ALIGNMENT PROCEDURE FOR THE 45MCRX ENLARGER

Beseler Enlargers are engineered to provide accurate, smooth and dependable performance under even severe working conditions. Occasionally, adverse conditions or a need for moving the enlarger may disturb the alignment of one of its working parts. The following is a concise step-by-step procedure for correcting the alignment of your 45 MCRX Enlarger, enabling the owner to avoid loss of time created by shipment of the enlarger to the factory.

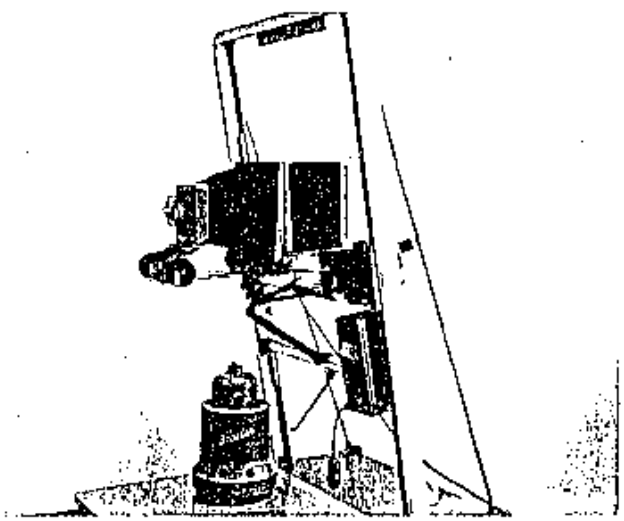
IMPORTANT: FOR OPTIMUM RESULTS EACH OF THE FIVE STEPS MUST BE PERFORMED IN THEIR NUMERICAL ORDER.

1. CARRIAGE ALIGNMENT

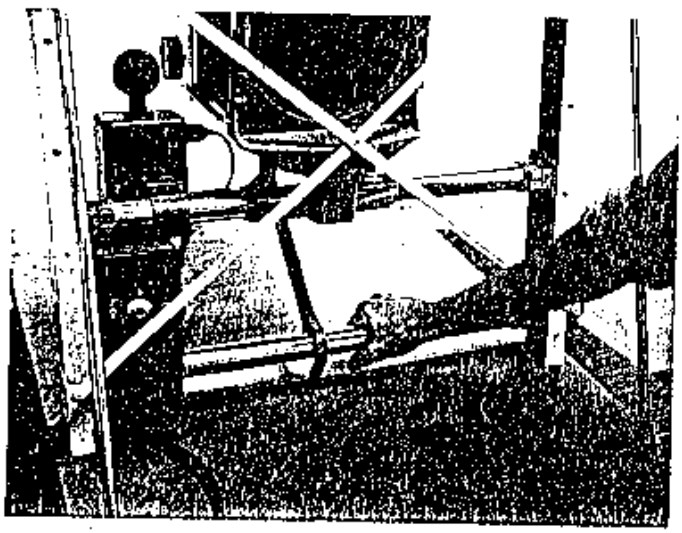
(a) Remove the lamphouse and condenser assemblies (Ref. #1-6).

(b) Tilt the remaining bellows, negative stage and lens stage assemblies into a 90° position (wall projection).

(c) Remove the LOWER stop pin (Ref. #142).
Note: Only the UPPER pin is illustrated.



(d) Run the carriage assembly down the track until the gears (Ref. #111) disengage from the toothed rack while holding the lower counterbalance assembly (Ref. #120) firmly.



(e) Hold carriage in both hands and lift until it rides the track evenly. At this point, you are engaging gears evenly on the toothed rack.

(f) Push the motor switch (Ref. #128) upwards and the carriage will ride up.

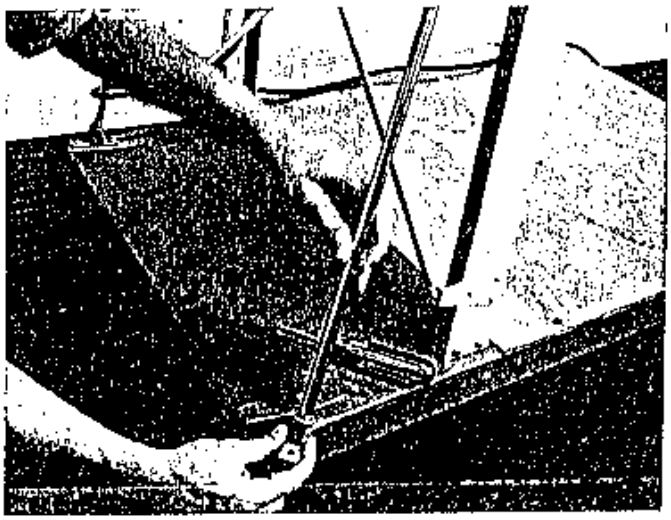
(g) Place a carpenter's square in contact with the baseboard and the left and right side of the lower counterbalance assembly.

(h) If the lower counterbalance assembly is not parallel to the baseboard at this point, then, repeat the above procedure.

Note: If the carriage appears to be parallel to the baseboard at low magnification but not parallel at higher magnification, it may be necessary to adjust the rear support struts.

If the right side of the carriage assembly is lower that the left side (facing the enlarger from the front), adjust the left strut as follows.

(1) Remove the two screws (Ref. #144) and turn the foot clockwise at least one full turn to the desired position.



(2) Re-insert screws (Ref. #144).

(3) If you find it difficult to re-insert these screws, it will be necessary to loosen the right-hand strut. This will provide a certain amount of "slack" or "play" and allow you to tighten down on the screws.

(4) Once the carriage is parallel to the baseboard, re-insert all screws and tighten the hex nuts.

CAUTION: If the struts are adjusted unevenly, a "twisting" of the entire upright frame assembly will result. This will cause uneven operation of the carriage assembly in the elevation gear racks and

might eventually wear out these gear racks and/or elevation motor.

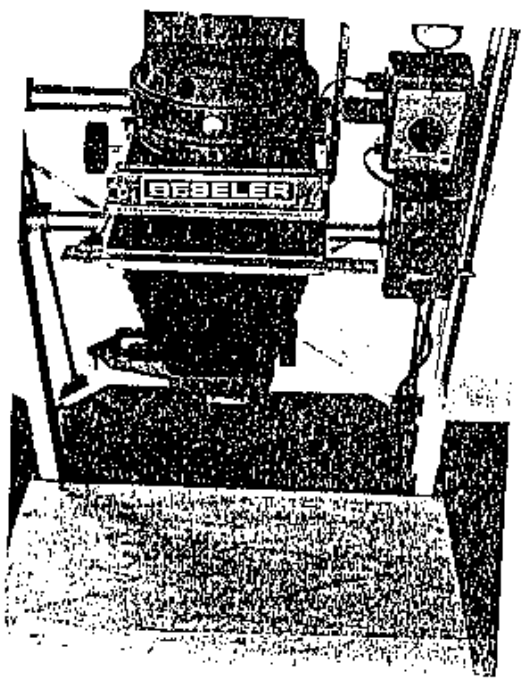
THEREFORE THIS PROCEDURE MUST BE DONE CAREFULLY AND SLOWLY!

2. FINE ADJUSTMENT OF NEGATIVE STAGE

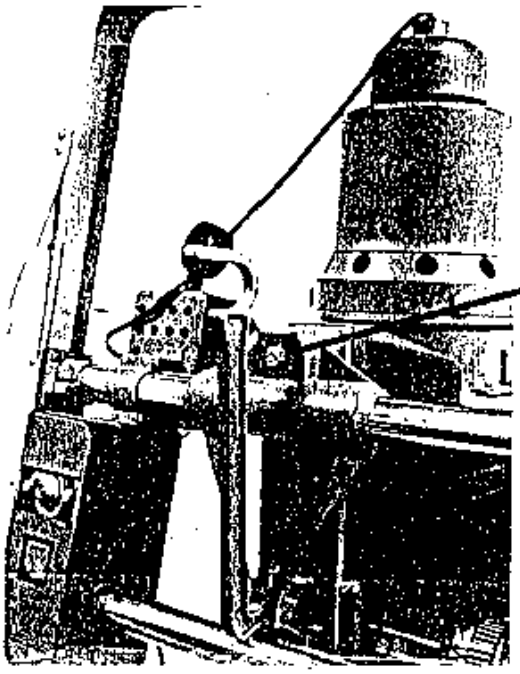
Tools Required: Medium Standard Screwdriver; 9/16" Wrench; Carpenter's Square; Ruler.

(a) Bring enlarger to middle elevation.

(b) Place ruler or other suitably flat material into negative stage overhanging its left and right sides.



(c) Loosen 9/16" bolt on the rear of the enlarger (Part #100) which attaches the enlarger head assembly to the cross tube carriage.

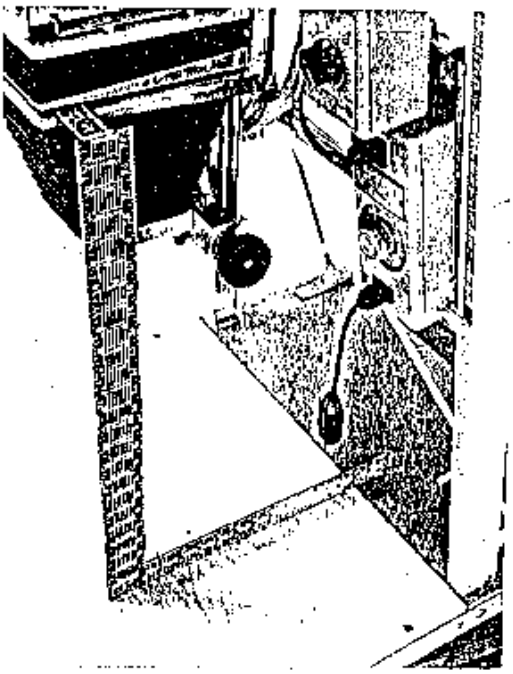


(d) Turn the condenser position of the enlarger to 4x5. Turn focusing knob until stage is focused as high as it will go.

(e) Two screws will now become visible on the focusing track. Loosen these screws.

(f) Using a carpenter's square, rotate the entire head assembly so that the distance from the baseboard to the left side of the ruler is equal to the distance from the baseboard to the right side of the ruler.

(G) TIGHTEN BOLT & SCREWS

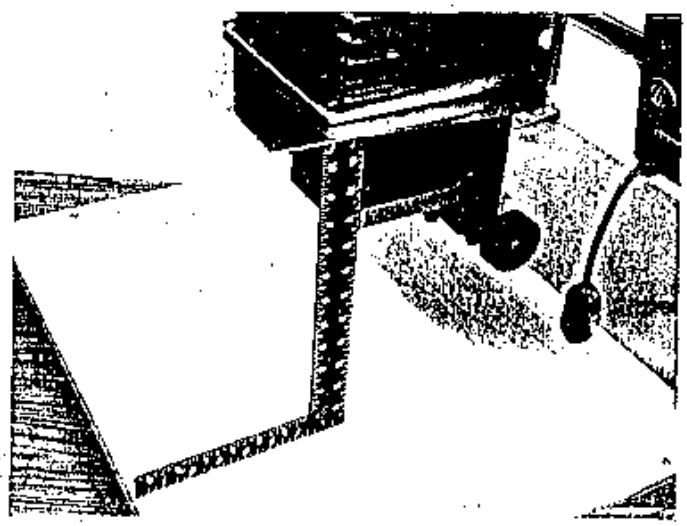


3. ADJUSTING THE LENS AND NEGATIVE STAGES TO BE PARALLEL TO THE BASEBOARD

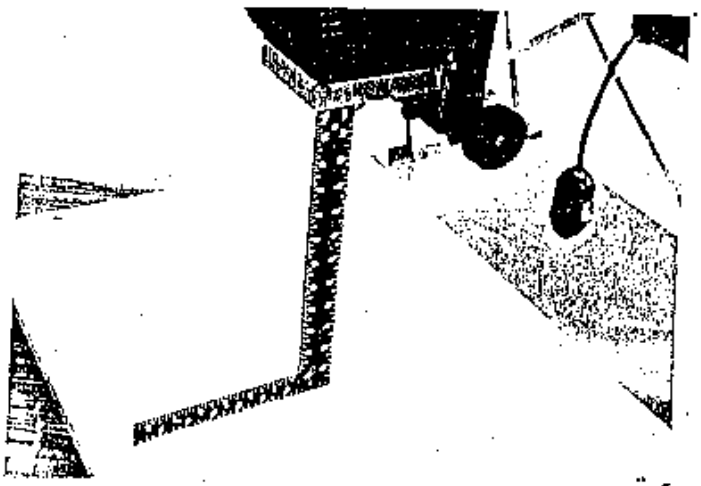
Tools Required: Wrench; Carpenter's Square.

(a) Loosen the hex nut (Part #103) and rotate the nylon contact button (Part #104) located directly behind the carriage casting (Part #107) until lens stage is perfectly vertical.

(b) Place a piece of sheet metal, glass or other suitably flat surface into the negative state.



(c) Using the carpenter's square, the perfect vertical alignment can be determined when both the front and rear edges of the lens and negative stage castings are the same distance from the baseboard.

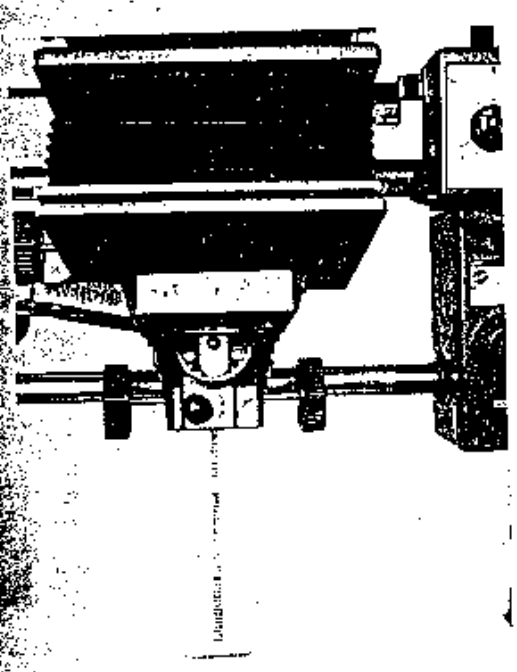


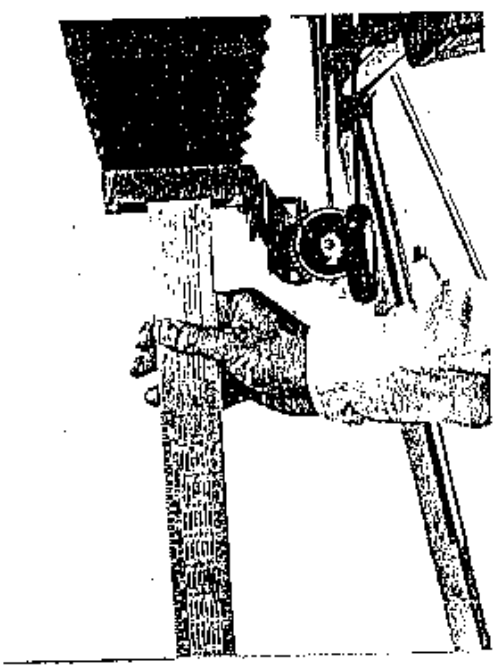
3. HORIZONTAL LENS STAGE ADJUSTMENT (Left to Right)

Tools Required: Screwdriver; Carpenter's Square.

(a) When the lens stage is in the "zero" or centered position, both the left and right sides of the lens stage casting should be the same distance from the baseboard.

(b) Using the carpenter's square, check the left and right side of the lens stage casting in relation to the baseboard. If they are not the same, loosen the two lens stage screws (See Picture H; Part #37) and rotate the lens stage until both sides of the lens stage casting are equal.





(c) Tighten lens stage screws.

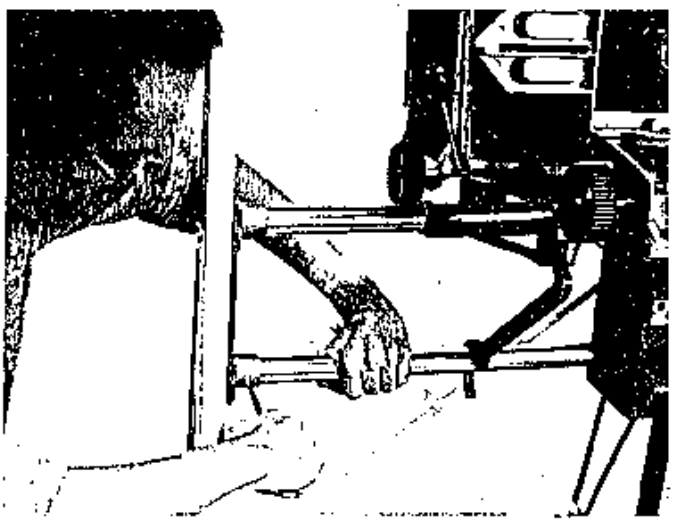
5. COUNTERBALANCE SPRING ADJUSTMENT

Tools Required: Screwdriver; Standard Medium.

(a) Work from the front left side of the enlarger.

(b) Loosen clamp screw at rear left of lower tube.

CAUTION: DO NOT REMOVE SCREW FROM REAR OF TUBE AS THIS WILL DISENGAGE COUNTERBALANCE SPRING.



(c) With screwdriver in left hand and right hand firmly grasping lower tube, remove screw on front of tube.

ATTENTION: WHEN SCREW IS REMOVED THERE WILL BE CONSIDERABLE COUNTERCLOCKWISE SPRING ACTION OF THE TUBE. SO HOLD FIRMLY.

(d) If enlarger runs too slowly in the upward direction, increase counterbalance tension. This is accomplished by rotating the lower tube in a counterclockwise direction at least two full revolutions.

ATTENTION: TUBE MUST BE ROTATED A MINIMUM OF ONE FULL REVOLUTION BEFORE SCREW CAN BE RE-INSERTED TO LOCK THE TUBE.

(e) If the enlarger runs too slowly in the downward direction in the last four to five inches before the stop, decrease counterbalance tension. This is accomplished by rotating the lower tube one revolution in a clockwise direction.

(f) Re-insert locking screw.

ATTENTION: IN BOTH ABOVE-MENTIONED ADJUSTMENTS, TUBE LOCKING SCREW MUST BE RE-INSERTED BEFORE ATTEMPTING TO CHECK ACCURACY OF ADJUSTMENT, AS TUBE WILL ROTATE IF THE MOTOR IS ENGAGED.

(g) Tighten the tube clamping screw and check for proper motor operation.

METHOD OF ADJUSTING COUNTERBALANCE SPRING ON 45CRX ENLARGER

(1) The counterbalance spring in the 45 MCRX is contained in the lower tube of the carriage.

(2) Referring to Figure 1 (of the enclosed diagram) showing the left side of the enlarger, the tube retaining screw (-1) projects into a hole in the chrome plated tube and prevents the tube from turning (which it would do under the action of the spring if the tube retaining screw were removed and the tube clamping screw were loosened). Opposite the tube clamping screw is screw (-2) threaded into the tube as shown in Figure 2. This screw secures the end of the counterbalance spring to the tube and MUST NOT BE TOUCHED. Figure 2 also shows the tube clamping screw (-3) which clamps the casting tightly around the tube.

(3) Adjustment is accomplished in the following way:

a. Loosen the tube clamping screw (-3, Figure 2).

b. Go to the front of the enlarger and hold the tube to prevent it from turning. Remove the retaining screw (-1, Figure 1).

c. Holding the tube with both hands, wind up the tube, turning away from you. (This will increase the tension on the spring.) To decrease the tension of the spring, turn the tube toward you.

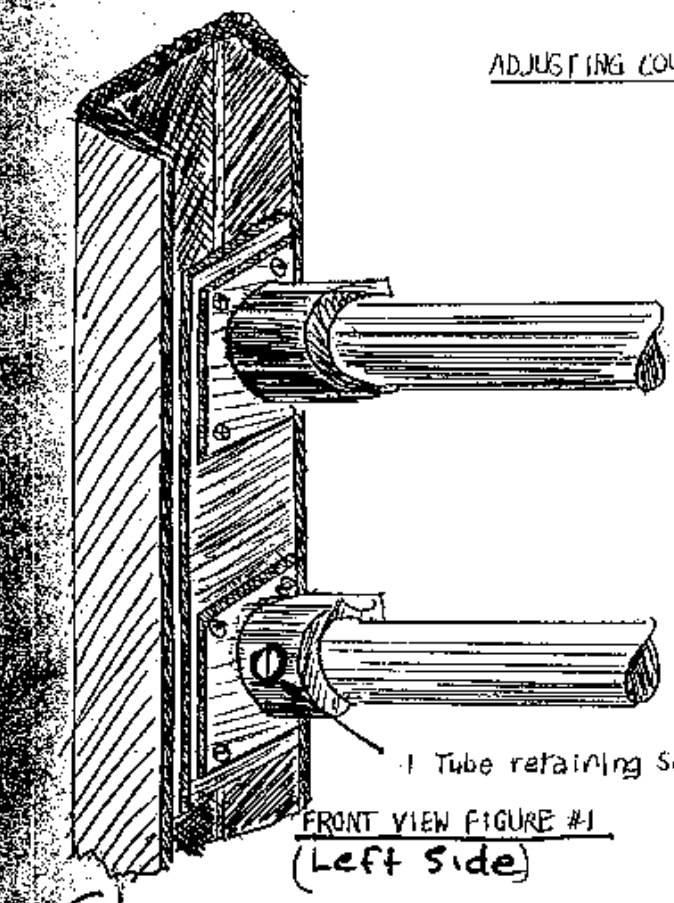
NOTE: The tube must be turned at least one full revolution so that the screw (-1, Figure 1) engages in the hole in the tube.

d. After making the adjustment, turn the tube slightly so that the retaining hole for screw (-1) is visible through the casting and insert the screws.

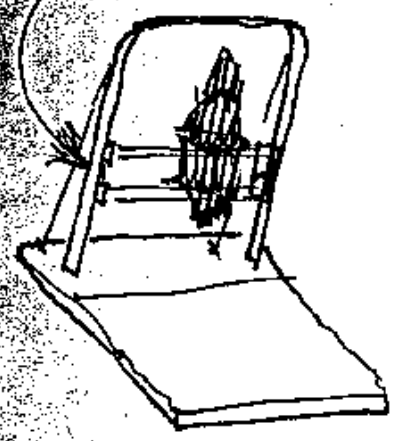
NOTE: The location of the hole in the tube can be judged by the fact that it is diametrically opposite the spring retaining screw (-2, Figure 2).

e. After screw (-1) is inserted, tighten the clamping screw (-3, Figure 3).

ADJUSTING COUNTER BALANCE SPRING on 45M



FRONT VIEW FIGURE #1
(Left Side)



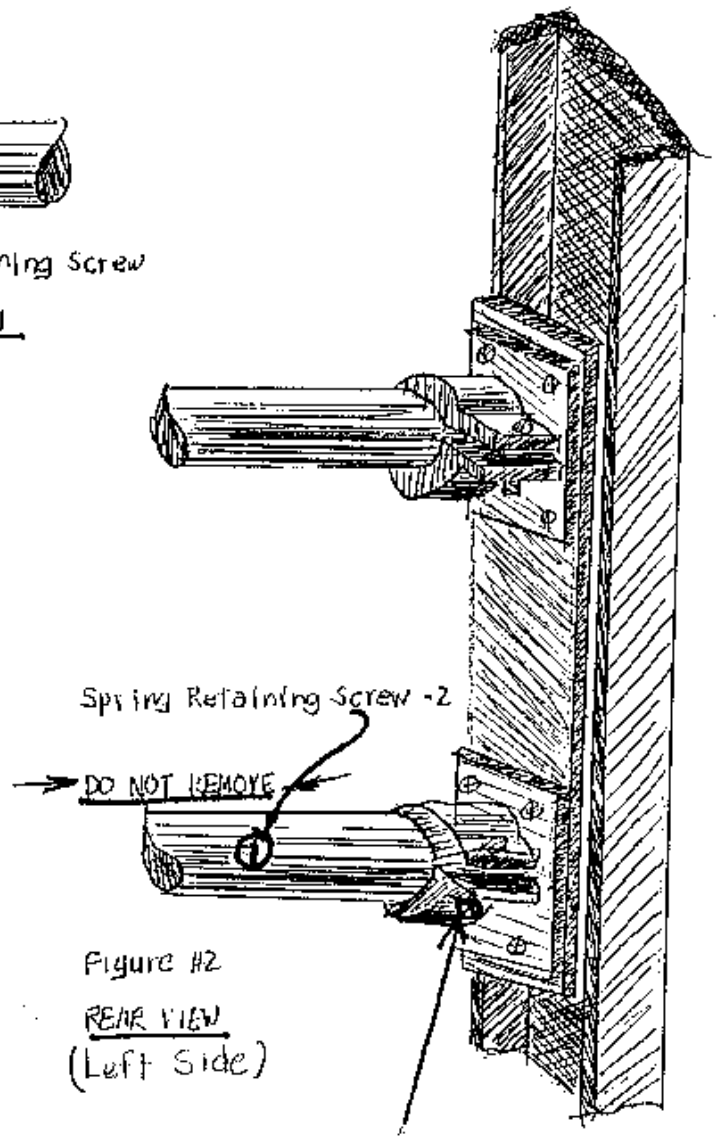


Figure #2

REAR VIEW
(Left Side)