1. Cover Plates may be removed and replaced in the following manner:

A. Cowl (Type Bar Cover):
   (1) Remove Top Cowl Link Screws.
   (2) Remove two (2) Screws in Fill-in Plate (right and left) and remove Plates with Cowl.

B. Rear Name Cover Plate:
   (1) Remove Rear Name Plate Binding Screws (one at each end, top of Plate). Remove Plate.

C. Front Plate:
   (1) Remove Front Plate Binding Screws.
   (2) Raise Ribbon Adjusting Lever to Top (blue) position.
   (3) Raise right end of Plate up to disengage from Ribbon Shift Lever.
   (4) Pull Top edge of Plate forward to disengage from top row of keys, with Plate on edge, move it out to the right.

D. Frame Cover:
   (1) Remove Bottom Cover Binding Screws (4).
   (2) Loosen Top Front Cover Binding Screws.
   (3) Bend Tops of Ribbon Adj. Lever and Ribbon Reverse Lever inward to disengage from contact with Frame Cover.
   (4) Spread rear ends of Cover outward and draw Cover forward to remove.

2. To Replace—reverse above instructions.
1. The Corona Carriage rides between two formed steel rails on front and rear ball bearings positioned in pinions which are meshed in teeth perforations (constituting racks) in the Carriage Bedplate and the front and rear Carriage Rails. Late model machines are equipped with four ball bearings and pinions in the front and four in the rear rails, while earlier machines were equipped with two in front and two in the rear rails. Movement of the Carriage to the left or right will disclose the perforations in both sets of rails. Standing the machine on its front cross bar (back of machine up towards the reader) and viewing machine from beneath, the ball bearings and their pinions may be located. With the Carriage centered on frame it will be noted that die marks embossed in the lower edge of the Carriage Bedplate rail (right and left) indicate the position of the outside ball bearings. The left die mark (viewing machine from its base) is just to the right of the Bell Pivot. Similar die marks are embossed on the front of the Carriage Bedplate located just behind either end of the Segment and may be located, after removing front Paper Finger Bar, by moving the Carriage to the right and left. Inspection of the rails (with carriage centered on frame) will indicate the three or four pinion perforations in the rails separating the outside ball bearing pinions (located on die marks) from the inside ball bearing pinions in both front and rear rails. The perforations must be uniform between each two pinions—in the left front and rear right and front rear rails. Not more than 4 perforations nor less than 3 perforations should separate the pinions, 3 being preferable.

2. ADJUSTMENTS: Before attempting adjustments, and with Drawband disconnected from under right end of Carriage (by loosening Drawband Anchor Screw) and hooked on formed slot edge of the right end of the Bedplate, determine that carriage operates smoothly in its rails from end to end, with Carriage Release Lever depressed. With the Drawband disconnected any binds in the Main spring Pivot will not be reflected in this Carriage movement. Test Carriage for looseness in rails. Pits in the Carriage Rails (caused by jolt in dropping or in shipping) will be indicated by a bump which will be felt in moving the Carriage. Deformed Pinions (which do not enter Carriage Rail perforations smoothly, will produce a rasping, grinding feel. By applying pressure to the Carriage toward the front rail and rear rail alternately, any deformed pinion will be located by friction in this test. Deformed pinions may be straightened and used. If such pinions happen to be the outside ball bearing pinion, right or left, the deformed tooth may be positioned between the rails (carriage moved as near extreme of right or left end of carriage as possible) to make it accessible for straightening with thin screwdriver or thin small bending tool. Determine that Line Finder Arms are not binding or causing friction on the Platen. With Drawband right end in hand by alternately pulling outward and inward, freeness of movement of the Main Spring Drum on its pivot may be determined and any bind must be corrected—also, Mainspring Drum must clear Carriage. (See Mainspring and Drawband).

A. Rear Carriage Rail is adjustable. It is held in position with six binding screws which are positioned in slots for position adjustment and may be moved in or out for carriage fitting to eliminate bind or looseness.

1) To eliminate Bind: Move Carriage to point of bind. Loosen Carriage Rail Binding Screw or Screws at point of bind. Retighten. If this adjustment does not eliminate trouble, it may be necessary to hold rear Carriage Rail out, slightly away from Carriage Bedplate at point of bind to provide additional clearance while tightening Carriage Rail Screw or Screws.

2) Pits or burrs in Carriage or Bedplate Rails must be removed (by stoning) to eliminate jolt to Carriage.

3. TO REMOVE MAIN CARRIAGE (not including Bed Plate):

A. Disconnect Drawband from under right end of Carriage. (See paragraph 2, above).

B. Remove Rear Name Cover Plate (See Cover Plates).

C. Remove Paper Finger Bar by removing Binding Screw (located about 1/2" in from each end of Bar). Move Bar downward to disconnect from under front scale, slightly forward up and out.

D. Remove Platen: (See Platen).

E. Remove Bell Bracket (which pivots left end of Escapement Actuator, viewing machine from beneath) by removing 3 Bell Bracket Binding Screws.

F. Disconnect Carriage (Rack) Release Lever Springs from their connection on Rear Carriage Rail.

G. Remove six (6) Rear Carriage Rail Binding (Adjusting) Screws.

H. Lift Carriage with Rear Rail off the machine, being careful not to lose Carriage Ball Bearings and Pinions.

4. TO REPLACE MAIN CARRIAGE:

A. With front of machine propped upward at approximately 45° angle, facing machine from the rear, replace the front Rail Carriage Ball Bearings and Pinions in positions indicated in drawing (with four teeth perforations separating pinion teeth) with outside pinions positioned on die marks in Carriage Bedplate and inside pinions 4 teeth perforations in rail inside die marks. This is important, otherwise if the pinions collide, carriage will bind and lock.

B. With Rear Carriage Rail positioned loosely on Main Carriage (end binding screws in place loosely), return Carriage to position being careful not to disturb position of Front Rail Carriage Ball Bearings and Pinions, positioning front Carriage Rail centrally over Bedplate Front Carriage Rail and machine frame. Apply pressure against front Carriage Rail to maintain Pinions and Bearings in place, while turning the machine over on its back, retaining this pressure, while the Rear Carriage Rail Binding Screw (on your right) is removed, so that the right end of the Rail may be spread slightly.
C. Locate Pinion over small open end of No. 36 wrench and position Ball bearing in Pinion. With this wrench, move the Pinion and Bearing into position between ends of both rails on your right, until the Ball Bearing is positioned four teeth perforations inside die mark on Carriage Bedplate. Permitting the Pinion and Bearing to remain in place in carriage rails on diemark, applying pressure on right end of the rear rail to maintain all bearings in located positions, turn machine over and replace rear rail binding screw on this end. While still maintaining pressure on rear rail to hold bearings and pinions in position, turn machine over and repeat this process with bearings and pinions on left end of carriage.

D. Turn machine over and replace all Rear Rail Binding Screws.

E. Check position of Pinions and proper clearance between the outer and inner pinions in both front and rear rails. If the pinions and bearings have moved during this replacement, loosen the Rear Rail Binding Screws on end involved and while relaxing pressure, move them into proper position with spring hook or magnetized screwdriver. Tighten Rear Rail binding (adjusting) screws, then check carriage for free movement, without binds but without loose fitting. Locking Carriage would indicate Pinions in either front or rear rails are conflicting. To remove binds, see paragraph 2A(1) above.

F. Connect Carriage (Rack) Release Lever Springs.

G. Replace Bell Bracket.

H. Replace Platen.

I. Replace Paper Finger Bar.

J. Replace Rear Name Cover Plate.

K. Connect Drawband.
1. The Mainspring, providing the tension for the movement of the Carriage to the left, is housed in the Mainspring Drum, bearing on the Mainspring Drum (pivot) Screw on the Mainspring Drum Bracket which is positioned on the Carriage Bedplate and is accessible by entering from bottom of machine.

2. ADJUSTMENTS: The Carriage should be properly fitted in its rails, without binding or surplus play, and must be free to travel the length of the rails without bind or friction from other parts before attempting mainspring tension adjustments.

A. Mainspring Tension: The Mainspring should provide sufficient tension to move carriage to extreme left end of its Bedplate rails.

   (1) To increase tension, loosen (turn counterclockwise) Ratchet Pawl Lock Screw (which is engaged between two teeth of the Ratchet Wheel) sufficiently to clear teeth of Ratchet. Turn Ratchet Wheel clockwise to increase tension. Tighten Pawl Lock Screw.

   (2) To decrease tension, loosen Ratchet Pawl Lock Screw as indicated above, working Ratchet Pawl (in and out). Tighten Pawl Lock Screw when properly adjusted.

3. DISASSEMBLY:

   A. Mainspring Drum Assembly:

      (1) Disconnect Drawcord from under right end of Carriage and allow cord to wind slowly around Mainspring Drum, until all tension is relaxed.

      (2) Remove Mainspring Drum (Pivot) Screw Lock Nut.

      (3) Remove Mainspring Drum (Pivot) Screw.

      (4) Mainspring Drum may be removed from bottom of machine.

   B. Mainspring: The outer end of the Mainspring is hooked on the formed hook on the inside of the outer edge of the drum while the inside end of the spring is hooked on the Drum Ratchet Hub hook.

      (1) Pry off the Drum Cover. The Mainspring is accessible for removal.

   C. Draw Cord: One end of the Draw Cord is attached to the under right end of the Carriage while the other end of the Cord enters slot in Mainspring Drum and is retained in the drum by a knot tied in the end of the Cord.

      (1) Wind up the spring slightly so that its outer leaf is drawn away from the inside edge of the Drum, permitting knot end of the Cord to be accessible. Untie or cut off knot end of Cord and withdraw. In replacing Cord be sure to tie knot in the end inside Drum.
1. The Corona has the Shifting Segment mechanism. As the Shift Key is depressed the rear end of the Shift Key lever moves upward moving the Shift Frame Arm upward. The Shift Frame is rocked in this action (direction indicated in drawing), the Shift Segment Arms moving downward drawing the Shift Segment Plate, Segment and Typebar Assembly downward. The Shift Segment Plate operates on Ball Bearings in the right and left hand Shift Ball Races. The Shift Balance Springs provide tension for return of the Segment Assembly to normal position when the Key lever is released.

2. ADJUSTMENTS: Before attempting adjustments, check the following:

   Check the Shift Frame, Shift Segment Plate and Segment Plate Assembly for snug fit on their pivots without binding. While these mechanisms should be free on their pivots, end shake should be reduced to a minimum.

   Check Shift Key levers for free movement in the front Keylever Comb slots, determining that they are not limiting on top of Comb slot when inactive and not limiting on bottom of Comb slot when Key lever is depressed.

   Check Segment binding screws for tightness (screws enter Segment from rear of Shift Segment Plate (see Segment and Typebars).

   Check Typebar Links to determine that they are properly connected without binding.

   Check Typebar Rest Binding Screws to determine that they clear bottoms of Ribbon Spool Cups properly.

   A. ON-FEET ADJUSTMENT: On-Feet position is determined by use of the capital letters with Shift Key depressed and locked. Adjustment is made with the "On-Feet" Adjusting Screw after loosening Lock Nut (machine on its back). Turn "On-Feet" Adjusting Screw clockwise to raise capitals; counter-clockwise to lower capitals. Tighten lock nut when adjustment is made.

   B. MOTION ADJUSTMENT: With the "On-Feet" Adjustment properly made as outlined above, the Motion (bringing the small letters into alignment with the capital letters) is made with the "Motion" Adjusting Screw after loosening Lock Nut. Turn "Motion" Adjusting Screw clockwise to lower small letters; counter-clockwise to raise small letters. Note: If machine is equipped with "over-throw" screw located to the right of the "On-Feet" Adjusting Screw, the "Over-Throw" Screw must be adjusted after changing position of On-Feet or Motion, so that it will just clear the Segment Plate.

   C. SHIFT LOCK LATCH: Raise or lower (by forming) the Latch for proper latching and releasing of the Shift Lock, after adjusting Motion or On-Feet, determining that with Shift Lock latched there is no extra down-play in the segment when moved downward with the fingers. Determine that there is no conflict of the Left Hand Shift Key with the Latch when Shifting (not locking) left hand Shift Key.

   D. SHIFT BALANCE SPRINGS: Shift Balance Spring Arms (right and left) of the Shift Frame, may be formed (toward front of machine) to increase tension on Shift Keys (both should be formed uniformly) or (toward rear of machine) to lighten tension on Shift Keys.

   E. SHIFT SEGMENT PLATE PIVOT SCREW should be adjusted to eliminate end shake but must be free and the Plate Arms should be centrally positioned between Shift Frame Arms (with Pivot Screws).

   F. SHIFT BALL RACE: It will be noted in the drawing that the Right Hand Shift Ball Race is adjustable (each of the three binding screws being located in slots in the Bracket) for vertical fit (to parallel left hand Shift Ball Race) as well as to remove end shake. Ball Race Bracket must be adjusted perfectly true to prevent bind in either shift or non-shift position.

3. A. TO REMOVE SEGMENT: Segment Plate: (See Segment and Typebars).
1. The diameter of the Corona Platen is 1.270".

2. ADJUSTMENTS: (Also see Variable and Paper Feed).

   A. Platen Binding:
   (1) Check Variable to determine that it disengages and engages properly.
   (2) Check Platen for excessive length (binding in Carriage) from use of too long Platen or too thick washer between end of Platen and Carriage End bushing.
   (a) If Platen too long, emery right hand Carriage end Bushing.
   (3) Check between platen and deflector plate for paper clips or foreign objects which may bind platen.

   B. Platen End Shake:
   (1) Check Platen and Platen Knob Set Screws for tightness.

(2) Install washer of proper thickness between right hand platen end and right hand Carriage End Bushing on Platen Rod.

3. DISASSEMBLE:
   A. Loosen R. H. Platen Knob Set Screw and remove R. H. Platen Knob.
   B. Loosen R. H. Platen Set Screws.
   C. Draw L. H. Platen Knob and Platen Shaft out to the left.
   D. Lift right end of Platen up and to the right slightly and out. If thin washer located between right hand Platen end and right hand Carriage end bushing, do not lose it.

4. ASSEMBLE:
   A. Reverse Above instructions.

RING AND CYLINDER: Corona Standard.

1. The Carriage Front Rail is positioned parallel with the Segment Abutment Ring in manufacturing and position of Platen Shaft insures parallel of Platen and Abutment Ring. There is, therefore, no Ring and Cylinder Adjustment, other than filing the Typebar protrusions if on the Ring but off the Platen or peening (mauling) the protrusions if on the Platen but off the Ring.

Before attempting such adjustment it should be determined that the Platen is concentric and true in its entire length and that the Platen Rubber adheres to the Core properly; is not inflated and is of the correct factory grinding size 1.270". Grinding down the surface of the Platen will reduce its diameter and naturally will affect uniform contact of typebar protrusion on Segment Ring and type face on Platen (with 1 sheet of paper inserted).
1. In normal position, the Platen is held to the movement of the Ratchet, by engagement of the teeth of the Variable Clutch Plate enmesh with the inside Ratchet teeth through pressure of the Left Hand Platen Knob Shaft Bushing applied against the fingers of the Variable Clutch Plate. When the Left Hand Platen Knob is drawn outward (to the left) the Platen Knob Bushing relaxes this pressure on the Variable Clutch Fingers permitting the Variable Clutch Plate to relax and the teeth to disengage themselves from the inside Ratchet Teeth thereby permitting the Platen to be revolved without transmitting this motion to the Ratchet.

2. ADJUSTMENTS: Before attempting adjustments determine that Platen end shake has been eliminated (through use of washer—see Platen) if necessary. Test for proper release of Variable Clutch Plate Teeth from inside Ratchet Teeth by pulling Left Hand Platen Knob outward. Test for slippage, with left hand Platen Knob engaged (inward) by marking Platen and Ratchet with pencil, making several complete revolutions of Platen with the Line Space Lever. Check Pencil marks to determine that they agree. If they do not agree the Variable is slipping.

A. Variable Clutch Plate:

(1) Remove Platen. (See Platen, Paragraph 4).

(2) Remove Ratchet and Line Space Pawl Assembly, which must be removed as a Unit by:

(a) Loosening Line Space Link Screw Nut and removing Line Space Link Screw (See Line Space Lever).

(b) Insert screwdriver between Ratchet Detent Bracket and fulcrum and pry upward (to release Ratchet Detent Roller from engagement with Ratchet teeth) as the Line Space Lever Pawl Assembly and Ratchet is removed from the Left Carriage End.

(3) Disassemble Platen Clutch Plate and Washer by: Removing Clutch Screws No. 0350A and No. 0350AB, noting difference in these two screws so that they may be replaced in their proper position.

Remove Platen Clutch Plate Washer and Clutch Plate. Examine Clutch Plate Ear teeth. If worn or broken, Clutch Plate must be replaced.

SLIPPAGE: If Clutch Plate Ear teeth are not applying sufficient tension to mesh with inside Ratchet Teeth, the fingers of the Plate should be formed inward (toward each other) so that the Bushing may apply increased pressure. In forming, the fingers should not be twisted.

(4) To Assemble Platen Clutch Plate: Refer to drawing, reassembling parts in their proper order.

(5) To replace Ratchet and Line Space Pawl Assembly: Fit Line Space Pawl Ratchet Tooth Guide over Ratchet Teeth and center bearing hole with bearing hole of Ratchet. Replace on Left Carriage End Bushing, inserting screw driver between Ratchet Detent Bracket and Fulcrum and pry upward lightly so that Ratchet Detent Roller may resume its position contacting Ratchet Teeth, as the Ratchet is moved to the left to its proper position on the left hand Carriage End Plate Bushing. Replace Line Space Link Screw and Nut.

(6) Replace Platen. (See Platen).
1. The front and rear Paper Feed Rollers are attached to (pivot on formed arms) of the Paper Deflector which provide a bearing for the Feed Roller Shafts. Tension to the Feed Rollers is applied by Paper Feed Shaft Bracket Tension to its Lip which contacts the center of the Deflector Plate. Both ends of the front of the Deflector are provided with a stud located under the Deflector which position in holes in the Carriage Frame. When the Paper Feed Release Lever is moved forward (to release paper feed tension on Feed Rollers) the Paper Feed Shaft Bracket Tension Lip moves downward relaxing tension of the Paper Feed Shaft Bracket Spring on the Deflector Plate. The rear of the Deflector (Rear Feed Rollers) moves down out of engagement with the Platen and the Front Feed Rollers draw away slightly from the Platen.

2. ADJUSTMENTS: Before attempting Paper Feed adjustments it should be determined that the Bail or Paper Finger, Front and Rear Feed Rollers are free on their Shafts and that surface is not slick (the surface of these rollers should be cleansed with cloth immersed in alcohol). It should also be determined that the Front Scale is not binding on Platen (the Front Scale may be formed outward (away) from the Platen by inserting a screwdriver behind top of scale, left and right, above the binding screw springing top of scale outward slightly). It should be determined that Bail or Paper Finger Rollers apply equal tension to the Platen. The Feed Roller Tension Spring should provide sufficient Tension and be properly connected.

A. To determine uniformity of tension on paper feed rollers, insert narrow strips of paper between rear feed rollers (right and left) and platen, determining by friction pull that the tension is uniform. The same test should be made with strips of paper between front feed rollers (right and left) and the Platen.

(1) Form Left Hand Feed Roll Shaft Bracket UP will increase tension on R. H. Rear Feed Roller.

(2) Form Left Hand Feed Roll Shaft Bracket DOWN will decrease tension on R. H. Rear Feed Roller.

(3) Form Right Hand Feed Roll Shaft Bracket UP will increase tension on L. H. Rear Feed Roller.

(4) Form Right Hand Feed Roll Shaft Bracket DOWN will decrease tension on L. H. Rear Feed Roller.

3. TO REMOVE PAPER FEED MECHANISM:
   A. Remove Platen (See Platen).
   B. Remove Paper Deflector, which may be disengaged from Paper Fingers or Bail and removed.
   C. It will be necessary to form the Paper Deflector Formed Bearings in order to remove the Feed Rollers and their shafts. These Bearing Arms should be reformed properly and uniformly in order to apply equal pressure to both ends of the front and rear feed rollers.

4. TO REPLACE PAPER FEED MECHANISM:
   A. Replace Feed Rollers to Deflectors.
   B. Return Deflector Assembly to Carriage, positioning studs (R. & L.) underside of deflector over their respective holes in Carriage Bed.
   C. Replace Platen (See Platen).
1. With the Platen locked to the movement of the Ratchet as outlined in chapter “Variable”, movement of the Platen is controlled by the Line Space Lever or the Platen Knob. The Line Space Adjuster positions the Line Space Pawl for single, double or triple spacing. As the Line Space Lever is moved to the right, the Line Space Dog Arm transmits this motion to the Line Space Pawl which is directed to engagement in the Ratchet teeth by the Pawl Spring. Further movement of the Line Space Lever (to the right) causes the Pawl to move the Ratchet. When the “throw” is completed, the Line Space Pawl will limit on the Left Carriage End Limit stud as the Ratchet Detent Roller positions between two teeth of the Ratchet.

2. ADJUSTMENTS: Before attempting adjustments determine that the Line Space Lever Spring is properly connected; Line Space Lever free on its pivot; Platen free but snug fit (with end shake or bind eliminated); Ratchet is engaged by Ratchet Detent Roller which must be positioned between two Ratchet Teeth. With the Line Space Lever moved to the extreme right, it should not be possible to turn the Platen with the R. H. Platen Knob.

A. **Line Space Lever** must not bind on its Bracket (left Carriage end). As this is a formed Bracket, the lower edge of the Bracket may be formed to eliminate bind.

B. **Line Space Dog Arm Assembly** must not bind on Ratchet. Adjust by forming Assembly to clear Ratchet.

C. **Line Space Pawl Spring Arm** must ride on top of the Line Space Adjuster Pawl Plate. The Adjuster Pawl Plate may be formed (toward Ratchet) to eliminate conflict.

D. **Line Space Adjuster.** The Adjuster Bracket is attached to the left Carriage End with binding screws and may be positioned to prevent Space Pawl Spring Arm from limiting on the front of Adjuster Pawl Plate, by loosening Bracket Binding Screws (2) and moving Bracket to prevent conflict.

3. DISASSEMBLY:

A. **Line Space Lever:**

   1) Disconnect Link Screw after removing Lock Nut.

   2) Disconnect Line Space Spring.

   3) Remove Line Space Lever Pivot Screw.

   4) Remove Line Space Lever.

4. ASSEMBLY: Reverse above instructions.
1. **MARGIN STOP**: The Left Hand Margin Stop controls the left margin by contact with the Carriage Stop Blade.

**LINE LOCK**: The Right Hand Margin Stop Functions to trip the Bell Hammer and to set the Line Lock. As the Carriage moves to the left the Bell Ring Lever of the R. H. Margin Stop contacts and moves over the Trip Arm of the Bell Hammer Lever, the Trip Arm moving downward because of the diagonal shape of the R. H. Margin Stop Bell Ring Lever while the Bell Hammer end of the Lever is cocked upward. As the Bell Ring Lever of the Margin Stop clears the Trip Arm of the Bell Hammer Lever, the Bell Clapper under spring tension, claps the Bell. An exact number of spaces later, the R. H. Margin Stop Blade contacts the Line Lock Blade moving the top of the Line Lock to the left while the lower arm of the lever swings to the right moving the Line Lock Link and through it, the Line Lock Hook into engaging position with the Escapement Actuator Bracket Trip Arm preventing forward movement of the Escapement Actuator Bracket, thereby preventing depression of the Key levers and Universal Bar and as the Carriage Movement is arrested by the contact of the Margin Stop Blade on the Line Lock Blade which is positioned solidly against the Carriage Stop the Space Bar becomes inactive.

**MARGIN RELEASE**: With the Carriage movement to the left locked by the Line Lock Mechanism, depression of the Margin Release Key causes forward movement of the right end of the Margin Release Bellcrank while the left end fork of the Bellcrank (which straddles the lower arm of the Carriage Stop), is moved rearward, drawing the lower arm of the Carriage Stop rearward while the top of the Carriage Stop (including Line Lock Blade) pivots forward withdrawing the Line Lock Blade and Carriage Stop from contact with the R. H. Margin Stop. The pressure of the R. H. Margin Stop against the Line Lock Blade being thereby relaxed, the Line Lock Top swings to inactive position (to the right) while the lower arm moves to the left relaxing its pressure against the rear of the Line Lock Hook (exerted through the Line Lock Link) the Hook freeing the Escapement Actuator Bracket Arm as it returns to inactive position (clearing Actuator Bracket Arm).

2. **ADJUSTMENTS**:

   **A. Margin Stops**: Both Margin Stops must be free to slide along the Margin Stop Rod and the spring of the Stops must draw the Stop into locked position in the Rack Teeth of the Margin Rod. New Margin Stops may be filed out (inside) to permit of a free but snug fit. The Stop Spring may be adjusted (by forming with screwdriver) to increase or decrease tension without removal from the machine.

   **(1) Left Hand Margin Stop** (Banking and Overthrow): The Margin Stop Bar is not adjustable endwise to position the Margin Stops for elimination of banking or overthrow. If the Margin Stop is set at 10 and when the Carriage is returned (to the right) the Carriage stops at 11 periodically or regularly, loosen Carriage Stop Bracket Screws and move Carriage Stop Bracket slightly to the left. If the L. H. Margin Stop is at 10 but when Carriage is returned sharply (to the left) the Carriage stops at 9, periodically or regularly, loosen Margin Stop Bracket Screws, moving Carriage Stop slightly to the right. The Carriage Stop Bracket Screws are positioned in slots for this adjustment. Tighten Screws when adjustment is made. If this adjustment does not correct banking or overthrow it may be necessary to file the face of the Margin Stop Blade where it is contacted by the Margin Stop Arm. After adjusting it should be determined that both scale positions agree, i. e., if Margin Stop positioned at 10 on Margin Bar Scale, carriage should stop at 10, etc.

   **(2) Right Hand Margin Stop**: Determine that Bell Ring Lever of the Right Hand Margin Stop is free on its pivot and spring connected providing proper tension and that the Bell Hammer Lever Trip Arm contacts the diagonal forming of the R. H. Margin Stop Bell Ring Lever centrally. It may be formed for this contact, if necessary.

   **(3) Carriage Stop**: The Carriage Stop should be positioned for full contact by the Margin Stop Arms. The Marginal Release Bellcrank Positioning Stop limiting against the back frame determines position of the Carriage Stop. This Positioning Stop may be formed to provide proper position of the Carriage Stop in its relation to the Margin Stop Arms. If this Positioning Stop is formed forward (toward the Bellcrank Arm), it will move the Carriage Stop rearward. If positioning Stop is formed rearward (toward the back frame) it will move the Carriage Stop forward. After forming Positioning Stop determine that the Margin Release Bellcrank is free and swings properly on its pivot so that the Top of the Carriage Stop moves forward clearing both Margin Stops when the Margin Release Key is depressed. Changing the limit of the Margin Release Bellcrank may affect full throw of the Margin Release Lever in which case, the Limit Arm of the Margin Release Lever should be formed to permit of this forward movement of the Margin Release Bellcrank.

   **B. LINE LOCK**: Before attempting adjustments determine that Line Lock, Carriage Stop, Margin Release Bellcrank, Line Lock Hook and Margin Release Lever are free on their pivots, with springs properly connected, and that Margin Release Lever is not limited too high preventing full throw (forward pull) of the Margin Release Bellcrank.
(1) Line Lock: As the Right Hand Margin Stop contacts the Line Lock, the top of the Line Lock should move to the left, as its lower arm moves to the right moving the Line Lock Link and the rear end of the Line Lock Hook to the right, positioning the Line Lock Hook in front of the Escapement Actuator Bracket Arm with a clearance of approximately .020". Contact of the Line Lock Hook with its position in front of the Actuator Bracket Arm is dependent upon proper forming of the Line Lock Link and proper depth of the Hook forming. The Line Lock Hook may be formed to provide proper contacting position fully in front of the Actuator Bracket Arm and for clearance of .020".

(2) Carriage End Stop Adjusting Screws: At either end of the Carriage a Carriage Stop Screw and Lock Nut is provided for contact with the Carriage Stop Shoulder (not the Blade), as a final stop.

MECHANIC'S NOTES:
1. While the Rack of the Corona Model pictured is attached to the Carriage Release Levers and may be moved out of engagement with the Pinion by forward movement of either of these Levers, the Pinion is firmly attached to the Starwheel, as in the Remington No. 17 and L. C. Smith Typewriters. When the Carriage is returned (to the right) by Line Space Lever or Back Spacer the Ratchet Dog of the Escapement Rocker acts as a wheel pawl in permitting the Starwheel to move backward as the Carriage moves to the right. When the Carriage Release Lever (right or left) is depressed, the Rack is moved upward from engagement in the Pinion permitting unrestricted movement of the Carriage in either direction so long as the Carriage Release Levers are held in forward position.

2. ADJUSTMENTS: Before attempting adjustments it should be determined that the Rack is true and level in its entire length to insure uniform mesh with the Pinion, and both Carriage Release Levers should operate uniformly (without play) when either is moved forward. In the event this condition does not exist the Rack should be removed (by removal of two binding screws on each end, attaching Rack to Carriage Release Levers) and straightened. If the two Carriage Release Levers do not function uniformly (facing Carriage from beneath) the Rack should be held while the Lever is formed to remove any difference in the action of either Lever.

A. RACK:

(1) Mesh: Rack teeth should mesh as deep as possible in the Pinion Wheel without bottoming. Adjustment may be made by uniformly forming Limit Arms of both Carriage Release Levers upward for deeper mesh, downward for less mesh. It should be determined that both Limit Arms are uniform, after adjusting, which may be determined by inserting thin tissue between the Limit Arms and the Slot in the Carriage Ends which serve as limit plates, determining by tension that Limit Arms are adjusted uniformly.

(2) End Shake: End Shake in the Rack is controlled by the forming of the Carriage Release Levers. If there is undue end shake in the Rack, it should be removed by forming Left Hand Carriage Release Lever Rack Connecting Arm outward slightly (with forming tool) which will cause the upper part of the Carriage Release Lever to lay up against the left Carriage end thereby holding the Rack outward. After adjusting be sure to check Rack for clearance with carriage bottom and true-ness in its entire length.

(3) To Remove and Replace Rack: Remove two Rack Binding Screws at each end of the Rack attaching the Rack to the Left and Right Hand Carriage Release Levers. The Rack may be removed from either end of the carriage. To replace: Reverse above procedure, being sure that the Rack Binding Screw heads enter embossed holes in Rack to clear the heads.

B. Pinion and Starwheel: (Order for 9, 10, 12 or 14 pitch):

The Pinion-Starwheel must be free on its bearing with end shake reduced to a minimum. To adjust, loosen Escapement Pinion Adjusting nut and adjust Escapement Pinion Adjusting Screw until end shake is removed but Pinion-Starwheel operate freely without binding. Tighten Adjusting Nut when adjustment has been made.

The Pinion and Starwheel should be inspected for wear or broken teeth, in either event, it is necessary to replace the combination.

(3) To remove and replace Pinion & Starwheel:

Remove Escapement Rocker Bracket (See Par. 3A, Escapement Action).

Loosen Escapement Pinion Adjusting Nut and turn out Escapement Pinion Adjusting Screw sufficiently to free Starwheel and Pinion. Remove Starwheel-Pinion assembly.

To Replace Pinion-Starwheel: Replace in Assembly. Tighten Escapement Pinion Adjusting Screw sufficiently to remove end shake with Pinion-Starwheel free. Tighten Escapement Pinion Adjusting Nut.
1. Depression of the Space Bar causes rocking action of the Space Rocker Shaft, drawing the Space Link forward. The Space Link is slotted at its rear end and the Space Bar Link Screw (a shoulder screw) transmits the forward movement of the Space Link to the Escapement Actuator Shaft Lever when the rear of the slot contacts the Space Bar Link Screw Shoulder. The slot in the Space Link permits escapement action by the typebars (movement of the Escapement Actuator Shaft Lever) without transmitting this motion to the Space Bar which is held inactive by the Space Bar Link Spring. Rocking of the Escapement Actuator Shaft causes movement of the Escapement Operating Lever to which it is firmly attached. Such movement of the Escapement Operating Lever trips the Escapement Rocker causing the Ratchet Dog to move off the Starwheel tooth. When the Space Bar is released, this pressure is removed from the Escapement Actuator Arm permitting the Escapement Rocker to return to Ratchet tooth engaging position, while the Space Link and Space Bar resume their normal inactive position.

2. ADJUSTMENTS: Before attempting adjustments, determine that there is clearance between the Space Link and R. H. Universal Bar Pivot in its movement forward and rearward. Determine that the Space Link Spring is properly connected and provides sufficient tension to return Space Link to inactive position and that the Space Bar Link Shoulder Screw is not binding Space Link. End shake of the Space Rocker Shaft should be reduced to a minimum on its Pivot without binding and Space Link should not bind on Space Link Connecting Screw on Space Bar Arm, nor should there be any lost motion in this connection.

A. Space Bar Trip: Depression of the Space Bar should cause trip of the Escapement Rocker just prior to contact of Spacebar Bumpers on Space Bar Bumper Down-Stops. There should be approximately 1/32" further depression of the Space Bar after escapement trip has taken place. Adjust by forming Front Frame Crossmember Down Stops slightly downward determining after forming that Space Bar contacts both downstops uniformly. If insufficient to permit trip, form Space Bar Arm forward to increase trip take hold; rearward to relax.

B. Space Bar should be level and in normal position, Space Bar Bumpers should uniformly engage top of front frame which is the Up-Stop. Adjust by forming Space Bar Bumper Arms. In inactive position top of Space Bar should be 3/8" above top of front frame crossmember and 7/16" below tops of bottom row of keys.

C. Space Link Spring should provide sufficient tension to return Space Bar to normal position and to eliminate Space Bar vibration when a Keylever is depressed.

D. Space Link Screw should not cause a bind of Space Link with Escapement Actuator Shaft Lever. Movement of the Space Bar when a regular keylever is depressed would indicate such a bind.

E. Space Link in its forward and rearward movement should clear Escapement Trip Link, U-Bar Right Hand Pivot, and may be formed to provide proper clearance, if necessary.

3. TO REMOVE SPACE BAR MECHANISM:

A. Remove Frame Cover Plate (See Cover Plates).

B. Remove Space Link Connecting Screw.

C. Loosen Space Shaft Pivot Screw Lock Nuts (right and left) backing out the Pivot Screws sufficiently to release the Shaft.

D. The Space Bar and Shaft Assembly may be removed through keyboard.

E. The Space Bar may be removed from Space Levers by removal of four (Space Bar Binding Screws) underneath the Space Bar.

F. The Space Link may be removed, with Space Link Connecting Screw removed, by removing Space Link Screw, disconnecting Space Link Spring and removing Link through rear of machine.

4. TO REPLACE SPACE BAR MECHANISM:

A. Reverse above instructions, centering the Space Shaft between its Pivots uniformly, replace Space Link Connecting Screw and any other parts that may have been dismantled.
1. It is the function of the Universal Bar to trip the Escapement Rocker (move the Ratchet Dog off the Starwheel Tooth) when contacted by the Sub-Lever U-Bar Operating Finger (when a Keylever is depressed) and to actuate the Ribbon Feed and Ribbon Cover. The mechanism of the Corona Portable is classified as "Lower Universal Bar Escape ment Operating Mechanism" because it is motivated by the Keylever or Sub-lever on the "downstroke" thereof. It will be noted that U-Bar Blade on this model is slightly curved in order to position the Blade for contact of Sub-Lever U-Bar Operating Fingers which are positioned on the arc of the Sub-Frame.

As the Sub-Lever U-Bar Operating Finger contacts the top of the Universal Bar Blade, the blade section of the U-Bar moves downward while its front arm draws the U-Bar Escapement Trip Link forward. The rear end of the Trip Link is attached to the Escapement Actuator Bracket Arm and as the Trip Link moves forward the Actuator Bracket is rocked forward. The Escapement Actuator Trip Arm is drawn forward in this motion to contact and move forward the Escapement Actuator Shaft Lever which is a component part of the Escapement Actuator Shaft Assembly. In this movement the Escapement Operating Lever is caused to contact and move the Escapement Actuator Arm transmitting this motion to the Escapement Rocker causing the Ratchet Dog to move off the Starwheel Tooth thereby permitting the 1 tooth escapement.

This same movement of the U-Bar, through the Ribbon Rocker Shaft Link, draws the Ribbon Universal Arm forward providing rocking action to the Ribbon Rocker Shaft which feeds and raises the Ribbon.

2. ADJUSTMENTS:

A. Position: The top of the U-Bar Blade must be level horizontally and parallel with the Sub-Lever Operating Finger bottoms in order to provide uniform escapement trip by the end as well as the center typebars and must contact its limit properly to insure proper position of the Blade. The U-Bar Blade may be formed to level by entering machine from bottom, holding Blade at center with pliers or bender while applying forming pressure to outer edges with similar tools.

B. Individual Trip:

(1) Where individual trip on end typebars is not uniform with trip on center bars, indicative of unlevel U-Bar Blade, forming outer end of U-Bar Blade bottom toward the front of machine will cause end of typebars to trip escapement nearer the platen; forming toward rear of machine will cause end typebars to trip escapement farther from Platen. This forming is actually a straightening process.

(2) Where individual trip on center bars is not uniform with end typebars form center of U-Bar similar to instructions above.

3. TO REMOVE UNIVERSAL BAR:

A. Remove Frame Cover Plates. (See Cover Plates).

B. Disconnect Escapement Trip Link from U-Bar by removing Shoulder Binding Screw.

C. Disconnect Ribbon Rocker Link from U-Bar by removing Shoulder Binding Screw.

D. Loosen U-Bar Pivot Lock Nuts and back out Pivot until U-Bar is free.

E. Remove U-Bar through bottom of machine.

TOUCH ADJUSTMENT MECHANISM: Corona Portable.

1. Touch Adjustment, to increase tension on Key­levers at the discretion of the operator, is provided by the Universal Spring Lever Assembly pivoting on machine frame and held by spring tension for contact by Universal Bar. With Touch Selector Lever set in No. 7 position, the Universal Spring Levers (right and left) limit on the Universal Bar. Each degree of movement from No. 7 to No. 1 moves the Spring Levers farther away from the Universal Bar. In No. 7 position, the full tension of the Spring Lever Springs is applied against the Universal Bar providing a heavy starting touch. As the Spring Levers are moved away from the U-Bar, momentum is given an opportunity to overcome this tension until (with Selector Lever in No. 1 posi­tion) speed of the Typebar Action gains such mo­mentum that contact of the Universal Bar with the Spring Lever is not noticeable.

2. ADJUSTMENTS:

A. Both Spring Levers should be uniformly formed for contact with U-Bar. The lower end of the Touch Selector Lever should be formed so that in No. 7 position, the Spring Levers just contact the Universal Bar.

B. Springs should be properly connected and provide sufficient tension to perform their function.

C. Touch Selector Lever should be formed, if necessary, to provide friction for maintaining the Lever in set position.
ESCAPEMENT ACTION:
Continued from Page 67

(2) Individual Trip Adjustment: The Sub-Lever Universal Bar Operating Fingers may be formed to bring an individual typebar trip into uniformity with balance or majority of the typebars. Uniform adjustment of trip is important to eliminate piling and crowding. To bend the Operating Finger downward will cause trip to take place when typehead is farther from the Platen. To bend the Finger upward will cause trip to take place when typehead is closer to the Platen.

B. Escapement Dogs: Both Escapement Dogs should be fitted snug on their pivots without binding, with all springs connected and providing proper tension and the Escapement Rocker pivoting free but snug.

(1) Ratchet Dog should position flush on the face of the Starwheel tooth and the bottom edge of the Dog should be flush with the bottom of the Starwheel tooth. Flush face position of the Dog on the tooth is controlled by the Rocker Adj. (Pivot) Screws while the Rocker Stop may be formed to provide flush edge-to-edge position. The Ratchet Dog should engage Starwheel tooth about 1/32" which purchase may be obtained by forming Ratchet Dog Bumper to the right or left as may be necessary. Ratchet Dog Spring should be connected and provide proper tension.

(2) Escapement Drop (Vertical clearance between face of Ratchet Dog and Stepping Dog) should provide only a perceptible movement of the Carriage when the Space Bar or a Keylever is held depressed. Adjustment is made by forming the Stepping Dog Tail to reduce or increase amount of drop, the Tail contacting the Bumper limiting the face of the Dog in its movement under pressure of the Starwheel Tooth.

3. TO REMOVE ESCAPEMENT ROCKER: Remove three (3) Escapement Actuator Bracket Binding Screws (See Space Bar Drawing) allowing the Bracket to hang down. Remove two (2) Rocker Bracket Binding Screws (one on each side of Bracket—be careful not to lose the Washers under the Bracket). The Escapement Bracket may be moved downward slightly to disengage Pinion Wheel from Carriage Rack, turned sideways to disengage Back Space Link (wire) from Back Space Pawl Wire receptacle and removed from machine.
CORONA ESCAPEMENT ACTION

- Escapement Dog Carrier Spring-Adj. Plate & Screw
- Ratchet Dog Face Engaging Starwheel Tooth Approximately 1/32
- Escapement Ratchet Bracket Assembly
- Stepping Dog Bumper
- Stepping Dog Tail
- Ratchet Dog Bumper
- Rocker Stop
- Locking Adj. (Pivot) Screw & Lock Nut
- Escapement Actuator Arm

- Rocker Stop Arm
- Ratchet Dog Spring
1. The Escapement Action of the Smith-Corona Standard Portable Typewriter indicated in the drawing, is motivated by the Lower Universal Bar (when contacted by the Sub-Lever Universal Bar Operating Finger) when the Keylever is depressed. The Keylink draws the Sub-Lever forward, pivoting the Typebar head toward the Platen. The Sub-Lever Universal Bar Operating Finger depresses the U-Bar Blade, moving it downward. The downward movement of the U-Bar Blade draws the Escapement Trip Link forward in which action the Trip Arm of the Escapement Actuator Bracket is drawn forward contacting the Escapement Actuator Shaft Lever, moving it forward. This motion pivots the Escapement Actuator Shaft and its Operating Lever which is positioned between the Rocker (old style) Connection prong, and the Escapement Actuator Arm. Contact of the Operating Lever with the Escapement Actuator Arm and movement of the Lever transmitted to the Escapement Bracket causes rocking of the Escapement Rocker in which movement the Ratchet Dog is moved off the Starwheel Tooth as the Stepping Dog moves in to tooth engaging position. Release of the Keylever permits return trip of the Escapement Rocker to inactive position: the Stepping Dog releases the oncoming Starwheel Tooth (which it is holding), which tooth is contacted and held by the Ratchet Dog, thus completing the one-tooth rotation of the Starwheel and movement of the Carriage one space.

This mechanism is somewhat different than the Stationary Dog and Loose Dog arrangement in standard machines and in some portables. In inactive position the Starwheel Tooth is held by the Ratchet Dog instead of the Stepping or Loose Dog. This Ratchet Dog pivots on the Rocker and acts as a wheel pawl when the Carriage is moved to the right to start a new line of typing. As the angular shape of the rear of the Starwheel Tooth contacts the Ratchet Dog, the Ratchet Dog pivots (tooth end downward) permitting the Starwheel to pass, returning to tooth engaging position when the Starwheel tooth has passed.

The Stepping Dog steps slightly to the right, after releasing the Starwheel Tooth (when the Keylever is released) in position to engage the oncoming tooth as the Keylever is depressed. This step to the right clears the Stepping Dog from possible collision with the Starwheel Tooth just released.

Arrows indicate the movement of the Keylever, Keylink, Sub-Lever, Universal Bar, U-Bar Escapement Trip Link, Escapement Actuator Bracket, with contact of the Escapement Actuator Trip Arm on the Escapement Actuator Shaft Lever, which motivates the Escapement Operating Lever.

Inspection of the drawings and machine will indicate that the Space Bar Link is positioned directly on the Escapement Actuator Shaft Lever, thereby permitting the Space Bar to have direct connection with the Actuator Shaft to trip the Escapement. The Space Bar Link Screw (a shoulder screw) is positioned in a slot of the Space Bar Link, which permits movement of the Escapement Actuator Assembly when a Keylever is depressed, without transmitting this motion to the Space Bar.

The Carriage Rack of this model of the Corona is attached to Carriage Release Levers forming a bail and may be disengaged from mesh with the Pinion Wheel by depression of either Carriage Release Lever. Its Spring maintains the Rack in engagement with Pinion wheel and Limit Arms on right and left Carriage Release Lever entering Carriage End Slots limit engagement of Rack with Pinion. When the Carriage is returned (to the right) to start a new line of typing, the Ratchet Dog acts as a Pawl, moves down under the reverse movement of the Starwheel tooth, permitting the Starwheel-Pinion combination to back up with the Carriage. As each Starwheel tooth passes over the Ratchet Dog, spring tension of the Ratchet Dog Spring causes the Ratchet Dog to return to tooth engaging position. When the Carriage Release Lever is depressed, the Rack is moved rearward out of tooth engaging position with the pinion permitting unrestricted movement of the Carriage.

Smith-Corona uses three different types of Escapement Rockers, only one being pictured here. A study of the mechanism, with reference to the drawing, will simplify the mechanical adjustments required.

2. ADJUSTMENTS: Before attempting adjustments it should be determined that the U-Bar, Sub-Lever, Escapement Actuator Bracket, Escapement Actuator Shaft Assembly and Escapement Rocker are free on their pivots without undue end shake but without binding and that the Escapement Operating Lever does not contact Escapement Actuator Arm of the Escapement Rocker limiting its movement which also affect the flush edge position (edge toward the reader when machine is tipped up on its back) of the Ratchet Dog on the Starwheel Tooth, which flush position is obtained by forming the Rocker Stop. It should also be determined that the Carriage is free in its rails and that Mainspring drum is properly adjusted to provide sufficient tension to properly move the Carriage. The Ratchet and Stepping Dogs should be fitted free but snug on their pivots to eliminate any wobble and the trip of each Keylever should be uniformly adjusted. Any differential in Keylever trip will automatically contribute to piling or crowding, while improper positioning of Ratchet Dog on Starwheel Tooth or wobble in either the Ratchet Dog or Stepping Dog on their pivots will contribute to skipping.

A. Escapement Trip:

1) Master Trip Adjustment: Moving a typebar from the left side, center and right side of the segment to the Platen with the fingers (after unlocking the Typebar by depression of its corresponding Keylever) the Trip should take place when the typeface edge of the typebar is about midway deep in the Type Guide. Adjustment is made by forming Escapement Operating Lever of the Escapement Actuator Shaft Assembly. If this adjustment is insufficient without causing the Operating Lever to bind on the Escapement Actuator Arm, further adjustment should be made by forming the Escapement Actuator Trip Arm. The Escapement Actuator Bracket should be held firmly while forming the Trip Arm. After adjusting Master Trip Adjustment, check Ribbon throw for proper operation (See Ribbon Bichrome Cover) and Space Bar for operation (See Space Bar). Continuous on Page 65
1. The Ribbon Feed (Drawing "A") is motivated by the lower Universal Bar (when contacted and depressed by a Keylever), the Ribbon Rocker Shaft Link drawing the Rocker Shaft forward on its fulcrum. The Ribbon Feed Link Wire transmits this forward motion to the Ribbon Reverse Yoke and to the Ribbon Feed Pawl which is positioned on its shaft in the Yoke. In this forward movement of the Pawl over the teeth of the Ribbon Feed Ratchet the Ratchet remains stationary being held in that position by the Ribbon Feed Ratchet Retaining Pawl. When the Keylever is released the Ribbon Feed Pawls transmit this motion to the Ribbon Feed Ratchet and the Ribbon Feed Shaft and its Gears. On the feeding spool side the Ribbon Feed Shaft Gear is enmesh with the Ribbon Spool Shaft Gear, resulting in transmittal of the Ribbon Feed Ratchet and Shaft movement to the Ribbon Spool Shaft and Spool on the feeding spool side.

The Ribbon Reverse (Drawing "B"): When the ribbon unwinds from the spool on one side, the eyelet in the end of the ribbon contacts the Ribbon Reverse Actuator (through which the ribbon is threaded) moving the top of the Actuator out (away from) the Spool, while the lower arm positions (releases on the left, pulls on the right) the Ribbon Reverse Trip into engaging position with the Ribbon Reverse Yoke (which is constantly actuated by the Ribbon Feed Shaft). As the slanting face of the Ribbon Reverse Yoke contacts the slanting face of the Ribbon Reverse Trip (positioned by the Ribbon Reverse Actuator) the Ribbon Reverse Yoke (including the Ribbon Reverse Shaft and Gears) is moved in the direction of the empty spool, positioning the Shaft Gear on that end enmesh with the Ribbon Spool Shaft Gear (of the empty Spool), the Ribbon Reverse Retaining Pawl retaining it in that position by pressure applied to the Ribbon Feed Ratchet Cam.

2. ADJUSTMENTS: Before attempting adjustments it should be determined that proper ribbon (with eyelets in each end) and proper Ribbon Spool is correctly installed and threaded through slots of Ribbon Reverse Actuators and through the Ribbon Guide; the Ribbon Feed Retaining Pawl should be positioned properly to retain Ribbon Feed Ratchet stationary while the Pawl moves over it (on its forward movement) yet release Ratchet (for one tooth movement) when driven by Pawl on the reverse (rearward) movement (keylever released). The Ribbon Reverse Retaining Pawl Spring should be properly connected and Retaining Pawl should position on Ribbon Feed Ratchet Cam properly. Feed Shaft Gear Binding Screws, Spool Shaft Gear Binding Screws and Feed Shaft Ratchet Binding Screw should be checked for tightness and Spool Shafts should be free.

A. Ribbon Feed:

(1) Ribbon Spool Shafts: Spool Shaft Gears (Drawing "C") should mesh properly with Feed Shaft Gears (when engaged on either end) and there should be approximately .020" clearance between bottom of Spool Shaft Bracket and top of Spool Shaft Gear. Adjust by loosening Spool Shaft Gear Binding Screw and position Gear for this clearance. Tighten Binding Screw.

(2) Ribbon Feed Shaft: Feed Shaft Gears should be positioned on Shaft for proper mesh with Spool Shaft Gears. Adjust by loosening Feed Shaft Gear Binding Screws and positioning Gears for proper mesh, tightening Binding Screws when adjusted. With Spool Shaft Gear (left) enmesh with Feed Shaft Gear (left) there should be a slight clearance (about .005") between Right Feed Shaft Gear and its Right Bracket, which clearance is provided by positioning Feed Shaft Gear on Shaft. Feed Shaft Gears should mesh properly with Spool Shaft Gears without grinding and without excess play.

(3) Ribbon Feed Pawl should engage Ribbon Feed Ratchet centrally. Adjust by loosening Ribbon Feed Ratchet Binding Screw and positioning Feed Ratchet centrally, tightening binding screw.

(4) Ribbon Feed Retaining Pawl (Drawing A) should retain Ribbon Feed Ratchet permitting Feed Pawl to space one tooth movement as the Keylever is released. Adjust by loosening Retaining Pawl Binding Screw and position Retaining Pawl properly—Tighten binding screw. Determine after adjusting, that Retaining Pawl is adjusted to retain Ratchet Teeth properly when Feed Pawl moves forward over the Ratchet, on the downstroke of the keylever, and that Retaining Pawl provides proper tension. Retaining Pawl may be removed and formed to increase or decrease tension.

(5) Ribbon Reverse Trips (Drawing B & D) (left and right) should be free on their pivots and spring tension between the two should move either out into Yoke engaging position when Ribbon Reverse Actuator is moved out from ribbon spool. In inactive position both Trip heads should rest against their limits. The face of the Trip should be formed so that when contracted by the Reverse Yoke the Yoke will be moved to the limit of reverse throw.

(6) Ribbon Reverse Bellcrank (Drawing D) functions to shift the Reverse Yoke and Feed Shaft to engage the Feed Shaft Gear enmesh in the Ribbon Spool Gear on the empty Spool Side, the shift being caused by contact of the Yoke on the Ribbon Reverse Trip. The Y form of the Reverse Bellcrank may be adjusted if Reverse Bellcrank is shifting Yoke too far by forming arms of Y slightly together: if insufficient throw, spread arms of Y slightly.

(7) Ribbon Reverse Detent (Drawing C) should rest on either side of Feed Ratchet Cam in similar position and tension should maintain Feed Shaft. Detent Bracket may be formed to position Detent on Cam. Detent spring should be connected and provide proper tension.
1. The Ribbon Cover is actuated by the Lower Universal Bar (when contacted and depressed by a Keylever) or the Ribbon Rocker Shaft Link to pivot the Rocker shaft forward on its fulcrum through its connection with the Ribbon Rocker Universal Arm. As the Ribbon Rocker Shaft pivots, the Ribbon Rocker Vibrator Arm (which is positioned solidly on the Shaft) transmits this motion to the Vibrator Slide (when positioned by the Ribbon Color Shift Lever in either red or black position). The Vibrator Slide is slotted for entry of the Ribbon Rocker Universal Arm and operates on the Arm. The Vibrator Slide is provided with a slot on its left and right shoulders for entry of the Ribbon Vibration Arm pointed studs, the Ribbon Color Shift Lever position determining whether the left stud of the Ribbon Vibrator Arm will position in the slot of the left shoulder of the Slide (Ribbon Color Shift Lever in Red position) or in the slot of the right shoulder of the Slide (Ribbon Color Shift Lever in Black position). When the Ribbon Color Shift Lever is placed in white (stencil) position the Vibrator Slide is positioned where its left shoulder is over the cut out portion of the Ribbon Rocker Vibrator Arm. In this position, the Ribbon Rocker Vibrator Arm cannot transmit the motion of the Ribbon Rocker Shaft to the Vibrator Slide which remains stationary as there is no motion of the Slide there is no movement of the Ribbon Vibrator Arm or the Ribbon Guide. Examine the drawings of the three positions of the Vibrator Slide as governed by the setting of the Ribbon Color Shift Lever.

2. ADJUSTMENTS: Before attempting adjustments determine that the Universal Bar is limiting on its up-Stop (located above the right hand formed Stop Arm of the Universal Bar) and that the Universal Bar is snug on its pivots without end shake but without binding. The Universal Bar should pick up the Ribbon Vibrator Arm and Ribbon Guide immediately when contacted by a Keylever or Sub-Lever, which can be determined, after setting Ribbon Color Shift Lever in Red or Black position, by moving the Universal Bar downward with the finger. The Ribbon Guide and ribbon should move upward simultaneously with the downward movement of the U-Bar, which means that all connections between the Universal Bar and the Ribbon Vibrator Arm must be adjusted properly to remove any play in these connections.

A. The Ribbon Rocker Universal Arm is provided with an adjusting “V” for removal of any play of the Ribbon Rocker Link in its connection with the Lower Universal Bar Arm (left). The Adjusting “V” may be closed just sufficiently to remove the excess play. After adjusting, holding typebar to the Platen, there should be a minimum freedom of movement (end shake) of the Shift Slide on the Ribbon Rocker Shaft. If not the Adjusting “V” of the Ribbon Rocker Universal Arm should be opened sufficiently to provide this play, but not enough to cause play of the Ribbon Rocker Link on its Universal Bar Connection. While holding a typebar firmly to the Platen it should be determined that the Ribbon Reverse Yoke (See Ribbon Feed) has a slight forward movement, after adjusting the “V” of the Ribbon Rocker Universal Arm. If this adjustment does not provide sufficient throw of the Ribbon it may be necessary to raise the Universal Blade up by forming U-Bar Up-Stop slightly upward, after which it will be necessary to readjust Adjusting “V” of the Ribbon Rocker Universal Arm as outlined above.

B. Ribbon Position: With Universal Bar inactive the top of the Ribbon should be positioned approximately 1/16” above the flat top of the Type Guide. Adjust by forming Ribbon Vibrator Arm Stop on Escapement Rocker Bracket. To form this Stop forward raises the ribbon, rearward lowers the ribbon. Forming should be confined to the very minimum requirement.

C. Ribbon Throw:

1. Bleeding and Cutting Off:

   (a) With ribbon positioned correctly as indicated in paragraph 2B above, with Color Selector Lever set in Black position, while typing with the diagonal / and underline ___ keys, there should be no bleeding of colors (when using a two color ribbon). Adjustment may be made for bleeding by spreading right hand Vibrator Slide “Black Ribbon” Positioning Arm Slot to lower ribbon. If cutting off tops of letter or characters, spread opposite slot on same Vibrator Slide Arm to raise ribbon (See Drawing).

   (b) With Color Selector Lever set in Red Position, typing with diagonal / and underline ___ keys, a full print in red should result, without cutting off bottoms of characters or bleeding black at tops of characters. (See drawing RED POSITION for slot adjustment). After adjusting it should be determined that with Keylever depressed (type held to the Platen) that there is a minimum additional upward movement of the Ribbon Vibrator. Red Vibrator Stop (on underside of Carriage Bed Plate, accessible by removing Typebar Anvil Plate on Segment) should be formed to permit of this movement, if necessary and mechanism readjusted as prescribed under Paragraph 2A above.

NOTE: After forming Slots of Ribbon Slide Arms, it should be determined that Ribbon Vibrator Arm pointed studs enter oval shaped openings of the Ribbon Vibrator Slide centrally, without rubbing or binding on either side, which may be determined by changing position of the Ribbon Color Shift Lever during which movement the Ribbon Vibrator should not move. Movement of the Vibrator would indicate that pointed studs are not entering Slide openings centrally.

D. Ribbon Vibrator should slide freely, on Line Indicator Bracket without binding, and should clear Line Indicator properly. The Ribbon Vibrator is positioned between the jaws of the Vibrator Arm Assembly (directly behind the type guide and may be removed, after removing Typebar Anvil Plate on Segment; by setting Color Selector Lever in Red position and holding Keylever depressed while disengaging Vibrator.
1. Depression of the Back Space Keylever causes the rear end of the Keylever to move upward drawing the Back Space Bellcrank which pivots towards the left. In this movement the Back Space Link draws the Back Space Arm to the left. The Back Space Arm together with the Back Space Pawl which pivots on it practically surround the Starwheel. Movement (to the left) of the top of the Back Space Arm draws the Back Space Pawl downward and into engagement with the Starwheel tooth. Continued downward pressure on the Back Space Keylever causes the movement of the Starwheel counter-clockwise, this reverse movement of the Starwheel being permitted by the Ratchet Dog which acts as a Pawl.

2. ADJUSTMENTS: Before attempting adjustments determine that the Back Space Keylever, Bellcrank and Arm are free on their pivots and that the Bellcrank Spring is properly connected. On this model of the Corona two arms are provided for attachment of the Back Space Link. The rear arm, which limits on the Escapement Bracket Back Space Limit stud, is for attachment of the Link (to push the Arm) when the Back Space Key of the machine is on the right side of the keyboard. Where the Back Space Key is on the left side of the Keyboard, the Link should be attached to the forward (front) arm.

It should be determined that the Back Space Link or Back Space Bellcrank is not deformed preventing the rear Arm from contacting its limit, otherwise the Back Space Pawl may move in to contact the Starwheel tooth.

A. Back Space Pawl should clear Starwheel tooth when Back Space Keyleve is inactive by '.015". In order to accomplish this, the rear arm must contact its limit (the Back Space Link must not be deformed preventing this contact) and the tail of the Back Space Pawl must contact and be governed by the Back Space Pawl Positioning Arm which is a part of the Escapement Bracket. If the rear arm is contacting its limit and the Back Space Pawl does not clear the Starwheel Tooth, the Back Space Pawl Positioning Arm should be formed toward the Back Space Pawl to increase clearance; away from the Back Space Pawl to decrease clearance. Forming of the Positioning Arm may be done with a screwdriver. Back Space Spring must be properly connected and provide proper tension.

B. Underthrowing: (Failing to backspace one complete space): Check Back Space Pawl for contact with Starwheel tooth when Back Space Keylever is depressed. Check Pawl Stop for limiting of Back Space Pawl prior to completion of the full back space stroke. If Back Space Pawl contacts this Stop before completion of the Back Spacing (Starwheel tooth moving to the right of the Ratchet Dog) form the Back Space Pawl Stop downward (moving the Stop slightly away from the Pawl to increase this distance of movement before the Back Space Pawl is limited). If this adjustment does not provide sufficient throw to complete a full back space, the rear end of the Back Space Keylever should be formed upward to cause quicker contact (greater upward throw) of the Bellcrank in whose hole or slot the end of the Keylever operates.

C. Overthrowing: (Back ing up more than one space): Check Back Space Pawl Stop to determine that it stops Back Space Pawl shortly after the Starwheel Tooth passes the Ratchet Dog. If it does not limit the Pawl properly, form the Stop upward slightly. Check Bellcrank to determine that it is not causing overthrow by too much upward movement of the rear end of Keyleve. If so, form rear end of Keyleve downward slightly.

3. DISASSEMBLY:

A. To Remove Back Space Pawl: Remove Escapement Rocker Bracket Assembly (See Escapement Action). The Back Space Pawl, Pawl Arm, Positioning Arm, Pawl Spring and Starwheel are a part of this assembly and may be examined to clarify operation when assembly removed from machine. The Back Space Pawl may be removed by backing out Back Space Pawl Pivot Screw and disconnecting Back Space Pawl Spring.

4. To Replace Assembly (See Escapement Action).
1. The Typebars of the Corona Portable are actuated by the Keylevers through the connecting Keylink, Sub-Lever Assembly and Keylever Assembly. The Typebars bear embossed numbers from No. 1 to No. 42 (left to right) indicating their position, which correspond with embossed numbers in the Sub-Lever Assembly and Keylever Assembly. The Keylinks are uniform in size and shape on some models of the Corona and specially formed on others for their individual positions. Keylever Assembly Springs provide the tension for return of the Typebar, Sub-Lever and Keylever to inactive position when released.

2. ADJUSTMENTS:

A. Typebars should be adjusted (by forming) to enter Type Guide centrally without rubbing or binding on either side of the Guide Slot and Typebar Lug should just contact Segment Abutment Ring when type head contacts the Platen. The contact face of the Lug may be filed or peened for this proper contact. For Typebar Alignment, refer to Alignment—Typewriter Mechanical Training Manual, Volume 1, Standards.

B. Sub-Lever Assemblies must operate freely and draw the Typebar forward without friction, or binding of the Sub-Lever connection with the Typebar. Aligning Sub-Lever to permit of this freeness is performed with thin slotted T-Bender.

C. Keylever Assemblies must operate freely and smoothly on their Pivot (rivets) and in the front

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comb. Sluggish action or binding of the Typebar may be caused by binds in Keylever rivets, bind of Keylever in front comb or improperly formed Sub-Lever, as well as dirty segment slots or deformed typebars.

3. DISASSEMBLY:

A. Typebar or Bars: Disconnect Sub-Lever Type Bar Link Connection. Back out Segment Fulcrum Wire Stop Screws. Place Follow-up Segment Fulcrum Wire in Segment Slot, moving Segment Fulcrum Wire around until typebar to be removed is positioned at union of the two wires. Spread Fulcrum Wires slightly to free Typebar, which may be removed. In replacing a Typebar it should be determined that the new Bar bears the same embossed number as the bar to be removed or that the new Typebar is formed identical with the old.

B. Segment: Remove Cover Plate and Rear Name Plate. Disconnect Typebar Links from Typebars (using spreader) moving each Type Bar Sub-Lever Link Assembly back over the Keyboard in order to retain them in proper order. Remove three (3) Segment Binding Screws (from rear of Segment Plate) indicated in Drawing Inset. It will be necessary to remove the Mainspring Drum in order to make the left hand Segment Binding Screw accessible (see Mainspring & Drawband). Move Segment slightly forward, up and out. To replace, reverse these instructions.

C. Shift Segment Plate (with Segment removed): Loosen Shift Segment Plate Pivots (after loosening Lock Nuts) sufficiently to clear Shift Frame Arms. Loosen three (3) right hand Shift Ball Race Bracket Screws, moving Bracket to right so Segment Race Ball Bearings will fall out. Move the Shift Segment Plate forward, disengaging Motion Stop Bracket from Shift Stop Bracket, lifting up and out of machine.

To replace, position Segment Plate (inserting Segment Race Ball Bearing, left, in Raceway) to hold Bearing while returning right Race to position and placing right hand bearings. Adjust to snug fit without binding on Segment Plate Pivots.

D. Sub-Lever Assembly: Disconnect Sub-Lever Connector from Typebar. Remove Sub-Lever Fulcrum Wire Stop Screws in machine side frame (right and left) and insert Follow up Fulcrum, chasing out Sub-Lever Fulcrum until Sub-Lever to be removed is reached. Spread Fulcrum Wires slightly to free Sub-Lever. Maneuver the Sub-Lever up through the machine as Link to Keylever is disconnected and Sub-Lever removed. To replace, reverse above procedure.