CAUTION

To prevent the clutch from engaging, block the clutch throwout lever in such a manner that it prevents the engaging of the clutch members.

176. DASHPOT VENT SCREW

The carriage should return from its right stop to its left stop without bouncing and with minimum shock when the carriage return lockbar is held in its latched position. Adjust by means of the dashpot vent screw and lock nut. (See Figure 60 for location of parts.)

KEYBOARD UNIT

177. LOCK LOOP SPRING TENSION (Figure 71)

Rotate the transmitting cam cylinder until the lock loop roller is resting on the low part of its cam. Hook an 8 oz. scale in the lock loop spring hole and pull in line with the spring. It should require 4 to 5 ozs. to start the lock loop moving.

178. LOCKING LEVER SHAFT BRACKET (Figure 71)

With the locking levers in the spacing position and the contact levers on the high part of their cams, there should be some clearance, not more than .010", between the contact levers and the locking levers when the locking levers are pressed downward by hand to make this clearance a minimum. Also, the locking levers should travel equally on either side of the lock loop blade when the UNSHIFT and BLANK keys are alternately depressed. To adjust, add or remove shims between the locking lever shaft bracket and the keyboard casting to meet the first requirement and, before tightening the bracket mounting screws, position the bracket laterally to meet the second requirement.

179. TRANSMITTING CONTACTS GAP (Figure 71)

With any contact lever on the high part of its cam, the contact gap should be .017" to .025" (.015" to .025" for the start-stop contacts) when using a signal measuring device. If no signal measuring device is available, all contact gaps should be .017" to .023" for 60 or 75 wpm operation and .020" to .025" for 100 wpm operation. To adjust, bend the short contact spring.

180. CONTACT SPRING PRESSURE (Figure 72)

With any contact lever on the low part of its cam, it should require a pressure of 4-1/2 to 5-1/2 ozs. to open the contact when the push end of an 8 oz. scale is applied to the contact spring just above the contact point. To adjust, bend the longer contact springs. Recheck the contact gap adjustment.

181. CLUTCH SPRING COMPRESSION (Figure 73)

Hook a 32 oz. scale to the clutch driven member projection and pull directly in line with the shaft. It should require 9 to 12 ozs. to separate the clutch teeth.

182. CLUTCH (Figure 74)

There should be .005" to .015" clearance between the clutch teeth when the clutch is fully disengaged. To adjust, position the clutch throwout lever by means of shims placed between the throwout lever post and the bracket.

183. LOCK LOOP ROLLER (See Figure 71 for location of parts)

NOTE

This adjustment applies only to those keyboards equipped with lock loops having an elongated hole for the roller pivot screw.

Rotate the keyboard shaft until the clutch teeth are disengaged. Press the lock loop roller against its cam to fully disengage the clutch teeth and position the locking levers directly below the lock loop blade to make the clearance a minimum. Under these conditions there should be .008" to .015" clearance between the lock loop blade and the locking lever having the least clearance. To adjust, position the roller pivot screw by means of its elongated mounting hole. *

* On some keyboards an eccentric roller pivot screw is used which provides extra adjusting margin. In these cases the shoulder screw should be mounted with the high part of its eccentric extending toward either end of the slot in the lock loop, depending upon in which direction the additional margin of adjustment is required.

184. UNIVERSAL BAR PILOT SCREWS (See Figure 74 for location of parts)

The universal bar should have some end play, not more than .010"; the universal bar extension should be approximately in the middle of the space between the P and CARRIAGE RETURN key levers; and the trip-off pawl should clear the sides of the stop plate mounting screws and the locking lever bracket when the trip-off pawl is operated by depressing a key lever. To adjust, position the universal bar by means of its pilot screws.

185. TRIP-OFF PAWL STOP PLATE (Figure 74)

There should be .040" to .060" clearance between all key levers and the universal bar (.040" to .070" between the spacer key lever and the universal bar) when the trip-off pawl is resting against the end of the stop plate. To adjust, position the trip-off pawl stop plate by means of its elongated mounting holes.

186. INTERMEDIATE PAWL ECCENTRIC (Figure 74)

There should be .050" to .060" clearance between the trip-off pawl and the intermediate pawl when the trip-off pawl is resting against the end of the stop plate and the intermediate pawl is against its eccentric. To adjust, position the intermediate pawl eccentric.

187. CLUTCH THROWOUT LEVER ECCENTRIC (See Figure 74 for location of parts)

With the transmitter shaft in the stop position and the clutch fully disengaged, hold the clutch throwout lever against the driven clutch member. Under this condition the intermediate pawl should be held, without perceptible play, between the clutch throwout lever and the intermediate pawl eccentric. To adjust, position the clutch throwout lever eccentric.

188. TRIP-OFF PAWL ECCENTRIC (Figure 75)

With the clutch throwout lever held against the high part of its cam and the clutch throwout lever eccentric held against the clutch throwout lever, the end of the trip-off pawl should clear the end of the intermediate pawl by not more than .004" when a key lever is slowly depressed. Adjust by means of the trip-off pawl eccentric screw.

NOTE

There are two positions of the eccentric screw that will provide the correct clearance. The high part of the eccentric should be positioned toward the rear of the keyboard in making this adjustment. If necessary, bend the rear extension of the trip-off pawl stop plate so that, with the trip-off pawl in its operated position, there is at least .002" clearance between the formed up end of the stop plate and the lower edge of the trip-off pawl.

189. CLUTCH THROWOUT LEVER SPRING TENSION (See Figure 74 for location of parts)

With the clutch teeth engaged and the clutch throwout lever resting against the low part of the clutch driven member, hold the intermediate pawl against its eccentric; at the same time hook an 8 oz. scale over the throwout lever just above the spring hole and pull in line with the spring. It should require 1-1/2 to 2-1/2 ozs. to start the lever moving.

190. TRIP-OFF PAWL SPRING TENSION (Figure 76)

Unhook the trip-off pawl spring. With an 8 oz. scale hooked in the spring eye, it should require 3-1/2 to 4-1/2 ozs. to pull the spring to position length.

191. TRANSMITTING CAM CYLINDER END PLAY (Figure 77)

The transmitting cam cylinder should have some end play, not more than .002". To adjust, position the bushing in the rear bearing bracket by means of its adjusting nuts.

192. KEY LEVER SPRING TENSION (Figure 78)

The openings between the ends of all key lever springs except the spacer key lever spring should measure 1-3/16". The spacer key lever spring should measure 1-15/16" across the opening between the ends. Adjust by bending the springs.

193. REPEAT SPACE ROD (Figure 79)

With the space bar fully depressed by applying pressure at approximately the center of the bar, there should be .010" to .020" clearance between the clutch throwout lever and the high part of

the throwout cam. To obtain this requirement, adjust the repeat space rod by means of its adjusting nuts. (See Figure 74 for location of parts.)

194. REPEAT SPACE ROD BRACKET (Figure 80)

NOTE

This adjustment applies only to keyboards equipped with repeat space rod brackets having enlarged mounting holes (.205" in diameter) and a flat washer under the head of the bracket mounting screw.

With the space bar fully depressed, adjust the repeat space rod bracket so that there is some clearance, not more than .008", between the formed end of the repeat space rod and the flat side of the transmitter rear bracket measured at the closest point. The front face of the repeat space rod bracket should be parallel to the rear surface of the transmitter rear bracket. Adjust by means of the enlarged mounting hole.

195. REPEAT SPACE ROD SPRING TENSION (Figure 80)

Hook an 8 oz. scale over the repeat space rod just in front of the spring hole and pull in line with the spring. It should require 1 to 3 ozs. to start the rod moving.

BASE UNIT

196. MOTOR UNIT SLIP CONNECTION SPRINGS

a. With the motor unit in position on the base, hook a 4 lb. scale under one of the end motor unit slip connection springs just above the head of the terminal screw on the motor connection block, and pull toward the front of the base at right angles to the spring. It should require 2 to 4 lbs. to just break contact. Measure the pressure of the opposite end slip connection spring in the same manner. This pressure can be regulated by removing the motor unit and bending the springs.

b. With the motor unit removed and a straight edge placed across the two end springs, there should be some clearance, not more than .015", between the two inner springs and the straight edge. Adjust by bending the two inner springs.

197. LINE JACK SPRINGS

It should require 1 to 2 lbs. pressure, using a 12 lb. scale, on the curved part of the jack spring to just open the contacts. With the typing unit in position on the base, the line jack contacts should be separated .020" to .060". Bend the long contact spring to obtain these requirements.

198. KEYBOARD JACK SPRINGS

a. It should require 1 to 2 lbs. pressure, using a 12 lb. scale, on the curved part of the jack spring to just open the contact. With the keyboard inserted in the base, the keyboard jack springs should be separated .025" to .075". All slip connection springs should be in line.

b. To adjust, first remove the four base plate mounting screws and the base plate. Then remove the four screws that hold the slip connection mounting plate assembly to the base so that the bakelite cover can be removed, and then replace the four screws. Next measure the pressure of the two keyboard jack springs. With the keyboard inserted in the base the keyboard jack springs should now be separated by .005" to .025". This clearance may be measured from above the base by inserting a wire gauge between the contact springs. Bend the long contact spring of the two jack springs to obtain this spring tension and bend the short contact spring to provide this contact gap. (After the bakelite cover is replaced the jack contact springs should be separated by .025" to .075".) Remove the keyboard from the base and with a straight edge laid across the two keyboard jack springs, align the other slip connection contact springs by bending, so that they just touch the straight edge. Remove the four slip connection mounting plate screws and insert the bakelite cover in its original position. Replace the four mounting screws previously removed. Finally, install the base plate on the base by means of its mounting screws.

199. TYPING UNIT SLIP CONNECTION SPRING

Remove the typing unit from the base. Hold a straight edge flush against the left rear milled surface on the base and extend the straight edge over the printer slip connections. There should be 7/8" clearance (plus or minus 1/64") between the straight edge and the curved part of the springs. Bend the slip connection springs to obtain this clearance.

200. LINE RELAY JACK CONTACT GAP (Figure 81B)

a. When the jack plunger is held flush with the relay connection block mounting plate, there should be a gap of .010" to .015" between the contact points of No. 3 and No. 4 contact springs. Adjust by bending No. 3 contact spring.

b. When the jack plunger is held flush with the relay connection block mounting plate there should be .020" to .025" clearance between the contact points of No. 1 and No. 2 contact springs. Adjust by bending No. 2 contact spring.

201. LINE RELAY JACK CONTACT SPRING TENSION (Figure 81A)

When an 8 oz. scale is hooked to contact springs No. 1 or No. 4 at right angles to the springs, it should require a pull of 5 to 7 ozs. to separate the contact points of contact springs No. 1 and 2 or of contact springs No. 3 and 4, respectively. Adjust by bending No. 1 and 4 contact springs.

NOTE

The following four adjustments apply only to bases with send-receive-break mechanisms having single upper contact.

202. UPPER CONTACT LEVER SPRING TENSION (Figure 82A)

Unhook the upper contact lever spring and the safety pawl spring. With the send-receive lever in the SEND position (up), hook an 8 oz. scale over the spring bar on the upper contact lever and pull up vertically. It should require 5-1/2 to 6-1/2 ozs. to start the lever moving. Replace the safety pawl spring.

203. LOWER CONTACT LEVER SPRING TENSION (Figure 82A)

With the lower contact lever spring unhooked from the mounting bracket and the send-receive lever in the SEND position (up), hook a 32 oz. scale in the spring eye. It should require 9 to 11 ozs. to extend the spring to its position length. Replace the spring.

204. SAFETY PAWL SPRING TENSION (Figure 82B)

Hook an 8 oz. scale over the end of the lower extension on the safety pawl and pull at right angles to the extension. It should require 1-1/4 to 2-1/4 ozs. to start the pawl moving.

205. SEND - RECEIVE - BREAK CONTACT SPRINGS (Figure 82C)

a. Viewing the base from the front, the send-receive-break contact springs are numbered 1, 2, 3, 4, 5, and 6 from left to right.

b. Move the send-receive lever to the SEND position (up).

(1) All contact points should meet across their entire surface.

(2) There should be some clearance, not more than .004", between the fibre insulator on the lower end of contact spring No. 4 and the lower contact lever to the right of it. Adjust by bending contact spring No. 4.

(3) There should be a clearance of .015" to .020" between contacts No. 3 and No. 4. No. 1 contact should not bear against No. 3. Adjust by bending contact spring No. 3.

(4) Contact No. 1 should exert a pressure against contact No. 2. Hook an 8 oz. scale around contact spring No. 1 just below the contact point and pull horizontally to the left. It should require 3 to 4 ozs. to just separate the contacts. Adjust by bending contact spring No. 1.

(5) There should be a slight clearance, not more than .004", between the fibre insulators on springs No. 1 and No. 3. Adjust by bending contact spring No. 2 and recheck the pressure of spring No. 1.

c. Move the send-receive lever to the RECEIVE position (down).

(1) With the left end of the upper contact lever held against the top of the notch in the safety pawl, there should be at least .008" clearance between the fibre insulator on the No. 6 contact spring and the extension on the upper contact lever. Make certain that contacts No. 5 and No. 6 are separated by at least .015" when the break lever is operated. Adjust by bending contact spring No. 5.

(2) Contact No. 6 should exert a pressure on contact No. 5. Hook an 8 oz. scale around contact spring No. 6 just above the contact point and pull horizontally to the right. It should require 4-1/2 to 5-1/2 ozs. to just open the con-

tacts. Adjust by bending contact spring No. 6. Recheck (1).

NOTE

The following six adjustments apply only to bases with send-receive-break mechanism having two upper contacts.

206. STOP LEVER PLATE (Figure 83A)

With the left end of the upper contact lever held up against the stop lug on the stop lever plate, there should be .004" to .015" clearance between the shoulder in the notch in the upper contact lever and the top of the lower contact lever. To adjust, position the stop lever plate by means of its mounting screw.

207. BREAK LEVER ADJUSTING PLATE (Figure 83B)

There should be some clearance, not more than .015", between the rear upper corner of the beveled edge on the left end of the upper contact lever and the lower front edge of the stop lug on the stop lever plate when the break lever is slowly operated by hand until the two edges are just opposite each other. To adjust, position the break lever adjusting plate by means of its adjusting screw.

208. STOP LUG (Figure 84A)

The upper extension of the stop lever should rest against the stop lug on the mounting bracket when the stop lever is in its unoperated position, and there should be some clearance, not more than .030", between the rear side of the upper contact lever and the front edge of the stop lever plate. Adjust, if necessary, by bending the stop lug on the mounting bracket.

209. UPPER CONTACT LEVER SPRING TENSION (Figure 85B)

With the send-receive lever in the SEND position (up), and the No. 3 contact spring held away from the extension on the upper contact lever, hook an 8 oz. scale under the left end of the contact lever at the spring hole and pull up vertically in line with the spring. It should require 3 to 5 ozs. to start the upper contact lever moving.

210. STOP LEVER SPRING TENSION (Figure 84A)

With the stop lever resting against the stop lug on the mounting bracket, hook an 8 oz. scale in the spring mounting hole in the stop lever and pull in line with the spring. It should require 1 to 2 ozs. to start the stop lever moving.

211. SEND - RECEIVE - BREAK CONTACT SPRINGS (Figures 83, 84, and 85)

a. Viewing the base from the front, the send-receive-break contact springs are numbered 1, 2, 3, 4, 5, and 6 from left to right.

b. Move the send-receive lever to the SEND position (up).

(1) All contact springs and points should be in line.

(2) There should be some clearance, not more than .008" between the fibre insulator on the lower end of No. 1 contact spring and the extension on the lower contact lever to the right of it. When checking this clearance, the lower contact lever should be held firmly against its stop. Adjust by bending contact spring No. 2.

3. Contact No. 1 should exert a pressure against contact No. 2. Hook an 8 oz. scale around contact spring No. 1, just below the contact point, and pull horizontally toward the left. It should require 1 to 2 ozs. to just separate contacts No. 1 and No. 2. Adjust by bending contact spring No. 1. Recheck (2).

(4) All the clearance requirements, pertaining to contact springs No. 3 to No. 6 inclusive, given in the following paragraphs will most always be met if these 3 preliminary requirements are met:

(a) The stiffeners for contact springs No. 4 and No. 5 should be straight.

(b) Contact springs No. 4 and No. 5 should rest against their respective stiffeners with perceptible tension. There should be no gaps between the ends of the stiffeners and the contact springs when the contacts are open. However, a gap or not more than .004" will be permissible at any other point.

(c) With the send-receive lever in the RECEIVE position (down), the extension on the upper contact lever should be approximately midway between imaginary lines extending up from contact springs No. 4 and 5. If necessary, bend the extension on which the double contact springs are mounted to meet this requirement. It will be permissible to vary this requirement

if necessary, in cases where the clearance requirements given in the following paragraphs cannot be met.

(5) With the send-receive lever in the SEND position (up), there should be a clearance of at least .015" between No. 3 and No. 4 contacts. If necessary to adjust, see (4).

(6) Move the send-receive lever to the RECEIVE position (down) and make sure that No. 3 and No. 4 contacts close.

(7) There should be at least .015" clearance between No. 1 and No. 2 contacts. Adjust by bending contact spring No. 2. Recheck (2).

(8) Contact No. 3 should exert a pressure against contact No. 4. Hook an 8 oz. scale around contact spring No. 3 just above the contact point and pull horizontally toward the left. It should require 1 to 2 ozs. to just separate contacts No. 3 and No. 4. Adjust by bending contact spring No. 3. Recheck (5).

(9) With the left end of the upper contact lever held against the stop lug on the stop lever plate, there should be at least .008" clearance between the fibre insulator on No. 6 contact spring and the extension on the upper contact lever. Make certain that contacts No. 5 and No. 6 are separated by at least .015" when the break lever is operated. If necessary to adjust, see (4).

(10) Contact No. 6 should exert a pressure against contact No. 5. Hook an 8 oz. scale around contact spring No. 6 just above the contact point and pull horizontally toward the right. It should require 4-1/2 to 5-1/2 ozs. to just separate contacts No. 5 and No. 6. Adjust by bending contact spring No. 6. Recheck (9).

212. CONTROL RELAY

a. For BREAK operation the control relay should be adjusted to meet the following requirements: (See Figure 86A)

(1) With the relay plunger held operated, there should be .005" to .015" clearance between the contact surfaces of the outer and middle contact springs. Adjust by bending the outer contact spring.

(2) With the plunger held operated, there should be .025" to .030" clearance between the contact surfaces of the inner and middle contact springs. Adjust by bending the inner contact spring.

(3) With the relay plunger in the unoperated position, hook an 8 oz. scale over the middle contact spring, as close as possible to the wiper contact, and pull at a right angle to the spring. It should require 5 to 6 ozs. to cause the middle contact to break contact with the inside contact. To adjust, bend the middle contact spring. Recheck (2).

b. For MAKE operation the control relay should be adjusted to meet the following requirements: (See Figure 86B)

(1) Hold the relay plunger operated and hook a 32 oz. scale over the end of the outer contact spring and pull horizontally at right angles to the contact spring. It should require 12 to 16 ozs. to cause the outer contact spring to break contact with the middle contact spring. Adjust by bending the outer contact spring.

(2) With the relay plunger held operated, there should be .030" to .040" clearance between the contact surfaces of the inner and middle contact springs. Adjust by bending the inner contact spring.

(3) Hook an 8 oz. scale over the middle contact spring at the side of the contact and pull horizontally at right angles to the contact spring. It should require 1-1/2 to 2 ozs. to cause the middle contact spring to break contact with the inner contact spring. Adjust by bending the middle contact spring. Recheck (2).

c. The operating current for the control relay should be between .050 and .060 ampere when adjusted for either MAKE or BREAK operation.

NOTE

The following two adjustments apply only to bases used with receiving-only printer covers.

213. SEND - RECEIVE - BREAK MECHANISM (SINGLE UPPER CONTACT) Figure 87A.

When the printer is used with a receiving only cover, it is necessary to reposition the send-receive lever to provide clearance for the printer cover. Normally the send-receive handle is positioned below the latch handle with the projecting lug on the operating end pointing upward. Remove the shoulder screw and lock nut used to mount the send-receive lever and break lever to the bracket. Turn the send-receive lever over and position it above the break

lever with the projecting lug on the operating end pointing downward. Insert the shoulder screw and replace the lock nut.

214. SEND - RECEIVE - BREAK MECHANISM (TWO UPPER CONTACTS) Figure 87B.

When the printer is used with a receiving only cover, it is necessary to reposition the send-receive lever, the break lever adjusting plate, the adjusting screw and nut, and the send-receive lever and break lever bushing. Unhook the break lever spring, loosen the mounting screw nut and remove the screw. Loosen the adjusting screw nut and remove the adjusting screw and break lever adjusting plate. Remount the break lever adjusting plate making certain that the screw does not extend beyond the break lever. Insert the bushing with the short shoulder on the outside. Place the send-receive lever with the projecting lug to the rear and mount the assembly on the bracket. Replace the break lever spring.

CENTER CONTACT GOVERNOR ADJUSTMENTS

215. ALIGNMENT AND SQUARENESS OF GOVERNOR CONTACTS

a. All governor contacts can be adjusted for alignment of edges; only those governor shells which provide elongated mounting holes for the fixed contact bracket permit adjustment of the contact for height by positioning the contact bracket.

b. The governor contacts should be in line and meet squarely so that maximum contact surface is provided. (Check with the retractile spring tension adjusted so that the contacts just make, or to the limit of the adjusting screw.)

(1) Line up edges of contacts by means of the floating contact hinge mounting screw.

(2) Adjust contacts for squareness from right to left by positioning the height of the fixed contact bracket using the elongated mounting holes in the governor shell.

(3) To adjust from front to back, twist the floating contact hinge, applying pressure to the arm near the contact.

NOTE

Check by use of a .002" gauge (smaller if available). Check with gauge between edges of the contacts to see that the gauge enters (or does not enter) equally on all sides.

216. SPEED ADJUSTING WHEEL FRICTION WASHER SPRING TENSION (Figure 88) See Note (H) on Page 1-4.

a. Turn the adjusting wheel so that the tension on the governor contact is 13 to 14 ozs. Measure by hooking a 32 oz. scale over the contact spring arm next to the contact and pulling parallel to the speed adjusting spring.

b. To measure the pressure of the speed adjusting wheel friction washer, insert a bank pin in the leather rim (radially), and hook a 32 oz. scale over the pin at the periphery of the adjusting wheel and pull at right angles to the radius. It should require 16 to 24 ozs. to start the wheel moving. To adjust this tension, remove the friction washer and bend the large projections.

217. INNER AND OUTER DISC CONTACT SPRING (Figure 89) See Note (H) on Page 1-4.

a. The distance from the inner surface of the governor cover to the highest point on the contact springs should be 25/32" to 27/32".

b. Place a 5/16" socket wrench over the nut located in the center of the governor cover which is used to hold the contact springs in place. With a suitable scale, measure the radial distance from the vertical surface of the wrench to the point where the scale touches the curved surface of the inner disc contact spring. This distance should be 17/32" to 19/32".

c. In a similar manner, measure the distance from the wrench to the point of the contact on the outer disc contact spring. This distance should be 7/16" to 1/2".

d. Adjust by bending the inner and outer disc contact springs.

218. GOVERNOR BRUSH SPRING PLATE BRACKET

a. The spring plate bracket should be positioned to meet the following requirements:

(1) A line established by the center of the outer disc and the center of one of the brushes should pass through some portion of the other brush. (Figure 90A)

(2) The surface of the brush spring plate bracket on which the brush spring plate is mounted should be in line with the outer surface

of that part of the governor cover on which the target is mounted. (Figure 90B)

(3) The bracket should be parallel to the edge of the motor base plate.

b. To adjust, position the brush spring plate bracket by means of its enlarged mounting holes.

219. GOVERNOR BRUSH SPRING PRESSURE (Figure 90B)

a. Hook an 8 oz. scale over the inner disc brush spring just to the right of the carbon contact brush, as viewed from the rear of the motor, and pull horizontally away from the motor. It should require 4-1/2 to 5-1/2 ozs. to start the brush moving away from the disc.

b. Apply an 8 oz. push scale against the outer disc brush spring just to the right of the carbon contact brush, as viewed from the rear of the motor, and push horizontally toward the motor. It should require 4-1/2 to 5-1/2 ozs. to start the brush moving away from the disc.

c. To obtain the correct brush spring pressure, remove and bend the brush springs. When the springs are replaced and the spring pressure obtained, see that the contact brushes lie flat against their respective discs and that the outer edges of the brushes are either flush with or not more than 3/64" inside the outer edges of the discs.

220. GOVERNOR ADJUSTING BRACKET Figure 90B)

There should be .020" to .060" clearance between the speed adjusting wheel and the speed adjusting surface on the bracket. Adjust by bending the governor adjusting bracket.

221. SPEED ADJUSTING LEVER STOP PLATE (Figure 90B)

There should be .006" to .050" clearance between the adjusting lever wearing strip and the governor when the speed adjusting lever is held against the stop plate. To adjust, position the adjusting lever stop plate by means of its elongated mounting holes.

222. GOVERNOR SHIMS (Figure 90B)

With the governor speed adjusting lever in its unoperated position, there should be at least .006" clearance between the adjusting lever wearing strip and the speed adjusting wheel when the wheel is opposite the wearing strip, the wearing strip is tight against the casting, and all the end thrust of the motor armature is taken up in a direction to make this clearance a minimum. Adjust by means of shims placed on the armature shaft between the governor hub and the end frame casting of the motor. (If wearing strip is not absolutely tight against the casting, bend it until it is.)

SYNCHRONOUS MOTOR ADJUSTMENTS

223. SYNCHRONOUS MOTORS WITH THREE-BRUSH STARTING SWITCH

NOTE

These requirements should not be checked unless there is reason to believe the starting switch is out of adjustment.

a. Remove the motor unit from the base and remove the motor fan and pinion.

b. Remove the switch end shield screws and the switch commutator mounting screws. Remove the switch end shield.

c. Pull out the rotor until the brush holder spring is accessible and remove the spring.

d. The tension of the spring for 60 cycle motors should measure 2 to 2-1/2 ozs. when extended to a length of 5 inches, using an 8 oz. scale. The tension of the spring for 50 cycle motors should measure 1-3/4 to2 ozs. when extended to a length of 5 inches, using an 8 oz. scale.

e. The brush holders should be mounted by means of the center set of mounting holes and should be free.

f. The brush holder stop pins should be safely within the holes of the fibre disc when all the play in the brush holders has been taken up to make the engagement of the pins with the disc a minimum.

g. Replace the brush holder spring, making certain that the spring eyes are fully engaged with each other.

h. Replace the switch commutator screws and tighten the two screws alternately a little at a time until both screws are tight.

i. Replace the switch end shield screws using the same precaution in tightening as in the foregoing item.

j. Apply the push end of a 12 lb. scale against the fan end of the shaft and push parallel to the shaft. It should require at least 7 lbs. pressure to start the shaft moving.

k. Replace the motor fan and pinion. Replace the motor unit on the base and check the motor plate adjustment.

VARIABLE FEATURES

SPROCKET FEED PRINTER ADJUSTMENTS

224. LEFT PRESSURE ROLLER LEVER (Figure 91)

When an R wrench (.125" thick) is placed between the platen and the knurled surface of the right pressure roller, the left pressure roller should rest against the platen. The centers of the pins on the platen should line up with the center of the groove in the left pressure roller when the roller is at the midpoint of its end play. Adjust by means of the left pressure roller lever clamping screw.

225. RIGHT PRESSURE ROLLER LEVER SPRING COLLAR (Figure 91)

With the right pressure roller lever against the right pressure roller lever spring collar, the centers of the pins on the platen should line up with the center of the groove in the right pressure roller when the roller is at the midpoint of its end play. The right pressure roller lever should have some end play, not less than .002". Adjust by means of the right pressure roller lever spring collar.

226. RIGHT PRESSURE ROLLER LEVER SPRING TENSION (Figure 92)

Hook an 8 oz. scale over the right pressure roller bearing screw nut and pull vertically upward. It should require 5 to 8 ozs. to start the right pressure roller moving away from the platen. The torsion can be varied by rotating the right pressure roller lever spring collar on the shaft.

NOTE

If the right pressure roller lever spring collar is rotated to secure this spring tension, the "Right Pressure Roller Lever Spring Collar" should be rechecked.

227. LEFT PRESSURE ROLLER SPRING TENSION (Figure 92)

Hook an 8 oz. scale over the left pressure roller bearing screw nut and pull vertically upward. It should require 5 to 8 ozs. to start the left pressure roller moving away from the platen.

228. PAPER STRIPPER

a. There should be some clearance, not more than .20", between the top projection of the strippers and the bottom of the platen groove, when the lower projection is held against the bottom of the platen groove. To adjust, bend the strippers to meet this requirement.

b. There should be some clearance between the strippers and the rubber side of the grooves in the platen, when the strippers are held against their locating collars. Under these conditions there should also be some clearance between the strippers and the platen roll sprocket rings. Adjust by means of the locating collars. Check each stripper for one complete revolution of the platen.

229. PULLEY COLLARS (Figure 92)

The left and right pulleys should have some end play, not more than .010". Adjust by means of the pulley collars and set screws.

230. LEFT MARGIN ADJUSTING SCREW (Figure 60)

With the type bar carriage at the left end of the line and the carriage return clutch members fully engaged, the left end of the letter "M" should print 1/64" to 1/8" from the paper stripper groove adjacent to the left sprocket ring (see figure 103). To adjust, turn the left margin adjusting screw in so that it will not interfere with positioning the carriage. Move the carriage to a position where the letter "M" will be printed at the left end of the line within the foregoing specified limits and engage the carriage return clutch by operating the dashpot lever to hold the carriage in this position. Make certain that the carriage return clutch members are fully engaged. Then reposition the adjusting screw so that when the lock nut is slightly tightened to take up the end play in the threads and a horizontal pull of 8 lbs. is exerted on the dashpot lever (new style) applied with a 12 lb. scale at right angles to the curved surface 1/32" behind the margin adjusting screw (10 lbs. on old style

dashpot lever applied just in front of the shoulders), there is a slight clearance, not more than .002", between the end of the screw and the dashpot lever. Turn the left margin adjusting screw one-sixth turn in a direction to eliminate this clearance and tighten the lock nut.

NOTE

When it is desired that the printing be located at a given point with reference to a vertical line on the forms, the platen unit may be shifted as much as .030" to the left or right of its standard adjustment by means of its pilot screws, provided that care is taken to avoid interference by the platen with either side frame. If more than .030" is required, the printing point may be shifted .050" by shifting the spacing shaft gear one tooth with relation to the main shaft gear. To do this, place the carriage in its extreme left position, loosen the spacing shaft top bearing retaining plate, raise the spacing shaft until the gears are disengaged, turn the shaft clockwise one tooth, and re-engage the gears. Tighten the retaining plate mounting screws.

CAUTION

When the printing point is shifted by either or both of the foregoing methods, recheck the left margin adjustment. Also make certain that the line feed link and the shift link do not bind.

231. PLATEN FRICTION ASSEMBLY (Figure 93)

a. Lift the pressure rollers (Figure 91) off the platen. Unhook the line feed detent lever spring and place the platen handle vertically upward. Hook a 32 oz. scale over the end of the handle and pull horizontally toward the front of the printer. When sprocket feed paper forms having 1 to 3 copies are to be used, it should require 14 to 16 ozs. to start the platen rotating. When forms having 4 to 6 copies are to be used, it should require 10 to 12 ozs. to start the platen rotating.

b. This friction can be varied by rotating the adjusting nuts on the friction assembly. Replace the line feed detent lever spring and lower the pressure rollers against the platen.

NOTE

On units equipped with a handwheel in place of the platen crank, position the handwheel so that the 1/8" diameter hole is located vertically above the platen shaft. Hook the spring scale in the hole and pull horizontally toward the front of the typing unit. Under these conditions, the above requirements should be met.

232. PLATEN ROLLER SPROCKET RINGS (Figure 94)

The bottom of a printed line of the letter N should be 1/32" (plus or minus 1/64") above a line drawn horizontally on a sheet of sprocket feed paper between the lower edges of corresponding perforations. To adjust, loosen the three set screws in each sprocket ring and rotate the rings.

233. PAPER GUIDE POSTS (Figure 91)

When sprocket feed paper forms are inserted in the printer, the paper guide posts in the loading plate should just clear the edges of the forms. To adjust, position the two guide posts in their elongated mounting holes.

234. COVER PAPER GUIDE POSTS (Figure 95)

Place the cover on the printer. If multiple copy forms are to be used, align the sprocket holes in the first of a length of forms, and place a paper clip over the leading edge to hold the forms in alignment. Insert the forms in the machine by threading the leading edge between the surface of the paper guide and the guide strip, thence through the slot in the cover, under the center retarding rod on the typing unit and over the surface of the loading plate under the platen; with the leading edge of the forms resting against the ribbon guide and with the pressure rollers in their extreme raised position, press the forms to the platen near the ribbon guide, and turn the platen crank to carry the edge of the forms past the ribbon guide. Set the forms on the sprocket pins, being sure that the pins are in their proper holes so that the paper is straight, and lower the pressure rollers to hold the forms in place. Then take up the slack in the forms by grasping them just below the paper guide and pulling them straight down. The two guide posts on the loading plate to the rear of the platen should be adjusted so that they just clear the sides of the paper when it is straight and taut. The four guide posts on the paper

guide should have a similar clearance. Adjust by positioning the guide posts in their elongated mounting holes.

PLATEN INDEXING MECHANISM ADJUSTMENTS FOR SPROCKET FEED PRINTERS

235. CONTACT LEVER ECCENTRIC (Figure 96)

With the contact lever on the high part of its cam, there should be a clearance of .025" to .035" between the top of the switch plunger and the contact lever. To adjust, loosen the gear adjusting plate clamp screw and raise the plate extension as far as possible; retighten the clamp screw. Under this condition position the contact lever eccentric to meet the above requirement. Check electrical operation of contacts by rotating cam.

NOTE

There are two positions of the eccentric which will meet the above requirement. The position with the high part toward the front of the unit should be used.

236. PLATEN FRICTION ASSEMBLY

This adjustment applies only to units which use form lengths of 5" or less and which use the friction assembly on the right end of the platen shaft. The torque should be measured and adjusted as outlined in paragraph 260 with the gears of the indexing mechanism disengaged.

237. REMOVABLE GEARS

There should be a perceptible amount of backlash in the two outer gears. To adjust, loosen the gear adjusting plate clamp screw and rotate the plate. Retighten the clamp screw.

NOTE

The backlash should be determined by holding the platen stationary and rotating the idler gear assembly. Check this adjustment for one full revolution of the larger removable gear.

238. CAM CLUTCH TORQUE

With the hand wheel rotated counterclockwise and the right-hand stop screw (left side view) against the stop pin it should require a minimum of 44 oz. pull, on a 64 oz. scale applied in a horizontal position at the drop-off point of the cam, to rotate the cam counterclockwise. To adjust, remove the two stop screws from the hand wheel. Rotate the hand wheel counterclockwise until the cam surfaces are at the top. Hold the cam and rotate the hand wheel until it requires a minimum of 44 oz. tension to start the cam assembly rotating, when applying a 64 oz. scale at the drop-off point of the cam in a horizontal direction toward the rear. Rotate the hand wheel clockwise (if necessary) until the first tapped hole passes to the right side of the stop pin. (Stop pin positioned at the top.) Mount the first stop screw in this tapped hole. Recheck minimum clutch torque requirement of 44 ozs. Mount the second stop screw in the first tapped hole counterclockwise of the first stop screw.

239. CONTACT LEVER SPRING TENSION (Figure 96)

With the contact lever on the high part of the cam, hook a 32 oz. scale on the contact lever, just below the cam following surface, and pull in a horizontal direction. It should require 10 to 14 ozs. to start the lever moving.

MECHANICAL MOTOR STOP ADJUSTMENTS

240. MOTOR STOP LEVER BRACKET (Figure 97)

With the platen in the FIGURES position, set up the motor stop combination and rotate the main shaft slowly until the motor stop function lever is completely selected. The latching surface of the inner motor stop pawl should overtravel the rearmost surface of the motor stop pawl latch .010" to .025" when the armature is held in the MARKING position. To adjust, place the typing unit on its right side and position the motor stop lever bracket by means of its enlarged mounting holes. When making this adjustment, the motor stop pawl backstop should not be in contact with the inner pawl.

241. MOTOR STOP LEVER ECCENTRIC (Figure 97)

Rotate the main shaft until the printing ball is in its extreme rear position and the locking lever is on the high part of the locking cam. Then, with the armature in the MARKING position, engage the inner motor stop pawl with the motor stop pawl latch. The motor stop lever eccentric should be in contact with the lower arm of the motor stop release lever when the release lever stud touches the locking lever. To adjust, position the motor stop lever eccentric.

242. MOTOR STOP LEVER BACKSTOP SCREW (Figure 97)

With the platen in the LETTERS position, set up the motor stop combination and rotate the main shaft until the printing bail is in its extreme forward position. Make certain that the motor stop pawls are released from the latch. There should be some clearance, not over .002", between the rear extension of the upper case H function lever and the lower edge of the motor stop lever. To adjust, loosen the backstop screw lock nut and position the backstop screw. Tighten the lock nut.

243. MOTOR STOP PAWL BACKSTOP (Figure 97)

With the printing bail in its extreme rear position and the motor stop release lever eccentric moved away from the outer stop pawl, the motor stop pawl latch should clear both motor stop pawls by an approximately equal distance (at least .010") when the armature is moved to the MARKING or SPACING positions. To adjust, loosen the backstop mounting nut and rotate the backstop.

244. MOTOR STOP RELEASE LEVER ECCENTRIC (Figure 97)

Rotate the main shaft until the printing bail is in its extreme rear position and the locking lever is on the high part of the locking cam. Then, with the armature in the MARKING position, engage the inner motor stop pawl with the motor stop pawl latch. The motor stop release lever eccentric should just touch the outer motor stop pawl when the lower arm of the motor stop release lever is in contact with the motor stop lever eccentric and the outer pawl is against the motor stop pawl backstop. To adjust, position the motor stop release lever eccentric by means of its mounting screw.

245. MOTOR STOP PAWL SPRING COMPRESSION (Figure 97)

With the printing bail in its extreme rear position, hook an 8 oz. scale, held in a horizontal position, over the inner stop pawl just in front of the backstop, and pull at right angles to the pawl. It should require 1/2 to 1 oz. to start the pawl moving.

246. MOTOR STOP LEVER SPRING TENSION (Figure 97)

Unhook the motor stop contact lever spring. With the motor stop lever in the unoperated position, hook an 8 oz. scale over the head of the screw which mounts the motor stop lever eccentric and pull toward the rear of the printer. It should require 1 to 1-1/2 ozs. to start the lever moving. To adjust, position the spring bracket on the post of the selector unit. Replace the motor stop contact lever spring.

247. MOTOR STOP CONTACT LEVER SPRING TENSION (Figure 97)

Hold off the contact spring if it rests on the motor stop contact lever. Hook an 8 oz. scale in the contact lever spring hole and pull in line with the spring. It should require 4-1/4 to 5-1/4 ozs. to start the contact lever moving.

248. MOTOR STOP FUNCTION LEVER SPRING TENSION (Figure 98)

With the motor stop function lever resting against the rear edges of the names, but not selected, hook a 12 lb. scale under the extreme front end of the lever and pull at right angles to the lever toward the top of the printer. It should require 5 to 6 lbs. to start the lever moving.

249. RIGHT MOTOR STOP CONTACT (Figures 97 and 98)

a. With the printing bail in its extreme rear position, hold the selector armature in the MARKING (operated) position and engage the inner motor stop pawl with its latch. The contact spring mounting surface of the right contact spring bracket should be parallel to the top edge of the send-receive mechanism plate (gauge by eye). There should be either some clearance, not more than .010", between the insulated end of the light contact spring of the right motor stop contacts and the upper end of the contact operating lever, or, there should be not more than 1/2 oz. pressure against the upper end of the contact operating lever from the insulated end of this spring if the insulated end of the spring is bearing against the operating lever. To adjust, position the right contact spring bracket by means of its mounting holes, and, if necessary bend the light contact spring.

NOTE

When adjusting, make certain that the heavy contact spring does not bear against the light spring.

b. With the selector armature in the SPACING (unoperated) position and the outer motor

stop pawl engaged with its latch, there should be a gap of .012" to .020" between the contacts. To adjust, bend the heavy spring of the right motor stop contacts.

250. LEFT MOTOR STOP CONTACT (Figure 98)

a. With the printing bail in its extreme rear position, there should be either some clearance, not more than .010" between the insulated end of the light contact spring of the left motor stop contacts and the lobe on the front extension of the motor stop function lever or, not more than 1/2 oz. pressure against this lobe if the insulated end of the light contact spring is bearing against it. To adjust bend the light contact spring.

NOTE

When adjusting make certain that the heavy spring does not bear against the light spring.

b. With the motor stop function lever selected and the main shaft rotated until the right-hand motor stop contact is just at the point of opening, the left-hand motor stop contact should just close. With the LETTERS combination selected and the main shaft rotated until the printing bail is in its extreme forward position, there should be at least a .010" gap between the left-hand motor stop contacts. To adjust, bend the heavy contact spring of the left-hand motor stop contact.

251. RESET LEVER LOWER ADJUSTING SCREW (Figure 99A)

With the platen in the UNSHIFT position (down), the motor stop combination selected and the motor rotated until the printing bail is in its extreme forward position, there should be some clearance, not more than .002", between the head of the lower adjusting screw and the lower surface of the front extension of the motor stop function lever when the send-receive lever is in the SEND position (up). Adjust the height of the lower adjusting screw to regulate this clearance.

252. RESET LEVER DOWNSTOP SCREW (Figure 99A and 99B)

With the send-receive handle in the SEND position (up) and the toe of the intermediate lever under the blank function lever extension, select the BLANK combination and rotate the main shaft until the function bail roller just leaves the cam surface of the blank function lever. Then depress the break key and immediately release it. The stop lever plate should just latch the upper contact lever (on bases equipped with send-receive-break mechanism having two lower contacts, the safety pawl should latch the operating lever), and there should be some clearance, not more than .002" between the stop lever plate and the upper contact lever (or between the safety pawl and the operating lever). To adjust, position the reset lever downstop screw.

"SHIFT - BLANK - STOP" MECHANICAL MOTOR STOP ADJUSTMENTS

253. ADAPTER PLATE (TRIGGER ASSEMBLY) (Figure 100)

a. With the SPACE combination set up on the vanes and the main shaft rotated until the function levers rest against the vanes, the blocking surface of the blocking lever should clear the front edge of the motor stop function lever by not more than .002" and its rear extension should be in contact with the right side of the motor stop function lever. To adjust, position the adapter plate or trigger assembly with the mounting screws loosened (the trigger assembly is part of the Automatic Carriage Return and Line Feed Assembly).

b. With the "Figure H" combination selected and the motor stop function lever blocked by its blocking lever, the motor stop function lever should not block the travel of the printing bail. If necessary, refine the position of the adapter plate or trigger assembly.

254. TRIGGER GUIDE (Figure 101) - Applies only to units equipped with the Automatic Carriage Return and Line Feed Mechanism.

a. With the letter "O" combination selected and the main shaft rotated until the printing bail is in its extreme forward position, there should be some clearance, not more than .010", between the carriage return latch bar and the lobe on the carriage return extension of the bail assembly.

b. With the main shaft in the stop position and the play taken up to make the clearance a minimum, there should be at least .005" clearance between the blocking edge of the trigger extension and the front edge of the automatic carriage return and line feed function lever.

c. To adjust, position the trigger guide by means of its elongated mounting holes.

d. Position the 88969 spring above the blocking lever.

255. BLOCKING LEVER SPRING (Figure 102)

a. When the send-receive lever is moved from the "send" to the "receive" position and vice versa, the humps of the spring should travel an equal amount above and below the center of the forward end of the blocking lever. To adjust, position the spring with its clamping screws loosened.

b. With the send-receive lever in the "send" position, set up the BLANK selection and rotate the main shaft until the blank function lever rests against the vanes. See that the intermediate lever is not under the blank function lever. Rotate the "T" lever clockwise until it touches the blank function lever. See that the extension of the blocking lever rests against the line feed function lever. Under these conditions, there should be some clearance, not more than .004", between the hump on the spring and the forward extension of the blocking lever. To adjust, bend the left arm of the spring.

c. With the printing bail in its extreme rear position, rotate the "T" lever clockwise. With the send-receive lever in the "send" position and the "T" selection set up on the names, rotate the main shaft until the printing bail is in its extreme forward position. See that the blocking lever is in front of the motor stop function lever, and that the extension of the blocking lever rests against the side of the motor stop function lever. With the universal function lever in contact with the "T" lever, there should be some clearance, not more than .004", between the hump on the spring and the forward extension of the blocking lever. To adjust, bend the right arm of the spring.

UPPER CASE "H" ELECTRICAL MOTOR CONTROL ADJUSTMENTS FOR UNITS EQUIPPED WITH A HOLDING MAGNET SELECTOR

NOTE

The first two adjustments apply to the typing unit. The remainder apply to the motor stop assembly on the base.

256. MOTOR STOP FUNCTION LEVER SPRING TENSION

With the motor stop function lever against the rear edges of the vanes, but not selected, hook a 12 lb. scale under the extreme front end of the function lever and pull vertically. It should require from 5 to 6 lbs. to start the function lever moving.

257. MOTOR STOP CONTACT

a. With the printing bail in its extreme rear position, there should be some clearance, not more than .006" between the insulated end of the light contact spring and the lobe on the front extension of the motor stop function lever. To adjust, bend the light motor stop contact spring, making sure that the heavy spring does not bear against the light spring.

b. With the platen in the LETTERS position and the "H" combination selected, rotate the main shaft until the motor stop function lever rests against the vanes. There should be a gap of .010" to .015" between the contacts of the light and heavy springs. To adjust, bend the heavy contact spring. Recheck a.

NOTE

If this motor stop mechanism has been installed in the field and if it was necessary to loosen the function lever comb mounting screws when installing the motor stop function lever, the following adjustments should be checked.

SIGNAL BELL LATCH BAR LATCH - Paragraph 134

CARRIAGE RETURN LATCH BAR LATCH - Paragraph 140

258. START MAGNET CORE (See Figure 103 for location of parts)

With the start magnet armature held in the operated position, there should be not more than .004" clearance between the start magnet armature and the shorter core. Adjust by varying the number of shims between the start magnet cores and the yoke.

259. STOP MAGNET CORE (See Figure 103 for location of parts)

With the stop magnet armature held in the operated position, there should not be more

than .004" clearance between the stop magnet armature and either the stop magnet core or yoke, if it fails to touch either one. Adjust by varying the number of shims between the stop magnet core and the yoke.

260. START MAGNET BRACKET (Figure 103)

With the start magnet armature held operated and the stop magnet armature held so that its inner edge aligns with the outer shoulder on the start magnet armature, there should be from .004" to .008" clearance between the end of the stop magnet armature and the start magnet armature. To adjust, position the stop magnet bracket by means of its mounting screws.

261. STOP MAGNET BRACKET (Figure 104)

With the stop magnet armature held in the operated position by its latch there should be from .004" to .008" clearance between the stop magnet armature and the outer face of the yoke. To adjust, remove the resistor and position the stop magnet bracket by means of its mounting screws.

262. ARMATURE STOP (Figure 103)

With the stop magnet armature against the armature stop, there should be from .070" to .080" clearance between the stop magnet armature and the outer face of the yoke. Adjust the armature stop by means of its mounting screws.

263. LATCH BACKSTOP SCREW (Figure 105)

With the stop magnet armature held in the operated position by the notch in the start magnet armature, there should be some clearance, not more than .008", between the high part of the latching surface of the latch and the end of the slot in the stop magnet armature. Adjust by means of the latch backstop screw.

264. STOP MAGNET ARMATURE SPRING TENSION (Figure 104)

With the stop magnet armature held operated and the stop magnet armature spring unhooked, hook a 32 oz. scale in the spring eye and pull the spring to its normal position length. It should require from 14 to 16 ozs. Adjust by means of the adjustable spring post.

265. START MAGNET ARMATURE SPRING TENSION (Figure 104)

With the stop magnet armature held against its pole faces, hook an 8 oz. scale over the end of the spring post on the start magnet armature and pull horizontally in line with the spring. It should require from 3-1/2 to 4-1/2 ozs. to start the armature moving.

266. LATCH SPRING TENSION (Figure 103)

With both armatures released, hook an 8 oz. scale over the latch between the spring and the shoulder and pull horizontally. It should require from 1-1/2 to 2-1/2 ozs. to start the latch moving.

267. INNER CONTACT ASSEMBLY (Figure 105)

a. With the stop magnet armature held in the operated position by the notch in the start magnet armature, hook an 8 oz. scale over the spring alongside of the insulator and pull at right angle to the spring. It should require from 1-1/2 to 2 ozs. to start the long spring moving away from the stop magnet armature. To adjust, remove the outer contact assembly, if necessary, and bend the long contact spring.

b. With the stop magnet armature held in the operated position by the notch in the start magnet armature, there should be a gap of from .015" to .020" between the contacts. To adjust, bend the short contact spring.

268. OUTER CONTACT ASSEMBLY

NOTE

The stop magnet armature should be held operated by the notch in the start magnet armature during each of the following adjustments:

a. The two short contact springs nearest the armature should bear against their stiffeners with perceptible pressure when the other springs are held off. Adjust by bending the short contact springs.

b. There should be some clearance, not more than .006" between the insulator on the long contact spring and the stop magnet armature (See Figure 106). Adjust by bending the spring stiffener nearest the armature. Recheck (a).

c. With an 8 oz. scale hooked over the long contact springs at the contact point and pulled at right angle to the springs, it should require from 1 to 1-1/2 ozs. to separate the contacts when the adjacent springs are held away. Adjust by bending the long contact springs.

d. The long contact spring farthest from the stop magnet armature should bear lightly against the long contact spring nearest the stop magnet armature. Adjust by bending the long contact spring farthest from the armature. Recheck adjustment c.

e. Hook an 8 oz. scale over the short contact spring farthest from the stop magnet armature at the contact and pull at right angle to the spring. It should require from 1 to 2 ozs. to start the spring moving away from its stiffener. There should be a gap of from .015" to .020" between the contacts farthest from the armature. Adjust by bending the short contact spring and stiffener. Recheck b. (See Figure 106)

HORIZONTAL TABULATOR MECHANISM ADJUSTMENTS

269. TABULATOR BAR (Figure 107)

a. The tabulator bar should be parallel to the front carriage rail, within .010", as gauged by measuring the clearance between the tip of the tabulator pawl on the carriage and the tabulator stops located at each end of the tabulator bar, and should be centrally located on the send-receive mechanism plate. On units equipped with the 114239 contact assembly in place of the standard send-receive-break key, there should also be .030" to .060" clearance between the left edge of the tabulator bar extension and the contact lever bracket on the base. The tabulator bar should have some end play, not more than .004".

b. The parallel position of the tabulator bar with relation to the front carriage rail may be adjusted by means of the right hand pivot bushing. The end play and the central location of the tabulator bar (clearance between tabulator bar extension and control lever bracket on units equipped with 114239 contact assembly) may be adjusted by means of the pivot screws.

NOTE

With the typing unit resting on its left side, the tabulator bar should clear the supporting surface on which the typing unit is then resting by at least 1/16". Reposition the pivot screws if necessary to secure this clearance.

270. CONTACT LEVER SCREW (Applies only to units equipped with the 114239 contact assembly).

a. With the tabulator latch bar (Figure 109) in its upper position and the send-receive lever (if present) in the SEND position, there should be some clearance, not more than .008", between the adjusting screw on the contact lever and the tabulator bar extension when the arm of the contact lever is touching the insulator of the long contact spring. To adjust, position the contact lever adjusting screw with its lock nut loosened. Recheck after tightening the lock nut.

b. Recheck the send-receive-break mechanism RESET LEVER UPPER ADJUSTING SCREW - paragraph 167.

271. TABULATOR LATCH (Figure 108A)

a. The top of the front projection of the tabulator latch bar should just touch the top of the opening in the tabulator latch, and there should be .010" to .015" clearance between the rear side of the front projection of the tabulator latch bar and the rear wall of the opening in the tabulator latch under the following contitions.

b. With the typing unit resting on its back and the platen in the LETTERS position, select the tabulator combinations and rotate the main shaft until the tabulator function lever rests against the sixth vane. Move the type bar carriage to approximately the center of its travel and back it in position by operating the dashpot lever. Position one of the tabulator stops so that the point of the stop is opposite to and meets the point of the pawl on the carriage (Figure 108B). See that the tabulator latch bar is in contact with the lobe of the tabulator function lever and gauge for the specified requirements. To adjust, position the tabulator latch by means of its elongated mounting slot.

272. TABULATOR LATCH BAR EXTENSION.

With the printing bail in its extreme rear position, the tabulator bar unlatched, and the rear spacing escapement pawl resting against the low part of the spacing escapement ratchet, the spacing pawl post should meet the bottom of the slot in the spacing pawl link (see figure 109 for location of parts). Adjust by means of the latch bar extension eccentric and mounting screws.

273. TABULATOR STOPS (Figure 108C)

a. The tabulator stops should be adjusted with the typing unit resting on its back or in the normal upright position and may be located to stop the carriage at any desired position.

b. With the carriage in position for the first character of a tabulated column and the spacing escapement ratchet stopped by the rear spacing escapement pawl, position a tabulator stop to the left of the carriage pawl, allowing .008" to .015" clearance between the stop and the pawl, when the tabulator bar end play has been taken up to make the clearance a maximum. Tighten the tabulator stop clamping screw.

c. Locate the large stop at the extreme right end of the line so that the carriage pawl just rides up on the high part of the stop when the carriage reaches the end of its travel.

NOTE

When forms are employed in the machine, the setting of the tabulator stops should be checked, using the form. It is essential that, on all machines connected to the circuit, the stops are set at exactly the same points in terms of the manual spacing operations from its left margin.

274. TRANSMITTER DISTRIBUTOR CONTROL CONTACT (Applies only to units equipped with the 114239 contact assembly).

a. The contact springs and their contacts should be in line. To adjust, position the springs with the mounting screws loosened.

b. With the tabulator contact lever extension held firmly against the mounting bracket, there should be some clearance, not more than .008", between the insulator on the lower end of the long contact spring and the tabulator contact lever extension. To adjust, bend the short contact spring.

c. With an 8 oz. scale hooked over the long contact spring just below the contact, pull horizontally toward the left. It should require 1 to 2 ozs. to just break the contacts. To adjust, bend the long contact spring.

275. TABULATOR FUNCTION LEVER SPRING (Figure 109A)

With the typing unit resting on its right side and the printing bail in its extreme rear position, hook a 12 lb. scale over the rear extension of the tabulator function lever, just in front of the lobe, and pull at right angles to the function lever extension. It should require 3-1/4 to 4-3/4 lbs. to start the function lever moving.

276. TABULATOR LATCH BAR SPRING (Figure 109A)

With the typing unit resting on its right side and the printing bail in its extreme rear position, lift the rear spacing escapement pawl sufficiently to bring the high part of a tooth to the escapement ratchet under the rear escapement pawl and allow the pawl to rest on a ratchet tooth. With the tabulator bar so held that the tabulator latch bar is free of the tabulator latch, hook an 8 oz. scale over the tabulator latch bar, just to the rear of the tabulator latch bar spring, and pull at right angles to the tabulator latch bar. It should require 1-1/2 to 3 ozs. to start the tabulator latch bar moving.

277. TABULATOR BAR SPRING (Figure 109B)

With the typing unit resting on its right side, the printing bail in its extreme rear position, and the tabulator latch bar in its uppermost position, hook a 32 oz. scale on the tabulator bar at the spring hole and pull in line with the tabulator bar spring. It should require 10 to 14 ozs. to start the tabulator bar moving.

NOTE

This tension is 14 to 18 ozs. on units equipped with a transmitter distributor control from tabulator mechanism.

278. FRONT SPACING ESCAPEMENT PAWL (Applies only to units equipped with an adjustable front spacing escapement pawl).

Rotate the main shaft until the printing bail is in its rearmost position. Disengage the rear spacing escapement pawl from the spacing escapement ratchet and rotate the ratchet assembly until a ratchet tooth is in line with the toe on the front spacing escapement pawl extension. Under these conditions, there should be .040" to .060" clearance between the top of the ratchet tooth and the toe of the extension. To adjust, position the extension with its clamping screw loosened.

SWITCH CUT-IN AND AUTOMATIC CUT-OUT OF HORIZONTAL TABULATION

279. SPACING STOP LEVER BRACKET See note (A) on Page 1-3.

The lower end of the spacing stop lever should clear the driving disk of the mainshaft by .060" to .080". With the spacing stop lever held against the stop on the bracket by means

of its spring, there should be a clearance of .040" to .080" between the lower edge of the stop lever and the right side of a tooth on the spacing stop sleeve when the tooth is opposite the lever. Adjust the spacing stop lever bracket vertically by means of its enlarged mounting holes to meet the first requirement and adjust it horizontally to meet the latter requirement. Also adjust it so that the blocking lever is approximately horizontal. Tighten the mounting screws. Make certain that the lever extension clears the tabulator vertical link.

280. BLOCKING LEVER EXTENSION BRACKET - See Note (A) on Page 1-3.

a. Disconnect the tabulator bar spring to prevent latching. With the printing bail in its extreme rear position, lower the blocking lever extension until it rests lightly on the 86773 space pawl link, then tighten the screws. Select the tabulate character; manually rotate the main shaft until the printing bail is in its extreme forward position and see that the blocking lever extension is in its extreme rear (unoperated) position. Observe the vertical alignment of the front surfaces of the extension and the link. The front surface of the link should be at least as far forward as the front surface of the extension bracket but should not extend beyond it by more than 1/4 the thickness of the bracket. To adjust, add or remove washers between the extension and the blocking lever.

b. With the tabulate character selected and the printing bail in its extreme forward position, there should be .008" to .020" clearance between the top of the tabulator latch bar and the tabulator latch in the unlatched position. To adjust, loosen the blocking lever extension screws, raise or lower the extension (keeping it approximately horizontal), and tighten the screws securely.

281. MAGNET BRACKET POSITION - See Note (A) on Page 1-3.

With the magnet energized, the armature and its loosely linked lever should be approximately parallel. Depress the front of the tabulator latch bar thereby causing the vertical link to rise. There should be some clearance, not more than .015" at the closest point, between the front rear surfaces of the forked top of the vertical link and the blocking lever extension. To adjust, position the 122364 magnet angle bracket on its mounting plate and tighten the mounting screw that does not secure the 122365 plate.

282. SIGNAL BELL HAMMER BACKSTOP - See Note (A) on Page 1-3.

Apply standard adjusting procedure as prescribed in paragraph 135. The last sentence of the adjustment should read: "To adjust, position the 122365 plate and, in so doing, be careful not to shift the magnet angle bracket. Tighten the mounting screw."

283. LOCKING CONTACT - See Note (A) on Page 1-3.

NOTE

The contact bracket mounting holes are oversize in order that the entire contact assembly may be shifted if necessary.

a. With the magnet de-energized, hook an 8 oz. scale behind the insulator on the long contact spring and pull at a right angle to the spring. It should require 1 to 2-1/2 ozs. to start the contact spring moving away from the blocking lever. To adjust, bend the long contact spring.

b. With the magnet de-energized, hook an 8 oz. scale behind the short contact spring just above the contact and pull at a right angle to the spring. It should require 3 to 6 ozs. to start the contact spring moving away from its stiffener. To adjust, bend the short contact spring.

c. With the magnet energized, there should be at least .003" clearance between the short contact spring and its stiffener. With the magnet de-energized, there should be a gap of at least .025" between the contacts. To adjust, bend the stiffener. Recheck preceding paragraph (b).

NOTE

If the .003" requirement cannot be met, increase the armature travel by refining the magnet bracket position adjustment. Replace the signal bell.

284. SPACING STOP LEVER SPRING TENSION - See Note (A) on Page 1-3.

Apply standard adjusting procedure as prescribed in paragraph 151.

285. BLOCKING LEVER SPRING TENSION - See Note (A) on Page 1-3.

Hold the long contact spring away from the blocking lever. Hook an 8 oz. scale on the lever

near the spring hole and pull at a right angle to the lever. It should require 1 to 2 ozs. to start the lever moving.

REPLACE THE TYPE BAR CARRIAGE

286. RIGHT MARGIN ADJUSTING SCREW

Apply standard adjusting procedure as prescribed in paragraph 169. If the margin screw does not fully engage the spacing stop lever, reposition the margin screw arm detent on the carriage by means of its oversize holes, and make certain that the screw still clears the side frame as the carriage moves.

REPERFORATOR MOTOR CONTROL MECHANISM ADJUSTMENTS

287. REPERFORATOR CONTROL PLATE (Figure 110 and 111)

With the BLANK combination selected and the main shaft rotated until the function levers rest against the vanes, there should be some clearance, not more than .008", between the horizontal arm of the contact pawl and its function lever when the contact pawl is in the lower notch of its latch. There should also be some clearance, not more than .008", between the horizontal arm of the contact pawl latch and its function lever when the contact pawl is in the upper notch of its latch. To adjust, position the reperforator control plate with its mounting screws loosened.

288. REPERFORATOR CONTROL CONTACT (Figure 110)

a. With the horizontal arm of the contact pawl in its upper position, there should be some clearance, not more than .008", between the insulator on the lower contact spring and the contact pawl. To adjust bend the upper (heavy) contact spring.

b. Hook an 8 oz. scale over the contact spring at the contact, and pull vertically downward. It should require 3 to 4 ozs. to open the contacts. To adjust, bend the lower (light) contact spring.

289. CONTACT PAWL SPRING TENSION (Figure 110)

With the horizontal arm of the contact pawl in its upper position and the contact spring held clear of the contact pawl, apply the push end of an 8 oz. scale at the right end of the horizontal portion of the pawl and push downward. It should require 1-1/2 to 3 ozs. to start the pawl moving.

290. REPERFORATOR CONTROL FUNCTION LEVERS SPRING TENSIONS (Figure 111)

Select the BLANK combination and rotate the main shaft until the function levers rest against the vanes. Hook a 32 oz. scale under the forward extension of the function lever in slot No. 13, just to the rear of the lobe, and pull upward. It should require 24 to 32 ozs. to start the lever moving. Check the spring tension on the function lever in slot No. 6 in the same manner.

AUTOMATIC CARRIAGE RETURN AND LINE FEED ADJUSTMENTS

NOTE

On units equipped with the stop bracket (Figure 113), if carriage return only is desired upon receipt of the carriage return selection, remove the stop bracket. The first two adjustments apply only to units equipped with this bracket.

291. CARRIAGE RETURN LATCH - BAR LATCH SHIMS (Figure 114)

a. Remove the spring of the automatic carriage return and line feed function lever. (Figure 118)

b. Set the typing unit on its left side. Rotate the carriage return function lever eccentric so that the high part of the eccentric is away from the casting. With the letter O combination (-,-,-,4,5) selected and the main shaft rotated until the printing bail is in its extreme forward position, there should be .004" to .010" clearance between the carriage return latch bar and the lobe on the carriage return extension of the bail assembly. When checking this clearance, the shoulder on the carriage return latch bar should be fully latched on the latch. To adjust, add or remove shims between the carriage return latch-bar latch and the function lever comb.

292. CARRIAGE RETURN FUNCTION LEVER ECCENTRIC SCREW (Figure 114)

a. With the letter O combination (-,-,-,4,5) selected and the main shaft rotated until the printing bail is in its extreme forward position, there should be .004" to .010" clearance between the carriage return latch bar and the extension

on the carriage return function lever. When checking this clearance, the shoulder on the carriage return latch bar should be fully latched on the latch. To adjust, position the carriage return function lever eccentric mounting screw. Tighten the nut.

b. Recheck 277. b.

c. Replace the automatic carriage return and line feed function lever spring.

293. OPERATING BAIL LINE FEED EXTENSION (Figures 115 and 116)

a. With the printing bail in its extreme rear position and the automatic carriage return trigger held in its operated position, rotate the main shaft until the automatic carriage return and line feed function lever just touches the number one vane. There should be some clearance, not more than .010" between the line feed push bar and the bottom of the function bail blade. To adjust, position the line feed extension by means of its enlarged mounting holes. Reposition the function bail blade if necessary.

b. To check the function bail blade adjustment, select the combination for the letter "O" (-,-,-,4,5) when the printing bail is in its rearmost position, then rotate the main shaft until the printing bail is in its extreme forward position. There should be some clearance between the upper edge of the line feed extension projection of the bail and the lower edge of the line feed push bar.

294. AUTOMATIC CARRIAGE RETURN AND LINE FEED FUNCTION LEVER ECCENTRIC SCREW (Figure 114)

a. There should be an equal amount of clearance (within .010") between the bottom edge of the carriage return latch bar and the latch bar latch when, first the carriage return function lever is fully selected and then the automatic carriage return and line feed function lever is fully operated. To adjust, position the automatic carriage return and line feed function lever eccentric screw.

295. MOUNTING BRACKET (Figure 117)

NOTE

If the shift-blank-stop motor control mechanism is not used on the typing unit on which the automatic carriage return and line feed mechanism is installed, subsequent references to the motor stop function lever blocking lever may be ignored.

a. With the trigger guide positioned in approximately the middle of its adjustable range, adjust the mounting bracket (a) approximately parallel to the 74019 spring plate, and (b) so that there is some but not more than .002" clearance between the front edge of the motor stop function lever and the blocking end of the blocking lever when the space combination is selected and the main shaft is rotated until the function lever rests against the vanes.

b. With the "Figure H" combination selected and the motor stop function lever blocked by its blocking lever, the motor stop function lever should not block the travel of the printing bail.

296. TRIGGER GUIDE (Figures 114 and 118)

a. With the letter "O" combination (-,-,-,4,5) selected and the main shaft rotated until the printing bail is in its extreme forward position, there should be some clearance, not more than .010" between the carriage return latch bar and the lobe on the carriage return extension of the bail assembly. To adjust, position the trigger guide by means of its elongated mounting holes.

b. Check: With the main shaft in the stop position, there should be at least .005" clearance between the blocking edge of the trigger extension and the front edge of the automatic carriage return and line feed function lever, when the play is taken up to make this clearance a minimum.

297. TRIGGER ADJUSTABLE SCREW (Figure 118)

a. The automatic carriage return and line feed mechanism is designed to operate on a 72 to 76 character range. To check this adjustment, space the carriage one less than the desired number of characters on the line. There should be a clearance of .006" to .020" between the left-hand edge of the trigger extension and the right-hand edge of the blocking extension on the automatic carriage return and line feed function lever when the play in the function lever is taken up to the left. To adjust for this clearance, loosen the lock nut of the trigger adjustable screw and position the screw. Tighten the lock nut.

298. CARRIAGE RETURN AND AUTOMATIC CARRIAGE RETURN AND LINE FEED FUNCTION LEVER SPRING TENSIONS (Figure 118)

a. CARRIAGE RETURN

With the carriage return combination fully selected and with the carriage return function lever resting against the vanes, unhook the carriage return function lever spring from the spring plate. Insert the hook end of a 12 lb. scale into the free end of the spring. It should require 9 to 11 lbs. to stretch the spring to its position length. Rehook the spring.

b. AUTOMATIC CARRIAGE RETURN AND LINE FEED FUNCTION LEVER

Measure the tension of the automatic carriage return and line feed function lever spring in a similar manner, with the function lever unblocked and resting against the vanes.

299. TRIGGER SPRING TENSION (Figure 118)

a. Hook an 8 oz. scale over the trigger at the spring hole and pull horizontally in line with the spring. It should require a pull of 3-1/2 to 5 ozs. to just start the trigger moving.

300. BELL CRANK RETAINER YIELD LEVER SPRING TENSION (Figure 112)

a. Hook a 32 oz. scale over the end of the yield lever and pull horizontally in line with the spring. It should require 24 to 32 ozs. to start the arm moving.

301. LINE FEED LINK TURNBUCKLE. See paragraph 109.

TWO-COLOR RIBBON CONTROL ADJUSTMENTS

NOTE

All the following adjustments apply to the function lever controlled mechanism. Adjustments 296 through 301 inclusive do not apply to the manually controlled mechanism.

302. RIBBON OSCILLATOR LEVER (Figure 119) - Replaces standard RIBBON OSCILLATOR LEVER ADJUSTMENT, paragraph 170.

Select any character which prints and turn the printer main shaft until the printing bail is in its extreme forward position. Then with the platen in the upper position and the ribbon oscillator lever toward the front of the printer (not held by its latch), make certain that the ribbon oscillator is not resting against the ribbon oscillator lever adjustable stop. If necessary, loosen the screws and move the adjustable stop out of the way. (Adjustable stop is shown in Figure 121.) Manually place the ribbon oscillator lever in its latched position. Then, with the comma type pallet pushed tightly against the black-red record ribbon to make an imprint of the comma, there should be some clearance, not more than .025", between the bottom edge of the imprint made by the comma and the top edge of the red portion of the ribbon. To adjust, place the platen in the shift position (up). Then loosen the ribbon oscillator lever clamping screw and nut, and position the ribbon oscillator lever by means of its slotted hole. Tighten the clamping screw and nut.

303. RIBBON OSCILLATOR LEVER LATCH BRACKET (Figure 120) See Note (A) on Page 1-3.

With the ribbon oscillator lever held to the rear of the type basket so that it just touches either the carriage frame casting or the lock nut for the upper carriage track roller, there should be at least .030" clearance between the latch and the ribbon oscillator lever. To adjust, loosen the latch bracket mounting screws and position the latch bracket by means of its elongated mounting holes. Tighten the mounting screws.

304. RIBBON OSCILLATOR LATCH SPRING TENSION (Figure 120) See Note (A) on Page 1-3.

With the ribbon oscillator lever held away from its latch, hook an 8 oz. scale over the latch where the spring is hooked and pull in line with the spring. It should require a pull of 1/2 to 2 ozs. to just start the latch moving.

305. RIBBON OSCILLATOR LEVER ADJUSTABLE STOP (Figure 121) See Note (A) on Page 1-3.

With the pull bar bail plunger held so that there is .010" to .050" clearance between the pull bars and the code bars, the ribbon oscillator lever should overtravel the latching surface of the latch .012" to .020". To adjust, loosen the adjustable stop mounting screw and position the adjustable stop by means of its elongated mounting hole. Tighten the mounting screw.

306. PARALLELOGRAM BAR BRACKETS (See Figure 122 for location of parts) See Note (A) on Page 1-3.

With the magnet de-energized and with the armature backstop eccentric positioned to give maximum travel of the armature, the front edge of the parallelogram bar should be parallel with the front edge of the upper track and its front edge should not project beyond the front edge of the upper track by more than .030". To adjust, loosen the right bracket and the magnet bracket mounting screws and position the bracket by means of their large mounting holes. Tighten the mounting screws. When checking this requirement any play in the parts should be taken up by holding parallelogram to the rear.

REPLACE THE TYPE BAR CARRIAGE

NOTE

Check the "RIBBON OSCILLATOR LEVER ADJUSTABLE STOP" adjustment of .012" to .020" overtravel with the main shaft in the stop position and the platen in the LETTERS position. There should also be at least .006" clearance between the oscillator lever and either the carriage frame casting or the lock nut for the upper carriage track roller, whichever is the closest. If necessary, refine the "RIBBON OSCILLATOR LEVER ADJUSTABLE STOP" adjustment.

307. MAGNET YOKE (Figures 122 and 123)

a. With the magnet armature held against the core of the magnet, there should be .010" to .020" clearance between the end of the yoke and the magnet armature. Adjust by adding or removing shims between the magnet core and the yoke.

b. The above clearance should not vary between the two ends of the yoke by more than .010". To obtain this adjustment, tilt yoke by adding or removing shims between the yoke and the magnet bracket. Recheck a.

c. With the armature held against the core of the magnet, the ribbon oscillator lever should clear the latch by .008" to .020". To adjust, loosen the magnet yoke mounting screws and position the magnet yoke by means of the elongated holes in the magnet bracket. Before tightening the screws, be sure that the ends of the yoke are parallel with the armature. Check this clearance with the type bar carriage at both ends of the typing unit. Tighten the mounting screws.

308. ARMATURE ECCENTRIC BACKSTOP (Figure 124)

Select any character that prints and rotate the main shaft until the printing bail is in its extreme forward position. With the ribbon oscillator lever in its unlatched position, and the magnet armature in its unoperated position, resting against the eccentric backstop, there should be some clearance, not more than .015", between the rear surface of the ribbon oscillator lever latch projection and the front edge of the parallelogram bar. With the parallelogram bar so held as to make this clearance a maximum, check this clearance with the type bar carriage at both ends of the typing unit. To adjust, loosen the eccentric backstop mounting screw and position the eccentric. Tighten the mounting screw.

309. ARMATURE SPRING TENSION (Figure 124)

Unhook the armature spring, check magnet armature and parallelogram bar for binds. Replace the spring. Apply the push end of a 8 oz. scale to the armature just above the armature mounting screws. It should require 1 to 3 ozs. to start the armature moving.

310. CONTACT OPERATING LEVER BRACKET (Figure 125A)

With the contact operating lever in its latched position and the two-color operating function levers resting against the selector vanes, but not selected, there should be .004" to .020" between the latch extension and the No. 5 function lever extension. To adjust, loosen the contact operating lever bracket mounting screws and position the bracket by means of its elongated hole. Tighten the mounting screws.

311. CONTACT SPRINGS (Figure 125B)

CAUTION

Turn the motor power switch to "OFF" position when checking this adjustment.

a. With the pull end of an 8 oz. scale hooked over the short contact spring, near the contact point, it should require a tension of 3 to 4 ozs. to start the spring moving away from the stiffener when the contact operating lever clears the bakelite tip on the long contact spring. To adjust, remove the spring from the assembly and bend.

b. There should be a clearance of .015" to .025" between the contact points of the short and long contact springs when the contact operating lever clears the bakelite tip on the long contact spring. To adjust, bend the long contact spring.

c. With the contact operating lever in its latched position (Figure 126B) there should be some clearance, not more than .010" between the short contact spring and the contact spring stiffener at its extreme end. To adjust, loosen the contact bracket mounting screws and position the contact bracket horizontally by means of its elongated mounting holes. Tighten the mounting screws.

312. LINK (Figure 125C)

With the function lever, which shifts the ribbon to "Red" (in position No. 6 or No. 7) in its operated position, the contact operating lever should overtravel its latch by .004" to .015". To adjust, set up the No. 6 (or 7) function lever code combination and rotate the printer main shaft until the No. 6 (or 7) function lever is in its fully operated position. Loosen the link mounting screw and position the contact operating lever by means of its elongated hole, with the bottom of the link slot held against the bottom edge of the No. 6 (or 7) function lever. Tighten the link mounting screw.

313. CONTACT OPERATING LEVER SPRING TENSION (Figure 125A)

With the contact operating lever in its latched position, unhook the contact operating lever spring from the contact operating lever. With an 8 oz. scale hooked in the spring eye, it should require 2 to 4-1/2 ozs. to pull the spring to position length.

314. TWO-COLOR MECHANISM NO. 5 AND NO. 6 FUNCTION LEVER SPRING TENSIONS (Figure 125A)

With the function levers resting against the selector vanes but not selected, hook a 32 oz. scale over the bottom of the function lever extension and pull upward. It should require 24 to 32 ozs. to start each function lever moving.

NOTE

The following two adjustments apply only to sprocket feed printers.

315. LOADING PLATE

Bend the front edge of the loading plate upward slightly to overcome interference between it and the ribbon carrier.

316. TYPE BAR GUIDE

Bend the type bar guide forward approximately .025" so as to provide clearance between the ribbon carrier and the sprocket pins.

NOTE

When the two color ribbon control mechanism is installed in the field on units equipped with the reperforator control mechanism, the following adjustment should be remade.

Send-Receive-Break Mechanism Plate - Paragraph 163.
Reperforator Control Plate - Paragraph 286.
Reperforator Control Contact - Paragraph 287.
Contact Pawl Spring Tension - Paragraph 288.
Reperforator Control Function Levers Spring Tensions - Paragraph 289.
Blocking Bail Plate - Paragraph 47.

MECHANICAL WORD COUNTER ADJUSTMENTS

317. STAR WHEEL TANGENTIAL TENSION

Rotate the star wheel at least 1/4 turn after a number has just been registered on the counter and so that one side of a tooth on the star wheel is vertical. Hook an 8 oz. scale over the vertical face of this tooth, approximately 1/16", and pull horizontally. It should require 3 to 7 ozs. to start the star wheel rotating. To adjust, position the star wheel either toward or away from the star wheel bearing by means of its set screws.

NOTE

This adjustment does not apply to new style counters which are equipped with a 119651 retainer ring.

318. COUNTER ASSEMBLY POSITION

The counter assembly should be positioned so that the pins in the slide bar properly engage the teeth on the star wheel and so that the end of the star wheel does not bear against the slide bar.

a. To adjust, loosen the counter mounting screws. Then turn the typing unit main shaft until the printing bail is rotated to the extreme forward position. The slide bar should be stopped against the spring post in the counter mounting

bracket; the lower pin in the slide bar will then position the star wheel for the following adjustment. This condition may be attained by pushing the slide bar downward and allowing its spring to return it quickly. Operate the slide bar slowly by hand and position the counter away from or toward the typing unit (looking at the side of the typing unit) so that the upper pin in the slide bar engages a tooth on the star wheel approximately midway between its peak and bottom.

b. With the play in the slide bar and the counter shaft taken up so that the clearance between the end of the star wheel and the slide bar will be a minimum, position the counter so that there is some clearance, not more than .025" between the slide bar and star wheel. Tighten the counter mounting screws and recheck a.

319. OPERATING LINKAGE

a. Rotate the main shaft until the printing bail is in its extreme rear position. Adjust the operating linkage by means of the eccentric shoulder screw in the end of the operating lever so that the upper pin in the slide bar just bottoms between two teeth on the star wheel and so that, with the upper slide bar pin in this position, the star wheel will have a barely perceptible amount of backlash. Check for this backlash during a complete revolution of the star wheel. If this adjustment cannot be made by means of the eccentric shoulder screw in the operating lever, adjust this shoulder screw to its most favorable position and adjust the eccentric spring post in the bell crank to meet this requirement.

b. If this adjustment cannot be met with both eccentrics in their most favorable position, vary the height of the counter mounting bracket by shifting the bracket in its large mounting holes. Then recheck paragraph 318. b.

320. SLIDE BAR SPRING TENSION

With the printer on its left side, unhook the bottom of the slide bar spring. Hook a 64 oz. scale in the spring eye and pull in line with the slide bar. It should require from 34 to 42 ozs. to stretch the spring to position length when the printing bail is in its rearmost position.

321. LINK YIELD SPRING TENSION

Unhook the link yield spring from the link arm and hook a 64 oz. scale in the spring eye and pull in line with the link. It should require from 54 to 64 ozs. to stretch the spring to position length.

ELECTRICAL WORD AND OPERATIONS COUNTER ADJUSTMENTS

322. STAR WHEEL TANGENTIAL TENSION

Loosen the cover mounting screw and remove the cover from the contact assembly. Rotate the star wheel until the contact spring operation screw (which also secures the star wheel to its shaft) points downward and so that one side of a tooth on the star wheel is vertical. Hook an 8 oz. scale over the vertical face of this tooth approximately 1/16" and pull horizontally. It should require from 4 to 6 ozs. to start the star wheel rotating. To adjust, position the star wheel either toward or away from the star wheel bearing, by means of its set screw.

323. CONTACT REQUIREMENTS

a. For operation of the contacts on every printing, spacing and functional operation of the printer, the following requirements should be met:

(1) There should be .050" to .055" clearance between the insulator on the lower contact spring and the peak of a tooth on the star wheel. To adjust, bend the lower contact spring.

(2) There should be .015" to .025" clearance between the contacts when the slide bar is held down against its stop. To adjust, bend the upper contact spring.

b. For operation of the contacts on every sixth printing, spacing and functional operation of the printer, the following requirements should be met:

(1) There should be .050" to .055" clearance between the insulator on the lower contact spring and the peak of a tooth on the star wheel. To adjust, bend the lower contact spring.

(2) There should be .015" to .025" clearance between the contacts when the pin in the star wheel is pointing downward. To adjust, bend the upper contact spring.

324. CONTACT AND BRACKET ASSEMBLY ADJUSTMENT

The star wheel bearing should be positioned to left or right so that the pins in the slide

bar properly engage the teeth on the star wheel, and to front or rear so that the star wheel does not bear against the slide bar.

a. To adjust, loosen the star wheel bearing mounting screws. Then rotate the typing unit main shaft until the printing bail moves to the extreme forward position. The slide bar should be stopped against the spring post in the contact mounting bracket; the lower pin in the slide bar will then position the star wheel for the following adjustment. This condition may be attained by pushing the slide bar downward and allowing its spring to return it quickly. Operate the slide bar slowly by hand and position the star wheel bearing away from or toward the typing unit (looking at the side of the typing unit) so that the upper pin in the slide bar engages a tooth on the star wheel approximately midway between its peak and bottom.

b. With the play in the slide bar and the star wheel shaft taken up so that the clearance between the end of the star wheel and the slide bar is a minimum, position the star wheel bearing so that there is some clearance, not more than .025" between the slide bar and the star wheel. Tighten the star wheel bearing mounting screws and recheck a.

325. OPERATING LINKAGE - Same as paragraph 319 except recheck paragraph 324. b. instead of 318.

326. SLIDE BAR SPRING TENSION - Same as paragraph 320.

327. LINK YIELD SPRING TENSION - Same as paragraph 321.

FEEDING FOUR LINES PER INCH ADJUSTMENTS

328. LINE FEED LINK TURNBUCKLE

a. With the SINGLE-DOUBLE line feed lever in the DOUBLE line feed position, select the line feed combination and rotate the main shaft until:

(1) On units not equipped with automatic carriage return and line feed, the line feed push bar is being stripped from the function bail blade.

(2) On units equipped with automatic carriage return and line feed, the function bail is in its extreme rear position.

b. Under this condition, the turnbuckle should be adjusted so that the platen has rotated two line-spaces, that the detent roller rests in the hollow between two ratchet teeth and that the feed pawl is still in engagement with a ratchet tooth to such an extent that there is no clearance or not more than .002" clearance between the detent roller and the detenting face of the tooth just above the roller. Check for this condition at 4 positions on the ratchet approximately 90° apart.

329. LINE FEED CHECK SCREW

The line feed check screw should drop in the 8th notch from the detent roller. (When counting the notches, start with the notch just above the detent roller.) There should be some clearance, not more than .020", between the front face of the screw and the face of the tooth, at the point of minimum clearance, when the check screw is held in the bottom of a notch on the ratchet. To adjust, loosen the line feed check screw lock nut and position the check screw to meet the foregoing requirements. Tighten the lock nut. Rotate the platen roll and check the clearance in each notch of the ratchet. If necessary, loosen the clamping nut of the line feed check post stop screw and back off the stop screw before making this adjustment.

END OF LINE PRINTING AND SPACING ADJUSTMENTS

330. PRINTING AND SPACING CUTOUT MECHANISM BRACKET (Figure 126) See Note (A) on Page 1-3.

There should be a .020" to .040" clearance between the spacing stop lever and the side of a projection on the spacing stop sleeve. To adjust, loosen the printing and spacing cutout mechanism bracket mounting screws and position the bracket horizontally by means of its elongated mounting holes; tighten the mounting screws.

331. PRINTING CUTOUT LATCH ECCENTRIC BUSHING (Figure 127) See Note (A) on Page 1-3.

Set up the FIGURES combination on the vanes and rotate the main shaft until the function lever bail rests on the shift function lever. Push the printing bail toward the rear of the typing unit manually and raise the printing cutout latch into engagement with the rear blade of the printing bail. With the printing bail held by the latch, there should be some clearance, not more

than .015", between the blocking arm of the shift function lever and the blocking surface of the blocking plate. To make this adjustment, first position the eccentric so that the high part is toward the rear of the typing unit, then rotate the eccentric counterclockwise.

NOTE

After the foregoing adjustment has been made, there should be some clearance between the front end of the printing cutout latch and the front blade of the printing bail (Figure 128A), when the main shaft is rotated until the printing bail is in its extreme rear position and the printing cutout latch is raised by hand.

REPLACE THE TYPE BAR CARRIAGE

332. RIGHT MARGIN ADJUSTING SCREW (Figure 128B)

With the printing bail in the extreme rear position and the type bar carriage one space to the right of that in which the last character is to be printed, push the spacing stop sleeve projection backward just enough to permit the spacing stop lever to pass in front of the projection. There should then be .010" to .020" clearance between the printing cutout latch and the lower edge of the rear printing bail blade. To adjust, position the right margin adjusting screw.

333. PRINTING CUTOUT LATCH DOWN-STOP ECCENTRIC (Figure 129)

With the printing bail in its extreme forward position, there should be .008" to .015" clearance between the lower edge of the rear printing bail blade and the printing cutout latch. To make this adjustment, first position the eccentric so that the high part is toward the rear of the typing unit, then rotate the eccentric counterclockwise.

334. SPACING STOP LEVER SPRING TENSION (Figure 126)

Hook a 32 ounce scale over the upper end of the spacing stop lever and pull horizontally toward the right. It should require 8 to 12 ounces to start the lever moving.

335. PRINTING CUTOUT LATCH SPRING TENSION (Figure 129)

With the printing bail in its extreme forward position, hook an 8 ounce scale under the printing cutout latch, just to the rear of the spring hole and pull upward, as nearly vertically as possible. It should require 1 to 2-1/2 ounces to start the latch moving.

REMOTE SIGNAL BELL CONTACT (WITH LATCH) ADJUSTMENTS

336. CONTACT AND BACKSTOP BRACKET (Figure 130A and 130B)

a. There should be at least .015" clearance between the bracket and the spacing shaft.

b. There should be some clearance, not more than .020", between the side of the contact lever and the side of the bell reset bar, when the play of the contact lever is taken up in a direction to make the clearance a minimum.

c. The adjusting screw on the contact lever latch should meet the rear spacing escapement extension squarely.

d. To adjust, loosen the contact and backstop bracket mounting screws and position the bracket to meet the above requirements. Tighten the mounting screws.

337. CONTACT LEVER LATCH MOUNTING SCREW (Figure 130)

Set the typing unit on its right side. With the platen in the FIGURES position and the BELL combination set up on the vanes, rotate the main shaft until the bell latch bar is moved off its latch. With the contact lever held against the latch bar, there should be a clearance of .008" to .015" between the shoulder nearest the pivot screw of the contact lever latch and the stud on the contact lever. To adjust, position the contact lever latch mounting screw in its elongated mounting hole.

338. UPPER CONTACT SPRING TENSION (Figure 131)

With the bell latch bar in its latched (unoperated) position, the contact lever in its unlatched position, and the lower contact spring held away from the upper contact spring, hook an 8 oz. scale over the end of the insulator on the upper contact spring and pull at right angles to the spring. It should require 1 to 2 ozs. to

start the insulator moving away from the contact lever. To adjust, bend the upper contact spring.

339. LOWER CONTACT SPRING TENSION (Figure 131)

Hook an 8 oz. scale over the lower contact spring at the contact point and pull at right angles to the contact spring. It should require 2-1/2 to 3-1/2 ozs. to start the spring moving away from its stiffener. To adjust, bend the lower contact spring.

340. CONTACT GAP (Figure 131)

With the printing bail in its extreme rear position, and with the contact lever in its unlatched position, there should be .015" to .025" clearance between the contact points. To adjust, bend the lower contact spring stiffener. Recheck LOWER CONTACT SPRING, paragraph 339.

NOTE

When the contacts are closed, there should be some clearance between the lower contact spring and the free end of its stiffener.

341. SIGNAL BELL HAMMER BACKSTOP SCREW (Figure 59)

With the printing bail in its extreme rear position, and the bell latch bar in its latched position, there should be .020" to .040" clearance between the bell hammer arm extension and the bell operating lever. To adjust, position the signal bell hammer backstop screw.

342. CONTACT LEVER LATCH ADJUSTING SCREW (Figure 132)

Set up any printing combination on the vanes and rotate the main shaft until the printing bail is in its extreme forward position. The post on the contact lever should clear the shoulder on the contact lever latch by .010" to .025". To adjust, position the contact lever latch adjusting screw.

343. CONTACT LEVER LATCH SPRING TENSION (Figure 132)

With the printer resting on its right side, and the contact lever in its unlatched position, hook an 8 oz. scale over the upper end of the contact lever latch and pull at right angles to the latch. It should require from 2-1/2 to 3-1/2 ozs. to start the latch moving.

ADJUSTMENTS FOR PRINTERS EQUIPPED FOR STATION SELECTOR OPERATION

TYPING UNIT ADJUSTMENTS

344. CALL-CONTACTS (Figure 133)

a. With the main shaft rotated so that the call-contact function lever is resting against the selector vanes, but not selected, there should be some clearance, not more than .010" between the insulator on the end of the contact spring and the lobe on the call-contact function lever. To adjust, bend the upper contact spring.

b. With the main shaft in the same position as specified in paragraph a. there should be a contact gap of .015" to .020". To adjust, bend the lower contact spring.

345. CALL - CONTACT FUNCTION - LEVER SPRING TENSION (Figure 133)

With the call-contact function lever resting against the vanes, not selected, and the contact spring held away, hook a 32 oz. scale under the extreme front end of the lever and pull vertically upward. It should require a tension of 24 to 32 ozs. to start the function lever moving.

346. TRANSFER CONTACTS (Figure 134)

a. With the transfer contact lever held away from the insulator on the transfer contact spring, the center contact should make with the lower contact. There should also be a clearance of .030" to .040" between the center and upper contacts. To adjust, bend the upper (heavy) contact spring so that it is parallel to and in line with the insulators between which it is mounted. Bend the center contact spring so that it rests against the lower spring with just a slight amount of tension and then bend the lower contact spring to obtain the required gap.

b. With the transfer contact lever held away from the contact insulator, hook an 8 oz. scale under the center contact spring between the insulator and the contact and pull vertically upward. A tension of 3-1/2 ozs. should be required to open the contacts. To adjust, bend the center contact spring. Recheck a.

c. The position of the transfer contacts in relationship to the transfer contact lever should be such that, when the transfer contact lever is in its lower most position, there would be a clearance of .010" to .020" between the end of

the transfer contact lever and the insulator on the center contact spring. To adjust, loosen the screws which secure the transfer contact bracket to the send-receive plate, and position the transfer contact assembly so that the upper and lower contact springs are parallel to the function lever spring plate. Tighten the transfer contact bracket mounting screws. Set up the SPACE combination (front edge of #3 vane down, front edges of #1, #2, #4, and #5 up) and rotate the main shaft until the printing bail is in its extreme forward position. Position the adjusting screw (Figure 135) on the transfer-contact function lever to meet the requirement, and tighten the lock nut.

347. TRANSFER CONTACT - LEVER SPRING TENSION (Figure 135)

Place the typing unit on the right side. With the main shaft in the stop position and the transfer contact held away from the contact lever, hook a 32 oz. scale to the transfer contact lever at the spring hole and pull horizontally in line with the spring. It should require a tension of 12 to 16 ozs. to start the lever moving.

348. TRANSFER CONTACT FUNCTION - LEVER SPRING TENSION (Figure 136)

Place the typing unit on the right side. Select SPACE (#3 vane down) and rotate the main shaft until the printing bail is in its extreme forward position. With the transfer contact lever held away from the adjusting screw head, hook a 64 oz. scale to the transfer-contact function lever extension and pull horizontally. It should require a tension of 20 to 28 ozs. to start the lever moving.

349. FUNCTION LEVER BAIL - See paragraph 46 and 48.

NOTE

A minimum clearance of .025" is permissible between the rear edge of the No. 1 vane and the front edge of the transfer contact function lever when the typing unit is equipped with the station selector mechanism.

350. DISCONNECT CONTACT (Figures 137 and 138)

a. Set up the CARRIAGE-RETURN combination and rotate the main shaft until the printing bail is in its extreme forward position. There should be a clearance of .010" to .020" between the disconnect contacts. To adjust, bend the stiffener to obtain this clearance.

b. With the main shaft in its STOP position, make certain that there is some clearance between the insulator on the lower disconnect contact spring and the bell crank when the play in the bell crank is taken up in the direction to make this clearance a maximum. To adjust, bend the stiffener and the upper contact spring.

c. With the typing unit resting on the right side and the main shaft in its STOP position, hook an 8 oz. scale to the lower contact spring between the contact and insulator and pull at a right angle to the contact spring. It should require a tension of 3-1/2 to 5 ozs. to just break contact. To adjust, bend the lower contact spring.

KEYBOARD ADJUSTMENTS

351. KEYLEVER LINK (Figure 139)

The keylever link should be positioned on its keylever to provide from .020" to .040" clearance between the vertical edge of the link and the vertical side of the bail. To adjust, loosen the link clamping screw and position the link.

352. BAIL SPRING TENSION (Figure 140)

With the keyboard upside down, hook an 8 oz. scale under the end of the bail spring and pull vertically upward. It should require a tension of 2 to 3 ozs. to start the spring moving away from the bail. To adjust, bend the spring.

353. BAIL BACKSTOP (Figure 139)

There should be some clearance, not more than .004" between the edge of the bail and the hook on the keylever link. To adjust, loosen the bail-backstop eccentric mounting screw. Hold the bail against the eccentric backstop, and turn the eccentric. Tighten the screw.

354. ANSWER - BACK - MAGNET HEEL - PIECE AIR GAP (Figure 141)

There should be a clearance of .005" to .015" between the end of the heel piece and the armature when the armature is held in the operated position. To adjust, loosen the armature-yoke mounting screw and place a .008" gauge between the heel piece and the armature. Hold the armature firmly against the gauge and tighten the mounting screw.

355. BAIL (Figure 139)

The eccentric bushing on the bail which is engaged in the forked end of the answer-back-magnet armature lever should be adjusted to provide full travel of the keylever which it operates. To adjust, loosen the eccentric bushing mounting screw, fully depress the answer-back keylever, place the magnet armature in its operated position, and rotate the eccentric bushing until the bail just clears the keylever link. Tighten the eccentric bushing mounting screw.

NOTE

Adjust the eccentrics so that the keyboard clutch is just tripped when the answer-back magnet is energized with a piece of Teletypewriter copy paper (.003" to .004" thick) placed between the armature and the pole piece. It is important not to increase or decrease this adjustment as intermittent errors may occur.

100 WPM KEYBOARD ADJUSTMENTS

356. TRANSMITTING CONTACT GAP (Figure 142)

With each contact lever on the high part of its cam, the contact gap should be .017" to .025" (.015" to .025" for start-stop contacts) when using a signal measuring device. If no signal measuring device is available, all contact gaps should be .020" to .025". To adjust bend the short contact spring.

357. TRANSMITTING CONTACT SPRING STIFFENER (Figure 142)

With each contact lever on the high part of its cam, apply the push end of an 8 oz. scale to the short contact spring at the contact and push at right angles to the spring. It should require 4 to 8 ozs. to start the short contact spring moving away from its stiffener. To adjust, bend the stiffener. Recheck contact gap, paragraph 356.

358. LOCK LOOP BACKSTOP SCREW (Figure 143)

With the lock loop held against the backstop screw, there should be .020" to .060" clearance between the lock loop roller and the lock loop cam when the transmitting cam sleeve is rotated to make this clearance a minimum. To adjust, position the backstop screw.

KEYBOARD CAM OPERATED CONTACTS ADJUSTMENTS

359. PULSING CONTACT

a. Rotate the keyboard shaft until the clutch is completely disengaged (roller on lock loop passed high point of lock loop cam). There should be a gap of .010" to .020" between the contacts. To adjust bend the lower short contact spring.

b. With the clutch engaged and the keyboard shaft rotated until the insulator on the long contact spring is free of the lock loop arm, hook an 8 oz. scale under the long contact spring and pull upward. It should require 3 to 4 ozs. to separate the contacts. To adjust, bend the long contact spring. Recheck a.

MECHANISM FOR OPENING AND CLOSING EXTERNAL CIRCUITS

360. LEFT CONTACT ASSEMBLY

a. The insulator on the end of the long contact spring should be centered beneath the lobe on the end of the function lever. To adjust, loosen the two contact pile-up mounting screws and position the assembly. Tighten the mounting screws.

b. With the main shaft rotated so that the contact function lever is resting against the rear edge of the vanes, but not selected, there should be some clearance, not more than .010", between the insulator on the long contact spring, and the lobe on the function lever. To adjust, bend the long contact spring.

c. Under the above condition, there should be a gap of .015" to .020" between the contacts. To adjust, bend the short contact spring.

361. LEFT FUNCTION LEVER SPRING TENSION

With the function lever resting against the rear edge of the vanes, but not selected, and the contact spring held away, hook a 32 oz. scale under the extreme front end of the lever and pull vertically upward. It should require 24 to 32 ozs. to start the function lever moving.

362. RIGHT CONTACT ASSEMBLY

a. The upper contact spring should be parallel to the function lever spring plate. To adjust, position the contact assembly bracket with its mounting screws loosened.

b. With the printing bail in its extreme rear position the insulator on the center contact spring should just touch the end of the contact lever. To adjust, position the contact pile-up with its mounting screws loosened. Make certain the contacts meet squarely before tightening the pile-up mounting screws. If necessary, bend the contact springs.

c. With the adjusting screw on the right function lever turned so that the contact lever is out of engagement with the insulator on the center contact spring, hook an 8 oz scale under the center contact spring between the contact and the insulator and pull vertically upward. It should require 4-1/2 to 5-1/2 ozs. to move the contact away from the lower contact. To adjust, bend the center contact spring.

NOTE

It may be necessary to bend the upper contact spring so that it does not interfere with the center contact spring when checking this adjustment.

d. With the main shaft rotated so that the right function lever rests against the rear edge of the vanes, but is not selected, there should be a gap of .030" to .040" between the center and upper contacts. To adjust, bend the upper contact spring.

e. With the right function lever fully selected against the vanes, there should be a clearance of .010" to .020" between the end of the contact lever and the insulator on the center contact spring. To adjust, position the contact lever adjusting screw with its lock nut loosened.

363. CONTACT LEVER SPRING TENSION

Rest the typing unit on its right side. With the printing bail in the extreme rear position and the insulator on the contact spring held away from the contact lever, hook a 32 oz. scale to the contact lever at the spring hole and pull horizontally in line with the spring. It should require 12 to 16 ozs. to start the lever moving.

364. RIGHT FUNCTION LEVER SPRING TENSION

Rotate the main shaft until the printing bail is in the extreme rear position. Unhook the spring from the spring plate and hold the function lever against its pivoting shaft. With a 64 oz. scale hooked in the function lever spring eye, it should require 40 to 50 ozs. to pull the spring to position length.

END-OF-LAST-FORM INDICATING MECHANISM MOUNTED ON TYPING UNIT OF SPROCKET FEED PRINTERS

365. PAPER OUT BAIL

The vertical arm of the paper-out bail should drop freely into the platen groove. To adjust, add or remove shims between the paper-out bail and the right platen bracket.

366. LINE FEED DETENT LEVER - See paragraph 108.

367. PAPER - OUT BAIL SPRING

With the vertical arm of the paper-out bail resting on the bottom of the platen groove and the switch operating bracket held away from the bail, it should require 1-3/4 to 2-1/4 ounces to start the paper-out bail moving when pulling in a vertical direction on the paper bail at the vertical link connection, with an 8 ounce scale. To adjust, place a screwdriver in the slot of the 126751 eccentric shoulder screw to prevent its turning, and loosen the lock nut until the 126752 shoulder bushing is friction tight. Rotate the 126752 shoulder bushing (with a 73403 tommy wrench) in the direction to increase or decrease the tension to meet the above requirement. Retighten the lock nut.

NOTE

The spring should be anchored in the center of the three holes in the bushing. Recheck LINE FEED DETENT LEVER, paragraph 366.

368. VERTICAL LINK ECCENTRIC

With the paper-out bail resting on the bottom of the platen groove, there should be a minimum of 1/64" motion of the vertical link before picking up the paper-out bail, when operating the right pressure roller lever. To adjust, position the 126759 eccentric to meet this requirement.

369. SWITCH MOUNTING PLATE

The paper-out bail should just operate the switch when the vertical arm of the paper-out bail rests on the outer paper surface. The switch should be unoperated under either of two conditions: (1) When the end of the last form clears the paper-out bail; (2) When the pressure

rollers are raised as for the insertion of new forms. To adjust, loosen the mounting screws and position the switch mounting plate.

NOTE

The paper-out bail camming surface should be on the flat of the switch operating bracket arm when the bail finger is in contact with the paper.

END-OF-LAST-FORM INDICATING MECHANISM MOUNTED ON COVER OF SPROCKET FEED PRINTERS

370. CONTACT SPRING GAP

There should be .010" to .020" clearance between the contacts. To adjust, bend the short contact spring.

371. CONTACT LEVER SPRING TENSION

Hook an 8 oz. scale under, and as close as possible to, the end of the contact lever and pull vertically at a right angle to the lever. It should require 2 to 3 ozs. to just move the lever out of the hole in the paper guide.

FORM ACCUMULATING SHELF FOR SPROCKET FEED PRINTER COVERS

372. SHIELD POSITION

With the forms to be accumulated resting against the shield, the forward ends of the forms should be approximately 3/4" from the forward end of the accumulating shelf. To adjust, position the shield keeping it parallel to the rear wall of the cover.

SPROCKET FEED TEARING EDGE AND PAPER GUIDE

373. PAPER STRIPPER (Applicable only to units equipped with paper strippers in place of paper carrier belts and pulleys).

a. There should be some clearance, not more than .020", between the top projection of the strippers and the bottom of the platen groove when the lower projection is held against the bottom of the platen groove. To adjust, bend the stripper to meet this requirement.

b. There should be some clearance between the strippers and the rubber side of the grooves in the platen when the strippers are held against their locating collars. Under these conditions, there should also be some clearance between the strippers and the platen roll sprocket rings. Adjust by means of the stripper locating collars. Check each stripper for one complete revolution of the platen.

NOTE

Place the cover over the printer and shift the platen to the FIGURES position for the following four adjustments.

374. PAPER GUIDE PLATE

Position the paper guide plate on the cover after loosening its four mounting nuts so that there is a 1/16" to 3/32" clearance between the front edge of the guide and the pressure roller lever shaft. Tighten the four mounting nuts on the paper guide plate.

375. TEARING EDGE MOUNTING BRACKET

Loosen the four mounting plate screws. Adjust the tearing edge mounting brackets in their slots for a clearance of 1/16" to 3/32" between the tearing edge blade and the pressure roller levers when the blade is in a position nearest the levers. Tighten the four mounting plate screws.

376. TEARING EDGE BLADE

Loosen the two mounting screws in the ends of the tearing edge blade and position the blade so that there is a 3/32" clearance between the tops of the pressure rollers and the underside of the blade.

377. COVER GAP

There should be a 3/16" to 1/4" gap between the paper guide plate and the edge of the glass. To adjust for this gap, loosen the two screws in each glass guide rail and move the glass and rails until the required gap is secured.

378. MARGIN GUIDE ADJUSTMENT

The margin guide, located at the left end of the paper guide plate, should be positioned from left to right, so that the paper forms will be located centrally on the platen. To adjust, loosen the margin guide mounting screws and position the guide; tighten the mounting screws. Recheck PAPER FINGER, paragraph 123.

PAPER-OUT MECHANISM

379. SWITCH PLUNGER OVERTRAVEL

Adjust the operating screw, which cams the switch operating bracket, so that it just activates the switch. Then loosen the screw an additional one-half turn to compensate for the overtravel of the switch plunger.

380. PAPER FOLLOWER ARM

NOTE

The adjustment as outlined herein is set for operation of the switch when the paper supply is reduced to approximately 10 to 15 feet on the roll.

With the follower arm spring unhooked, move the paper follower arm toward the empty paper spindle. The operating screw should operate the switch when the follower arm is approximately 1/4" above the paper spindle. To adjust, position the follower arm and its collar with the adjusting screw loosened. Tighten the screw and rehook the spring. Make certain that the switch is operated when the follower arm reaches a distance of 1/8" from the paper spindle.

381. PAPER FOLLOWER ARM SPRING TENSION

With the paper roll removed from the spindle, hook an 8 oz. scale under the paper follower arm where the arm comes in contact with the paper and pull vertically upward. It should require 1 to 3 ozs. to pull the arm to its horizontal position.