MECHANICAL INSTRUCTIONS
FOR
Remington Noiseless
Model 10

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FOREWORD

This instruction book is intended primarily for mechanics, but it can be studied to very good advantage by salesmen. This book is not an operator's instruction book and should not be given to customers.

The drawings contained in this book should be studied in connection with the reading matter and are of great assistance in learning the functions and adjustments of the various mechanical units. For those in the Foreign field who do not read English, a careful study of the drawings will give helpful fundamental information.

Study one unit thoroughly before going on to another.

To obtain the best results, learn the adjustments pertaining to a unit from the book and then make them on the machine.

All painted parts listed in this Instruction Book are for Gray Wrinkle Parts. For other finishes it will be necessary to refer to Parts Catalog.
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This mechanism is very simple and requires very little adjustment.

It is necessary, as in all parts of the machine, to have free moving parts. However, if the Back Space Mechanism should fail to operate, check the following:

See that the Back Space Dog Spring 6-6901 has sufficient tension to keep the Back Space Dog 6-703 clear of the Escapement Wheel.

Also see that the Dog 6-703 is free in movement on the Back Space Dog Guide Screw 6-6305.

On previous machines, that had the Ball Bearings in the Star Wheel, we had 5 different Back Space Dogs. 8 Pitch, 10 Pitch, 12 Pitch, 14 Pitch, and 16 Pitch.

On the present machines that have the Escapement Wheel Bracket linkage 10-40488, on the Star Wheels, we use the same Back Space Dog 6-703 for 10 Pitch and 12 Pitch but require a special Back Space Dog for machines of 8 Pitch, 14 Pitch, and 16 Pitch. The Escapement Wheel Bracket 10-40488 is often called the "Knee Action Linkage."

Check the Dog to correspond with the spacing of the machine.

See that the Escapement Body is positioned so that the Fixed Dog holds the Escapement Wheel in such a position that the tooth of the Wheel will be fully engaged by the Back Space Dog 6-703.

The location of the Escapement Body has been described in the text covering the Escapement Mechanism.
CARRIAGE MECHANISM ADJUSTMENTS

PAPER FEED ROLL MECHANISM

The proper tension on the Paper Feed Roll Front, Assembled, 10-70435 and Rear Assembled, 10-70436 should be such as to be sufficient to firmly hold a single sheet of paper. This desired tension is supplied by the Paper Feed Roll Tension Spring 6-6919 which is adjusted by the Paper Feed Roll Adjusting Screw 6-6323 on the rear of the Paper Feed Roll Shaft Bracket Assembled, 10-63180.

It is very important that the Paper Feed Roll Front, 10-70424 and Rear 10-70425 on the Paper Feed Roll Front Assembled, 10-70435 and Rear Assembled, 10-70436 should roll freely on the Paper Feed Roll Shaft and also that the surface of the Paper Feed Rolls should be clean.

In checking the Paper Feed Rolls for freedom of movement, see that there is a little end play in each Paper Feed Roll, that is, see that the Paper Feed Roll Spacers, on the Paper Feed Roll Shafts, are not pressing against the sides of the Paper Feed Rolls.

If you find this condition to exist, move the Paper Feed Roll Spacers to the right or left on the Paper Feed Roll Shaft as required. Also see that there is a trifle of oil on the Paper Feed Roll Shafts at the points where the Paper Feed Rolls are located.

Inspect the Paper Feed Roll Release Mechanism and see that the Release is enough to clear twelve sheets of paper. Also see that there are no binds and see that the lower ends of the Paper Feed Roll Arms, Front and Rear, rest in the slots in the Paper Feed Roll Release Shaft 10-63191 when the Paper Feed Rolls are against the Platen Roll.

PAPER TROUGH

Next, see that the front edge of the Paper Trough 10-80062 is away from the Platen Roll. The distance not to exceed the thickness of six sheets of paper. See that there is a Paper Trough Spring 10-7036 and Silencer 10-60036 on each side of the Paper Trough 10-80062 and that the Paper Trough Springs 10-7036 are in good order.

PAPER FINGERS

Try the Paper Finger Left, 10-40896 and Right, 10-40897 on the Paper Finger Rail 10-40934, and see that they slide freely in either direction. See that the Paper Finger Left, 10-40896 and Right, 10-40897 have the proper tension and that no metal is touching on the Platen Roll.

The Paper Finger Rolls should rest flat on the Platen Roll, and to correct any of these faults shape the Paper Fingers to suit.
CARRIAGE MECHANISM ADJUSTMENTS

PAPER SCALE, TABULATOR STOP RACK, MARGIN STOP RACK & FEED RACK

The graduations on the Paper Scale 10-80200 should agree in point with the Tabulator Stop 10-40539 and the Margin Stop setting.

For example: If the Margin Stop Left 10-40866 is set at "10" and the Carriage is at the margin, the position on the Paper Scale Indicator, located on the Type Bar Comb Upper, should indicate "10" on the Paper Scale 10-80200. If not, adjust the Paper Scale to right or left by loosening the Paper Scale Screws 10-6676. If adjustment can not be obtained by moving the Paper Scale, loosen the Screws 10-6613, holding the Scale Indicator to the Type Bar Comb 10-80113, and set it to right or left as desired. See that the Paper Scale Rolls 6-3643 roll freely, and that the sleeves are oiled, also see that they move with slight friction on the Paper Scale 10-80200 to the right or left.

The Margin Stops Left, 10-40866 and Right, 10-40831 must move freely from right to left on the Margin Stop Rack 10-40788 and see that they lock in the position for which they are set.

The Feed Rack, 10-40821 must be properly meshed with the Escapement Shaft Pinion and to make the proper adjustment, loosen the Feed Rack Support Screws 6-6424 and move the Feed Rack 10-40821 to front or back until it meshes properly, with slight amount of play, then tighten the screws.

The Feed Rack, 10-40821 should also be adjusted so that when the Margin Stop Left, 10-40866 rests beside the Margin Release Lever 10-40036, the Margin Release Lever should be free to work in and out. This can be done by adjusting the Feed Rack Adjusting Plate Eccentric 6-3513 by loosening the Feed Rack Adjusting Plate Eccentric Screw 6-6449 and turning the Eccentric until there is .015" clearance between Left Margin Stop and Margin Release Lever. If this adjustment is not held close, irregular left margins will be the result. Likewise, more than .015" clearance would give the same result.

Next, See that the Tabulator Set Lever, 10-64065 strikes the Tabulator Stop 10-40539 squarely, and upon throwing out a number of Stops, one after the other in a row, see that the Tabulator Lever 10-40741 will come out centrally between each Tabulator Stop when Tabulator Key is depressed. If not, adjust by loosening the Tabulator Stop Rack Screws Left, 10-6666 and Right, 10-6667 and making the adjustment on the Tabulator Stop Rack Adjusting Screw and Nut 10-6619N on the Carriage End Right 10-61481. Refer to Tabulator Adjustments and Illustration.

Test the Carriage Release Levers Left, 10-40950 and Right, 10-40951 and see that they are free and that they raise the Feed Rack 10-40821 clear of the Pinion. Check the Feed Rack Adjusting Plate Eccentric Screw 6-6449 and the Feed Rack Support Screws 6-6424 to make sure that they are tight.

PARALLEL CARRIAGE

Place a paper shim between two pads of the Carriage Roller Retainer Bracket 10-40274 and the Retainer Plate of the Center Tie 10-40285 and check the drag of the two paper shims. If the drag is uneven, adjust the Right Balance Shaft End Plate 10-5365 to where the drag of the shims is even. Tighten the End Plate Mounting Screws 6-6390 and remove the paper shims.

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After the preceding step has been made and the writing appears darker on one end of the writing line than the other, support the Carriage rigidly and tap lightly on the Carriage Stop Screw 10-6674 on the end of the Carriage that prints heavier. It may be necessary to Pein the Carriage Retainer Rail 10-40368 (where it seats in the Carriage End) toward the rear of the machine. This is done on the end of the Carriage that prints lighter.

**PLATEN ROLL & LINE SPACE MECHANISM ADJUSTMENTS**

In case of trouble with the Line Space and Variable Line Space Mechanism, see that the parts of the mechanism are oiled and that the Variable Line Space Clutch Dogs 6-2221 are free in their slots. Also see that the Variable Line Space Clutch Dog Spring 6-6980 is in good condition and functioning properly.

The Variable Line Space Clutch Dog Cams 6-2220 should be free and under good spring tension. Further, see that the teeth of the Variable Line Space Ratchet 6-2163 are not worn. Check the teeth on both inside and outside of Ratchet.

Check and adjust the Line Space Mechanism as follows:

The Line Space Lever 10-40427 should have no lost play to the right or left when setting in a normal rest position. If it has, this can be corrected by forming Lip "A" to the rear slightly until it touches the upper front end of the Pawl and Bell Crank 10-40989.

Next, hold the Line Space Lever to the right as far as it will go and test the Platen Roll 10-80237 by trying to turn its knobs to the front or back. The Platen Roll should be securely locked in place. If the Platen Roll is not locked in place, make sure that Lip "B" of the Pawl and Bell Crank 10-40989 is striking squarely on top of the Pawl Stop Screw 10-6635. If not, align parts and adjust the limit screw.

With these adjustments completed, hold the Line Space Lever 10-40427 to the right firmly, and check to see that the Roll on the Ratchet Detent Bracket 10-64028 is fully seated and located centrally between two teeth of the Ratchet 6-2163. If not, this adjustment can be made by loosening the Ratchet Detent Bushing Screw 10-6662 and turning the Eccentric Bushing 6-22807. If not possible to obtain this adjustment through the Eccentric, it may be necessary to readjust the Pawl Stop Screw 10-6635, then follow by readjusting the Eccentric.

**NOTE:** It is not the purpose of the Detent Roll, on the Ratchet Detent Bracket 10-64028 to back up the Platen Roll Ratchet 6-2163 if it is spaced too far, nor to turn the Platen Ratchet farther if it is not spaced enough. The sole purpose of this Detent Roll is to hold the Platen Ratchet 6-2163 at the position to which it is spaced by the Line Space Lever, as outlined in preceding paragraphs. When releasing the Line Space Lever, after having spaced, the Platen Roll should not creep or move slightly to the front or back of the machine. If it does, it indicates that the Eccentric Bushing 6-22807 has not been correctly adjusted.

The pressure of the Detent Roll of the Ratchet Detent Bracket 10-64028 against the Ratchet 6-2163 should be firm to hold the Ratchet in place. This pressure can be adjusted by the Ratchet Detent Spring Screw 10-6668. However, the pressure should not be so great against the Ratchet that it would make it too hard for the operator to turn the Platen.

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With the above mentioned adjustments made, the paper should feed correctly if the Platen Roll and Feed Rolls have not become glazed or hardened from age. The Glaze can be removed by rubbing the Platen and Feed Rolls with a clean soft rag dampened with denatured alcohol.

The Platen Roll 10-80237 should have no noticeable end play, yet it should spin freely in the carriage when the Feed Roll Release Lever is depressed. This can be adjusted by loosening the screws in the right end of the right Platen Knob 10-63233 and turning in on the Knob until the end play is removed. Then tighten the Screw 10-6770 in the end of this Knob to lock it in position.

Caution: Care should be taken not to turn this Knob in too far, which would result in the Platen Roll being too hard to turn. Too much end play on the other hand will cause poor alignment.

The Noiseless Model 10 has a demountable platen, i.e., it can be removed easily by the operator. This makes it possible for her to change to one with Card Attachment or put in a harder platen for making more carbon copies.

When the Platen Lock Lever is pushed to the rear, the Platen Arm Lock Thrust Screws 6-6547 and 6-6541 should be adjusted for a slight detent action in order to hold the Platen Roll Bushings Firmly in place.

Note: For further adjustments in regard to Paper Feed, refer to "ADJUSTMENT OF PAPER FEED ROLL MECHANISM" under the heading of "CARRIAGE MECHANISM".

CENTER TIE ADJUSTMENTS

It is of great importance that the Center Tie 10-80115 be properly seated. Otherwise poor alignment and trouble will result in trying to obtain the proper number of carbon copies. By seated, is meant that there should be no play up and down or sideways, and there should be no tilt of the Center Tie when the Carriage is to the extreme right or left end of the writing line. It should also be seated in its raceway of the Frame Brace Rear Upper.

The seating of the Center Tie is accomplished through the adjustment of the Center Tie Retainer 10-40336, Center Tie Retainer Lugs 10-40337 and the Center Tie Gib Screw and Nut 10-6659N.

First, loosen the Center Tie Retainer Screws 10-6643 and the Center Tie Retainer Lug Screws 10-6615. See that the bottom of the rear of the Center Tie is setting flat in its raceway on the Frame Brace rear upper. If not, back out the Center Tie Gib Screw and Nut 10-6659N and the Center Tie Support Screw 6-6502 and Nut 6-6020 until it is.

To seat the Center Tie 10-80115 after the Center Tie Retainer Screws 10-6643 and Center Tie Retainer Lug Screws 10-6615 have been loosened, first tighten the Center Tie Retainer Lug Screws 10-6615 in the Center Tie Retainer Lugs 10-40337 right and left side. (This is a temporary setting.)

Second, set the Center Tie Retainer 10-40336 so as to eliminate end play in the Center Tie 10-80114. To do this, set the left Center Tie Retainer 10-40336, looking from the rear, by pressing the Center Tie Retainer to the left or outward from the machine, and tighten the two Center Tie Retainer Screws 10-6643 while holding in this position. Next, force lightly to right, looking from rear of machine, the right Center Tie Retainer 10-40336 and tighten the two Center Tie Retainer Screws 10-6643 while holding in this position.
CENTER TIE ADJUSTMENTS (CONT'D.)

Third, loosen the four Center Tie Retainer Lug Screws 10-6615 again, that attach the Center Tie Retainer Lugs 10-40337 to the Center Tie, and while they are loose, place your finger under the right Center tie retainer lug 10-40337 and your thumb on top of the Center Tie 10-80115, squeeze together, and hold this pressure while you tighten the Center Tie Retainer Lug Screws 10-6615 in the Center Tie Retainer Lug 10-40337. Make the same setting on the left Center Tie Retainer Lug 10-40337 and try the Center Tie for end play, up and down movement, and note if it is firmly seated on the milled surface, or raceway, of the Frame Brace Rear Upper and the Center Tie. Reset the Center Tie Support Screw 6-6502 and Nut 10-6003, on the Rear Cover 10-80108, to within .002" or .003" of the milled seat of the Center Tie and lock screw in this position with Nut 10-6003.

If there is up and down play, it will be necessary to reset the Center Tie Retainer Lugs 10-40337. If there is end play, it will be necessary to reset the Center Tie Retainer 10-40336, but the Center Tie must be free to slide in its raceway. Try the Back and Forth movement of the Center Tie to see that there is sufficient tension on the Center Tie Adjusting Springs, Left 6-6907 and Right 6-6928, to pull the Center Tie back when the Pressure Indicator Lever 10-40304 has been moved to the right. If the Center Tie does not move back, it will be necessary to ease up slightly on the Center Tie Retainer 10-40336.

The forward position on the Center Tie 10-80115 is correct when the Pressure Indicator Lever 10-40304 is at rest against the Universal Bar Bracket Center Screw Left 10-6565 on the Top Plate 10-60315. The distance between the Type Guide and the Platen Roll, when properly set, is .060". To establish this clearance, use a No. 4 or .060" gauge for measuring this distance.

To adjust, turn the Pressure Indicator Lever 10-40304 to the right. Place the .060" gauge between the Type Guide and the Platen Roll and turn the Pressure Indicator Lever 10-40304 to the left until the forward movement of the Center Tie 10-60058 is such that the .060" gauge is just barely held between the Type Guide and the Platen Roll.

If it is found that the necessary clearance is established between the Type Guide and the Platen Roll before the Pressure Indicator Lever 10-40304 comes to rest against the Universal Bar Bracket Center Screw Left 10-6565, hold the Pressure Indicator Lever 10-40304 firmly and loosen the Pressure Indicator Screw 10-6585 and drop the Lever itself down to come to rest on the Screw 10-6565 without moving the Center Tie Adjusting Nut 10-6033, then tighten the Pressure Indicator Screw 10-6585.

If there is too much clearance between the Platen Roll and the Type Guide with the Pressure Indicator Lever 10-40304 at rest against the Screw 10-6565, loosen the Pressure Indicator Screw 10-6585 while the Pressure Indicator Lever 10-40304 is at rest against the Screw 10-6565 and move the Lever itself up several notches and tighten the Pressure Indicator Screw 10-6585 while holding in this position and repeat the adjustment in preceding paragraph.

Familiarize yourself with this before undertaking to make the adjustment in a customer's office.

Adjust Center Tie End Adjusting Screws 10-6708 downward until lower ends of same just touch the Frame Brace Rear Upper, then tighten Center Tie End Adjusting Nuts 10-6003 to retain the adjustment. This same adjustment applies to both Center Tie Adjusting Screws and Nuts on both the right and left ends of the Center Tie 10-80115.
CENTER TIE ADJUSTMENTS (CONT'D)

CAUTION: Care must be taken when making this adjustment, not to run these screws in too far, otherwise the Center Tie would be raised off its Raceway on Frame Brace Rear Upper which would be wrong. It would also cause a bind in the Carriage Balancing Shaft 10-64043.

The purpose of the Center Tie Gib Screw and Nut 10-6639 is to eliminate any possible side tilt or tip of the Center Tie when the Carriage is to the extreme right or left side of the machine. These screws should be set, just deep enough, to touch the Center Tie and not cause any pressure on top of the Center Tie. The Center Tie Gib Screw and Nut are used for no other purpose than stated above.

In making the Center Tie adjustments, be sure that the Center Tie Stops 10-40289, on the Side Frame, are not limiting the forward movement of the Center Tie 10-80115.

After the Center Tie has been set to No. 4 or .060" gauge, there should be about .020" clearance between the Stops 10-40289 and the Center Tie 10-80115.

ESCAPEMENT AND UNIVERSAL BAR ADJUSTMENTS

It is necessary before attempting to adjust the escapement of the machine, that the Center Tie 10-80115 (Center Tie Illustration), be seated, as explained in adjustments for the Center Tie, and the distance between the Type Guide and Platen Roll, be set to .060" with the Pressure Indicator Lever 10-40304 (Center Tie Illustration) at rest against the Universal Bar Bracket Center Screw Left 10-6565.

Also that the individual pressure of the Type Actions be adjusted to print lightly on one sheet of paper with the Pressure Indicator Lever 10-40304 set in a vertical position, as explained under the heading of "Type Action and Key Levers Adjustments".

With these adjustments checked, try the Universal Bar Shaft 10-40523 for end play. This should be held as close as possible and the adjustment to eliminate end play is made with the Universal Bar Pivot Screws 6-6333. When correct, tighten the Lock Nuts 6-6019 on the Screws 6-6333 and see that the Universal Bar Shaft is free in its movement.

Now check the horizontal position of the Escapement Body 10-40175. This part should be adjusted with the Pivot Screws 6-6304 and 6-6339 so that the Tooth of the Escapement Wheel 10-40382 engaged by the Escapement Fixed Dog 10-40176 under Carriage tension, is in a position of six o'clock, or at right angle with the horizontal line of the Escapement Body 10-40173. This applies to the 10 Pitch (Pica) machines. On the 12 Pitch (Elite) machines, the position of the Escapement Body should be a trifle more to the left so that the Back Space Dog 6-789 will fully engage the Tooth of the Escapement Wheel when the Back Space Mechanism is operated.

The adjustment for getting the horizontal position of the Escapement Body is made with the Escapement Pivot Screws 6-6304 and 6-6339. After the correct position is obtained, see that the Escapement Body 10-40175 has no end play. End play should be taken up with the Escapement Pivot Screw Short 6-6304. Also, see that the up and down movement of the Escapement Body is free.

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Check the Fixed Dog 10-40176 and the Stepping Dog 10-40250 to be free on their Pivot Screws but not sloppy or loose. Loose and worn Dogs cause skipping. Tighten all Lock Nuts after adjusting.

When at rest, under spring tension, the Escapement Body Stop Adjusting Screw 6-6309 should be adjusted so that the upper side of the Escapement Fixed Dog is .010" to .015" above the upper side of the engaged tooth of the Escapement Wheel. If set too low, turn in on the Adjusting Screw 6-6309 until correct. If high, back out on the Adjusting Screw 6-6309.

Make sure when adjusting that the Stepping Dog 10-40250 is clearing the under side of the Escapement Wheel 10-40382. After correcting adjustment tighten the Lock Nut 6-6005 on the Adjusting Screw 6-6309.

The Tension on the Escapement Body 10-40175 should be about 1/6 of a turn of the Escapement Return Spring 6-6916. Do not turn tension of this Spring heavier, as it will make key touch heavier for the operator.

With all the foregoing adjustments checked, and the necessary corrections made, we now test the machine to see if the Universal Bar 6-22251 is level. To make the test, move a center Type Bar to the Platen Roll by hand and notice at what distance from the Platen Roll the escapement occurs. Also notice at what points the escapement occurs when the Type Bars at the sides of the machine are moved to the Platen Roll. If the escapement is farther from the Platen on the Center Bars than those at the sides, it indicates that the Universal Bar 6-22251 is not level, that is, it is higher in the center than at the sides. In other words, the Universal Bar Links 6-807 are set too far towards the rear of the machine.

Insert four sheets of paper in the machine and with the Pressure Indicator Lever, 10-40304 at rest against the Universal Bar Bracket Center Screw Left 10-6565, adjust the Escapement Connection Nut 6-6008 at the end of the Escapement Connection 10-40226, in back of the Escapement Body 10-40173, so that when the Type Bar is moved to the Platen Roll by hand, the escapement will occur just at the time the Type touches the paper. Try for this condition with the Center Type Bars and also with the Side Type Bars. If the escapement is not the same on the Side Bars as the Center Bars, it is necessary to reset the Universal Bar 6-22251.

To correct this condition, loosen the Lock Nuts on the Universal Bar Link Front Screws 6-6336 leaving the Screw in the Universal Bar Support Center 10-40900 about friction tight so that the Universal Bar Link 6-807 can be moved forward or backward in the slot of the Universal Bar Support Center 10-40900. If as explained, the Center Bars escape and the Side Bars do not, or the Center Bars escape farther from the Platen Roll than those on the sides, the Universal Bar 6-22251 should be lowered in the center. This is done by bringing the Universal Bar Link 6-807 forward to the front until the escapement occurs at the same distance from the Platen Roll on the Side Bars as well as those of the center.

If the escapement is closer on the Center Bars than on the Side Bars, the Universal Bar Link 6-807 should be set to the rear of the machine. This, of course, will also move the Universal Bar 6-22251 in that direction. Adjustment for the leveling of the Universal Bar is done on the center Universal Bar Link 6-807 with the outside Link Screws loose, and after it has been adjusted tighten the lock nut on the Universal Bar Link Front Screw 6-6336, in the Bracket 10-40900, and see that the Universal Bar 6-22251 moves freely up and down.

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Now look the nuts on the Screws 6-6336 in the Brackets Left 6-22259 and Right 6-22260. After each adjustment see that the Universal Bar 6-22251 is free up and down. To check for freedom, it is best to unhook the Universal Bar Adjusting Arm Spring 10-7025, then hook Spring up again. Finally, with four sheets of paper in the machine, and the pressure Indicator Lever 10-40304 set against the Screw 10-6565, adjust the escapement to occur when the Type touches the paper. This is done as previously explained with the Escapement Connection Nut 6-6008 at the end of the Escapement Connection 10-40226.

Check the motion to be sure that it is correct as specified in the Shift Mechanism Adjustments. Tested to see that the bottom of the capital letters are even with the bottom of the small letters, such as HhHhHh. Use Shift Lock Keys when testing.

If this adjustment is right, then lock the Shift Lock Keys down and adjust the lower half of the Escapement Wheel Bracket 10-40488 upwards until the top of the hub on it just barely clears the upper Escapement Wheel Bracket, then tighten the Escapement Wheel Bracket Set Screws 10-6706, making sure that they will be seated on the flat of the Escapement Wheel Shaft when they are tightened. If the Lower Escapement Bracket is set too high it would interfere with the motion.

Some older machines will have a collar and take-up play spring on bottom of Escapement Wheel. The collar was attached to the hub of Escapement Wheel and a Coil Spring attached to collar around the Pinion Shaft and the other end fastened to the Ball Retainer Screw 6-6301. The purpose of this collar and spring, is to eliminate piling on a wobbly desk or piling after the operator uses the Shift Key. It also helps to give more accurate tabulation and even margins, but its main purpose is to prevent piling of letters as explained.

To install the Spring, place the Collar 10-40247 over the lower side of Escapement Wheel. The Set Screw 6-6301 in the Escapement Shaft is then loosened and one end of the Spring is placed under its head and tightened. Be sure that the Escapement Shaft Ball Retainer is adjusted properly and that the coil of spring is not turned out of position when tightening the screw.

Collar 10-40247 should be loose on the Escapement Wheel and the Spring should not be under tension. To adjust tension on Spring 10-7055, it is necessary to turn the Collar 10-40247 in a counter-clockwise direction—this tends to wind up the spring.

The amount to turn the Collar should be about 1/8th of a revolution. On a 10 Pitch Escapement Wheel, this is equal to about the spacing between two teeth.

Hold the Collar so as to apply the proper tension to the Spring while tightening the Collar Set Screw.
In analyzing skipping complaints on the Noiseless recently, we discovered that if the Escapement Dogs were more than .068" apart, skipping frequently occurred.

The Factory standard on this is checked with a gauge as shown in the illustration.

You will note that one end of the gauge is .063" and the other end is .068".

.063" is the minimum space practical between the two dogs and .068" is the maximum.

Also check the Escapement Dogs for wear and not to be sloppy on their Pivot Screws.
When the mechanism shown in the drawings covering this section has been correctly adjusted, there should be no variation vertically of the margin on the left side of type written sheet at the point to which the Margin Stop Left 10-40866 has been set. If there is a variation of the left margin, check the following adjustments:

First, see that the Gear on the Escapement Shaft 10-50138 is meshing properly in the Feed Rack 10-40821. When correctly adjusted there should be a little movement between the teeth of the Feed Rack 10-40821 and the teeth of the Escapement Shaft Gear when the Escapement Shaft 10-50138 is being held rigid. This mesh should be the same at both ends of the Feed Rack 10-40821. If the mesh is not deep enough at both ends of the Feed Rack, the adjustment is made by loosening the Escapement Shaft Trunnion Stud Nuts 6-6005 and resetting the Escapement Shaft Gear to front or back as desired. When adjusted to the correct mesh, see that the Escapement Shaft Trunnion Stud 6-7309 and Nut 6-6005 are tight.

If, for example, the mesh of the Escapement Shaft and Gear 10-50138 and the Feed Rack 10-40821 is correct on the left end of the Feed Rack and not deep enough on the right, loosen the Feed Rack Support Screws 6-6424 on the Feed Rack Support, Right 10-40803 and adjust the Feed Rack Support Right so that the mesh of the Feed Rack 10-40821 will be deeper in the Gear at the right and the same as on the left side.

The Feed Rack Support Left, 10-40804 is also adjustable to front or back and this makes it possible to have the mesh of the Feed Rack 10-40821 and the Gear 10-50138 the same at both ends.

When the Carriage is at the left margin, there should be a clearance of .015" between the Margin Stop Left, 10-40866 and the Margin Release Lever 10-40036. Too much clearance between these parts, at the margin, will result in the Carriage "Banking Over" or going one space beyond the margin as set. In other words irregular margins.

To correct this, shorten the distance between the Margin Stop Left 10-40866 and the Margin Release Lever 10-40036 by loosening the Feed Rack Adjusting Plate Eccentric Screw 6-6449 and turning the high point of the Feed Rack Eccentric 6-3513 towards the left end of the Carriage.

If there is not enough distance between the Margin Stop Left 10-40866 and the Margin Release Lever 10-40036, another case of irregular margin, turn the high point of the Eccentric 6-3513 to the right. This will increase the distance between the Stop 10-40866 and the Release Lever 10-40036.

Never turn the Eccentric 6-3513 so that the high point will be toward the Feed Rack 10-40821. This will cause the Carriage Release Levers to operate hard. Also, when in this position, the Feed Rack 10-40821 will not drop into the Escapement Shaft Gear 10-50138. When adjustment is correct, tighten the Feed Rack Adjusting Plate Eccentric Screw 6-6449.

The Margin Release Lever 10-40036 should be set forward far enough to engage the Margin Stop Left 10-40866 safely and not so far forward as to prevent it from passing in back of the Stop when the Carriage is moved to the left of the margin setting.

The Margin Release Shaft 10-40015 has a flat where the Margin Release Lever Trunnion 10-40038 is mounted to it. If back or forward adjustment of the Lever is not right, the positioning of the Lever can be obtained by forming it or...
loosening Screw 6-6431 and adjusting the Release Shaft Stop 10-40019 up or down until back or forward position of the lever is correct.

When the Carriage is at the right margin, the Margin Stop Right 10-40831 engages the upper end of Margin Release Lever 10-40036 and causes the Lever to pivot on the Margin Release Lever Trunnion Screw Long 6-6304 and Screw Short 6-6320 on the Margin Release Lever Trunnion 10-64238. With this pivoting movement, the Line Lock Lever on the Margin Release Lever 10-40036 swings backward and through the movement of the Line Lock Bail Pull Wire 6-238 pulls the Line Lock Bail 6-218 under the Hooks on the Key Levers locking them.

With the Pressure Indicator Lever 10-40304 (Center Tie Illustration) at the extreme right and the Carriage at the left margin, see that the Key Levers do not strike on the Line Lock Bail 6-218. If the Key Levers do strike on the Bail 6-218, form the Line Lock Lever, on the Margin Release Lever 10-40036, forward to correct this condition.

Now with the Pressure Indicator Lever 10-40304 at "0" position against the Screw 10-6565, (Center Tie Illustration) try the Line Lock at the Margin Stop Right 10-40831. When the Carriage has moved two spaces on the 12 Pitch machine or one space on the 10 Pitch machine, following the engagement of the Margin Stop Right, with the Margin Release Lever 10-40036, the Key Levers should be fully locked. If this condition does not exist, form the Line Lock Lever on the Margin Release Lever 10-40036 to the rear sufficiently to cause a full lock at this point.

The Bell should ordinarily ring seven spaces before the Line Lock takes place on Pica machines, which have 10 spaces per inch. This is to warn the typist that she is nearing the end of the writing line and will give her ample time to complete the word she is writing, or hyphenate the word and continue it on the following line. Machines that have more than ten spaces per inch will naturally have more spaces after the bell rings before the line locking takes place.

To make the Bell ring earlier, adjust the Bell Ringer Bracket 10-40309 (Refer to the Center Tie Illustration) toward the rear of the machine. Reverse this operation to make the Bell ring later.

When the Margin Release Key Lever 10-63167 is depressed, it raises the extension of the Margin Release Shaft 10-40015.

The Margin Release Lever 10-40036, which is mounted on the Shaft 10-40015, now swings to the rear and makes it possible to move the Carriage beyond either right or left Margin Stops.

Inspect these points of the mechanism to see that they are free in their movement. Also see that the Margin Release Lever 10-40036 is tight but free on the pivots of the Trunnion.

The following method is suggested for changing the Line Lock Bail 6-218:

1. Remove 2 Screws 6-6456 that hold the Universal Bar Arm Adjustment Arm 10-40526.
2. Loosen Set Screw 10-6752 and position the Line Lock Bail Pivot Bearing 10-40104 to permit the raising of the Line Lock Bail 6-218 so that the Pull Wire 6-218 may be cut.

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3. Remove the Rear Cover 10-40310 and the Line Lock Pull Wire 6-238. Remove the Line Lock Bail 6-218 to the front, underneath the Universal Bar Complete 10-40527.

4. Replace Line Lock Bail 6-218 on its Pivot Bearing 10-40104.

5. Replace the Line Lock Pull Wire 6-238 (with threaded end). Place a washer, 10-7887, on the Pull Wire 6-238, then place the Pull Wire 6-238 through the hole of the Line Lock Bail 6-218. When the Pull Wire 6-238 has been placed through the Line Lock Bail 6-218, install the following parts on the Pull Wire 6-238 in order: Washer 6-7811, Spring 6-6903, and two (2) Nuts 6-6005.

NOTE: To install the 2 Nuts 6-6005 on the Line Lock Pull Wire 6-238, it is suggested that Wrench Number SP40023 be used and that 2 slots of the Key Lever Comb 10-40034 be bent forward.

6. Replace all parts that were removed. Recheck the Key Levers 10-63144 for freeness, the Center Tie 10-64136 for being seated and for correct operation, and adjust the Line Lock for proper operation.

RIBBON FEED MECHANISM ADJUSTMENTS

We will assume, for explanation, that the assembly has been made as per chapter "Instructions for Assembling Machine" and has not been adjusted.

It is first necessary to see that the up and down play and the tension of the Ribbon Spool Shafts 6-551 and 6-552, Left and Right, is correct. Adjustments for the up and down play of the Shafts is made by raising and lowering the position of the Ribbon Spool Shaft Gears 6-540. This is done with the tension off of the Shafts 6-551 and 6-552 that is, when the Ribbon Spool Shaft Collars 6-539 are loose on the Shafts.

To gain the proper adjustment, press down on the Ribbon Spool Shafts and set the Ribbon Spool Shaft Gear 6-540 so the Ribbon Spool Shafts will have a .012" up and down play. This .012" is about the thickness of a post card.

The tension on the Ribbon Spool Shafts 6-551 and 6-552 should be just enough to support a full spool of ribbon and the Ribbon Spool Knob 10-80118 without any drop in the Shafts. This adjustment is made by raising or lowering the Ribbon Spool Shaft Collars 6-539 so as to compress or release the tension of the Ribbon Spool Shaft Spring 10-7032 which is under it.

After the adjustment is correct, see that the Screws 6-6318 are tight and that the Ribbon Reverse Plunger and the Ribbon Reverse Tripping Lever, in the Shafts 6-551 and 6-552, are free in their movement.

Your attention is called to the Ribbon Driving Gear Right 10-40201, to the Ribbon Reverse Detent 6-337, and Ribbon Driving Shaft 10-40207.

First, see that the Stud on the Arm of the Ribbon Reverse Detent 6-337 is set deep into the slot on the Ribbon Driving Gear Right 10-40201 but not deep enough to bind. Next, with the Ribbon Reverse Plunger in the Shaft Right 6-552 engaging the Ribbon Reverse Cam 6-336 right at its high point, move the Ribbon Driving Gear Right 10-40201 so that the Toggle Lever of the Ribbon Reverse Detent 6-337 is just beyond a line of center towards the front of the machine, and tighten Screw 6-6318.

Now try the Reverse to the left side, slowly, and with the Ribbon Reverse Plunger in the Shaft Left 6-551 engaging the Ribbon Reverse Cam 6-336 Left at the high point of the Cam, the Toggle Lever of the Reverse Detent 6-337 should be just beyond a line of center towards the rear of the machine.

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Through the aid of a Spring 6-6949, on the Reverse Detent 6-337, the Ribbon Driving Shaft 10-40207 is moved its full distance to the left. At this position we adjust the mesh of the Ribbon Driving Gear Left 6-310, to mesh with the Ribbon Spool Shaft Gear 6-540. It should be deep enough to obtain positive feed and yet not deep enough to cause a grinding noise. When the correct adjustment has been made, see that the Screw 6-6318 is tight.

The Ribbon Driving Shaft Gear 6-302 is adjusted to have a full hold on the Feed Shaft Gear 10-40199 when Driving Shaft 10-40207 is reversed to either right or left sides of the machine. This adjustment is made by moving the Driving Shaft Gear 6-302, on the Driving Shaft 10-40207, to right or left and tightening Screw 6-6318.

Caution: Driving Shaft Gear 6-302 should always be set to left side of Feed Shaft 10-40199, as shown on illustration, otherwise the ribbon would feed backwards.

We now make the adjustment of the Ribbon Feed Shaft 10-40199 on the Carriage Spring Drum Bracket 10-40277. This Shaft has an in and out adjustment which is controlled by the Ratchet Set Screws 6-6340 and its position should be forward far enough so that the Gear on the Ribbon Feed Shaft 10-40199 will mesh with the Ribbon Driving Shaft Gear 6-302 without causing any noise and still deep enough to insure positive driving of Ribbon Mechanism. Adjustment is made by loosening the Screws 6-6340 and adjusting the Ribbon Feed Shaft 10-40199 in or out so that the Gear will mesh properly with the Driving Shaft Gear 6-302.

When the correct position is obtained, tighten the Screw 6-6340 in the Ribbon Feed Shaft Ratchet so that the Ratchet will be flat on the Spring Drum 10-40277. Now tighten the Screw 6-6340 in the Back Lash Ratchet 6-1354. This Back Lash Ratchet should be set as far forward as possible.

When both Screws 6-6340 are tight there should be a little space between the Ratchets. If they are too far apart, they will cause pressure on the Spring Drum 10-40227 and a sluggish movement of that part will result. A loose Spring Drum Back Complete 10-40279 will also cause a sluggish action of the Mechanism. This part is held to the Carriage Spring Drum Body with Flange Complete 10-40278 by pressure (pressed fit) and it is necessary to press the Spring Drum Back 10-40279 to the Carriage Spring Drum Body 10-40278 with Parallel Jaw Pliers or some other suitable manner.

The tension of the Carriage is adjusted by applying tension on the Spring Drum. On the 11 inch Carriage the tension should be approximately 1/2 pounds of pull to move the Carriage from the Center position. To apply tension, loosen the Nut 6-6023 (not shown) and turn the slotted Screw 6-359 (Spring Drum Arbor) clock wise to increase the tension. Lock the Lock Nut 6-6023 after making the adjustment as a loose Lock Nut 6-6023 will also cause the Spring Drum to be sluggish. To lessen the tension of the Spring Drum, loosen Lock Nut 6-6023 and work the Ratchet Pawl, of the Spring Drum Bracket 10-40483, back and forth. Lock Nut 6-6023 must be locked after this adjustment.

The Ribbon Spool Shafts 6-551 and 6-552 are not alike with regard to right or left and when replaced, care should be taken that the correct shaft is being used. To determine a Right Spool from the Left Spool, note which side of the Ribbon Reverse Tripping Lever, on the shafts, the ribbon slots are located.
When the Tripping Lever "X" faces you and the Slot "A" is to the Left side of the Lever, this would indicate a Left Spool 6-551. If Slot "A" were to the right of the Tripping Lever "X", the Spool would be a Right Spool 6-552. The Ribbon Spool Illustrated is a Left Spool.

The Ribbon Spool Cases 10-80148 are mounted on the Top Plate of the machine and the Mounting Screw holes of the Cases are slotted. The side openings of the Cases, through which the Ribbon runs, should be turned "in" towards the center of the machine as far as the Slots will permit. Do not force an extreme position as this may result in a bind in the Ribbon Spool Shafts. The purpose of the Ribbon Guard 6-531 is to prevent the Ribbon when winding, from falling off the edge of the Spool Shaft Disc. Place the Ribbon Guards 6-531, in the Spool Cases 10-80148 so that the openings of the Ribbon Guards are at the same location as the openings of the Ribbon Cases where the Ribbon winds through.

NOTE: The distance between the high point of the Ribbon Reverse Cam 6-336 and the teeth of the Ribbon Driving Gear, Right, 10-40201, will be approximately ½ inch when the Ribbon Reverse is correct.

**RIBBON VIBRATOR MECHANISM ADJUSTMENTS**

First, check the Ribbon Vibrator Universal Bar Shaft 10-60180 to be held to a minimum of end play on the Pivot Screws 6-6333. See that the Lock Nuts 6-6019 for the Pivot Screws 6-6333 are tight. End play in the Ribbon Vibrator Universal Bar Shaft 10-60180 will cause variation in the height of travel of the Ribbon Vibrator. See that the Universal Bar is level, that is, it is to touch the Key Levers on both the right and left sides of the keyboard.

Now, with the Richrome Handle 10-64070, shift the Ribbon Vibrator Universal Bar Link 10-40191 to the right and left over the Ribbon Vibrator Shaft Arm Front 10-40224. If there is any up and down movement of the Ribbon Vibrator when this is being done, it indicates that the Ribbon Vibrator Universal Bar Link 10-40191 is pulling down on the Ribbon Vibrator Shaft Arm Front 10-40224.

This condition should not exist and adjustment can be made by twisting upward on the extension of the Ribbon Vibrator Universal Bar Link 10-40191 to which the Ribbon Vibrator Universal Bar Link 10-40191 is attached. This will raise the Link 10-40191 so that the top of the slot will clear the top of the Shaft Arm Front 10-40224. This clearance should be just enough so that no up and down movement of the Arm Front 10-40224 will be seen when the Richrome Handle 10-64070 is shifted to the right and left. If there is too much clearance at this point, the height of the travel of the Vibrator will be affected.

Any excess clearance should be corrected. This is accomplished by twisting downward on the extension at the right end of the Universal Bar 10-60180 to which the Link 10-40191 is attached.

It is also necessary that the clearance between top of slots of the Link 10-40191, over the Arm 10-40224 in both left (Black) and right (Red) position, be the same. If there is more clearance between the top of the Arm Front 10-40224 and the top of slot in Link 10-40191, when set at the left (Black) than in the right (Red) position, bend the Ribbon Vibrator Shaft Arm Rear 10-40214 so that the end of the Arm will be a trifle bowed to the left. This adjustment will have a tendency to raise left end of Arm Front 10-40224.
If it is found, when shifting the Link 10-40191 from left to right, that the Link is properly set for the Black portion and that it rubs against the top of the Arm 10-40224 when shifting to the right, it will be necessary to tilt the end of the Ribbon Universal Bar 10-60180 up slightly. This adjustment will raise the Link.

Next, move the Link 10-40191 from right to left and notice if there is the same amount of clearance between the Arm 10-40224 and the Link on both sides. If it is found that there is a little too much clearance while the Link is to the left, again bend the Ribbon Vibrator Shaft Arm Rear 10-40214 so as to raise the Ribbon Vibrator Shaft Arm Front 10-40224.

In no other case is it necessary to bend the Ribbon Vibrator Shaft Arm Rear.

Now see that the height of the Ribbon Vibrator is correct.
Insert a sheet of paper in the machine and make an impression of the underscore. There should be about 1/32" between the bottom of the underscore and the top of the Ribbon when the Ribbon Vibrator is at rest.
If the Ribbon is too high, tip downward on the Ribbon Vibrator Bracket 10-60218. If too low, tip up on the Ribbon Vibrator Bracket.
Use a pair of Long Nose Pliers for this purpose.

With all the previous adjustments correct, it is now possible to adjust the ribbon cover.
Set the Bichrome Arm Stop 6-311 so that it allows the Link 10-40191 to travel the same distance on both sides of the stencil cut out. The Stop 6-311 can be moved by loosening the two Lock Nuts on the underside of the Boss on which the Bichrome Arm Stop 6-311 is mounted. After making the setting, tighten the Nuts securely.

Shift the Bichrome Handle 10-64070 to the right. This will position the Ribbon Vibrator Universal Bar Link 10-40191 to the left (Black) on the Ribbon Vibrator Shaft Arm Front 10-40224.

When the Key Lever is depressed with the Link 10-40191 in this position, the Ribbon Vibrator should raise sufficiently to carry the upper portion of the ribbon (Black) so that all the characters, particularly the percent sign and underscore, print without mixing the colors or cutting off.

If it is found that the Ribbon is just not throwing high enough, tilt the Ribbon Vibrator Bracket Complete 10-60218 as previously instructed.
After the black portion of the ribbon has been set to height, bend the Bichrome Arm 10-64070 so that it touches the Arm 10-40224 when the Key Lever is depressed.
This acts as a black upstop and prevents any overthrowing of the ribbon.
If not set high enough, bottoms of letters could print in Red when typing hard. If set too high, it would limit the Key Lever movement and have a tendency to make the Key touch heavy.

Move the Link 10-40191 over to the right (Red) and when a Key Lever is depressed with the Link 10-40191 in this position, the Ribbon Vibrator should raise to its full height of travel. Make this test by depressing a Key Lever and at the same time press to the left on the top of Ribbon Vibrator Shaft Arm Rear 10-40214.
If the Ribbon Vibrator has further travel, it indicates that the Ribbon is not throwing to its full height.
Adjustment for this condition is provided by bending the right lip of the Bichrome Arm Stop 6-311 to the right, allowing the Link 10-40191 to come closer to the base. If the Ribbon Vibrator is throwing too high, a spongy feeling will be felt when the Key Levers are depressed.

To adjust, bend the Bichrome Arm Stop 6-311 slightly to the left.

After making adjustments, always try the long tail characters such as j, p, q, y. Also try complete alphabet on both Black and Red on both Capital and Small Letters. If these characters cut off or mix colors, tilt the Ribbon Vibrator Bracket up or down as may be required.

**ALIGNING SCALE ADJUSTMENTS**

To align the Aligning Scale 10-60735 to the line of writing, strike a full line of small (i's) on the paper across the width of the Platen Roll. The Aligning Scale should be level with the line of writing with just a very fine line or space between the top of the Scale 10-60735 and the bottom of the written line. If high on one side, force the Scale down on that side by pressing on the top of the part of the Scale which extends out from the Shift Rail Front 10-40409. If low, raise the Scale putting pressure on the underside of the extension. This applies to both right and left sides.

The white lines on the Scale 10-60735 should be in line with the vertical lines of the letter "i".

The side alignment of the Scale is accomplished by forcing the Scale at the point of the extension to the right of left as required. In doing this, see that the opening in the Aligning Scale is directly back of the opening of the Type Guide and that the Type does not strike the Scale.

The aligning scale finger 10-40219 should be adjusted so that when twelve sheets of paper are inserted into the machine, with the Pressure Indicator at zero, the Scale 10-60735 will just touch the Scale Finger 10-40219.

See that the Ribbon Vibrator is free up and down with twelve sheets of paper in the machine.

The Scale 10-60735 should rest against the Platen Roll without pressure. If there is pressure on the Roll, bend out on the Scale. Bend in on the Scale if it does not rest against the Platen Roll.

**SHIFT MECHANISM ADJUSTMENTS**

It is very important, when adjusting the Shift Mechanism, to hold all pivot and connection adjustments to a minimum of play. That is, all such adjustments are to be as tight as possible, yet still free in their movement. Any excess of play will show up in poor alignment and uneven shift motion in the operation of the machine.

In describing this mechanism we will take up the following adjustments in the order listed:
2. Shift Key Lever 10-63154.
3. Carriage lock for lower case (small letters)
4. "On Feet" adjustment.
5. "Motion" adjustments.

1. The Balance Shaft 10-64043 is adjusted to the Shift Rail 10-64045 to be free but without end play. Adjust the Left Shift Rail Connecting Screw 10-6775.

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to the Spring Arm of the Shift Rail 10-64065 (the spring arm is Spot Welded to the Shift Rail and will not be a mail order part), to remove the play between the Spring Arm and the Balance Shaft. Lock the Lock Nut 6-6023. Adjust the Right Shift Rail Connecting Screw 10-6775 to where the Balance Shaft 10-64043 binds, then back off on the Screw just far enough to free the Balance Shaft. Lock the Lock Nut 6-6023. CAUTION: Care must be taken when locking, Lock Nuts 6-6023 as the Spring Arms of the Shift Rail are limited to the amount of threads, and if the Lock Nuts 6-6023 are tightened too tight, there is a possibility that the threads will be stripped and this will require a complete new Shift Rail 10-64045 as the Spring Arms are a part of the Shift Rail Assembly 10-64045.

2. The Shift Key Lever 10-63154 is positioned for height by adjusting the Shift Lever Eccentric 10-70162 (located on the Shift Toggle Link Long 10-70404) to where the top of the Shift Key Top 10-80214 is approximately 1/16th of an inch above the top of the Key Top 10-80213 of the bottom row of Key Levers. Tighten Screw 10-6723 after adjusting the Shift Keys for height.

3. When the Carriage of the machine is in lower case (small letters), it should be locked in that position. Take hold of the Shift Rail 10-64045 and pull upwards to test. If correct, it will not be possible to raise the Carriage other than by pressing the Shift Key Lever 10-63154, Right or Left. This adjustment is accomplished by the Shift Toggle Stop Screw 6-6398. If the Carriage does not lock, in the lower case (small letters), the Stop Screw 6-6398 is set too high and should be lowered. If the Stop Screw is backed off too far, there is a possibility of a "bite" in shifting and the Toggle will have excessive lost motion. Lock Nut 6-6019 after making the adjustment.

4. Assuming all Shift Linkage is "free but tight", the Carriage is locked in lower case (small letters), and the Shift Key height is correct, we are ready to get "On Feet". Back off the Pressure Indicator Handle 10-40304 to where all the letters print very lightly. Strike off the small letters and compare for an "On Feet" condition (full face of all letters or the majority of letters, printing fully). If the majority of letters are "Off Feet", adjust the Left Carriage Balancing Arm Lever 10-5404 (Balance Shaft End Plate), through its Mounting Screws 6-6472 and Eccentric 6-426. This adjustment will raise or lower the Carriage so that the Type strikes the center line of the Platen. Tighten all Screws after making the adjustment.

5. With the adjustments listed in steps 1, 2, 3, and 4 made, we are ready to adjust the "Motion". Back off Shift Lever Stop Screw 6-6407 (long hex head) to insure that it is not limiting the Travel of the Toggle Long 10-70404. Adjust the vertical Screw (Carriage Balancing Arm Lever Adjusting Screw 6-6384) on the Left Balance Shaft End Plate (Carriage Balancing Arm Lever 10-5404), to where the Bottom of the Capital "H" and the bottom of the small "h" line up evenly. HHHHHH (H is commonly used but any other straight bottom letter may be used). Next the Lock Plates, Left and Right should be set low enough so that there will be no variation in up and down alignment of the Capital Letters when the motion is tried by locking and releasing the Shift Key Lock. In other words, the motion is to be "On" with each Shift Lock the same as if the motion were tried without the use of the Shift Key Locks. In setting the Shift Lock Plates, Left and Right, use this test. Do not...
set the Plates so low that the Lock and release are hard to operate. They should also be set about even. Make the test for this by locking both Shift Keys in the upper case position (Capitals). Now release the Lock by pressing the Shift Key Lever Left. The Lock on the left should release first and the one on the Right shortly after. Make this same test with the Right Shift Key Lever. Be sure the Mounting Screws 6-6343 of the Lock Plates are tightened after the adjustments are correct.

Adjust the Shift Lever Stop Screw 6-6407 (Long hex head). Lock the Carriage in the upper case (shifted position) with the Shift Lock Key and turn the Shift Lever Stop Screw until it just touches the underside of the Shift Lever 10-70404, and then set the Lock Nut 6-6019, on the Screw 6-6407. The purpose of this adjustment is to prevent the over throw or strain on the Carriage Balancing Arm Lever Adjusting Screw 6-6384 (Motion adjusting screw). If the Screw 6-6407 is screwed "in" too far, it will cause the Capital H to print above the small h. In other words, throw the Motion off. If the Screw 6-6407 is backed off too far, then we will have defeated the purpose of the adjustment.

Tension of the Shifts is adjusted by increasing or decreasing the tension of the Shift Balance Springs 10-6939 through their adjusting Screws 6-6465. Shifts should be light but snappy. Adjust the tension of the Shift Balance Springs 10-6938 equally.

Lock the Shift Keys down and adjust lower half of the Escapement Wheel Bracket 10-40488 (Knee Action) upwards until the top of the hub on it just barely clears the upper Escapement Wheel Bracket, then tighten the Escapement Wheel Bracket Set Screws 10-6706, making sure that they will be seated on the flats of the Escapement Wheel Shaft when they are tightened. If the Lower Escapement Bracket is set too high, it will throw the motion off and will cause the machine to pile when operated in a Shifted position. If the Lower Escapement Bracket (Knee Action) is adjusted too low we will have uneven spacing after a shifting operation.

**SPACE KEY MECHANISM ADJUSTMENTS**

The height of the Space Bar is correct when the top of the Space Bar 10-40155 is approximately 7/16" below the tops of the Key Tops just back of the Space Bar 10-40155, and is adjusted by the Space Key Upstops 6-247. These Upstops 6-247 limit on lips of the Tabulator Key Lever Comb Lower 10-40143.

When the Space Bar is depressed downward, until it limits on the Space Key Downstops 6-247 (located on the Frame Front, directly below the Space Bar 10-40155) and held in this position, the top of the Space Bar 10-40155 will be slightly above the Lower Step of the Frame Front. The Space Bar, when depressed should never travel below the Frame Front. The adjustment is made by raising or lowering the Space Key Down Stops 6-247.

While making the adjustments of the depth of the Space Bar, if the Space Key interlocking Lever 10-40147 limits against the Ribbon Universal Bar Shaft 10-60180, loosen screw 6-6347 and turn eccentric 6-162 until the top front end of the Interlocking Lever 10-40147 clears the Ribbon Universal Bar 10-60180.

When the Space Bar 10-40155 is depressed slowly, the trip of the Escapement should take place when the Space Bar is 1/16" from the Down Stops 6-247. The adjustment
for this condition is made at the rear end of the Space Key Trip Adjusting Link 10-40143. To make the trip of the Escapement take place earlier, turn "In" on the Adjusting Nut 6-6008. If the Escapement (trip) is taking place too soon, it will be necessary to back out on the Adjusting Nut 6-6008. Be sure to lock this Adjusting Nut 6-6008 by the Lock Nut 6-6005 when the adjustment is completed.

The purpose of this Space Key Interlocking Lever 10-40147 is to lock the alphabet Key Levers while the operator has the Space Bar depressed. Since the Space Bar is used with the thumb, which is sluggish in action compared to the fingers of the hand, quite often it is not allowed to restore upward to permit the last part of the escapement (trip) of the Carriage to take place before the operator strikes the alphabet keys for the first letter of the next word, following the Space Bar operation. When this happens, the first two letters of a word, following the Space Bar operation, may not be evenly spaced apart. If the Interlock is functioning correctly and the operator is slow in getting her thumb off the Space Bar and strikes the alphabet Key, the Key Lever will strike the top of the Ribbon Universal Bar 10-60180 and the bottom of this same Ribbon Universal Bar will strike the top of the Space Key Interlocking Lever 10-40147, causing the Space Bar to restore to its normal rest position in time for the last part of the Escapement action (Trip) to take place before the type strikes the printing point.

To test the Space Key Interlock, depress Key Lever "B" in the lower bank of keys to its limit (do not force it) and while holding the Key Lever in this depressed position, there should be 1/32" between the bottom of the Ribbon Universal Bar and the top of the Interlocking Lever 10-40147. To obtain this adjustment, loosen the Interlock Eccentric Screw 6-6347 and turn the Eccentric 6-162. Each time an adjustment is made, check for the 1/32" as outlined above. After adjustment is obtained, tighten the Screw 6-6347 and lock it in place with Nut 6-6019.

Spring tension is supplied for the Space Key Mechanism by a coil Spring 10-7079 on the Space Key Shaft 10-60075 and proper tension is obtained by adjusting the Spring Collar 6-228 to front or back of machine. Do not put excessive tension on the Escapement Return Spring 6-6916 (Rocker Body Return Spring) as this would cause heavy action on the Space Key and will also have a great affect on the Key Lever touch.

**TABULATOR MECHANISM ADJUSTMENTS**

It is very important that the Tabulator Key Lever 10-40678, the Clear Key Lever 10-63323, and the Set Key Lever 10-63324, are completely free in their movement. It may be necessary to form these levers in order to get them free.

The Tabulator Clear Lever 10-40743 and the Tabulator Lever 10-40741 are supported on the left side by two Tabulator Lever Support Screws 10-6583 (not shown). The Tabulator Clear Support 10-40773 and on the right side by the Tabulator Lever Support 10-40781 (not shown). All these parts are located on the Center Tie 10-80114. These Supports and Screws should be adjusted to allow the Clear Lever 10-40743 and the Tabulator Lever 10-40741 to move in and out freely, with very little side play, and as near to 90 degrees to the Tabulator Stop Rack 10-40687 as possible.

Depress the Tabulator Key Lever 10-40678 until it limits against its Down Stop Filler 10-40722. While holding the Tabulator Key in this position, the Tabulator Lever 10-40741 (of the Center Tie) should move forward. It should not touch the Tabulator Stop Rack 10-40687 but must clear it by only approximately 1/32 of an inch. This adjustment can be made by adjusting the Tabulator Key Lever Set Screw 10-6578N. Tighten the Lock Nut on this Screw when the adjustment is made.
With the Clear Key Lever 10-63323 in rest position, and some Stops 10-40539 set to the rear on the Tabulator Stop Rack 10-40687, adjust the Set Screw and Nut 10-6578N to have the Tabulator Clear Lever 10-40743 of the Center Tie, nearly touch the set Stops. This gives support to the Tabulator Clear Lever 10-40743 and insures the complete clearing of Stops when using the Clear Key Lever 10-63323. Now depress the Tabulator Clear Key Lever and check to see that the Clear Lever 10-40743 of the Center tie nearly touches the Tabulator Stop Rack 10-40687 (all Tab Stops in a cleared position). Adjust by the Limit Screw 10-6638 of the Clear Key 10-40743 of the Center Tie. If the Clear Lever rides the Tabulator Stop Rack, turn "in" on the Tabulator Clear Lever Stop Screw 10-6338. (not shown).

The Tabulator Set Key Lever 10-63324 is adjusted by the Set Screw and Nut 10-6578N, to just take up the slack of the Linkage on the machines that have the Shift mechanism as explained in this book in the section titled "Shift Mechanism Adjustments." Note: On earlier model machines the adjustment for the Set Key Lever was as follows:

The Tab Set Lever 10-40684, when at rest, must clear the front of the Tabulator Stops 10-40539, 1/32 of an inch when the Stops are in normal position. The adjustment to accomplish this is made by the Tabulator Set Key Lever Screw and Nut 10-6578.

To adjust for the proper Tabulator Trip it is necessary to form the Tabulator Release Arm Bracket up or down at point "X" of the illustration. The trip should take place just before the Tabulator Key Lever 10-40678 limits on the Down Stop Filler 10-40722. When properly adjusted, there will be a slight clearance between the Release Arm and the Fixed Dog.

The Tabulator Friction Arm 6-749 (Tab Brake) must be free on its Pivot Screw. Operate the Tabulator Key and observe, from the bottom of the machine, if the Friction Arm is free to engage the Friction Wheel 6-750 as the Tabulator Key is operated. Adjust for the speed of the Carriage when Tabulating by moving Adjusting Screw "B" in or out. If the speed of the Carriage is too great there is a possibility that the Tab Blade of Tabulator Lever 10-40741 may be broken or the Tab Stops bent. There is also the possibility that the Carriage will rebound, causing irregular tabulation.

It is necessary that the Tabulator Friction Arm 6-749 be released from the Tabulator Friction Wheel 6-750 for normal operation of the machine. In other words, we have Tabulator Brake in operation only when Tabulating. If the Brake were "on" at all times, the machine would pile on typing operation. To adjust for "Brake Release", screw in or out on Adjusting Screw "A" to where the Tabulator Friction Arm 6-749 just clears the Tabulator Friction Wheel 6-750 by .010" to .015", when the Tabulator Key Lever 10-40678 is at a rest position. If Adjusting Screw "A" is "in" too far, the Fixed Dog will be partially disengaged from the Star Wheel Tooth and the machine will skip. If backed "off" too far the Brake will be "on" at all times and the machine will probably pile.

Next we will adjust the Tabulator Stop Rack 10-40678 for what is commonly known as "drop". By "drop", we mean the distance the Carriage will travel to the left when the Tabulator Key is allowed to come up slowly after tabulation. This is a very important adjustment. If there is not enough "drop", there is danger after tabulating into a position and then tabulating away from this position, without writing, that the Tabulator Lever 10-40741 might push the Tabulator Stops 10-40539 forward in the Rack which would cause the operator to complain that the Tabulator Stops do not stay out when they are "Set". Too much "drop" would also give poor tabulation results.

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We are not only adjusting the machine for "drop" for the above reason, but we are at the same time gaining another important adjustment, that is, when we release the Tabulator Bar slowly, (looking at bottom of machine), the face of the Fixed Dog 10-40176 must enter half way between two teeth of the Escapement Wheel. This insures that the machine will tabulate to the same place each time, or in other words, accurate tabulation. To adjust, position the Tabulator Rack 10-40687 through its Mounting Screw 10-6666 (not shown) on the left Carriage End 10-80119, its Mounting Nut 6-6023 on the Right Carriage End 10-80120, and the Adjusting Screw 10-6619N on the Right Carriage End 10-80120, to where the Tabulator Blade of the Tabulator Lever 10-40741 enters centrally between two Set Stops. Set a series of Stops and Tabulate into them, the Tabulator Blade should enter centrally between the Stops without "clearing" any of the Stops and without "hard action".

Once the "Drop" has been adjusted, we do not move the Tabulator Rack again. We must now adjust the Set Lever 10-64065 to knock out the correct stop. Form the finger of the Set Lever 10-64065 to line up squarely with the desired Tabulator Stop 10-40599. We do not want the Set Lever to knock out (set) more than one Stop at a time and it must be the correct Stop. When the correct Stop is being "set", the "set" Stop will line up with the "flat" of the tapered Clear Lever 10-40743.

When setting the "drop" or positioning the Set Lever 10-64065, it is advisable to remove the Platen 10-63500, the Paper Trough 10-80062, and the Rear Feed Roll Shaft complete 10-40736 in order that the adjustments may be more readily observed.

The Left Margin must be adjusted before adjusting the Tabulator "drop" or the Tabulator Set Lever 10-64065 position. (See Margin Release and Linelock Mechanism Adjustments). It is also very important for a deep mesh (but not bottom) between the Feed Rack 10-40821 and the Pinion Wheel of the Escapement Shaft 10-50138.

**TYPE ACTION AND KEYLEVERS ADJUSTMENTS**

In order to remove the Key Levers, it is necessary to turn the Key Lever Fulcrum 6-275 so that the flat side of the Key Lever Fulcrum is up. When in this position it is possible to remove the Key Lever 10-63090 out from the rear of the Comb. When removing the Key Lever, disconnect the Key Lever Spring 6-6902 and the Type Action Pull Link. When the Key Lever has been replaced, turn the Key Lever Fulcrum 6-275 so that the arm of the Fulcrum is in a vertical position downward and the flat side of the arm toward the front of the machine.

To take out a Type Action from the machine, first disconnect the Type Bar Links and the Type Bar Arm Front, and the Type Bar Arm Rear. Now lift the Type Bar 6-624 out from the rear of the Type Bar Comb Upper (Not Shown on Illustration.) Next, disconnect the two Type Action Pull Links from the Key Levers, then remove the Type Action Hanger Clamp 6-21651 by taking out the Screw 10-6663. Then position the Type Bar Arm Front to the rear and lift the Action, at the front, so that it will be out of its Type Action Segment. Now tip the Action further to the rear of the machine and lift it out.

To replace the Action, have the rear of the Action pointing downward and with the Type Action Pull Links also pointing downward, place the Action in its position in the machine, making sure that the Universal Bar Trip Saddle is over the Universal Bar, and that the lower rear end of the Action Frame is properly seated in its notch of the Type Action Segment, and that the front end of the Action Frame is set back of the head of the Type Action Hanger Adjusting Screw 6-6361.
TYPE ACTION & KEY LEVERS MECHANISM

- **TYPE ACTION HANGAR CLAMP SCREW 10-6663**
- **HANGAR CLAMP 6-21651**
- **HANGAR ADJUSTING SCREWS 6-6361**

- **TYPE GUIDE 10-6424**
- **TYPE BAR 6-624**

- **TYPE ACTION ECCENTRIC SCREW 6-6418**
- **TYPE ACTION ECCENTRIC 6-2025**

- **KEY LEVER SPRING 6-69021**
- **COMB, BEAR 10-40161**

- **KEY LEVER COMPLETE 6-21652**
- **TOP PLATE COMPLETE 10-50316**

- **TYPE ACTION COMPLETE 6-21652**
- **TYPE ACTION FULL LINES**

- **COMB, FRONT 10-40034**
- **GREY 10-60213**
- **GREY 10-60209**

- **KEY LEVER SPRING PLATE 10-40160**
- **CONB, BEAR 10-40161**

- **TOUCH ADJUSTING SCREW 10-6734, 10-6734-N.S.**
- **WASHER 6-7842 TOUCH ADJUSTING SCREW BUT 6-6019**
- **FRONT COMB SCREW 6-6343**

- **TABULATOR KEY LEVER COMB DOWN STOP FILLER 10-40722**
- **TABULATOR KEY LEVER COMB, LOWER 10-40143**

- **KEY LEVER 10-63090**
Before replacing the Type Action Hanger Clamp 6-21651, see that the other Action it
also holds in place has not been disturbed. After the Mounting Screw 10-6663, in
the Type Action Hanger Clamp 6-21651 has been tightened, connect the Type Action
Pull Links to the Key Levers and put in the Type Bar 6-624 making the necessary
connections.

When the Type Action has been removed and replaced, it is necessary to readjust the
pressure on both Actions under the Type Action Hanger Clamp 6-21651 of the Action
that has been changed. It is necessary, before making the pressure adjustments, to
check and adjust the .060" clearance between the Platen and the Type Guide 10-5424.
(Refer to Center Tie Adjustments.)

If .060" clearance mentioned in the preceding paragraph is all right, then set the
Pressure Indicator Lever 10-40304 in a vertical position. Have one sheet of ordinary
Bond writing paper in the machine and adjust for proper impression as follows:
Back out the Adjusting Screw 6-6361 until the Type does not print when a Key Lever is
struck, then turn in on this screw slowly, at the same time striking the Key Lever
for the Type Action being adjusted. When this screw is properly set, the characters
should print faintly on the sheet. When striking the Key Levers, use an ordinary
blow, such as a typist would use.

Caution: Never adjust for impression of a Type Action by backing out on the Ad-
justing Screws 6-6361. Turn in on screw to adjust. By adjusting the position of the
Action by this method, the head of the Screw 6-6361 acts as a stop against the
Action and prevents the Action from working forward which would change the pressure
adjustments.

With the Carriage moved back, i.e., with the Pressure Indicator in vertical position
and pressure adjusted to print lightly but uniformly on one sheet of paper, see that
the characters are on feet, top and bottom, meaning Carriage set to height and motion
properly adjusted. (Refer to Shift Mechanism Adjustments.)

In adjusting the up and down alignment of the Type, each Type should enter the Type
Guide 10-5424 without striking the Guide. In all cases, first see that the upper
Type enters the Guide properly for this reason:

The Type Action Eccentric 6-2025, right, is used to get the proper entry of the upper
Type in the Type Guide 10-5424 and when adjusted for this purpose, also changes the
up and down alignment of the lower Type on the same bar. It can be seen from this,
that if the up and down alignment of the lower Type is adjusted first, it will be
necessary to re-align that Type after the entry of the upper Type in the Type Guide
has been adjusted. The up and down adjustment of the lower Type does not affect the
upper.

When adjusting the up and down alignment, notice whether the upper Type is striking
the upper or lower part of the Type Guide 10-5424. If the Type is striking the upper
part of the Guide the Type should be lowered. Do this by loosening the Lock Screw
6-6418 on the Eccentric 6-2025 and turn the Eccentric on right side of Type Action,
toward the front of the machine. Turn the Eccentric slowly and a little at a time
until the upper Type clears the top of the Guide. If the upper Type is striking the
lower part of the Guide, turn the Eccentric toward the rear of the machine. When
properly adjusted, tighten the Lock Screw 6-6418 on the Eccentric 6-2025.
After the upper Type has been aligned, try the entry of the lower Type in the Guide 10-5424. If the Type is striking the lower part of the Guide it should be raised. This is done by turning the Eccentric 6-2025 which is on the left side of the Action, toward the front of the machine. If striking the upper part of the Type Guide, lower the type by turning the same Eccentric 6-2025 toward the rear of the machine. After the adjustment has been made, tighten the Lock Screw.

All Type on the Type Bars of the left side of the machine have a small bevel on the right side at the top and bottom of the Type. When the Type enters the Type Guide 10-5424, both the top and bottom bevel should be half way through the Type Guide and also both should touch the right side of the Type Guide at the same time. If not, the Type can be tilted slightly to the right or left until they do. Use our Number 4 Pliers for this work as well as for putting the Type on feet side ways. If a Type should print light on either the right or left side, take hold of the Type just in front of the bevels, with the Number 4 Pliers, and form the side that is printing light toward the Platen. Each time this is done, it will be necessary to check closely to make sure that both bevels are touching the Type Guide.

Occasionally you may have a case where the upper Type Bar is entering the Type Guide correctly and the Type on the lower half of the Type Bar is not. In this case it will be necessary for you to form the lower part of the Type Bar until it is directly below the upper Type and is entering the Type Guide properly, this is done by forming the Type Bar by hand. Care must be taken in this adjustment otherwise you may cause a bind of the Type Bar in the Upper Type Bar Comb.

All Type Bars on the right side of the machine have bevels on the left side of the Type. These bevels should touch the left side of the Type Guide and be half way in the Guide when it touches it. This applies to both the upper and lower Type on the right side of the machine.

When replacing a worn or broken Type Guide 10-5424, remove the "E-Y" Action and use the No. 1 Gauge to obtain the correct location of the Type Guide. If no Gauge is available, the Type Guide may be located correctly, provided that the machine is in good alignment, by seeing that all Type enter the Type Guide properly, both for height and sideways alignment as previously explained. When Guide is located and this condition prevails, tighten the three screws holding the Type Guide in place.

Care should be taken in adjusting the Type to strike the Guide when the bevel is half way in the Guide. If the bevel strikes the Guide too early it will cause the machine to be noisy, i.e. you will hear a metallic sound each time the Type enters the Guide. If, on the other hand, the bevel on the Type does not touch the Guide but goes to the Platen first and then slides over to the Guide, blurring print work would be the result. Just as a matter of explanation, the Type Bars on the Noiseless Machines go toward the Platen from an angle, but when the bevel touches the Type Guide the face of the Type, from this distance on into the Platen, travels in a straight line.

Try all Type Actions and Type Bars to see that they are free in their movement. This can be checked by depressing the Key Lever and allowing it to restore slowly. In case there is a bind, examine the Key Levers, Type Action Pull Links, Type Bar Links and the Type Bar Arm Front and Rear. Also see that the Type Bar and Comb slots are clean. Caution: Never oil Type Bar or Type Bar Comb Slots.
BROAD LETTERING ON NOISELESS TYPEWRITERS

On those stubborn cases where the machine adjustments seem to be perfect and yet broad letters creep in occasionally, we believe that if the following adjustments are made, the complaints can be eliminated 99%. We will assume that the other one percent is when the operator strikes a Key Lever, causing a Type to strike another Type while it is still against the Platen.

We will assume that the following adjustments have been checked and made:

- Type striking Guide correctly
- Escapement Adjustments
- Center Tie
- Machine sitting on a fairly solid desk.

The first thing to do is have the operator jot down the letters on her machine that broad letter. If most all of them do it, it is probably due to some one of the above adjustments in the preceding paragraph being off, but usually the broad letters will be boiled down to 4, 5 or 6 Type Actions. With this information on hand, we now have something definite to work on.

By referring to the following sketch, you will note that when Lips "A" limit against Type Action Frame "B", the rear edge of Arm "C" will be in line with the front edge of Stud "D". This condition must exist, if not, form Lips "A".

It has been found that in the majority of cases, broad letters start in on machines when operated by a typist with a heavy touch, rather than those with a light touch. The reason for this is that Lips "A", limiting against Type Action Frame "B", gradually become bent down. When this happens, the Gravity Weight throws past center, and naturally the weight has to go past this center position on its return to rest position, thus causing the Type to be delayed in getting away from the Platen in time to prevent broad letters.

Some operators strike some keys harder than others. These then, will be the ones most apt to give trouble. If after an Action is adjusted as described above and it does not hold its adjustment, it should be replaced. In extreme cases some relief can be had by setting the impression a trifle heavier. This would result in the Type striking the Platen a little heavier and absorbing some of the blow that would otherwise be taken by Lip "A". This would prevent them from getting out of adjustment to some extent.
INSTRUCTIONS FOR DISMANTLING MACHINE

TOP COVER, FRONT PANEL, RIBBON SPOOL KNOBS

Remove Top Cover 10-80146, Front Panel 10-80134 and Ribbon Spool Knobs 10-80118.

Take Typewriter Ribbon from machine, remove Platen Roll and move Pressure Indicator Lever 10-40304 to the right as far as it will go.

CARRIAGE COMPLETE

To remove the Carriage Complete 10-64014.

First, remove the Paper Finger Rail Right End Screw 10-6617 and slide the Right Paper Finger 10-40897 off the Rail.

Second, unhook the Carriage Spring Drum Tape 6-754 from the fastener 10-60946 on Carriage and attach same to the Carriage Spring Drum Detent Pawl on the Carriage Spring Drum Bracket 10-40277. This will prevent the Spring Drum from unwinding.

Third, remove Carriage Retainer Plate Screw 10-6597 and Carriage Retainer Plate 10-40880 from the upper part of Carriage Retainer Gib 10-40367. Now the Carriage Retainer Complete 10-40370 can be removed, in one unit, from the Center Tie 10-80115. Next remove the Carriage Retainer Roller Bracket 10-40274 from the Carriage Rail 10-40368.

Lock the Carriage in its shift position and slide the Carriage out of its Rails to the right from the rear of the machine. Remove Carriage Roll Retainer 6-22121 and Retainer Bracket Complete 6-1135 from Rails.

SHIFT RAIL COMPLETE

Unhook the two Carriage Balancing Springs 6-6938 from the two Shift Balancing Spring Arms.

Disconnect the Ribbon Vibrator Shaft Arm Rear 10-40214 from the Ribbon Vibrator Bracket 10-60218 by removing the Ribbon Vibrator Link Right Screw 10-6601 and Nut 6-6005. Loosen two Set Screws 10-6706 in lower half of Escapement Wheel Bracket 10-40488.

Take out Screw 6-6478 from top of Shift Lever 10-70404 from the Carriage Balancing Shaft 10-64043. Loosen Nut 6-6003 on one of the Carriage Balancing Shaft Pivot Screws 6-6391 and back out Screw. Now the Shift Rail 10-64045 can be lifted out of the machine.

Remove Carriage Spring Drum Tape 6-754.

NOTE: Allow Main Spring to unwind slowly.

REAR COVER

Disconnect the Center Tie Adjusting Spring Right 6-6928 from the Rear Cover 10-80108, the Bell Ringer Spring 10-7003 from the Bell Ringer 10-40163 and the Center Tie Adjusting Spring Left 6-6907 from the Rear Cover.

Remove the Rear Cover Screws 10-6643 and the Rear Cover 10-80108 can be taken off the machine.

Remove the Tabulator Connecting Link Guide 10-40514 by removing two Tabulator Connecting Link Comb Bracket Screws 10-6673.

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To remove the Carriage Spring Drum Bracket 10-40277, turn the machine over on its side and take out the Carriage Spring Drum Bracket Screw 6-6376 and lift the Carriage Spring Drum Bracket Complete out of the machine.

Bell

To remove the Bell 10-60835, take out the Bell Screw 10-6625 and the Bell and Bell Washer 10-7842 can be taken out of the machine.

Center Tie

Disconnect the Center Tie Adjusting Link 10-40324 from the Center Tie 10-80115 by removing the Center Tie Adjusting Link Pin 6-6100 and Center Tie Adjusting Link Pin Nut 6-6019.

Disconnect the Line Lock Bail Pull Wire 6-238 from the Margin Release Lever Complete 10-40017. Take out two Screws from Carriage Balancing Springs 6-6938 and remove the Springs. Back out the two Center Tie Gib Screw and Nut 10-6659N on each Side Frame Lug and then remove the Center Tie from the machine carefully.

Type Guide

NOTE: The Type Guide is not removed unless the Type Guide is worn and needs replacing.

To remove the Type Guide 10-5424, loosen the three Type Guide Screws 6-326. It is necessary to use a Gauge to locate the Type Guide for vertical alignment.

Escapement Complete

To remove the Escapement Complete 10-40387, turn the machine on its side. Take out the Back Space Dog Guide Screw 6-6305 on the Escapement Bracket. Next step is to remove the Escapement Connection 10-40226 by removing the Escapement Connection Lock Nut 6-6005, Escapement Connection Nut 6-6008 and the Escapement Trip Adjusting Link Washer 6-7842 and then remove the Escapement Connection from the Universal Bar Adjusting Arm 10-40526.

Now remove the Space Bar Connection 10-40152 from the Escapement Rocker Body 10-40175 by removing the Space Bar Connection Lock Nut 6-6005, Space Bar Connection Nut 6-6008 and the Space Bar Trip Adjusting Link Washer 6-7842.

Next, disconnect the Tabulator Escapement Release Arm Spring 10-7067 from the Tab. Universal Bar Spring Anchor 10-40729 on the Frame Brace Rear Lower 10-60060 and unhook Space Key Connections to Escapement. Then remove the two Escapement Bracket Screws 6-6416 and the Escapement will come out of the machine.

Tabulator Key Levers

To remove the Tabulator Key Lever 10-40678, Tabulator Clear Key Lever 10-63323, Tabulator Set Key Lever 10-63324, remove the Tabulator Key Lever Comb Lower Down Stop Filler 10-40722 on the Tabulator Key Lever Comb Lower 10-40143.

Loosen the Tabulator Key Lever Shaft Screws 6-6343, on the Frame Brace Rear Lower 10-60034, and the Tabulator Key Lever Shaft 10-40702 can be slipped out.

When this Shaft comes out, the Space Key Interlocking Lever Spacer Long 10-40149 will drop out.

The Tabulator Key Levers are now ready to be taken out of the machine. This is done by carefully bringing each Lever forward and working it out of the machine between the Space Bar and Key Levers.

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In order to remove the Space Key Lever Complete 10-40124, first release the tension on the Space Key Shaft Return Spring 10-7079 by releasing the Space Key Shaft Spring Collar Complete 6-228. This is done by loosening the Space Key Shaft Spring Collar Screw 6-6355. Now disconnect the Universal Key Adjusting Arm Spring 10-7025 from the Universal Bar Balancing Spring Anchor 10-40189 on the Space Key Shaft 10-60075. Loosen one Space Key Shaft Pivot Screw 6-6333 and Nut 6-6019 enough to permit removal of the Space Key Mechanism Complete from the machine.

Turn the machine around to the front, take off the Type Bar Comb Upper 10-80113, disconnect all the Type Bars 6-624 and remove from the machine. Also, disconnect all the Type Action Pull Links from the Key Levers. Remove all Type Action Hanger Clamps 6-21651, Top Cover Suspension Bracket Complete 10-40612 from the Top Plate 10-60315 by removing the Type Action Hanger Clamp Screws 10-6663 and the Type Action Hanger Clamp Screw Center 6-6338.

Now the Type Actions Complete 6-21652 are in position to be removed from the machine and can be lifted out one at a time.

Remove the Ribbon Spool Shaft Left 6-551 and the Ribbon Spool Shaft Right 6-552 by loosening the Ribbon Spool Shaft Gear Screw 6-6749, Ribbon Spool Shaft Collar Screw 6-6318. Also remove both Ribbon Spool Guards 6-531 and the Ribbon Spool Shafts left and Right can be slipped out of the Top Plate of the machine. While doing this, the Ribbon Spool Shaft Gear 6-540, Ribbon Spool Shaft Spring 10-7032 and the Ribbon Spool Shaft Collar 6-539 will drop out of the machine. Remove both of the Ribbon Spool Case Bushings 10-40206. Remove both Ribbon Spool Cases 10-80048 by removing their two Mounting Screws 6-6319 in each.

To remove the Top Plate Complete 10-60315, slip the Ribbon Vibrator Universal Bar Link 10-40191 off the Ribbon Vibrator Shaft Arm Front 10-40224. Take out the six Top Plate Screws 6-6375 and carefully remove the Top Plate Complete from the machine.

In order to remove the Ribbon Driving Shaft Complete 10-40207, loosen the Ribbon Driving Gear Screw 6-6318 and the Ribbon Driving Shaft Gear Screw 6-6318. Also remove the Ribbon Reverse Cam Screws 6-6307 and then slip the Ribbon Driving Shaft out from the right side of the machine. While doing this, the Ribbon Driving Gear Left 6-310, Ribbon Driving Shaft Gear 6-302, the Ribbon Driving Gear Right 10-40201 and the two Ribbon Reverse Cams 6-336 will drop out of the machine. Remove the Ribbon Reverse Detent 6-337 by removing the two Ribbon Reverse Detent Screws 10-6641.

To remove the Line Lock Bail 6-218, simply loosen the Line Lock Bail Pivot Bearing Set Screws 6-6340 on the Frame Brace Front 10-60035 and back out the line lock bail pivot bearings 10-40104 until the Line Lock Bail slips freely out of the machine.

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KEY LEVERS

Remove the two Touch Adjusting Screw Nuts 6-6019 and Washer in order to release the tension on the Key Lever Springs 6-6902. Disconnect all the Key Lever Springs from the Key Levers and remove Key Lever Spring Plate 10-40160, with Springs attached, from the machine. To remove the Key Levers, first, second, third and fourth banks 10-63144, 10-63145, 10-63146, 10-63147 respectively, first remove the Tabulator Key Lever Comb Upper 10-80145 and the Back Space Key Lever Guide 10-40022 from the machine. Move Shift Key Lever Shaft 10-60081 a sufficient amount downward to remove the Touch Adjusting Screw 10-6563. Next step is to turn the Key Lever Fulcrum 6-275 to the front of the machine so as to release the Key Levers. Now the Key Levers can be removed from the machine.

BACK SPACE KEY LEVER

Remove the Back Space Key Lever 10-63156 by removing the Back Space Key Lever Screw 6-6472, Back Space Key Lever Screw Bushing 6-129 and Back Space Key Lever Spacer Washer 10-7873 and unhooking the Back Space Link 6-113 from the Back Space Bell Crank 10-40008. Do not lose Link 6-113.

MARGIN RELEASE KEY LEVER

The Margin Release Key Lever 10-63157 can be removed from the machine by removing the margin Release Key Lever Pivot Screw 6-6472, Margin Release Key Lever Screw Bushing 10-40023 and the Margin Release Key Lever Spacer Washer 10-7873.

SHIFT KEY LEVER MECHANISM

To remove the Shift Key Lever Shaft 10-60081 and Shift Key Levers 10-63154 disconnect the Shift Lever 10-70404 from the Shift Key Lever Shaft by removing the Shift Spring Link Screw 6-6330 from the Shift Key Lever Shaft. Take out three Front Comb Screws 6-6343 that holds Keyboard Comb 10-40034 and Tabulator Key Lever Comb 10-40143. Right Screw also holds the Margin Release Key Lever Down Stop 10-40014. Unhook Ribbon Vibrator Universal Bar Link Spring 10-7025. The Shift Key Lever Shaft and Shift Key Levers can now be removed from the machine as the Shift Key Lever Shaft Pivot Screw 6-6373 is backed out. Now remove the Shift Lever Toggle 10-70404 and the Shift Toggle Link Long as a unit by unhooking Toggle Link Long Spring 10-7013 from Toggle Link Long Screw 6-6723 and remove the Shift Lever Screw 10-6723, Shift Lever Eccentric 10-70162 and Washer 10-7873. Loose Toggle Link Long Screw Nut 6-6028 and back out the Shift Toggle Link Long Screw 6-6477, which screws to the Right Side Frame Lug.

RIBBON VIBRATOR UNIVERSAL BAR MECHANISM & BICHROME PARTS

Remove the Ribbon Vibrator Universal Bar Link 10-40191 by disconnecting the Ribbon Vibrator Link Spring 10-7025 from the Bichrome Arm 6-333 and remove the Ribbon Vibrator Universal Bar Shaft Complete 10-60180 by loosening Nut 6-6019 and backing up on the Ribbon Vibrator Universal Bar Shaft Pivot Screw 6-6333, with Ribbon Vibrator Universal Bar Link 10-40191 attached.

To remove the Bichrome Arm with Bichrome Arm Handle 10-64070 attached, just remove the Bichrome Detent Spring 6-6905 and the Bichrome Arm Screw 6-6345 and Nut 6-6005, also Washer 6-7839.

Remove Bichrome Arm Stop 6-311 by removing the Bichrome Arm Stop Screw 10-6614 and Washer 6-7839.

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INSTRUCTIONS FOR ASSEMBLING MACHINE

BICHROME PARTS

Assemble Bichrome Arm Stop 6-311 to the Right Side Frame with Bichrome Arm Stop Screw 10-6614 and Washer 6-7839. Assemble Bichrome Arm and the Bichrome Arm Handle Complete 10-64070 to the Right Side Frame with the Bichrome Arm Screw 6-6345, Washer 6-7839 and Nut 6-6002. To be free on Screw 6-6345 but no up and down play. Attach the Bichrome Detent Spring 6-6905 to the Bichrome Arm 10-64070 and the Bichrome Arm Stop Screw. Have large part of this Spring towards rear of machine.

RIBBON VIBRATOR UNIVERSAL BAR SHAFT MECHANISM

Place this assembly into the machine and see to it that it is centrally located between its Pivot Screws. Tighten the Ribbon Vibrator Universal Bar Shaft Pivot Screw 6-6333 so that there will be freedom of motion but no play and tighten Lock Nut 6-6019 on Screw 6-333. Attach the Ribbon Vibrator Universal Bar Link Spring 10-7025 to the Ribbon Vibrator Universal Bar Link and the Bichrome Arm 10-64070.

SHIFT MECHANISM AND SPACE KEY MECHANISM

Assemble Shift Lever 10-70404 and Shift Toggle Link Long 6-279N assembly to the left Side Frame with the Shift Lever Eccentric 10-70162 and the Shift Lever Screw 10-6723 and the Shift Toggle Link Long Screw 6-6477 which is attached to the Shift Toggle Link Long. Loosen Nut 6-6028 and adjust Screw 6-6477 until Toggle Link is free with no play and tighten Nut 6-6028. Put the Touch Adjusting Screw 10-6734 into the Frame Brace Front 10-60035 with Washer and two Nuts 6-6019.

Now place the Shift Key Lever Shaft 10-60081 with the Shift Key Levers attached into the machine with the ends of Shift Key Shaft greased and tighten the Shift Key Lever Shaft 10-60081 in position centrally by adjusting the Shift Key Lever Pivot Screw 6-6373 and Nuts 6-6003. Shift Shaft to be free with no end play. Hook up Ribbon Vibrator Universal Bar Link Spring 10-7025, replace Shift Spring Link Screw 6-6330 to connect Shift Shaft to Toggle Mechanism. Grease ends of the Space Key Shaft 10-60075 on the Space Key Mechanism. Place the entire Space Key Assembly 10-40124 into the machine, hooking the Space Key Shaft Return Spring 10-7079 on the Frame Brace Front 10-60035.

Tighten the Space Key Shaft Pivot Screw 6-6333 so that there is freedom of motion but no end play and lock it to position with Nut 6-6019. Adjust the Space Key Shaft Return Spring for tension to keep Space Bar up and tighten the Space Key Shaft Spring Collar Screw 6-6355 in the Space Key Shaft Spring Collar 6-228 when the desired tension on Spring is obtained. Place a Rubber Band on the rear of the Space Key Mechanism to hold in place temporarily. Replace Key Lever Comb 10-40034 and Tabulator Key Lever Comb 10-40143. Both Combs are held in place by three Comb Screws 6-6343. The Right Screw also holds Margin Release Key Lever Down Stop in place.

BACK SPACE KEY LEVER

Grease the Back Space Key Lever 10-63156 at the pivot hold and assemble to the Back Space Bell Crank 10-40008 with the Back Space Link 6-113. Attach the Back Space Key Lever to the Left Side Frame with the Back Space Key Lever Washer 10-7873, Back Space Key Lever Screw Bushing 6-129 and the Back Space Key Lever Screw 6-6472. Tighten the screw and try Back Space Key Lever 10-63156 for free-

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BACK SPACE KEY LEVER (CONT'D)

dom of movement.

MARGIN RELEASE KEY LEVER

Grease the Margin Release Key Lever 10-63157 at the pivot hold and assemble the Key Lever to the Right Side Frame with the Margin Release Lever Spacer Washer 10-7873, Margin Release Key Lever Bushing 10-40023 and the Margin Release Key Lever Screw 6-6472, tighten the Screw and check Margin Release Key Lever for freedom of motion.

KEY LEVERS AND LINE LOCK BAIL MECHANISM

Grease the slots in the Comb Rear 10-64268 and assemble the Key Lever Fulcrum 6-275 so that the position of the formed end is towards the front of the machine.

Assemble the 42 Key Levers in their proper position and turn Key Lever Fulcrum 6-275 downward to lock the Key Levers in position.

Free up all the Key Levers - they must drop of own weight. Place the Line Lock Bail 6-218 into the machine and set the Line Lock Bail Pivot Bearings 10-40104 so that there is no play in the Line Lock Bail but that there is freedom of motion. Lock Pivot Bearings 10-40104 in place by Set Screws 6-6340 on Frame Brace Front 10-60035. Assemble the Key Lever Spring Plate 10-40160, with the Key Lever Springs 6-6902 attached to the Touch Adjusting Screw 10-6563 and hook up Springs to the Key Levers.

Hook one Spring on each end first, then hook all others. Replace Tabulator Comb Upper 10-80145 with Back Space Key Lever Guide 10-40022. These parts are held to position with two Screws 6-6343.

Assuming all Key Levers are free, each Lever should have only enough spring tension to hold Levers from sagging, machine setting upright.

RIBBON DRIVE SHAFT MECHANISM

Assemble the Ribbon Driving Shaft 10-40207 into machine and at the same time, while pushing the Drive Shaft through the machine, place one Ribbon Reverse Cam 6-336 with straight side to right, Ribbon Driving Gear Right 10-40201, Ribbon Driving Shaft Gear 6-302 and the Ribbon Driving Gear Left 6-310 and position one Ribbon Reverse Cam 6-336 with straight side to left.

Set the Ribbon Reverse Cam Screws 6-6307 in place and tighten, making sure the high point of one Ribbon Reverse Cam 6-336 is set on top of the Shaft and the other set to the bottom of Driving Shaft 10-40207. Assemble the Ribbon Reverse Detent 6-337 in place with the Ribbon Reverse Detent Screws 10-6641 and at the same time set the Stud of Reverse Detent Lever on the Ribbon Reverse Detent into the groove of Ribbon Driving Gear Right 10-40201.

TOP PLATE COMPLETE

Assemble Top Plate 10-60315 just as it was dismantled from the machine with six Top Plate Screws 6-6375, and make sure that the Universal Bar Adjusting Arm 10-40526 is placed between the Figure "8" and "J" Key Levers. Tighten the six Screws.

Hook up the Ribbon Vibrator Universal Bar Link 10-40191 to the Ribbon Vibrator Shaft Arm Front 10-40224 on the Top Plate.

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Replace both of the Ribbon Spool Cases 10-80148 and Ribbon Spool Case Bushings 10-40206. Place the Ribbon Spool Shaft Left 6-551 and Right 6-552 (to determine Left or Right Spool Shaft, refer to "Ribbon Feed Mechanism Adjustments"), into the Top Plate 10-60315 and while doing so place the Ribbon Spool Shaft Collar 6-539, Ribbon Spool Shaft Spring 10-7032 and the Ribbon Spool Shaft Gear 6-540 in their proper position on the shaft.

Replace Ribbon Spool Guard 6-531 in each Ribbon Spool Case 10-80148.

Check the Ribbon Spool Shafts with .012" thickness Gauge for up and down play by tightening the Ribbon Spool Shaft Gear Screw 6-6749, using Gauge under Ribbon Spool Disc.

Adjust the Spools for proper tension (for proper tension refer to "Ribbon Feed Mechanism Adjustments") and tighten Ribbon Spool Shaft Collar Screw 6-6318 after proper tension is placed on Ribbon Spool Shaft Collar Spring 10-7032.

Test Spools for free to turn and proper .012" up and down play and oil bearing points of Ribbon Spool Shafts in Castings.

Now set the Ribbon Driving Gear Right 10-40201, having Toggle of Ribbon Reverse Detent 6-337, to front of machine to properly mesh with the Ribbon Spool Shaft Gear 6-540 on the Ribbon Spool Shaft Right 6-552 and tighten Ribbon Driving Gear Screw 6-6318.

Now with the Toggle of Ribbon Reverse Detent 6-337 set to the rear of the machine, set the Ribbon Driving Gear Left 6-310 to properly mesh with the Ribbon Spool Shaft Gear 6-540 on the Ribbon Spool Shaft Left 6-551. Test Ribbon Spool Mechanism, Ribbon Reverse Detent Mechanism and Ribbon Drive Shaft Mechanism for free winding and proper reverse action.

ESCAPEMENT MECHANISM

Grease the Escapement Complete 10-40387 and assemble to the Frame Brace Rear Upper 10-60033 with two Escapement Bracket Screws 6-6416.

Assemble the Back Space Dog 6-703 to the Escapement Bracket 6-724 with the Back Space Dog Guide Screw 6-6305.

Test Back Space Mechanism for freedom of action.

Attach the Space Key Connection 10-40152 to the Escapement Body 10-40175 with the Space Key Trip Adjusting Link Washer 6-7842, Space Key Connection Nut 6-6008 and the Space Key Connection Lock Nut 6-6005. Test Space Key Mechanism for freedom.

Hook up the Escapement Connection 10-40226 to the Universal Bar Adjusting Arm 10-40526 and attach to the Escapement Body 10-40173 with the Escapement Trip Adjusting Link Washer 6-7842, Escapement Connection Nut 6-6008 and Connection Lock Nut 6-6005. Final adjustment of the Escapement and Space Key Mechanism will be made later.

Now hook up the Universal Bar Adjustment Arm Spring 10-7025 to the Universal Bar Balancing Spring Anchor 10-40189 on the Space Key Shaft 10-60075 and to the Universal Bar Adjustment Arm 10-40526.

CENTER TIE ASSEMBLY AND CARRIAGE SPRING DRUM MECHANISM

Assemble the Center Tie 10-80115 into the machine and make sure it is well seated on its raceway of the Frame Brace Upper 10-60033. Hook up the Line Lock Bail Pull Wire 6-238 to the Margin Release Lever 10-40036 and also see that Margin Release Lever fits over Margin Release Shaft 10-40015. Hook up the Center Tie
Adjusting Link 10-40324 to the Center Tie by means of the Center Tie Adjusting Link Pin 6-6100 and Nut 6-6019.

Replace the two Carriage Balancing Springs 6-6938 to Center Tie. Adjust Center Tie Gib Screws and Nuts 10-6659N for freedom of movement, front and back, but no up and down play allowed.

Assemble the Carriage Spring Drum Bracket 10-40277 to the Frame Brace Rear Upper 10-60033 with Carriage Spring Bracket Screw 6-6417.

Tighten the Ribbon Driving Shaft Gear Screw 6-6318 placing the Ribbon Driving Shaft Gear in position so that when Ribbon Drive Shaft 10-40207 reverses from one Spool to the other that this Gear will always engage the Ribbon Feed Shaft Gear on the Carriage Spring Drum Bracket, looking from rear of the machine. The Driving Shaft Gear 6-302 should be driven by the right side of Feed Shaft 10-40199 otherwise the Ribbon would feed backwards.

Test out the Detent Mechanism for proper reverse action and winding action of the Ribbon Drive Shaft Gears by using Carriage Spring Drum.

BELL

Assemble the Bell 10-40835 with Washer 10-7842 and Bell Screw 10-6625. Test out for proper striking of Bell Ringer 10-40163.

REAR COVER

Assemble the Rear Cover 10-80108 to the machine with six Rear Cover Screws 10-6643. Attach the Center Tie Adjusting Spring Left 6-6907 and Right 6-6928 to the Rear Cover and the Center Tie Adjusting Spring Screw Long 6-6403 on the Center Tie 10-80115 and attach the Bell Ringer Spring 10-7003 to the Bell Ringer 10-40163.

TYPE ACTION COMPLETE

Grease the Type Action slots in Top Plate 10-60315 and in the Type Action Segment in the Top Plate. Insert Type Action Complete 6-21652 into machine, one at a time, making sure that Universal Bar Trip Saddle on Action is placed over Universal Bar and after all the Actions are in position, assemble Type Action Hanger Clamp 6-21651, Top Cover Suspension Bracket 10-40612, with Type Action Hanger Clamp Screws 10-6663 and Type Action Hanger Clamp Screw Center 6-6338. Tighten all Screws.

Hook up all the Type Action Pull Links to the Key Levers.

Assemble the Type Bars 6-624 to the Type Action 6-21652 by feeding into the machine from rear to front.

First, hook the Type Bar Arm Rear of the Type Bar to the Type Action Bell Crank on the Type Action and then hook the Type Bar to the Type Action Parts. Now assemble the Type Bar Comb Upper 10-80113 carefully placing it down over the Type Bars until it is in place on Top Plate 10-60315 and hold in place with four Type Bar Comb Upper Screws 10-6609.

Free all the Actions and see that each Type Bar strikes in the center of the Type Guide. If not, refer to "Type Actions and Key Levers Adjustments" for further information.

Check Type action for following conditions:

Check all Type Action Screws for tightness, see that Type Bars hit within Guide.
INSTRUCTIONS FOR ASSEMBLING MACHINE (CONT'D.)

TYPE ACTION COMPLETE (CONT'D.)

Check for wrong action and center Type Bar Arms in Type Action for free.

TABULATOR KEY LEVER MECHANISM

Place the Tabulator Clear Key Lever 10-63323, Tabulator Key Lever 10-40678, Tabulator Set Lever 10-63324 into the machine by working the Levers between the Space Bar and Key Levers.
Insert the Tabulator Key Lever Shaft 10-40702 into the Frame Brace Rear Lower 10-60034 from the right side of the machine and work into the Bushings of the Key Levers, and at the same time run the Shaft through the Space Bar Interlocking Lever 10-40147 and insert the Space Bar Interlocking Lever Space Collar 10-40149 on to the Shaft to the left of the Space Bar Interlocking Levers 10-40147. After the Shaft has been fully positioned, lock in place with two Tabulator Key Lever Shaft Screws 6-6343.

Attach the Tabulator Escapement Release Arm Spring 10-7067 on the Escapement to the Tabulator Universal Bar Spring Anchor 10-40729 to the Frame Brace Rear Lower 10-60034. Place the Tabulator Key Lever Comb Lower Down Stop Filler 10-40722 into the Tabulator Key Lever Comb Lower 10-40143 and form the ends over to retain it in place.
Free up all the Tabulator Key Levers.

SHIFT RAIL COMPLETE

To assemble the Shift Rail Complete 10-64045, place it in position and attach the Carriage Balancing Shaft 10-64043 to the Center Tie 10-80115 with the Carriage Balancing Shaft Pivot Screw 6-6391 and Nut 6-6003. Tighten these Pivot Screws so that the Carriage Balancing Shaft is centrally located. Shaft to be free, but no side play allowed. Connect the Shift Lever 10-70404 to the Carriage Balancing Shaft 10-64043 by means of the Shift Toggle Link Short Screw, upper, 6-6478 and Nut 6-6019.
Hook up the Shift Balancing Spring 6-6938 to the Shift Balancing Spring Arms. Attach the Ribbon Vibrator Bracket 10-60218 to the Ribbon Vibrator Shaft Arm Rear 10-40214 by means of the Ribbon Vibrator Link Screw 10-6601 and Nut 6-6005. Lock Shift Keys down and position lower half of Escapement Wheel Bracket 10-4068 as high as it will go and tighten the two Set Screws 10-6706 to flat on Escapement Wheel Shaft.
Replace Carriage Spring Drum Tape 6-754.

CARRIAGE COMPLETE

Lock the Shift Mechanism in shift position and turn Pressure Indicator Lever 10-40304 as far to the right as it will go. Put Carriage Roll Retainers in Rails. Now insert the Carriage Complete 10-64014 (with the Paper Finger Rail End Screw Right 10-6617 and the Right Paper Finger 10-40897 still off of the Carriage) into the machine from the right to left looking at the rear of the machine as shown in the illustration. Insert the Right Paper Finger and replace the Paper Finger Rail End Screw 10-6617 back on the Carriage.
INSTRUCTIONS FOR ASSEMBLING MACHINE (CONT'D.)

CARRIAGE COMPLETE CONT'D.

Replace the Carriage Retainer Roller Bracket 10-40274 on the Carriage Rail 10-40368. Insert the Carriage Retainer Complete 10-40370 so that the Carriage Retainer Gib 10-40367 passes through the Center Tie 10-80115, making sure that the two Studs on the Roller Bracket enter the holes of the Carriage Retainer 10-40366. Next, fasten the Carriage Retainer Plate 10-40880 to the upper part of the Carriage Retainer Gib 10-40367 with Carriage Retainer Plate Screw 10-6597.

Tighten tension on Carriage Spring Drum for proper running of Carriage.

ADJUST SHIFT MECHANISM

See Adjustments on Shift Mechanism.

ADJUSTMENTS TO CARRIAGE

Adjust Carriage Retainer Mechanism so that the Carriage Rail 10-40368 rides flat and free on Center Tie and then tighten Carriage Retainer Screw Nut 6-6019.

Check Carriage for free full length of writing line. Adjust if necessary.

FRONT PANEL, TOP COVER AND RIBBON SPOOL KNOBS COMPLETE

Insert Front Panel 10-80134 on machine with four Front Panel Screws 10-6651. Assemble Top Cover 10-80146 to Top Plate with two Top Cover Screws 10-6575 and four Top Cover Rubber Washers 6-7858.

Replace Typewriter Ribbon.

Place Ribbon Spool Knobs Complete 10-80118 on Ribbon Spool Shafts.
1. Check machine with specifications on merchandise order.
2. Test all screws and nuts for tight, including rubber feet.
3. Test center tie, no lost motion, move freely with indicator.
4. Test shift links and shift shafts, free but no end play.
5. Test shift spring tension, both keys for grating in guides, adjust to rub side of guide.
6. Test shift locks, release easily, both keys.
7. Test carriage free on rails, no lost motion in rails, proper spring tension.
8. Test carriage retainer, tight as possible, yet free.
9. Test line space and variable mechanism, one, two and triple spacing.
10. Remove platen, paper trough and feed roll assemblies.
11. Test letter spacing rack and pinion, proper mesh full length of rack.
12. Test left hand margin, margin release, line lock and bell.
13. Test tabulator rack for proper setting, blade to enter between two stops.
14. Test tabulator set key, clear key and bar.
15. Test feed rolls, free on shafts, oil, properly spaced.
16. Test feed roll release for sufficient clearance and ease of operation.
17. Test paper pan, balanced and centered.
18. Test platen, turns freely, easily removable, no end play.
19. Test paper fingers and bail rolls.
20. Test paper bail scale properly set to indicator.
21. Test type guide, straight up and down, .060" clearance, use .060" Noiseless Gauge.
22. Test ribbon mechanism drive, reverse, two color and stencil.
23. Test impression, light on one sheet of paper, dial indicator straight up.
24. Test impression, same, both ends of platen.
25. Test type actions, free.
26. Test type entering guide properly, all type on feet.
27. Test alignment on four (4) sheets of paper, dial at "0".

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28. Recheck impression.
29. Test motion, both ends of platen, loose carr. links or center tie will affect motion.
30. Test aligning scale, adjust to center of small "M".
31. Test escapement wheel, turns free, no burrs on teeth.
32. Test escapement body and dogs, properly set and adjusted, no end play in rocker body.
33. Test universal bar, free, level and balanced.
34. Test trip on four (4) sheets of paper, dial at "0".
35. Test space bar, and space bar interlocking device.
36. Test back spacer.
37. Test piling in rapid operation, full length of carriage.
38. Inspect nickel for tarnish and japan finish for scratches or chips.
39. Oil machine thoroughly.
FACTORY ALIGNMENT TEST

The following is a test for alignment that is made at the factory. It will be noticed that it is customary to use the "X" and "x" in checking the alignment on the Noiseless Machines. The reason for this is, that the "X" is a square letter and is located on one side of the machine which means, if it is entering the Type Guide correctly, it will be better braced than would the "N" which is located in the center of the machine.

PRINTED IN RED TO TEST RIBBON FOR COVERING

Test of Motion - - - - - HhHhH

ALIGNMENT - - - - - ABCDEFGHIJKLMNOPQRSTUVWXYZ

" " abcdefghijklmnopqrstuvwxyz

Testing machine
On Stencil
Dial at Zero

 This is a specimen of XT-534255 Model 10 Remington Noiseless Typewriter.

Alignment - - - - - XQXAXZSXXWXEXDCXVFXRXTXGBXNXHXYXUJXM,XXXIXOXLX.X?X:XP

Dial at Zero - - - - - xqaxaxzxsxxwexdcoxvxrxtxgxboxnxhxyxuxjxmx,xkxixoxlx.x/x;xp

Impression
Capital Letters
** QAZSWEDCVFRTGBNYUJM,KIOL.?;P1/2"#$&'()**X

Impression
Small Letters
** qazxswedcvftrgbnyujm,kiol./;p1/2234567890-

NOTE: Impression is tested with Dial at vertical or six o'clock position with one sheet of paper in machine.

* It was necessary for us to type this test on Ribbon instead of Stencil due to the fact that we are unable to reproduce the light print by Photolith process, which is the method we use in printing parts catalogs and mechanical instructions.

** It was necessary for us to type this test with Dial at Zero instead of vertical six o'clock position for the same reason mentioned above.

When YOU make the tests, follow the procedure of the factory tests as indicated in the left margin above.

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