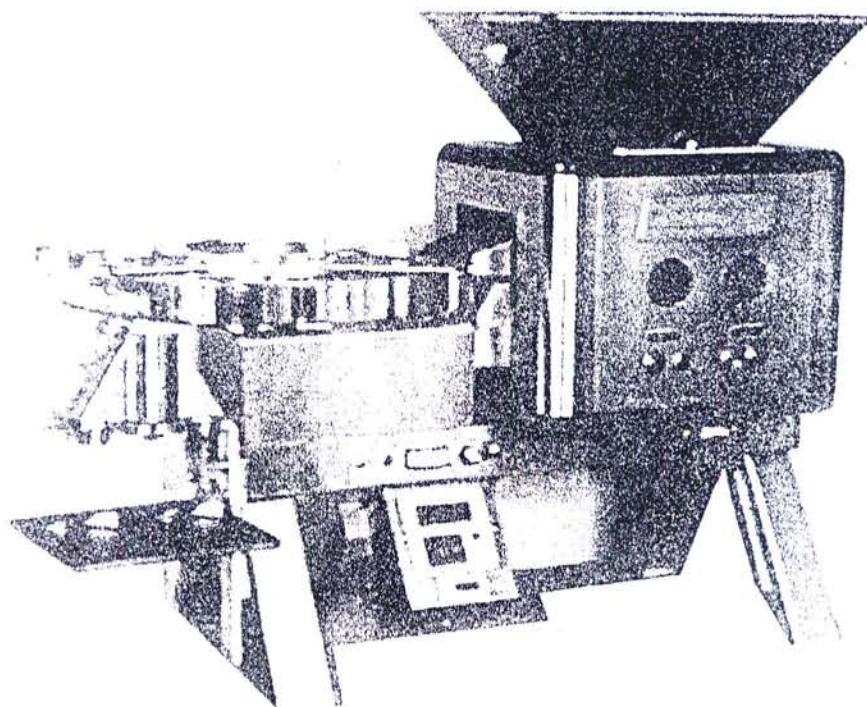


**INSTRUCTION MANUAL
VERSACOUNT® TABLET/CAPSULE
COUNTER/BOTTLE FILLER
MODEL 714 AND 721**



THIS INSTRUCTION MANUAL IS PRODUCED
BY DEITZ COMPANY INC.

VERSACOUNT IS A REGISTERED TRADEMARK
OF PRODUCTION EQUIPMENT INC.

This operating manual applies to Versacount models 714 and 721

Versacount machines were sold by Production Equipment Inc (PEI) for approximately 30 years. Reconditioned Versacount machines were sold by Hypak Industries and in most of those cases an 'H' is added to the model number. Deitz Co was the major supplier of parts and subassemblies to these companies. To my knowledge, PEI and Hypak no longer deal with the Versacount. Deitz Co is the best source of original parts and service.

V714 and V721 are very similar. Most V714 machines were upgraded to V721 specifications at sometime. Approximately 1000 V714 machines were sold from 1967 to '77. Approximately 500 V721 machines were sold from 1977 to '87. The V721 was replaced by V741 in '87. Early V714's were electrically different from later V714's but they looked the same. The 6 spoke rim was replaced by a 5 spoke rim and the rim guides were different. The original electronic counter circuits in the early V714 were modified on the late V714 necessitating a wiring change to the solenoids in the head actuator assembly. Minor changes were made to the bottle table(shelf). Many early type V714 parts are obsolete and are replaced by the later type. All electron tube electronic counters are unrepairable and obsolete. They must be replaced when they fail. The V714 model number was changed to V721 when the solid state electronic counter and all stainless steel metal parts were introduced. It looked a lot like a V714 but there were significant improvements.

If you have an early model V714 with the original rim and counter, plan to have these items replaced if they require service because we no longer have these items or sub-assemblies in stock.

For operating explanation purposes this manual will cover both the V714 and V721.

Deitz Co manufactures the **Pharmafill** line of tablet/capsule counter/bottle filling machines. We welcome a trade-in of a Versacount machine on a new Pharmafill counting/filling machine.

Mechanical characteristics:

* Most machines have a 16" diameter rim and turntable. There is also a 20" diameter version designated Model 721-20".

* Versacount machines come as either a Right or Left-hand version. Viewed from the operating position, the R version has the head at the right end. The L version has the head on the left end. Certain parts fit only the R or L type machine. Model numbers show head location as V721R or L.

* Gross weight- typically 125 lbs

Electrical Characteristics:

115VAC fused for 2 Amps.

Accessories: (should come equipped with these items)

- (1) bottle table w/ adjustable bottle stops under each filling station
- (2) 4 pairs of funnels: 1/2", 3/4", 1", 1 1/4" dia. bottom openings
- (3) set of chip sieves with different size holes
- (4) set of tablet and capsule guide change parts
- (5) center hub mounted, spring loaded diverter
- (6) operating and spare parts manuals

Options: (can still be supplied)

AGS Air-Guide-System, nozzles, manifolds and hoses.

AS1 Air Supply (part of AGS)

Rim Cover, clear lexan

Hopper Cover, clear lexan

Vinyl cover for machine

Hopper Extension

General Description: (*references to 714/721 means information applies to both models*)

A Versacount is an electromechanical machine that counts and directs the flow of tablets (*Reference to tablets also means capsules, caplets, gel caps, etc*) alternately into one of two filling stations. Count rates can be up to 2400 tablets/minute, with a count range from 1-10,000. It is not designed to count clear gel caps and therefore is not recommended for that task.

Approximately 10,000 tablets can be loaded into the stainless steel hopper. The hopper gate is opened to allow tablets to partially fill the vibrator feed pan which is mounted on top of a large vibrator. Tablets move along the length of the feed pan at a rate depending on the power applied to the vibrator. As tablets move toward the end of the pan they pass over chip sieve plates where dust and chips will fall through into a dust cup below. Tablets drop from the end of the pan to the glass turntable which is surrounded by a stainless steel rim. The turntable carries the tablets into the guide channel. Tablets move single file down the guide channel, off the edge of the glass, immediately above the photoelectric scanner assembly and diverter head mechanism. As they drop through the scanner beam, they are detected and counted. The diverter head directs the falling tablet into either the left or right filling funnel. The number of tablets to be put into a bottle is determined by the number that is preset in the electronic counter. Immediately after the preset count is achieved, the counter resets and the diverter flag automatically changes the flow to the other filling station. Filling station funnel size is selected based on tablet and bottle opening size. Bottles are placed under the filling funnel on the bottle table. Adjustable bottle stops quickly locate the bottle precisely under the funnel. Because this is a semi-automatic operation, the operator must remove filled bottles and place an empty bottle under the filling station. Vibrator and turntable speed is adjusted to deliver product to the bottle at a rate that the operator can keep up with. These adjustments are located on the main control door panel.

Installation:

Uncrate the machine, making certain that no parts are damaged. The machine is shipped mostly assembled. You must install the glass turntable plate. We suggest that you go through this operating instruction before completing the machine assembly. Installation should be made in the suggested order, as detailed below. Photographs are also included in the manual, as an additional guide.

- A. Mount the machine on work-table with dials and switches facing the operator.
- B. Turn all switches off.
- C. Install parts in the order listed, referring to the photographs and detailed description:
 - * Hopper- Install with door opening facing the rim.
 - * Chip sieves- Select the solid plate or appropriate size sieve and install in the sieve plate cut-out of the vibrator feed pan. A small threaded knob is supplied to secure the plate in the cut-out.
 - * Glass turn table- Place glass on center hub, with the support plate below and the thin plastic washer above. Support plate has a slot that must line up with a pin in the hub. The plate is made of aluminum or phenolic and it may be glued to the glass. Tighten ring nut, by hand, onto the glass.
 - * Rim- Cut-out section fits under the end of the vibrator feed pan. Alignment fork on the top of the motor cover, must 'capture' the rim seam fastener clip to prevent the rim from moving around the hub. Fasten securely with the threaded rim hold-down knob.
 - * Head assembly- Install on top of the head/table support bar. Hardware (usually threaded knobs) is supplied to attach from underneath, through slotted holes in the bar into threaded holes provided in the base of the head. Insert the 6-pin plug into the matching receptacle behind the machine main frame.
 - * Bottle table- Install at the bottom of the head/table support bar. A two-piece clamping assembly slips over the bar. The table is easily raised or lowered on the bar to bring the bottle opening under the filling funnel.
 - * Electronic counter- is located directly under the main channel. It is mounted on a bracket that attaches to two screws at either side of the meter on the front of the main channel. Insert the 4-pin plug into the matching receptacle behind the main frame.
 - * Power cable- Insert plug into a standard 115 VAC outlet.

Detailed Description:

Hopper- mounts above and into the vibrator enclosure. It is secured by two cap nuts. The hopper door opens to let product spill onto the vibrator tray. The door is secured by a knurled knob. The hopper is removable for cleaning and/or emptying. An optional extension will double the hopper capacity.

Vibrator- vibrator feed tray, and chip sieves, are located below the hopper, inside the vibrator enclosure. The feed tray extends from an opening in front of the enclosure over the rim and turntable. ***The vibrator can not be turned 'on' if the turntable motor is 'off'.*** Vibrator power is set by adjusting a knob on the control door panel. The power required depends on the size of the product and the production rate desired. Product delivery rate from the feed tray to the turntable should approximately equal and not exceed the product flow through the head.

Chip sieves- are supplied for the removal of dust and chips from the product feed tray. Select a sieve with holes smaller than the tablets. Insert the sieve into the lower level of the vibrator tray and secure it with the thumb screw provided. Chips and dust that fall through the sieve, collect in the removable chip cup.

Turntable/Rim assembly- A stainless steel rim assembly surrounds a 1/4" thick, 16" round, glass turntable plate. (-20 model has a 20" diameter rim and plate) The rim supports the product guide assembly. An optional rim cover may be included. To remove the rim and get access to the glass turntable, remove the large threaded knob from the center hub and lift the rim away from the glass plate. The rim locating fork attached to the top of the motor enclosure, must 'frame' the rectangular plate spot welded at the rim seam. This assures that the rim always locates in the same place.

Product guides- attach to and are adjusted at the guide support block. They are made specifically for L or R model machines and are not interchangeable. They are selected and adjusted according to the size and type of product. The guide channel consists of a movable inner guide and a fixed outer guide. The inner tablet guide is a flat, rectangular shape intended for aligning tablets. The inner capsule guide is a low, spear-like guide that aligns capsules and caplets. A wedge shaped height guide, used only with the tablet guide, knocks off the top tablet of piggy backed pairs. A capsule deflecting wire guide is a stainless steel wire deflector that knocks off piggy backed capsules or caplets. A pointed tablet plow guide may be clipped on the leading top edge of the tablet guide. The flow corrector guide attaches to the rim where the tablet falls from the turntable. The spring loaded diverting guide attaches to the center hub. It pushes product to the outer edge of the glass, in line with the guide channel.

Rim Clip- The product inner guide doesn't cover the entire guide opening cut into the rim. The rim clip slips over the top edge of the rim to close up the gap between the inner guide and the cut out in the rim. Remove the clip when adjusting the guides.

Counter- V714 has an electron tube decade counter. V721 has a solid state digital counter with a blue panel. Both count up to 9999. Any number up to 9999 may be preset by the operator. Most V714 tube type counters were upgraded to the V721 counter. Set the counter knobs to the desired quantity, start the operation, and upon completion of the count, the counter automatically resets to -0000- and is ready to accept another series of counts. A reset pushbutton will zero out the count at any time. The counter connects into the power supply module with a 4 pin connector.

Control Panel- is mounted in the access door to the vibrator. It provides electrical controls to operate the turntable and vibrator feeder. Switches and variable auto-transformers provide DC voltage output to the turntable motor and the vibrator. The rear of the panel is covered to reduce the danger of electrical shock.

Power Supply Module- (PSM) must match the type of electronic counter being used. The V714 and V721 PSM both fit in the same location but are electrically different. If a V714 is upgraded by changing to a V721 type solid state counter, the PSM must also be replaced. It is located under (inside) the main channel frame. A meter, light intensity control and test pushbutton extend from the PSM through the main channel front for operator access. Power to the PSM comes from a cable with a 4 pin connector that connects from under the main channel. Behind the main channel there are two rectangular cut-outs that provide access to connector receptacles in the rear of the PSM. The counting head and electronic counter plug into these receptacles. The PSM supplies power to the photoelectric light source, head actuator coils, and electronic counter. The meter displays the photocell signal current. The lamp intensity adjustment controls the intensity of the light source aimed into the photocell. The test pushbutton applies a 120hz signal to the counter for test purposes. The V721 PSM has a plug-in solid state switch module that determines which filling station is selected by delivering the actuator coil voltage to the head. To remove the PSM disconnect the connecting plugs in the rear and side (115V power) and remove two screws on either side of the meter in front.

Bottle Table- a square phenolic composite shelf attached to the head support bar. It consists of a mounting assembly, and two bottle stop assemblies. The two-part mounting assembly clamps around the low vertical part of the support bar. Raise or lower the table

under the filling funnels according to the height of the bottles to be filled. Two bottle stop brackets are located on top of long slots and are attached by two thumb screws to a threaded plate below the slot. These stops move in/out in order to quickly locate the opening of the bottle under the funnel. They will work well with round and square bottles. Modified stops can be made to work with irregular shaped bottles.

Head Assembly- contains the tablet detecting photoelectric components, the diverting flag assembly, and filling funnels. It is located under the rim below the guide channel assembly. A cable plugs into the PSM through a cut-out in the back of the main support channel. The head can be adjusted in three directions, up-down, right-left, and in-out. It has several important components that must be in proper operating condition. These components and their conditions are:

* Funnel assembly- Four different size funnels drop into a funnel holding bracket. The bracket attaches underneath the head below the diverter flag area. Select the funnel size that accommodates both the tablet size and the bottle opening diameter.

* Light source assembly (photoelectric)- Must be focused and aimed into the photocell window on the opposite side of the head opening. A GE #10 incandescent lamp provides the light. It is delicate and must be mounted carefully into pin receptacles located in the lamp mounting base. A barrel containing a spring is threaded over the base and the lamp. The spring holds the lamp still inside the barrel. When the barrel is put over the lamp it must be threaded carefully. If the lamp is twisted the connection pins may break the glass envelope. The barrel fits inside a rectangular lens block that grips the barrel when an allen cap screw is tightened. The barrel should be adjusted and secured in the block so that the filament image is horizontal and focused on the photocell window. Keep the lens clean. Raise or lower the light source to change the distance between the detection beam and the edge of the diverter flag. Keep the light source level with and across from the photocell window. The light source cable plugs into one of two RCA type jacks under the center of the diverter head. The intensity of the lamp is controlled by the light intensity adjustment located next to the power supply meter on the front of the main channel.

* Photocell assembly- Across from the light source, it detects the shadow cast by a passing tablet through the light beam. Keep the plastic window over the photocell clean. The strength of the photoelectric signal is displayed on the power supply meter. When maximum light is cast on the photocell the meter indication is high. When the light intensity drops as happens when a tablet passes through the light beam, the meter indication drops. The photocell cable plugs into one of two RCA type jacks under the center of the diverter head, next to the light source jack. The photocell assembly can be raised or lowered which changes the distance from where a tablet is detected to the diverter flag operating area. This is essentially a timing adjustment and it is necessary to make it possible to separate the last tablet of a filled bottle from the first tablet of the next empty bottle. A detailed explanation of this adjustment is in a later section of this operating manual.

* Diverter assembly- Consists of the diverter flag, the actuator coil assembly and the related linkage. Two coils, located under the actuator coil cover are mounted so that their electromagnetic forces oppose one another. When a coil energizes it pulls a plate against the coil armature. Linkage connects this plate to the shaft of the diverter flag. When a bottle is filled the counter resets and sends a signal to the PSM to switch from one coil to the other, pulling the plate toward the energized coil, moving the diverter flag so that the tablet flow goes into the empty bottle. Adjustments include coil distance from the plate centerline and diverter flag alignment on the actuator linkage. The V721 power supply has a solid state switch module that controls the energizing voltage to these coils. If a coil fails to energize properly this switch module should be checked.

Head Location Adjustments: 3 adjustments- Hardware from under the support bar secures the head to the head support bar over 2 slotted holes. Move the head right or left below the tablet drop-off point at the end of the guide channel so that tablets fall directly

through the middle of the scanner beam. The scanner is always aligned with the centerline of the diverter flag. The support bar attaches to the main channel end plate. The plate is attached by 4 hex bolts through slotted holes. This plate and the head will move forward or back. Adjust the plate until the tablet flow drops and hits the diverter flag in the front half of the flag. Tablets should not hit the photocell housing. If they do move the head forward. The support bar fits in a slot machined into the end plate. Hardware fastens through a slot into the end plate. The bar can be raised or lowered within the limits of the slot. Raise the head until the light source is within 1/4 " of the bottom of the glass plate. In theory the lower the head location- the greater the tablet separation- the better the accuracy. However accuracy is affected more by tablets that drift off-center during the drop into the head than by separation so keep the head close to the underside of the glass where drift is smallest.

SET-UP PROCEDURE.....FROM THE BEGINNING

The machine main power, electronic counter and photoelectric light source should be 'on'.The vibrator feed and turntable motor are 'off'.

1. Close the hopper door and fill the hopper with product. Open the door enough to allow a manageable quantity of product to spill into the vibrator tray. When production begins, adjust the door to get a smooth, constant delivery of product into the tray.
2. Set up the guide channel with the appropriate guides- use the capsule guide and the capsule deflecting wire for capsules, caplets and most gel caps, or the tablet guide with the height guide for tablets.
3. Put two product samples on the glass turntable in the guide channel, one at the beginning and one at the end. Adjust the guide channel opening until it is only slightly wider than the product width. Adjust the height guide or capsule deflecting wire guide so that piggy-backed product is eliminated. Tablets should not stick in the guide channel because it isn't straight or is a little too tight for the product. Be sure the guide channel isn't so loose that tablets bounce from side to side as they move down the guide channel.
4. Two unusual guides are sometimes required.
 - a. The flow correcting guide attaches to the rim and places a small wedge shaped surface at the spot where the tablet drops off the glass. The wedge fills in the angle between the glass perimeter and a line perpendicular to the centerline axis of the guide channel. In other words the flow corrector provides a square edge from which the tablet drops. It can sometimes prevent a tablet or caplet from drifting off the centerline after it drops from the glass. It is a guide that is used when drifting occurs although it does not always solve the problem.
 - b. The tablet plow guide clips on to the tablet guide front top edge. It protrudes in front of the tablet guide and usually is curved in the direction of the incoming flow of product. The plow separates tablets as they approach the guide channel in a pile. The low pointed leading edge lets tablets climb up and over in an unscrambling action.
5. The deflector guide, mounted on the rim hub, should have enough spring tension to move the product to the outer edge of the turntable.
6. The guides extend through an opening in the rim that we call the rim cut-out. Tablets might fall through the opening. We supply a small 'rim clip' that slips over the top edge of the rim and will cover the opening.
7. Put the correct size funnels in the funnel holder. Generally you should use the largest size funnel possible for the size of the bottle opening.
8. Put two empty bottles under the filling stations. Adjust the bottle table location and the bottle stops so that the bottle opening is directly under the funnel.
9. The photoelectric light source should be aimed and focused on the photocell window. The photocell signal strength meter, located in the front of the main channel, should be set to 2 by adjusting the lamp intensity control to the right of the meter.
10. Put a small quantity of 30 tablets on the turntable. Set 30 in the preset count register of the electronic counter. Run the set-up quantity over and over as you make the other

adjustments. Each time the machine accurately counts 30 tablets the diverter flag will switch the flow to the other filling station. Set the turntable speed adjustment, located on the control door, for 5.

11. Turn on the turntable motor switch. The set-up quantity of tablets should move into the guide channel. Adjust the diverter and channel guides as required. As the tablets drop from the glass, they should pass directly through the center of the photoelectric beam. Adjust the head location as required. Tablets should hit the flag between the mid-point and the front. If not, adjust the head support bar forward or back.

12. Confirm that the machine has accurately counted the tablets over and over again. If so, increase the turntable speed until you begin to get a count error. Your ideal production rate will be about 10% lower than the speed at which the error occurred. 13. Set the vibrator rate to deliver tablets to the turntable at slightly less than the same rate as they leave the turntable.

Tablet Separation-Actuator timing:

Getting the last tablet in the correct bottle...

Because the photoelectric scanner is some distance above the diverter flag, tablets are detected a certain distance above the range of movement for the flag. Therefore several milliseconds must pass before the flag moves. If the last tablet of a count passed through the scanner causing an immediate movement of the diverter flag, that last tablet would not go in the correct bottle. A factor involved in this action is slow actuator mechanical movement. There is a time lag in the mechanical function of the diverter flag mechanism. The following description of an adjustment will resolve this uncertain action. Keep in mind that

- * all tablets fall at the same rate (law of gravity). Once you make this adjustment it should work with all products.
- * when you move the photocell assembly up/down, you must re-aim the light source into the photocell window.
- * there is more space between falling tablets than you can see with your eye.

The photocell assembly can be moved up or down. If you move it up it will be farther from the diverter flag range of movement, and visa versa. An increase of distance equals an increase in time for the tablet to move from the point of detection into the flag range. There are two techniques for making the adjustment.

- * Set the turntable speed at '5'.
- * Set a count of 1 in the counter preset. Raise the photocell to the highest position. Count one tablet. As it passes through the head it should be detected and counted which will immediately make the diverting flag change stations. The change will probably happen before the tablet gets within the flag range, and therefore it will go into the wrong bottle. Continue to count the single tablet and lower the photocell until the tablet goes into the correct bottle. If the tablet gets hit by the flag so that it flies out of the head, the tablet is getting hit by the top edge of the flag. Lower the photocell assembly a little more so that the tablet gets thoroughly into the flag range.
- * Set a count of 4 in the counter preset. Keep the photocell where it is. Line up 7 tablets in the guide channel one after the other and as the glass turns hold back the tablets so that then don't drop off the glass. When you release the tablets they should be detected, counted and the flag should separate the 4th tablet into the filled bottle and the 5th tablet into the empty bottle. If the 4th tablet is diverted into the empty bottle lower the photocell. If the 5th follows the 4th into the filled bottle raise the photocell.

Assorted Tips and FYI tidbits:

- * If the glass gets jammed and fails to rotate but the hub continues to turn, the glass hold-down ring nut will back itself off the glass. The glass will then be loose. This often happens when product gets stuck between a guide and the glass or between the glass edge and the rim (improper adjustments). You can apply a small amount of rubber cement to the glass support plate. This will attach the glass to the plate. The plate is always positively

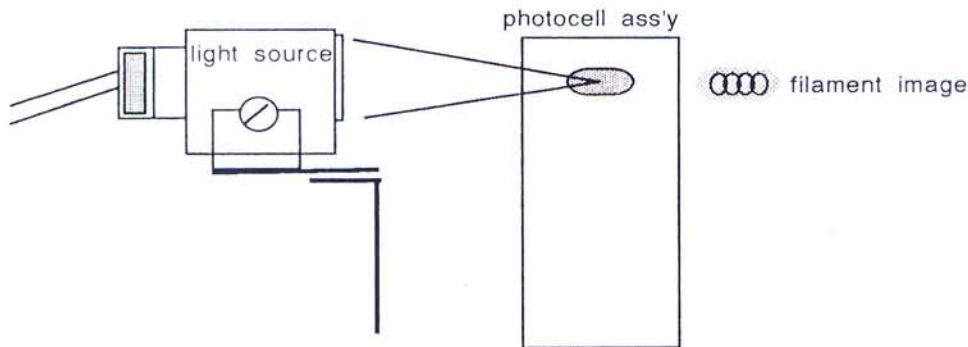
driven because of the pin in the hub that engages the plate. This will prevent the glass from slipping. If the glass is replaced, the plate can be pried off and be reused because the rubber cement is not permanent.

- * The glass hold-down ring nut should only be hand tightened.
- * The glass and the support plate should be clean so they mate as flat as possible.
- * Always be sure the slot in the plate lines up with the pin in the hub.
- * You can use plexiglas (polycarbonate) in place of the glass plate however it will not be as flat and it will scratch easier. We recommend the glass as a better surface.
- * The small capacitor found on the motor mounting board between the outer terminals is not absolutely necessary. You can operate without it.
- * The #12 lamp is very similar to the #10. It is not a good substitute because you can not adjust the power supply meter to #2. Do not use a #12 lamp.
- * The rim alignment fork and plate are a matched set. If the rim is put on a different machine the fork may not match the clip.
- * The RAE motor is no longer available. We can supply a Bodine motor and this requires a new motor cover as well. RAE motor brushes are still available. If the motor brush is not replaced before it wears down to it's mounting fitting, the motor armature may be damaged. We can replace the RAE armature.
- * The initials PSM mean 'power supply module'.
- * If the counter resets to zero but the head diverter fails to change sides, the plug-in switch module in the V721 PSM is suspect.
- * The V721 solid state counter is currently replaced by the new AD835, DC3 type counter which is used on the new Pharmafill TC1 and 2.
- * The V721 PSM is designated AD571.
- * If the entire V714/721 is shipped, the vibrator must be firmly secured. Otherwise it will bend the standard brackets and the loose vibrator will damage the enclosure.
- * If the PSM is replaced, be sure the wires going to the motor, inside the channel, are not squeezed under(over) the sheet metal edge of the PSM.
- * The main line fuse value for the machine is 2 Amps.
- * If the guide assembly is replaced with the newest type 'always centered' guides, the head mounting bracket slots must be elongated 1/2" toward the motor. With this guide improvement it will not be necessary to move the head R/L when the guide width is changed.

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Tips for trouble shooting the Versacount models 714 and 721 photoelectric counting circuit

Explanation: How does it work when everything is right?



There is a light source assembly mounted at the rear of the counting head and a photocell assembly across from the light source, in the front of the head. The lamp in the light source projects a beam of light through a lens. The image of the lamp filament is condensed and focused by the lens. The light source main block can be mechanically adjusted (by loosening screws) so that the filament image can be aimed directly into a small oval 'window' found in the top front of the photocell assembly. The photocell is behind this window. The intensity of the light is controlled by a potentiometer adjustment located next to the meter, in the power supply located in the main channel of the machine. The meter shows the signal strength of the photocell. When the photocell receives a high level of light the meter indicates low. When the light is blocked and light intensity on the cell is less, the meter indication increases. Whenever the photocell signal decreases by a certain amount, a count registers on the electronic counter. What usually makes the photocell signal decrease is the passing of a tablet or capsule between the light source and the photocell. As the tablet passes through the light beam, a shadow from the tablet is cast on the photocell. The shadow passes and is followed by a bright light. So long as there is a shadow followed by a bright light the counter will register counts. If you operate the machine at too high a speed there is too little time between tablets for the bright light to return and you get miscounts. Generally speaking though, the photoelectric counting circuit is counting individual shadows of tablets that are passing through the beam of light.

What can go wrong? The lamp must be 'on' and must be aimed into the photocell window. The window must be clean. Both the light source and the photocell assembly plug into connectors that are located underneath the head assembly. Be sure the connections are good. If the lamp is not bright, increase the potentiometer (pot) setting at the power supply.

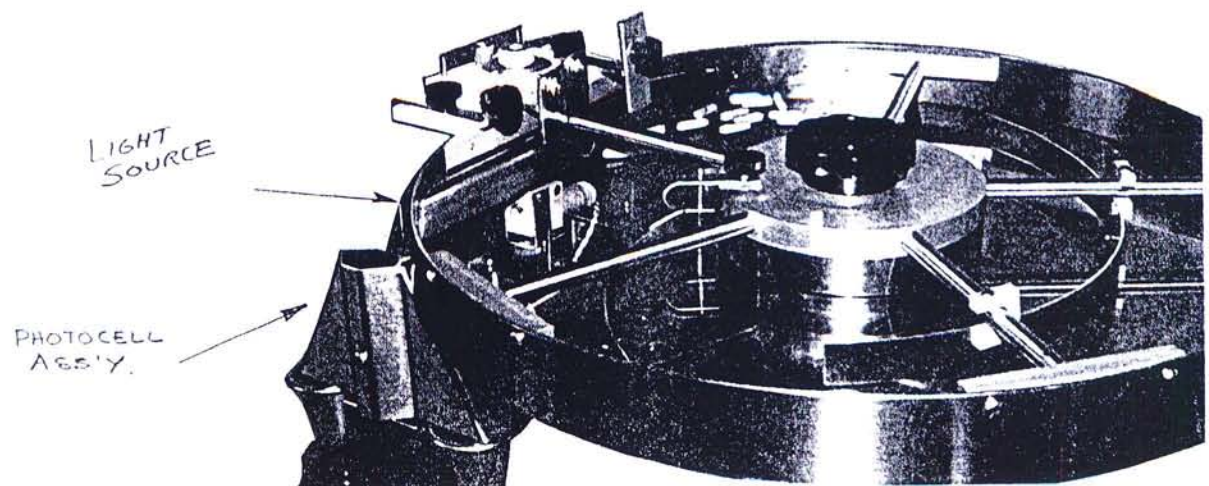
Check the meter. It should read at least 1 at the brightest level. Pass something through the light beam and see if the meter indication changes. Does the counter operate correctly? Are the numbers lighted? Push the 'test' button next to the meter on the power supply to make the counter count. When the counter reaches the preset number does it reset to -0-?

Trouble shooting procedure: assuming that the counter is not counting....

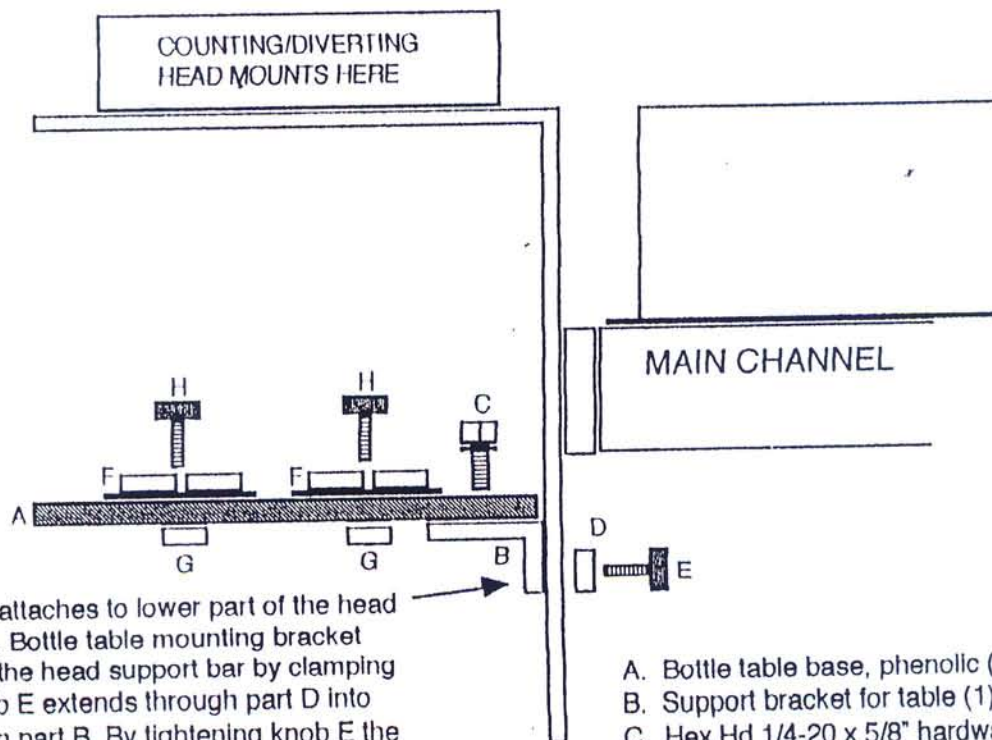
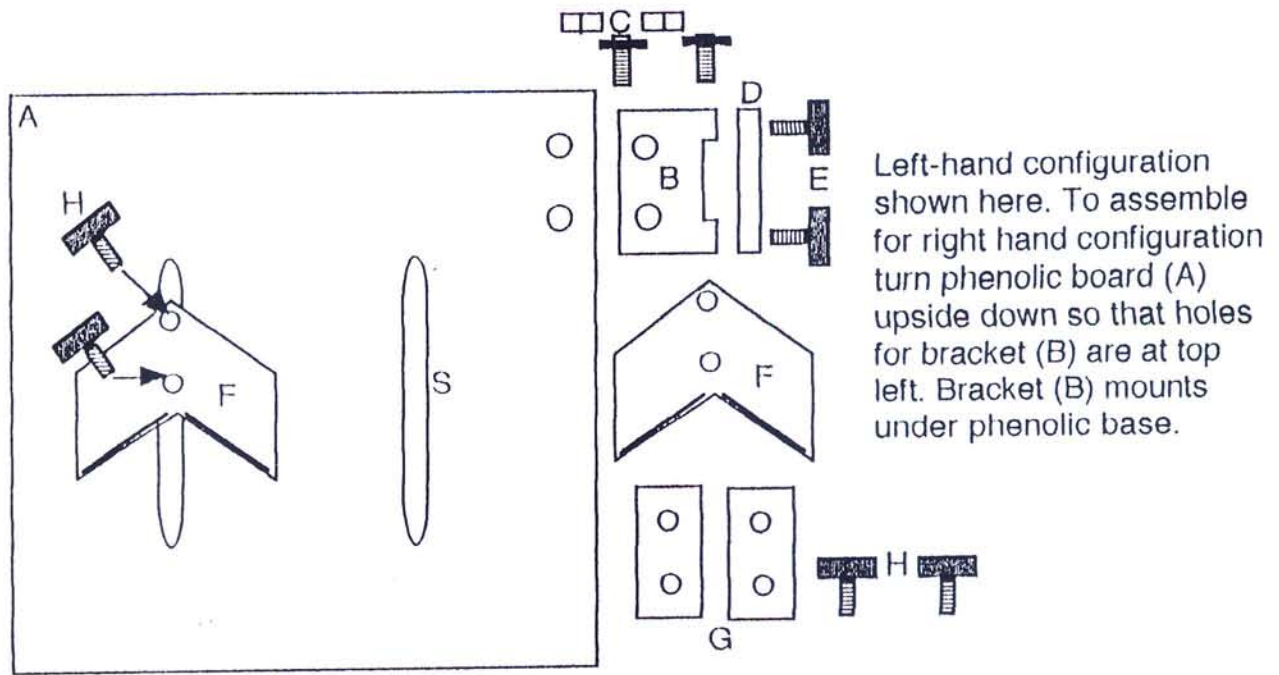
1. With power on, are the counter digits lighted? If not, check the main power fuse. Check to see if the counter is correctly plugged into the power supply. See if the power supply, power cable is connected to the power supply (under the main channel).
2. If the counter digits are lighted, push the counter test button located on the power supply. Does the counter count? If not I would suspect that the electronic counter is bad and should be sent for repair.
3. If the test button makes the counter count, go to the counting head and pass your finger through the light beam. If the photocell circuit detects your finger and a count is registered, than the head and counter are working. If not, check to see if the lamp in the light source is on (the light intensity pot should be turned to maximum). If not, check to see if it is broken, burned out, or if the light source connection is bad. Check the head connector that plugs into the power supply. Wiggle the connector while it is plugged in and see if the lamp lights. If the light will not go on and the lamp is good and the connections are good, the power supply may be the problem.
4. If the lamp is lighted, be sure it is focused and aimed at the photocell window. If not make the necessary adjustments. When the lamp is at full intensity the meter will indicate -1- or less. If you can't get a meter indication as low as at least -2-, but the meter does indicate something, be sure the lens and window are clean. One uncommon, but possible problem, can be when the photocell moves out of position inside the photocell enclosure or suffers from contamination. Remove the photocell assembly from the head cover. Remove the photocell block from the rear of it's sheetmetal support (contains the 'window'). This will allow you to examine the photocell. The photocell window can be replaced if necessary.

Hopefully I have covered every possible reason why the head may not count. We have everything necessary to get a V714 or V721 working again. The original counter is obsolete and the replacement is the AD835, also known as a DC3 conversion.

Jim Deitz



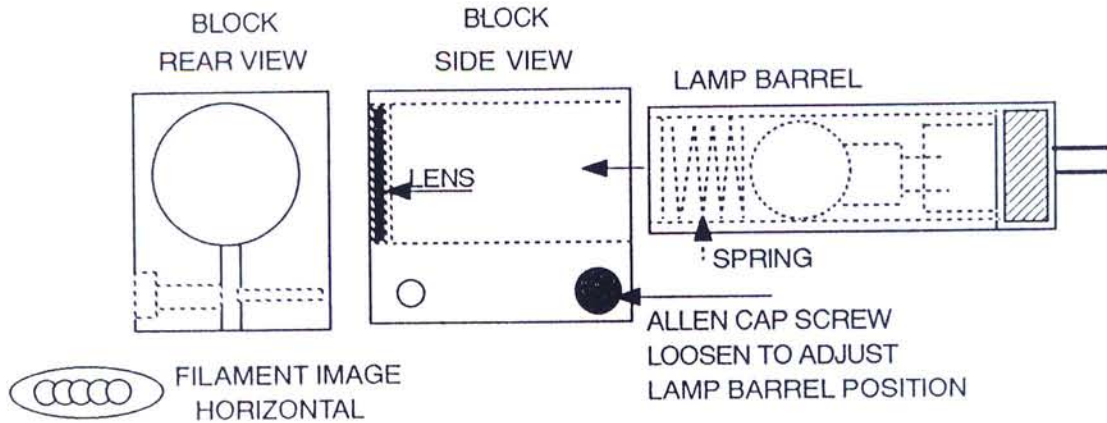
BOTTLE TABLE ASSEMBLY VERSACOUNT 714 AND 721



Bottle table attaches to lower part of the head support bar. Bottle table mounting bracket attaches to the head support bar by clamping action. Knob E extends through part D into the thread in part B. By tightening knob E the clamp action tightens. Loosen clamp to raise or lower table to accommodate different size bottles.

- A. Bottle table base, phenolic (1)
- B. Support bracket for table (1)
- C. Hex Hd 1/4-20 x 5/8" hardware (2)
- D. Clamp block for support brkt. (1)
- E. Knob, threaded 1/4-20 for clamp (2)
- F. Bottle locating wedge aka 'butterfly' (2)
- G. Clamp block for wedge (2)
- H. Knob, threaded, tightens wedge (4)
- S. Slot, to provide adjustment for wedge

MODEL 714 AND 721 LAMP ASSEMBLY INFORMATION



The lamp assembly must be focused, adjusted, and aimed into the photocell housing window. To focus, loosen the allen cap screw depicted above, and move the lamp barrel in or out from the lens inside the block. The lamp is focused when you see the coils of the filament projected on a piece of white paper placed in front of the photocell window. At the same time adjust the axis of the filament image until it is horizontal. There will be a halo of light around the filament image which is normal. To replace the lamp, unscrew the knurled rear section of the lamp barrel. The lamp fits into the base by pushing it's two pins into receptacles. The lamp is fragile and care must be taken when screwing the base back into the barrel. An internal spring keeps the lamp tight in the base. If the spring holds the lamp too tightly while screwing in the base the lamp will break. The spring must be loose and not stuck into position.



For greatest accuracy we find that the light intensity should be adjusted for a -2- indication on the power supply meter. When the light intensity potentiometer is fully CW the meter should indicate -1- or less. If not, check to be sure the light is aimed into the photocell window, the window is clean, the lamp is focused, and the lamp lens is clean. If you find that you can't adjust to a setting higher than -1-, there is a possibility you have the wrong lamp installed. The correct lamp is a #10. A #12 will appear to work but is in fact too bright and can't be dimmed enough.

Glass turntable- This machine originally came with a lime glass disc cut to a 15.97" diameter. This glass is exceptionally flat and strong. It is not inclined to chip or scratch. Some machines have been seen with plexiglass or inferior glass turntables. This explanation serves to inform the user about the type of glass that was originally supplied with the Versacount machine.

Glass Support Disc- Oldest machines have the black bakelite support disc cemented to the glass. In some cases the cemented disc contributed to the cracking of the glass. Later machines use the black disc under the glass without attaching to the disc in any way. The current model has the black disc rubber cemented to the glass to keep slip to a minimum but also making it possible to remove the black disc if necessary. Before putting the glass on the black disc be certain there is no debris on the disc which will prevent the glass from being other than level.

A thin **plastic washer** is used between the top of the glass and the knurled ring nut that holds the glass down. The ring nut should be hand tight.

Left vs right-hand machine- The Models 714 and 721 were manufactured as left-hand and right-hand machines. A RH machine has the hopper to the left and product flow is to the right. A Left is the opposite.

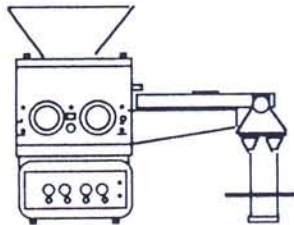
The vibrator cannot be turned on if the motor switch is off. This helps to prevent turntable overloading.

Page 4 Counter- Information on counters refers only to the old 714 machine electron-tube counter. Solid state 721 type counter requires no warm-up and readout is by numerical LED display.

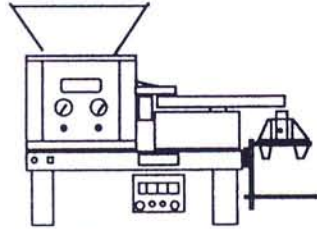
Page 5 Power Supply Module- The power supply module for the 714 machine will not accept a 721 or 741 type counter. To accept a newer counter you must upgrade to a 721 type power module.

The meter reads higher when the lamp intensity is lower and visa-versa. You must have the lamp image focused and aimed into the sensor window.

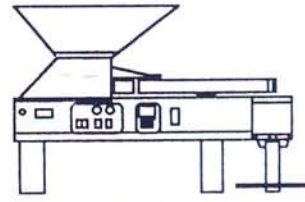
PARTS/SERVICE INFORMATION FOR VERSACOUNT MODEL 711-714-721-741



MODEL 711



MODEL 714 & 721



MODEL 741 AND TC1

The first Versacount[™] tablet counting machine was sold by Production Equipment Inc (PEI) in the mid 60's. The registered trademark 'Versacount' is the property of PEI or Hypak Industries Inc. References to the trademark 'Versacount' are for the purpose of describing that particular machine and model. Deitz Co is not associated with the trademark VERSACOUNT. **Deitz Co trades under the tradename PHARMAFILL.**

The first run of machines was designated Model 711 followed by Models 714, 721, and 741. Approximately 2000 machines were produced. Some Model 711 machines are still in use. The largest model quantity was the 721. Models 714, 721, and 741 were made as either right-hand (721R) or left-hand (721L) and had either a 16" or a 20" diameter rim (721R-20). A right-hand machine has it's counting head on the right end of the machine. Product flow direction is from left to right. Glass turns CW. A left-hand machine is visa-versa. Certain model 714 machines have letter suffixes other than L/R. We are not sure of the significance of these letters. Versacount machines are often incorporated into automatic filling operations. These machines have unusual attachments that are not addressed in this instruction.

How to identify the various models.

Model 711 consisted of a large square enclosure (no doors)that contained the electrical components and the vibrator feed assembly. The top and bottom of the enclosure was made of cast aluminum and was normally painted grey or green. A hopper nested in the top opening. A stainless steel fabrication extended from the enclosure to support the motor assembly, the glass disc, rim, head, and bottle table. The electronic counter was a large, electron tube (nixie-tube) design. The rim had 6 spokes and the tablet guide set-up was found only on 6 spoke rims. The photocell enclosure was round and attached to the front of the counting head.

Model 714 consisted of a similar square enclosure except the top and bottom were made of brown phenolic. The hopper nested in an opening in the top. Stainless steel front and rear panels (doors) could be opened for access to the vibrator and electrical wiring. The enclosure was mounted on top of a painted steel base channel. The support legs were also painted steel. A power supply was mounted in (under) the base channel. A motor assembly was mounted at one end of the base, covered by a stainless steel enclosure. The glass turntable and rim were mounted above the motor enclosure. The counting head and bottle table attached to an aluminum head/table support bar at the end of the base channel. The 714 used the same electron-tube counter as the 711, suspended under the base channel. Early model 714's used the same 6 spoke rim as the 711. At a later date, a 5 spoke rim was used. The first 714's also used the 711 type of photocell mount on the counting head. The was changed to a rectangular enclosure that was fit into a new head design.

Model 721 was almost identical to the 714. The painted base channel and legs were replaced by stainless steel fabrications. The electron tube counter was replaced by a small solid state unit that measured 4" X 6.5" and had a blue panel. Rotary switches preset the count number. The 721 power supply, located under the base channel, was larger than that in the 714. All 721 rims were the 5 spoke design. The 714 and 721 hoppers were the same.

Model 741 was a major design change. A stainless steel enclosure runs the length of the machine. The vibrator feed, the motor drive assembly, all electrical and electronic assemblies and control components are in this enclosure. A hinged front and rear door allow easy access to the inside of the machine. The counting head is at one end of the front panel and is not adjustable. It is hinged so that it can be opened for service. The hopper assembly is designed to be self supporting and is situated over the vibrator feed pan. Few 741 parts are common to the other models. A **PHARMAFILL TC1**, manufactured and sold by Deitz Co. is almost identical to the Versacount Model 741.

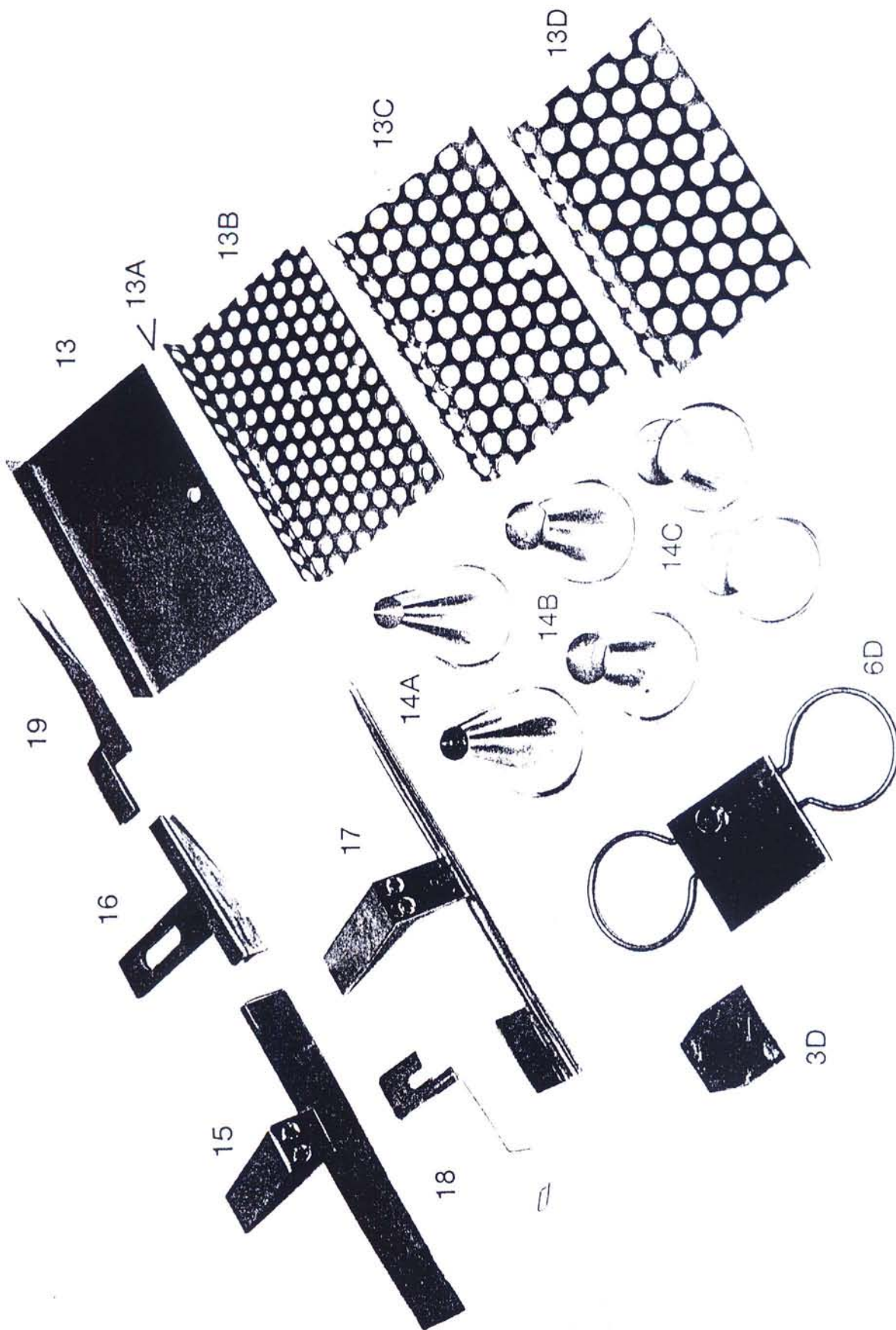
Many changes have occurred to the 741 and TC1 over the past 5 years that should be noted. You may have an early model 741 or TC1 that would benefit from one of these modifications.

- * The RAE gearmotor is replaced by a Bodine gearmotor. The RAE motor sometimes caused the motor speed-control circuit to fail. When replaced by the Bodine the problem was solved.

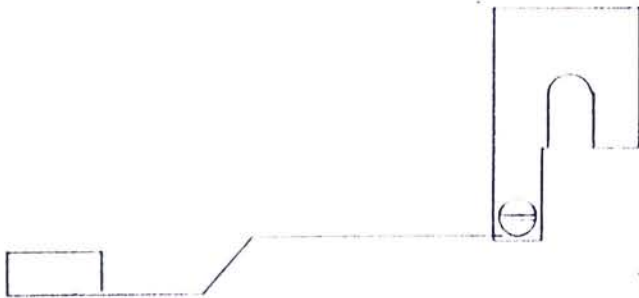
- * The original glass support hub and post was a bronze bearing assembly. We redesigned the hub and post to use ball bearings. We increased the top speed of the glass turntable by using a 24 tooth motor sprocket. When the sprocket size is changed the chain length also changes.

- * The latest model TC1 has replaced the chain and sprockets with a gear belt drive assembly for smoother and quieter operations.

COMPLETE SET OF CHANGE PARTS

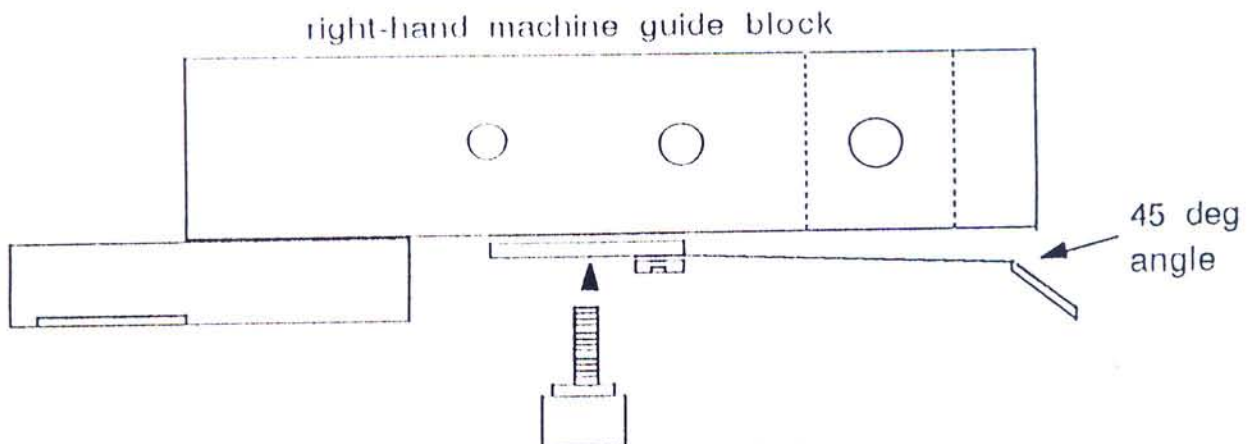


Instructions for the use of the capsule 'kick-out' wire on Versacount model 721

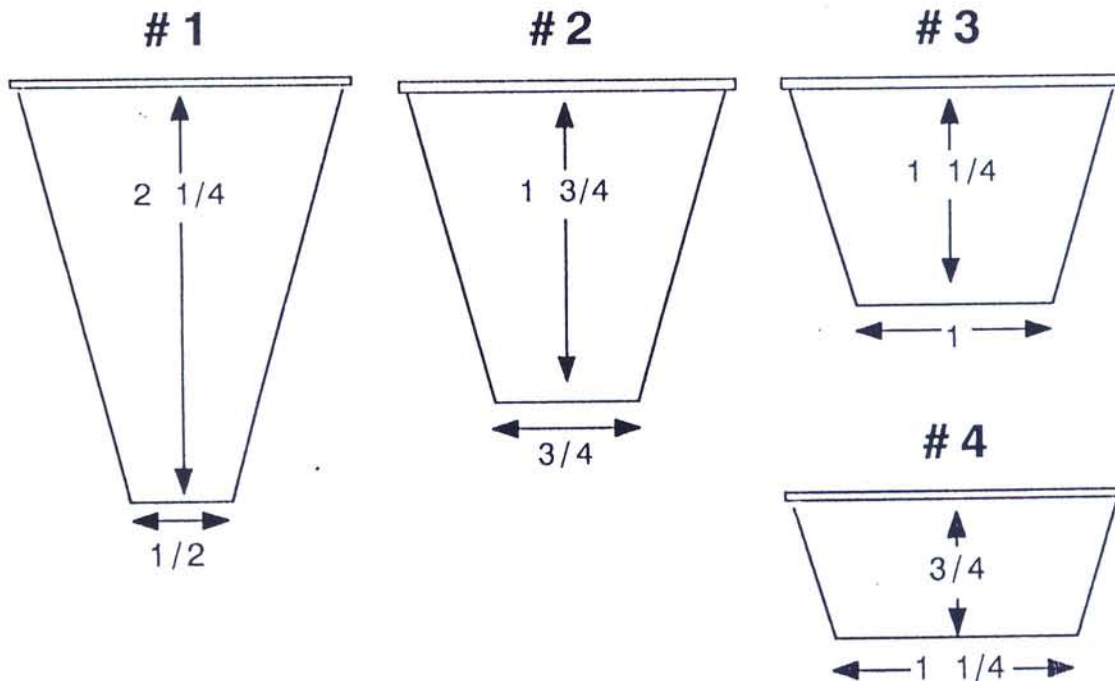


This guide provides a simple method of rejecting the upper capsule when a 'piggy-back' capsule moves down the guide channel. In order to have an opening through which the rejected capsule will pass, it must be used with the capsule guide. The original design had the stainless steel wire soldered to the sheetmetal bracket. When the wire broke off the bracket there was nothing that could be easily done to reattach the wire. We now make the guide with a screw-on wire. The wire can be replaced if it fails.

When you receive the guide you may need to reverse the wire to the other side of the bracket of the type of machine you are using (right or left-hand model) You should bend the wire to accomplish the necessary task. The reason why a thin stainless steel wire is used is because it has springy characteristics and will move away from a heavy load. This will help prevent blockages. Try to keep the wire from touching the inner or outer guide surfaces which will reduce the springy quality. You will also need to bend the end paddle (rectangular wire shape) to a 45 degree angle so that 'piggy-back' capsules are moved out of the channel back toward the center of the rim.



There are four standard sizes of stainless steel funnels for all models of the Versacount and Pharmafill tablet counting machines. Funnels are usually ordered in pairs but can be ordered in single units.



Dimensions are approximate

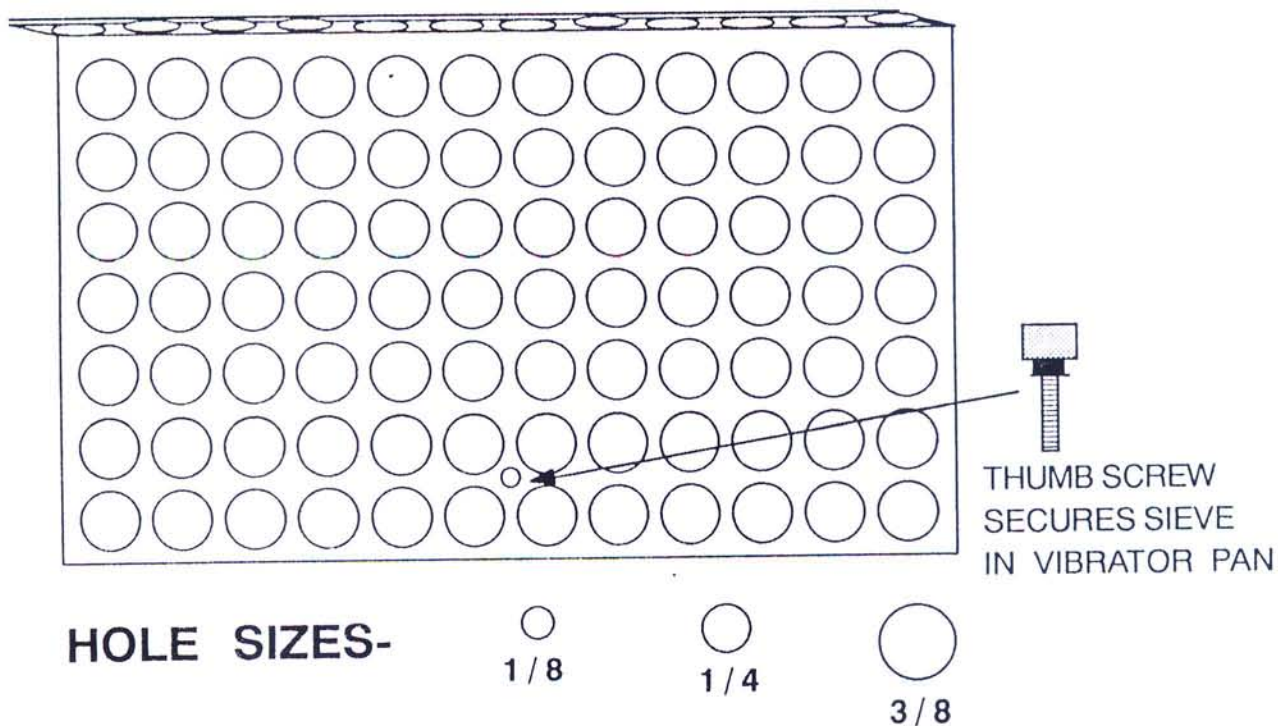
Funnels are polished and cleaned by us however I recommend that you clean the funnels more thoroughly prior to use.

1994 Price- \$12.00 each or \$22.50/pair.

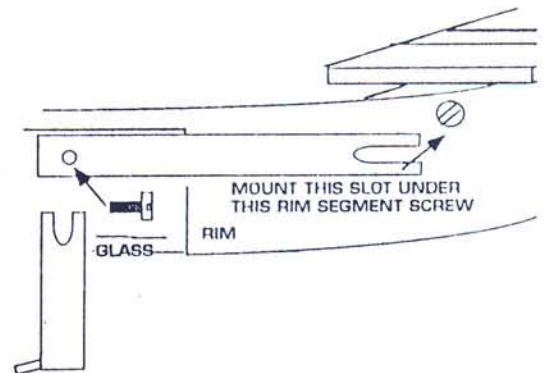
JAN 94

These plates are known as chip sieves or dust screens. They are used as part of the vibrator pan assembly. When a sieve is not used, a solid plate is placed where the sieve would normally go. The sieve is designed to allow dust and broken pieces of product to drop into a dust cup located under the sieve area of the vibrator pan. In order to work properly the product should not pile up too deeply on top of the sieve. Try to keep the product accumulation over the sieve to one or two levels deep. Adjust the hopper door opening to keep the product flow through the vibrator pan, under control. The chip sieve may slight bending to prevent vibration noise and to keep the product moving in the correct direction.

Chip sieves for the Versacount Models 714 and 721 come with holes that are 1/8", 1/4", and 3/8". These sieves will not fit a Model 741.



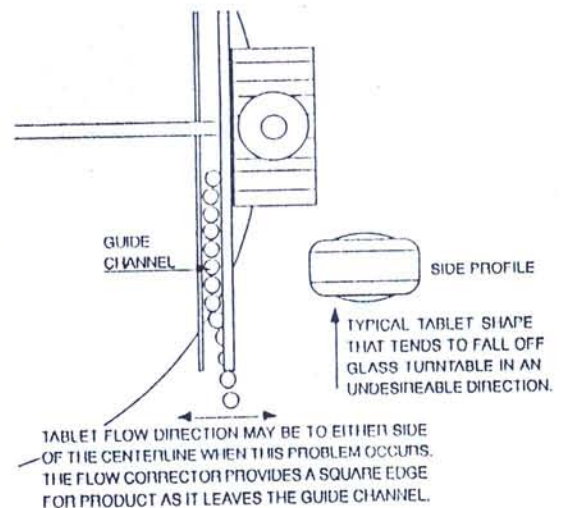
The flow corrector (FC) is a two part sheetmetal fabrication that attaches to the rim. It's purpose is to fill in the wedge shaped opening at the point where the product drops from the edge of the glass turntable after passing through the guide channel.



Product passes through the guide channel, drops from the edge of the glass turntable through the beam of the photoelectric scanner, where it is counted. It is important that the product drop straight down after leaving the glass.

Certain product shapes present a problem accomplishing this task. This is because the edge of the glass is not perpendicular to the direction of product travel down the guide channel. As the product leaves the glass it falls off with a change in direction to one side.

Our solution for this problem is to fill in the wedge shaped gap between the edge of the glass and a perpendicular line between the guide surfaces. This gives the product a 'square' edge from which to fall through the scanner beam.

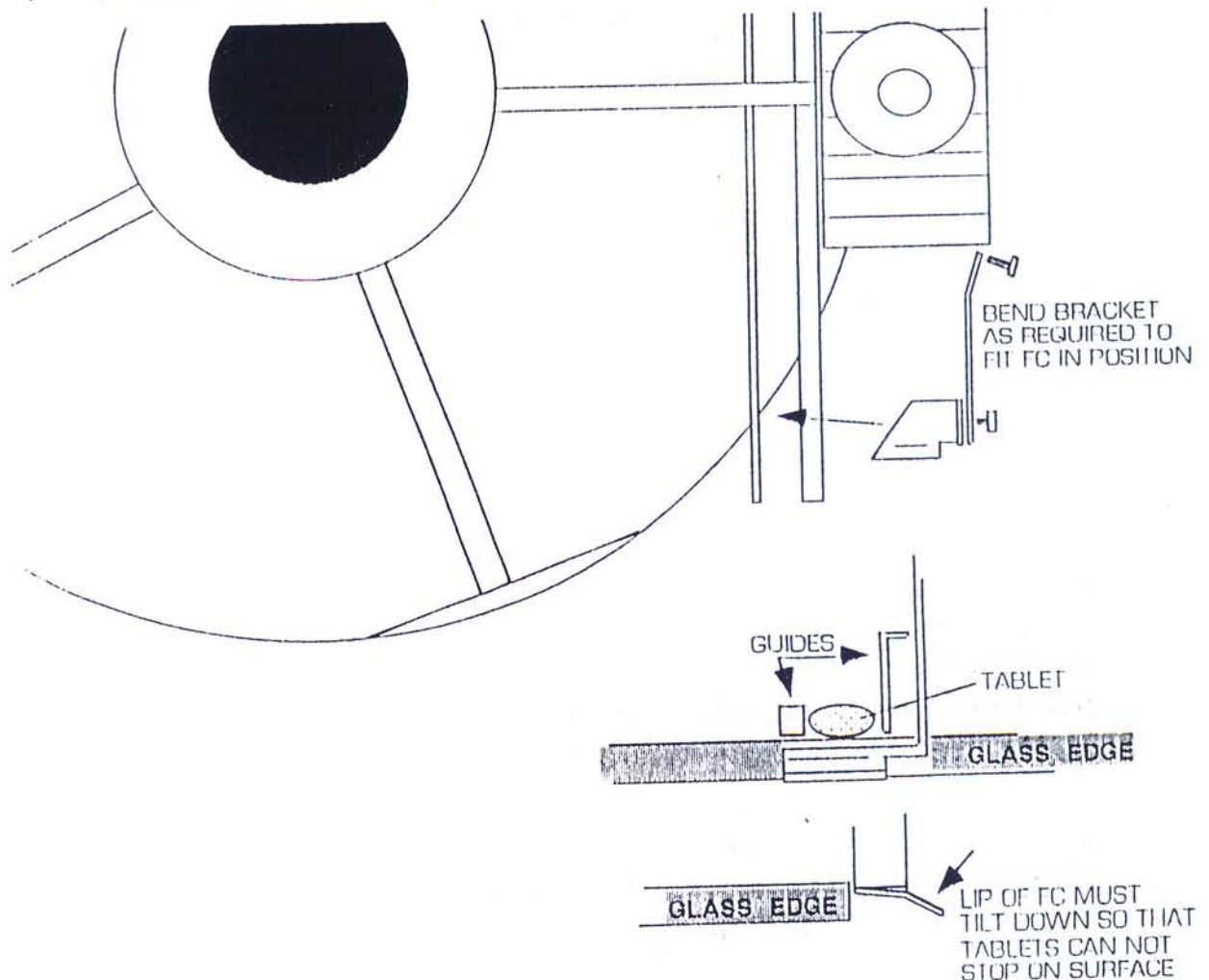


The upper part of the FC is called the 'bracket' and it's function is to hold the actual flow correcting attachment in position. It is slightly curved, has a slot at one end, and a threaded hole with a screw in the other end. The slotted end is installed under the head of the rim segment screw closest to the end of the guides. This screw is located under the guide support plate. The curve should direct the hole end away from the rim. You can expect to bend this part, move the slot more or less under the segment screw head and tilt the bracket up or down as required to position the FC in the correct spot along side the glass, under the ends of the guide channel.

The other part of this assembly is actually the 'flow corrector'. There are different shaped FC's for left-hand and right-hand machines. It has a slot at the top end and a bent wedge shape at the other end. The slotted end goes under the head of the screw in the bracket. The other end must be positioned precisely as follows:

- * the edge of the FC that locates along the perimeter of the glass edge should be about 1/16th below the top surface of the glass. As product leaves the glass it must not be stopped or slowed down by the FC.
- * the edge from which product drops off is bent down so that product does not have a tendency to stop on the surface. It is advisable to slightly tilt the FC so that the entire surface touched by the product is angled slightly down.
- * The product should leave the glass surface and very briefly touch the FC surface as it drops. This brief touch is usually enough to assure that the tablet or caplet will fall straight down.
- * The count speed will fall slightly when the FC is used.

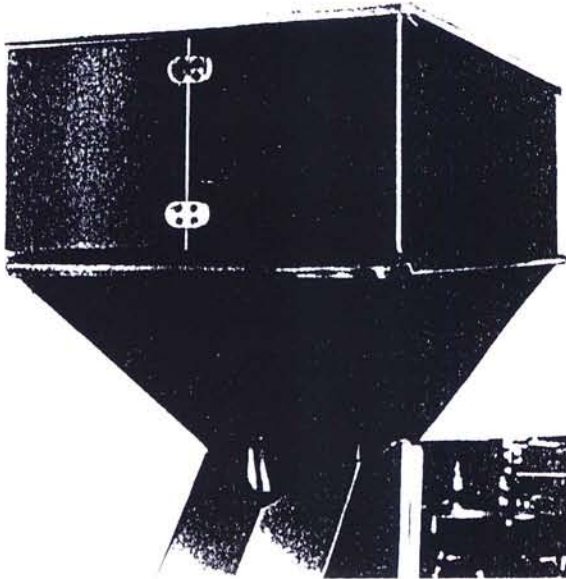
The FC does not need to be used with many types of product. It will slow down the count slightly so I recommend that it is used only when necessary to keep odd shaped products from drifting to the side.



PHARMAFILL

BOTTLE FILLING AND HANDLING EQUIPMENT

**HOPPER EXTENSIONS FOR
PHARMAFILL AND VERSACOUNT®
TABLET COUNTING MACHINES**



You can more than double the capacity of the standard hopper on all Pharmafill and Versacount tablet counting/bottle filling machines. These extensions 'nest' on top of the hopper with no fasteners required.

Extension hopper nominal dimensions are 12" x 16" x 6" which is 1150 cu. inches. The extension for the older Versacount 714/721 is not interchangeable with the newer 741, TC1 and TC2 extension.

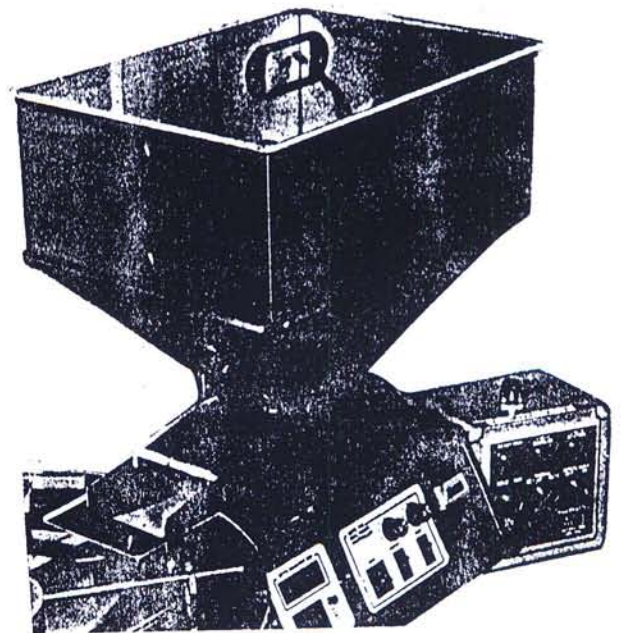
FMA2400-1 extension fits Versacount models 714 and 721.

FMA2400-2 extension fits Pharmafill models TC1, TC2 and Versacount 741.

Hopper covers are also available. These covers are made from 1/4" thick clear lexan plastic. A handle is mounted in the middle of the cover. These covers fit on top of the standard hopper and/or the hopper extension.

Cover AD892-1 fits the Versacount 714 and 721.

Cover AD892-2 fits the Versacount 741 and the Pharmafill TC1 and TC2.



CURRENT PRICES DATE-

ALL HOPPER
EXTENSIONS-

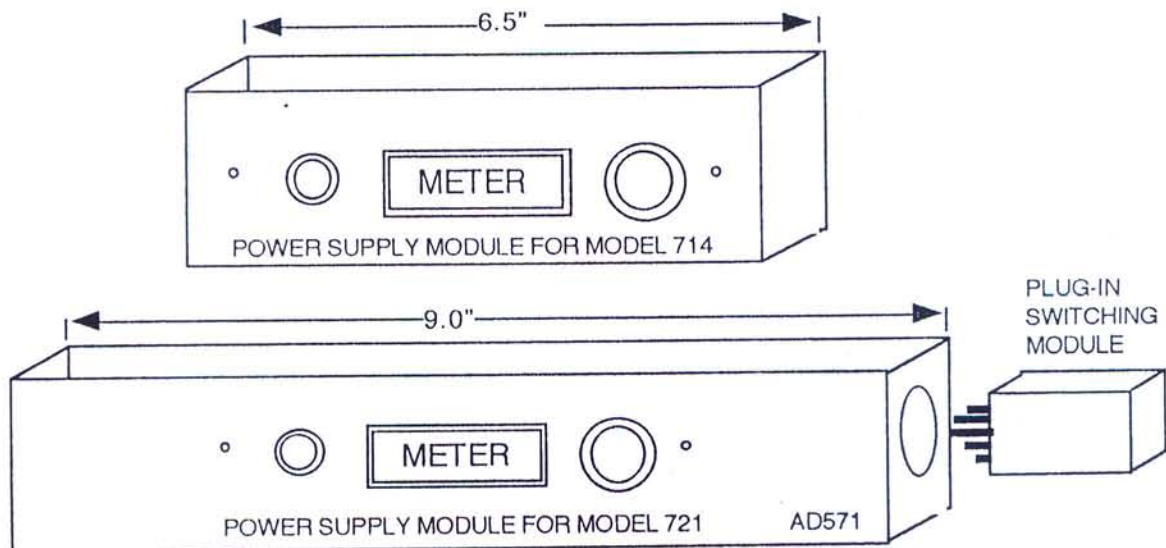
ALL HOPPER
COVERS-

® VERSACOUNT IS A REGISTERED TRADEMARK OF
PRODUCTION EQUIPMENT AND/OR HYPAK INDUSTRIES

MANUFACTURED BY DEITZ COMPANY INC, ROUTE 34, WALL, NJ. 07719 (908)681-0200

This information applies to Versacount tablet counting machines Models 714 and 721 that are being converted to use the new AD835 solid state electronic counter Model DC3.

The Model 714 electronic counter was a large, brown, electron tube assembly that plugged into a power supply module (PSM) with one transformer, located under the main support channel of the machine. The Model 721 electronic counter was a small, solid state assembly with a blue panel, that plugged into a PSM, AD571, with two transformers that was approximately 2.5" longer than that of the Model 714. The Model 721 PSM can be installed in place of the Model 714 PSM with no difficulty. Because the old electron tube counter could not be serviced after a certain date, many old Model 714 machines were upgraded to use the Model 721 type electronic counter. When a Model 721 type electronic counter was retrofitted to a Model 714, the AD571 PSM was also required. The AD571 PSM includes the AD426, an 8 pin, plug-in, solid-state switching module or 'flip-flop module'. In certain cases it was necessary to make a wiring change to the counting head electric solenoids as part of the Model 714 modifications to accept the Model 721 type counter and AD571 PSM. There are two versions of the Model 714 head and the earlier version wiring will not match the AD571 PSM.



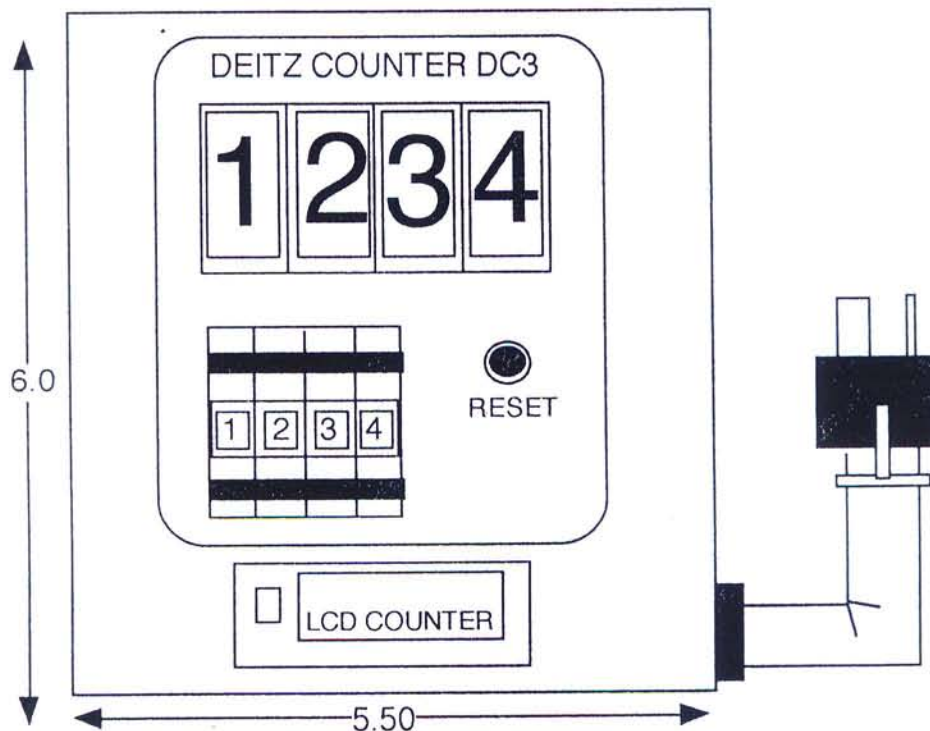
PSM units are installed under the main channel so that the meter and two adjusting functions extend through the rectangular opening in the side of the main channel. There are two screw holes at each side of the main channel cut-out that align with the threaded holes in the PSM. When installing the new PSM you must be sure that the main channel wiring is not pinched between the PSM edge and the main channel inside surface. Reconnect all cables to the PSM connection fittings (3 total). When ordering you must provide the complete model number or specify if the head at the right or left end of the machine.

AD571 Power supply module w/switch module included-
AD426 Plug-in switch module as replacement part-
AD835 Solid-state electronic counter package-
Modification of head wiring for certain retrofits-

TECHNICAL DATA AD835 ELECTRONIC COUNTER RETROFIT FOR VERSACOUNT

This information applies to Versacount tablet counting machines Models 714 and 721 that are being converted to use the new solid state electronic counter Model DC3. The designation of the complete electronic counter package is AD835. The AD835 will replace the older AD570 solid state counter on a Versacount Model 721 directly without other changes. For a Model 714 conversion it may be necessary to also replace the power supply module (PSM) and rewire the counting head.

The DEITZ DC3 electronic counter is a small, solid state, four digit, presettable, resettable, panel mounted assembly originally designed for use on the Pharmafill Model TC1 tablet counting machine. This counter is more reliable than any of the previous model counters. The preset number switch assembly is a dust free closed assembly that does not suffer from the problems experienced with open switch construction. The red LED display is bright and big enough to be seen easily. A special interconnection circuit board is added to the basic DC3 to make it compatible with the old Versacount machines. The DC3 is mounted in an all stainless steel enclosure with a front panel mounted LCD totalizing counter. Each time the counting head actuates, the LCD totalizer increases by one unit. This will provide a running count of the number of bottles filled. The cable from the DC3 enclosure connects to the same fitting in the back of the AD571 PSM as did the old AD570 electronic counter.



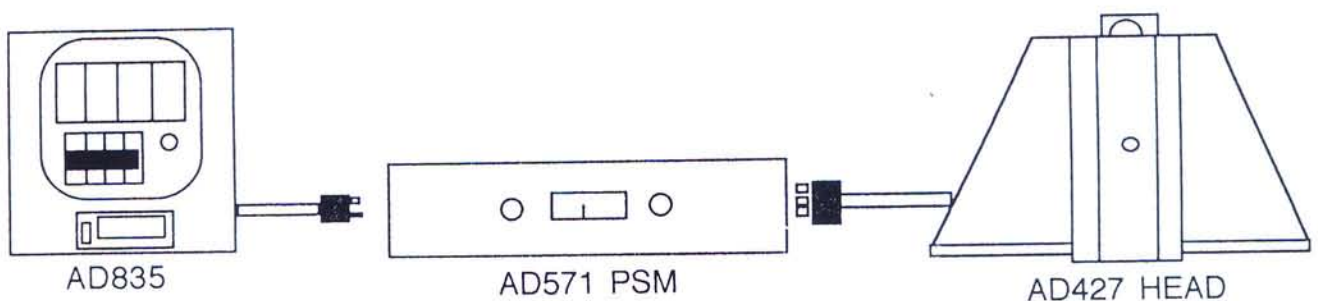
1996 Prices: The AD835 price is \$ If the power supply module must be replaced the AD571 PSM price is \$ The AD426 switch module is included with the AD571 price. If the counting head needs a wiring modification the price is \$60. Look for more information on the AD571 data sheet.

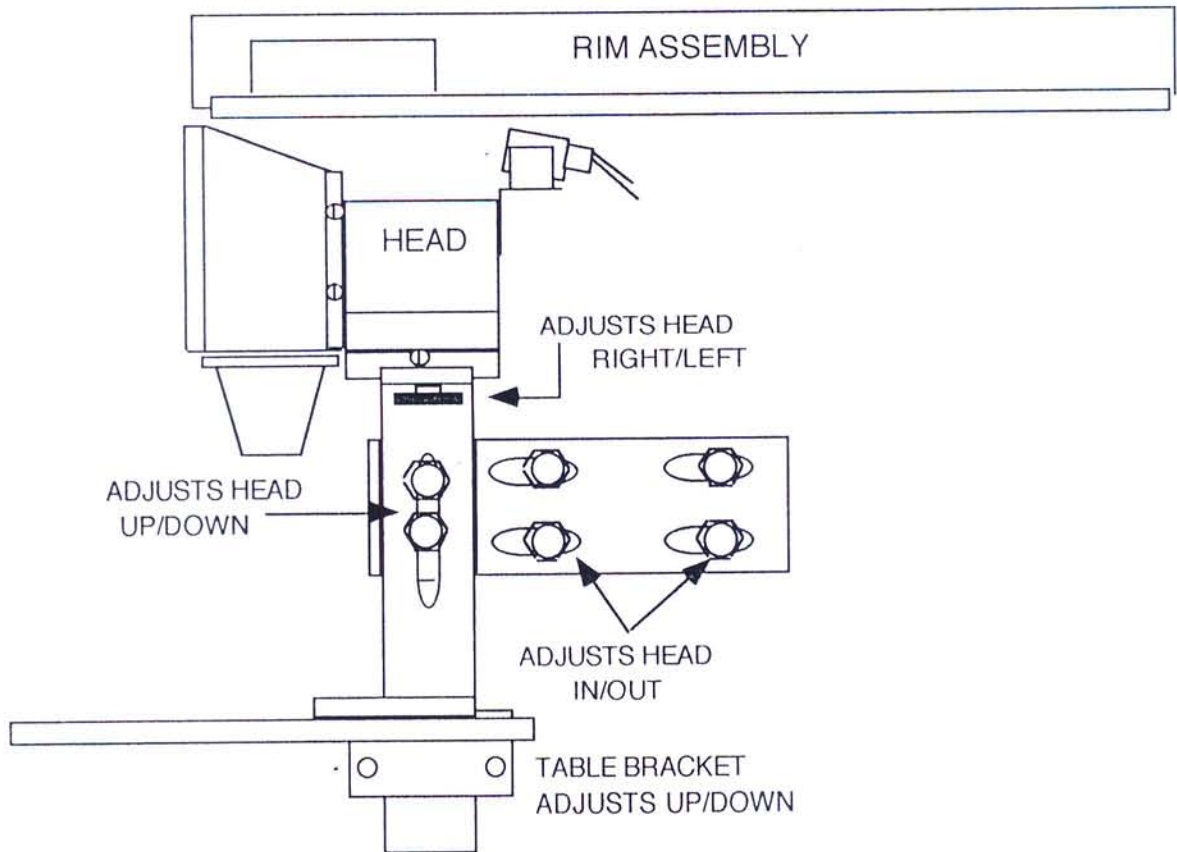
The following information pertains to the electronic counters, power supplies and counting heads that were used on Versacount Models 714 and 721. Preceding the Model 714 was the Model 711. There are very few Model 711 around and they are so obsolete that I do not suggest attempting to upgrade or add conversion packages.

The Model 714 machine originally had the same electronic counter as the preceding Model 711, an AD428 power supply module (PSM), and an AD367 counting head. A few months after the introduction of the Model 714, a new and improved AD504 electronic counter, AD490 PSM and AD427 counting head were designed. The electronic counters looked similar however they were electrically different which made it necessary to modify the PSM and head wiring design. There were few early type Model 714 machines so most of this information refers to the more common counter, PSM and head. The counter was mounted under the machine main support channel, between the support legs. It plugged into the AD490 power supply module (PSM) located inside the channel. As tablets were being photoelectrically counted in the counting head, a small spot of light moved around the inside perimeter of 4 deatron (nixie) tubes that were visible to the operator. He determined the number of tablets counted by seeing what number each of the four nixie tube spots of light were next to. Decatron tubes became obsolete making it impossible to service the AD504 electronic counters. It was necessary to replace it and the AD490 PSM with the new AD570 solid state counter and AD571 PSM from the next generation Model 721 machine. The replacement AD571 PSM fit in the same place as the original AD490 PSM on Model 714 machines. There are many old Model 714 machines being used today with Model 721 type electronic counters and PSM's.

The Model 721 machine used the AD570 solid state, electronic counter, the AD571 PSM and the AD427 head. This solid state counter had four red LED type digital displays and a blue front panel. The preset number was entered by turning four rotary switches until they pointed to the desired number. This counter also was mounted under the main channel between the support legs. The AD571 PSM had two transformers, an external mounted AD426 switch module and was 2.5" longer than the old AD490 PSM. The AD570 electronic counter also fell victim to obsolescence. Eventually the rotary switches became unavailable. This made it necessary to find a replacement for the AD570 electronic counter.

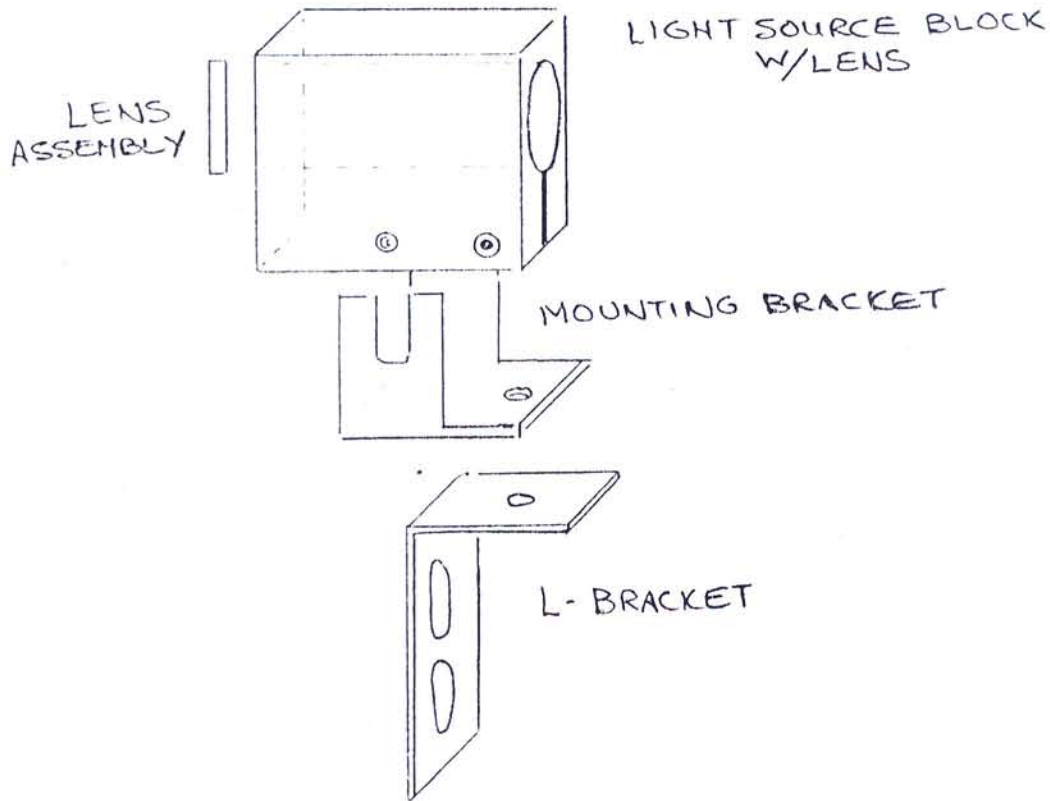
The latest model Pharmafill TC1 and TC2 tablet counting machines uses a solid state DC3 electronic counter. We have adapted the DC3 to be used on the old Versacount Model 714 and 721. It is mounted in a stainless steel enclosure. We have added a small, resettable LCD counter that will accumulate the number of head switching operations which can be equated to the number of bottles filled. This complete package is designated the AD835 electronic counter conversion for Versacount Models 714 and 721.





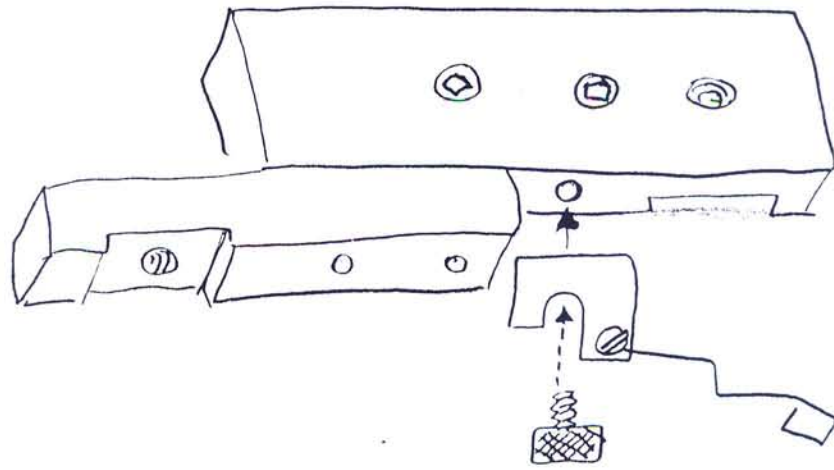
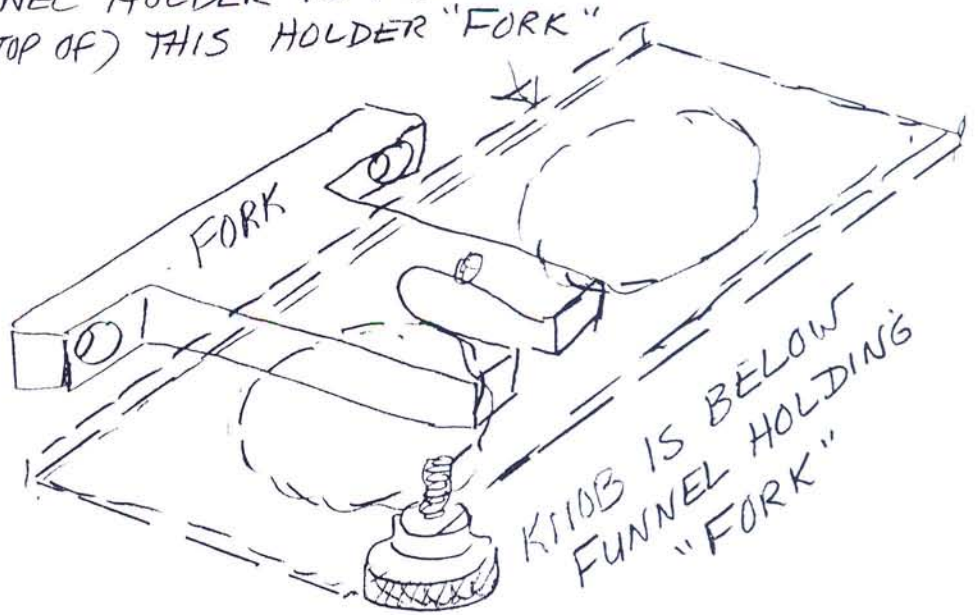
This picture shows the three directions and mechanisms of adjustment for the V714 and 721 diverting head. The bottle table is also depicted. The up/down and in/out adjustments require loosening a 1/4-20 hex head bolt with a 7/16 wrench. Our advice is to keep the up/down adjustment in the same position at all times. That position is with the top of the photoelectric light source about 1/4" below the bottom of the glass turntable. When making the in/out adjustment be aware that if you remove the hardware completely the strap nut located on the inside of the main channel will fall out of position. You will have a difficult time getting the strap nut into position again. I advise that you don't remove the hardware unless you must and are prepared to relocate the strap nuts. The right/left adjustment hardware was originally two threaded knobs but in most cases we see that these machines have 1/4-20 HH bolts here as well. The bottle table clamping support also had threaded knob hardware. The reason why the knobs were located in these two adjustment positions is because these adjustments were frequent where the other adjustments were less frequent.

Count accuracy depends on the tablet flow dropping through the center of the photoelectric scanner beam. When you change from a wide tablet to a narrow tablet the centerline of the dropping tablet changes. If the head right/left adjustment isn't made, the tablets may be missing the middle of the scanner light beam and errors will increase.



MODEL 721 LIGHT SOURCE ASSEMBLY

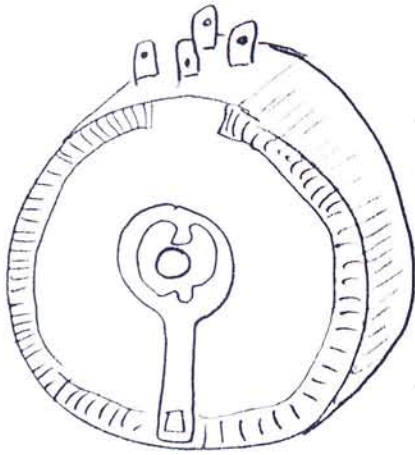
FUNNEL HOLDER IS ABOVE
(ON TOP OF) THIS HOLDER "FORK"



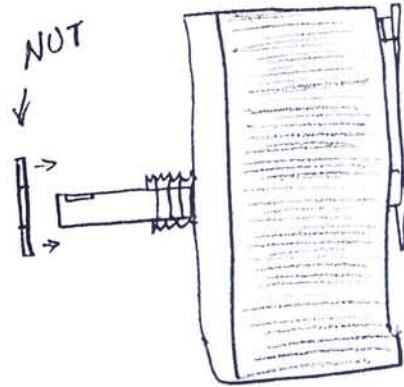
THIS SHAPE GOES
OVER THE RIM SPOKE
THE LONG SIDE IS
ON THE EXIT SIDE OF
SPOKE.

KNOB
HOLDS
WIRE
GUIDE
ON TO
BLOCK

FRONT (BACK)
VIEW

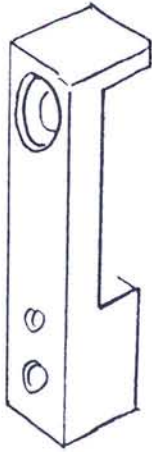


SIDE VIEW



WE CALL THIS A VARIAC. DOES NOT COME W/KNOB

FRONT

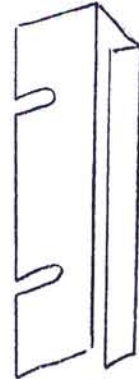


PHOTOCELL
BLOCK ASSEMBLY

SIDE



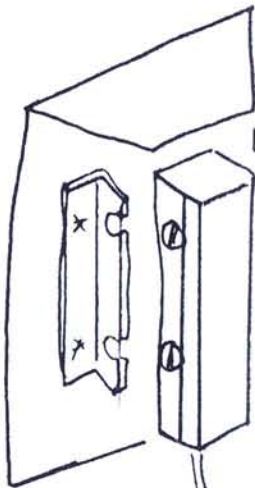
PLUG



STAINLESS
STEEL
BACK
COVER

H-2 \$121.00 BLOCK
+ COVER

H-1 \$110.00
BLOCK ONLY



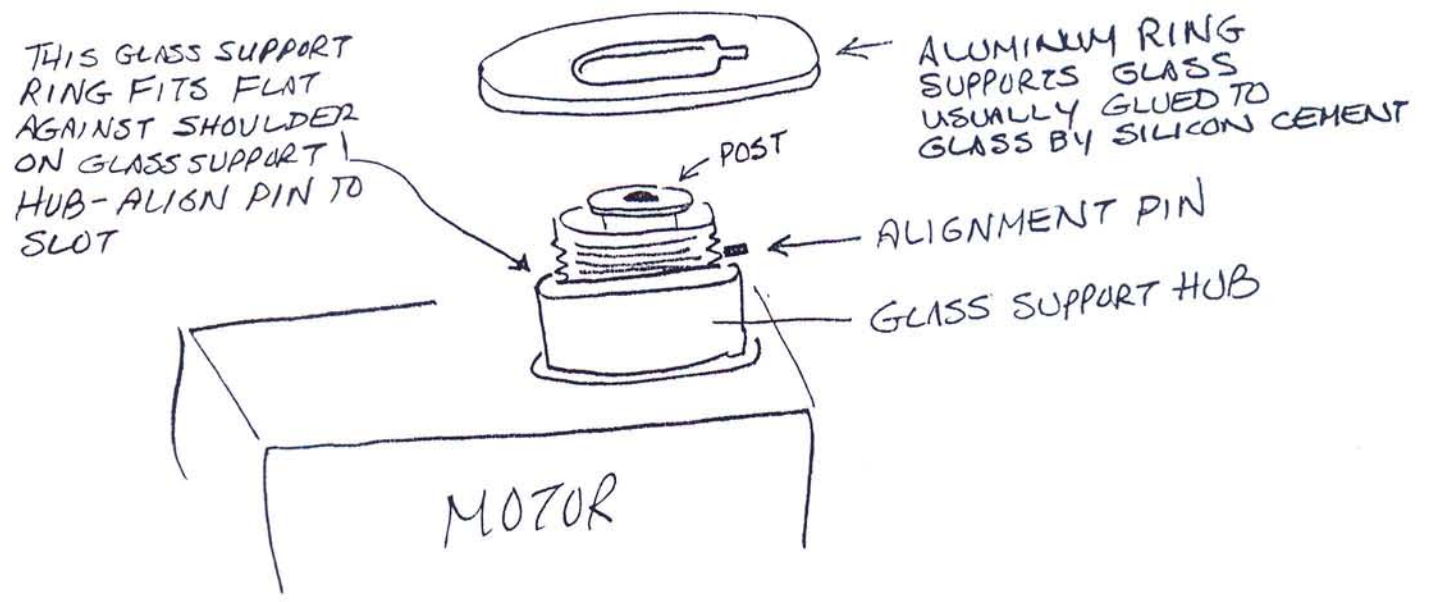
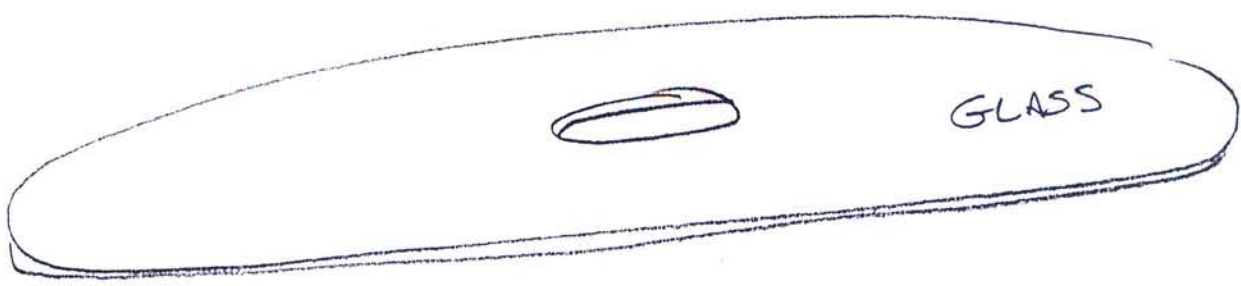
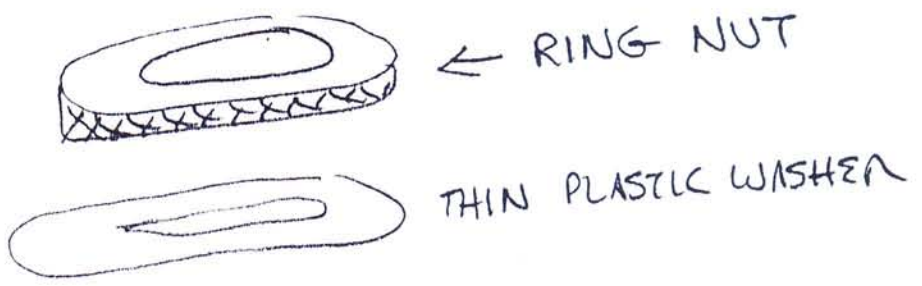
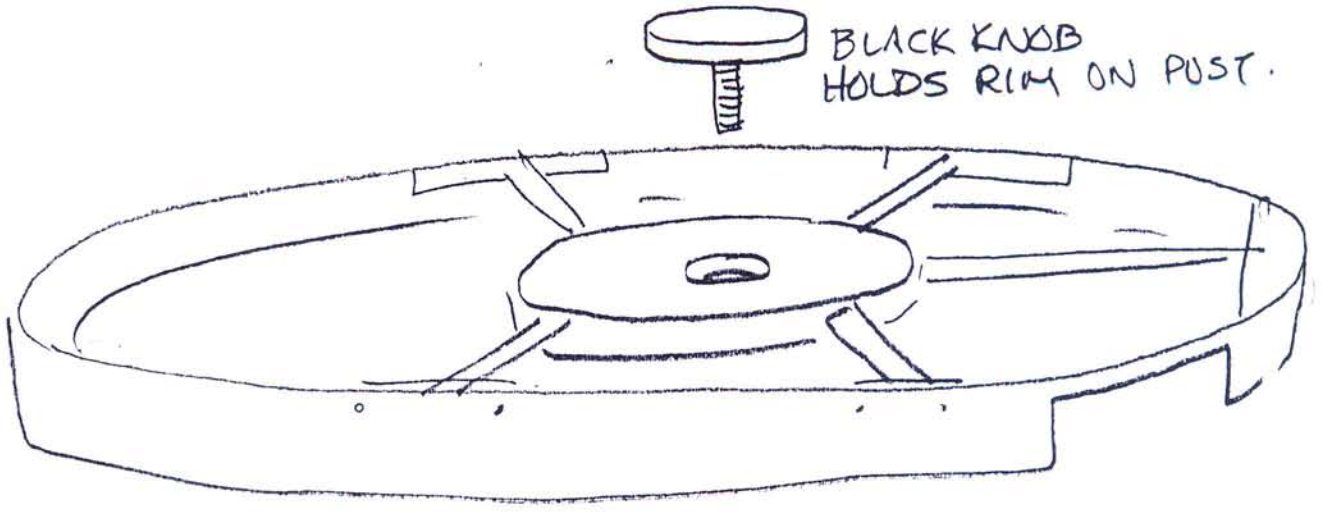
REAR
VIEW

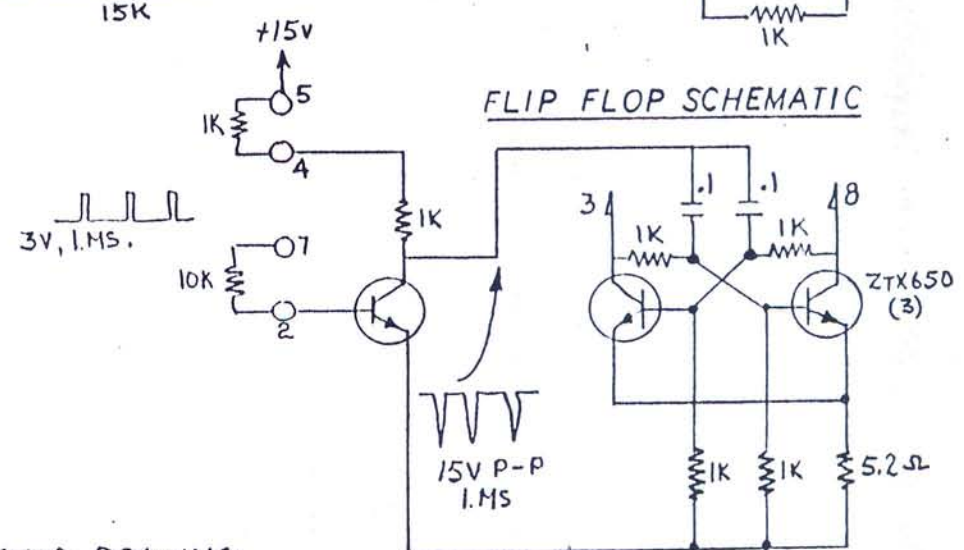
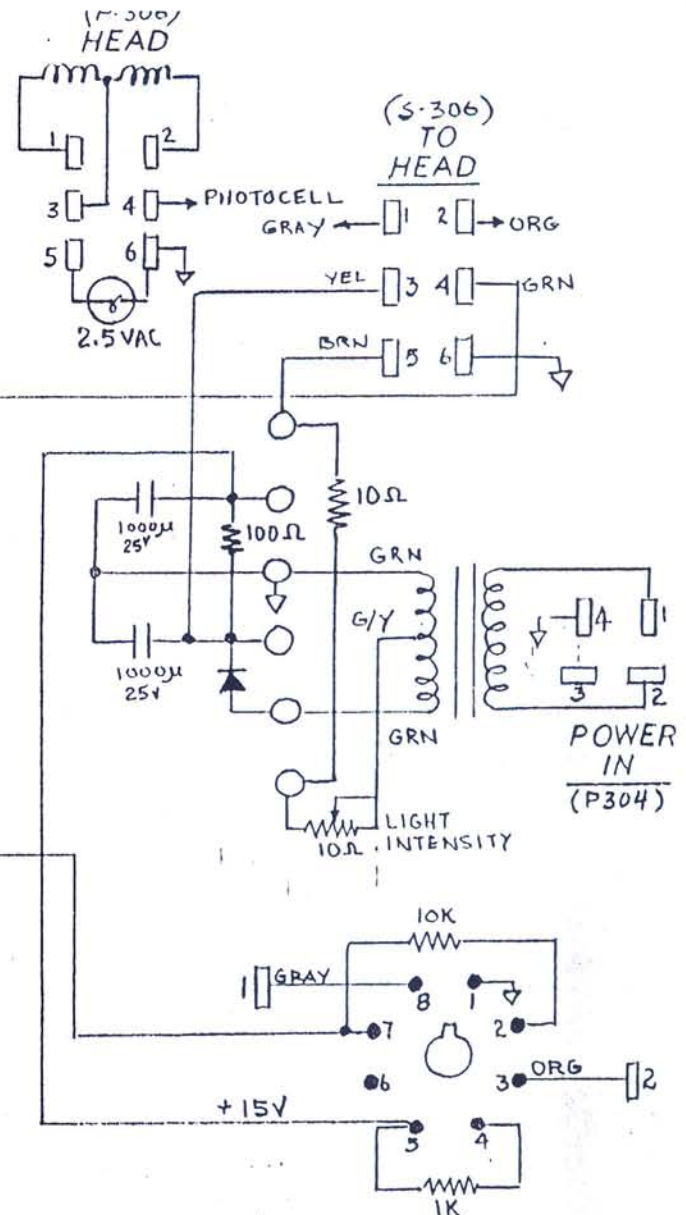
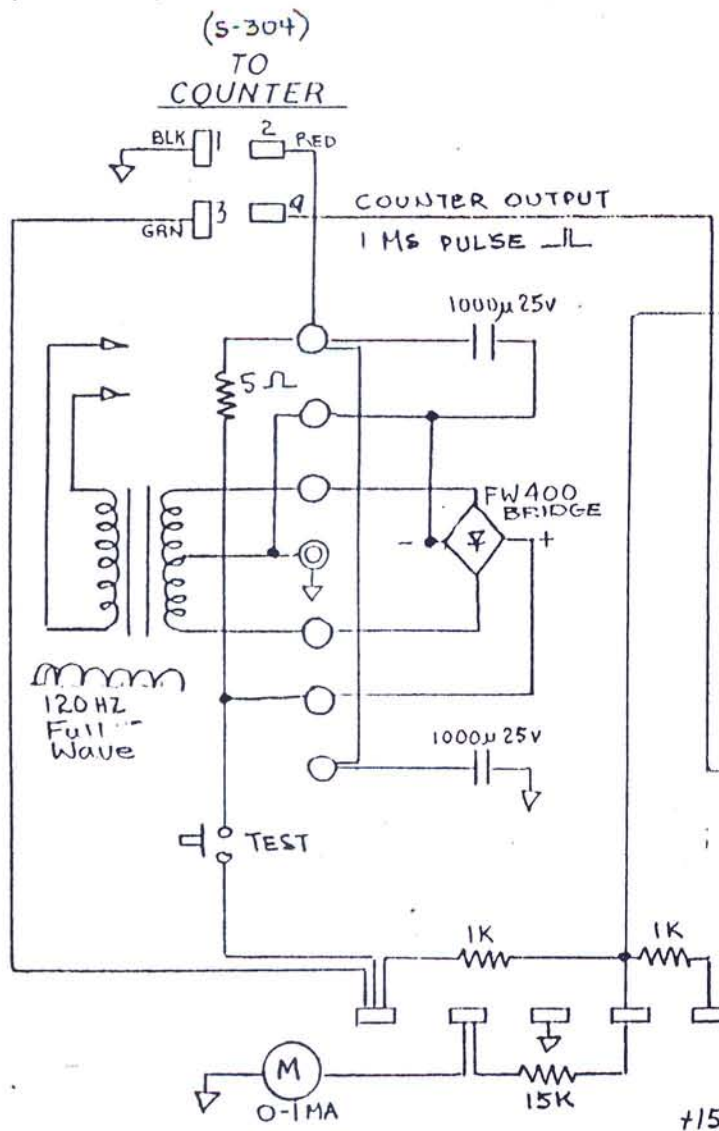
H-3 \$165.00 COMPLETE

W/PHOTOCELL ASS'Y
FRONT PLATE TO WHICH
PHOTOCELL BLOCK ATTACHES



FRONT
VIEW





THIS IS AN UPDATED-CORRECTED DRAWING

TOL: DEC-	FRAC-	MATERIAL	NEXT ASSY
SCALE	MULTIPLE	FINISH	BY JLD/SJDSR
DEITZ COMPANY, INC. ROUTE 34, WALL, N J 07719		TITLE POWER SUPPLY MOD. FOR 721 TYPE PILL MACHINE	DATE FEB 24, 92
			NUMBER AD 575-B

BRUNING 40-21 64729