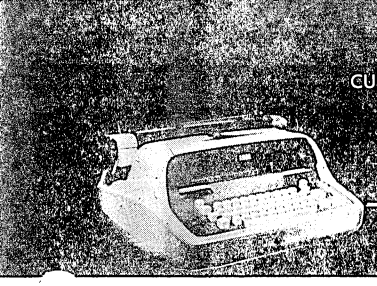


CUSTOMER ENGINEERING

C.E. News Letter

January, 1960

CONTENTS

INFORMATION:

ROUGH EDGES - MODEL C PLASTIC CARD HOLDERS AND CARBON RIBBON CORNER GUIDES

Check plastic card holders and wire carbon ribbon corner guides on the Model C ET for possible sharp edges. Dressing these parts smooth is recommended. The flat file can be used for this purpose.

This condition has been corrected on current machine production.

NEW PLASTIC FOR IBM PLATE WRITING RIBBON SPOOLS

Polypropylene plastic is now being used in the fabric ribbon spools of IBM plate writing ribbons. These spools are not affected by the chemical properties of the ink in plate writing ribbons and can be identified by the increase in flexibility over the former spools.

STRONGER FABRIC RIBBON ANCHOR CLIP SPRING

A stronger fabric ribbon anchor clip spring is now being used to double the anchor clip's holding force. The new spring carries the same part number (1118357) as the former spring.

LOOSE NYLON FABRIC RIBBON FEED AND REVERSE GEARS

Nylon ribbon feed and reverse gears Part No. 1118312 are now being drilled and tapped all the way through. This will provide an additional hole which may be used to secure the gear if the original hole becomes stripped.

This is a temporary change to reduce the necessity of replacing the gear. A permanent modification is being made.

BREAKAGE OF RIBBON LIFT BAIL MOUNTING STUD

The ribbon lift bail mounting stud lock nut Part No. 7341 has been changed to elastic stop nut Part No. 103372 to eliminate breakage of the stud due to excessive torque. The torque on the stud has also been reduced on the line.

SHIFT LOCK FAILURE TO RESTORE

Occasional shift lock failure to restore on Executive machines may be traced to excess end play in the 5-unit selector bail interfering with movement of the shift lock. The end play in the bail may be reduced by removing the C-clip on its R.H. end and substituting feed roll clip Part No. 1110093.

SHIFT TOGGLE PLATE ASSEMBLIES - FIELD REPLACEMENT

The entire shift toggle shaft assembly should be replaced if it is necessary to replace the right hand or left hand shift toggle plate assembly. The individual plate assemblies are drilled as a set for accuracy and are consequently not interchangeable.

INTERMITTENT TYPE PILING

Intermittent type piling can be caused by the tab decelerator bellcrank Part No. 1117428 catching on the tab rack spring guard screwheads. This may be corrected by careful forming of the bellcrank toward the front of the machine.

SPACEBAR CLIP INTERFERENCE WITH KEYBUTTONS

If the spacebar shaft retainer clip is turned on the spacebar shaft assembly so that the open portion of the clip is up, the clip can sometimes interfere with the keybuttons, locking both the keylever and spacebar. The open portion of the clip should be down.

CRIPPLING 3-UNIT SPACEBAR TYPAMATIC ACTION

Occasionally someone requests that the repeat action of the 3-unit spacebar be crippled. An easy way to do this is to use one of the basket shipping grommets. Cut off the "handle" end of the grommet and slip the slotted portion over the front frame in the notch below the keylever. The grommet will not come off and it provides a good stop.

TOOL NUMBER AVAILABLE FOR VALVESPOUT OILER RESERVOIR

The oil reservoir of the Valvespout Oiler Part No. 9900034 has been assigned Part No. 9900108. It is now available under this number for Field replacement needs. The replacement of the spout will necessitate ordering the entire oiler.

POSITIONING OF VALVESPOUT OILER SPOUT

The Valvespout Oiler Part No. 9900034 spout tends to go past the center position after the oiler has been filled several times, preventing the spout from lying flat in the service case. This can be remedied by placing washers between the reservoir and the spout.

Washer Part No. 1106172, washer Part No. 1078497, or a combination of these may be used. The thickness of the washer or washers will determine the amount of correction.

FAILURE OF R.H. CARRIAGE END COVER TO CLOSE

Failure of the R.H. carriage end cover to completely close may be caused by the upright ear of the R.H. platen latch hitting the hinge of the R.H. carriage release lever button. The ear of the platen latch may be formed outward to eliminate this condition.

IMPROVED FUNCTIONAL CAM OPERATION

Action has been taken to improve functional cam operation through improved adjustment of the components, ultra high frequency sonic cleaning and centerless ground shafts. Cams installed in Standard machines above serial number 1212755 and Executive serial number 2029026 have received this handling.

INTERFERENCE WITH LINELOCK SPRINGS

The actuating arm of the carriage return keylock may interfere with the linelock bar springs. If this condition exists, it may be necessary to form the portion of the carriage return keylock that contacts the switch lever indicator.

REDESIGNED COVER LATCHES

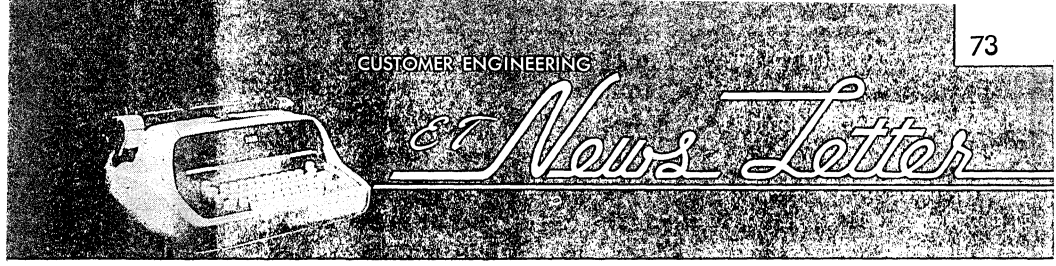
Cover latches have been redesigned to latch the cover down more securely. The new latches have the same part number as former latches.

CARRIAGE RETURN TAPE WEAR - ANTI-WHIP GUARD SLEEVE

A polyethylene sleeve Part No. 1263965 is available for field installation on the anti-whip guard of the clutch latch bracket. The sleeve will eliminate the possibility of the return tape whipping out from under the guard and becoming frayed.

FABRIC RIBBON BUNCHING

Ribbon riding over or under the sensing finger results from ribbon bunching in front of the sensing finger and may be corrected by increasing spool drag as outlined in Newsletters 63 and 67. This condition usually occurs after the ribbon has been transferred from one spool to the other many times and most frequently on automatic operation.



January, 1960

CONTENTS

SUBSTITUTION OF TYPE STYLES - SPECIAL CHARACTERS

Substitution of available characters from a companion type style may avoid the necessity of ordering new type matrices. However, because of conspicuous differences in appearance between type styles, special characters that appear in combination with numerical or alphabetical characters cannot be substituted. Special attention must be given to Executive type, since there is a variation in writing line between most Executive type styles. The writing line is based on the center of the capital letter. The center of the capital letter will vary with the capital height, as the center line is approximately 45% of the capital height. For example, Copper-Plate #2 type has a capital height of .079" and Heritage type has a capital height of .096". Therefore, the difference in writing lines between Copper-Plate #2 and Heritage type styles is .0085".

Listed below are some type styles matched with suitable companion styles from which special characters may be substituted:

Elite may be substituted for Prestige Elite.
Pica may be substituted for Prestige Pica.
Elite Gothic or Artisan No. 12 may be substituted for Manifold No. 12.
Pica Gothic or Artisan No. 10 may be substituted for Manifold No. 10.
Medium Roman Gothic may be substituted for Manifold No. 9.
Large Roman Gothic may be substituted for Manifold No. 8.
Manifold No. 12 or Elite Gothic may be substituted for Artisan No. 12.
Manifold No. 10 or Pica Gothic may be substituted for Artisan No. 10.

LOOSE REPOSITIONING INDICATOR LEVER MOUNTING SCREW

A thinner washer Part No. 1090222 is now used in place of repositioning indicator lever washer Part No. 1090269 under the repositioning indicator screw Part No. 1110241. This permits crimping of the screw threads after installation to prevent loosening.

POWER ROLL DATE CODING

The plant is now date coding all power rolls. Coding on power roll Part No. 1117828 began on 12-15-59 and Part Numbers 1001328 and 1071300 coding began on 1-4-60.

This coding can be found on the power roll between the backspace cam and letter cam 43. The first one or two digits indicate the month of manufacture and the last digit the year of manufacture. Thus, a power roll manufactured during January of 1960 would carry a 1-0 code number and a December 1960 power roll a 120 code number.

It should be kept in mind that power rolls should be stored in a vertical position and shelf life should not exceed six months for maximum performance.

RIBBON DRIVE AND REVERSE GEAR SLEEVE

A metal sleeve is being installed over the hub of the nylon ribbon drive and reverse gear Part No. 1118312 to provide additional thread strength and eliminate stripping of set screw threads. A longer set screw Part No. 1115092 is required with this sleeve.

LUBRICATION OF CARBON RIBBON TAKE-UP SPRING CLUTCH

The carbon ribbon friction take-up spring clutch is lubricated in the plant with #17 grease. It is imperative that additional grease be added as required during inspections to prevent rust. The vinyl cover on the spring should not be removed as its only purpose is to prevent erasures and dirt from causing binds in this mechanism.

IMPROVED BACKSPACE LINK

An improved backspace link is now being incorporated in Standard, Executive and Lift Platen ET's. This link has a formed offset for the purpose of compensating for excess strain on the backspace bellcrank and bellcrank stud. The new link replaces the straight link effective Standard machine serial number 1238714 and Executive serial number 2035211. The part number of the link remains the same.

LETTER CAM ASSEMBLIES - CAM RESTORING SPRING HOLE

The hole in which the cam restoring spring is attached was recently changed to a slot. Due to the possibility of the springs becoming disengaged a change back to the hole is being processed.

DECIMAL TAB CAGE LUBRICATION

The decimal tab interposer cage slots should be lubricated lightly with IBM #6 oil during inspections. This is required to eliminate the possibility of corrosion in the slots.

MODEL C CARD HOLDER ADJUSTING

The Model C rear cover mounting screw Part No. 1117337 makes a useful tool for adjusting the line gage card holder. Just below the mounting screws of the card holder are four slots in the front rail dust cover. They are used for adjusting the clearance between the platen and the card holder. A screwdriver can be used for adjusting the outside mountings and for moving the inside mountings closer to the platen but cannot be used to bring the card holder away from the platen. By inserting the head of a rear cover screw in the dust cover slot and using the screw as a lever the card holder can easily be brought away from the platen.

SPRING SCREW STARTER USE TO REPLACE CLUTCH PLATE

Due to the limited space between the machine frame and the bottom case it is difficult to replace the clutch plate and insert assembly (Part No. 1071425) on the Model C ET. The spring screw starter may be used as a holding device to lower it into position. This saves fumbling.

CUSTOMER ENGINEERING
CE News Letter

February 24, 1960

MODIFIED INTERNAL PLUG ELIMINATES WIRE CUTTING

All Model C Standard and Executive machines are being shipped with a hooded and modified internal plug and cord assembly (Part No. 1117600). This change became effective with Standard serial number 1232911 and Executive serial number 2033659.

This plug has the machine screw ground pin and wire positioning pins for safety which REMOVES THE NECESSITY FOR CUTTING THE GREEN GROUND WIRE. With this plug and cord it is now impossible to internally short the hot lead and the ground lead. Cord guard (Part No. 1117592) is also no longer necessary with the hooded plug. Future orders for Part No. 1117600 will be filled with the new type plug.

It will still be necessary to cut the green ground wire on machines prior to serial numbers 1232911 Standard and 2033659 Executive. CEM 483 under the Motor and Drive Index Tab in the CEM binder outlines this procedure.

MAKE YOUR NEXT SUGGESTION A WINNER!

Did you miss the boat on that last suggestion? It may have been a potential winner, but you shortchanged yourself and IBM if the investigator misunderstood you. Make sure your next suggestion gets the idea across by using this check list:

1. DON'T depend on the investigator to guess what you mean! Explain in DETAIL. Use enough words to be SURE. It's not a guessing game!

2. DO include sketches whenever applicable. So you can't draw? Trace from the parts catalog! Illustrations are a big help.

3. If your idea is a time saver, indicate how much time it will save per week, month, or year. YOU figure out the time saved - TELL IBM - a positive approach.

4. Many suggestion investigations involve use of the Parts Manual for reference. OF COURSE include part numbers and for good measure use Parts Manual reference numbers, too. Then the investigator WILL be looking at the RIGHT part!

5. Does your suggestion affect machines not currently manufactured? INCLUDE machine serial numbers if this is the case so the investigator will look at machines of the RIGHT age.

6. LOOK at your copy of your next suggestion. Can you read every word? The investigator works from a carbon copy, too, and if you can't read your copy, what about the investigator? Remember, you're not at the plant to explain any words - make sure your words can explain themselves!

Why not keep this newsletter with your suggestion forms? Use these tips for an additional check list. Help yourself to more winners!

CONTENTS

PART NUMBER CORRECTION - CEM # 491

POWER ROLLS - CARE IN HANDLING

EASY ADJUSTMENT - LINE GAGE CARDHOLDER

MODEL B PIN FEED LIFT PLATEN BILL OF MATERIALS CHANGE

LINE SPACING FAILURES - 66T RATCHETS

REINSERTING PAPER CORRECTLY ON WRITING LINE

SERVICE TIP - INSTALLING HARD TO REACH NUTS.

14 - 16T MOTOR PULLEY STILL AVAILABLE

ORDERING INFORMATION - 13' MOTOR EXTENSION CORDS

FABRIC RIBBON - INTERFERENCE WITH R.H. SPOOL GATE

SERVICE TIP - COTTON SWABS FOR CLEANING

ASSIGNMENT OF SERIAL NUMBERS TO ELECTRIC TYPEWRITERS

CARRIAGE RETURN CLUTCH UNLATCHING ADJUSTMENT

Do not attempt to form the ear on the Model C Tab Carriage Return interlock to adjust the clutch unlatching point. The ear may break off if formed. Instead, adjust the clutch unlatching link for proper unlatching.

CARBON RIBBON GUIDE IMPROEVMENT - MODEL C

The lower L.H. Carbon Ribbon Guide now has larger slots to eliminate possible ribbon interference. A projection has been added to aid in more precise assembly.

MARGIN CONTROL LEVER WIDENED - MODEL C

The Margin Control Lever has been widened on top to prevent the lever from camming inside the margin stop during a tab to the R.H. margin.

LINESPACING - INDEX PAWL STUD IMPROVEMENT

The Index Pawl Operating Stud has been modified to prevent the Index Pawl Knockout Lever from hanging on the Pawl Restoring Spring or jamming behind the Index Pawl.

CARRIAGE RETURN CLUTCH PLATE IMPROVEMENT

The Clutch Plate insert is now counterbored deeper to prevent the end of the power roll shaft from contacting the insert. An accumulation of tolerances could formerly cause the P. R. shaft to contact the insert, thereby reducing clutch pressure.

KEYPLATE BINDS - TAB SET & CLEAR BUTTONS

New style keyplates have less shelf area beneath the Tab Set and Clear Buttons to eliminate the possibility of binds on these Buttons. Should this condition occur on earlier keyplates, form the shelf away from the keybuttons or adjust the tab set and clear links. Do not attempt to form the tab set and clear buttons bracket.

ESCAPEMENT TRIP LEVER IMPROVEMENT - C STANDARD

The camming surface of the Escapement Trip Lever has been lengthened to prevent the Escapement Lever from going under the trip lever and hanging up. New style escapement trip levers may be installed on ET's prior to SN 1246128 if hanging up cannot be cured by minimizing escapement lever overthrow.

TYPE PILING - CLUTCH PULLEY BINDS

Occasional type piling may sometimes be traced to the Switch Operating Link binding on the Clutch Pulley Assembly. To correct this condition, invert the Switch Assembly on its mounting and reconnect the Switch Link. Switch Assemblies are inverted in present manufacture.

PART NUMBER CORRECTION - CEM # 491

CEM #491, "Removable Keyplates, Model C" contains two incorrect part numbers. Correct as follows:

a. Change "10170, Screw (1 required)" to "38235, Screw (1 required)"

b. Change "1090394, Washer (4 required)" to "257986, Washer (4 required)"

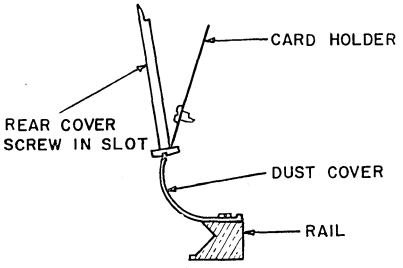
Make the appropriate changes to the 1960 Parts Manual.

POWER ROLLS - CARE IN HANDLING

Occasionally power roll shafts seem to be too large to fit into the power roll bearings. This is the result of tiny nicks or burrs on the shafts caused by rough handling. Light filing of the ends of stubborn shafts will remove this type of flaw and should be tried even if the shaft appears to be undamaged. Use care in handling and storing power rolls to avoid damage.

EASY ADJUSTMENT - LINE GAGE CARD HOLDER

The Model C rear cover screw (PN 1117337) may be used as a lever to adjust the line gage card holder. By inserting the head of this screw in the dust cover slot as illustrated, the card holder can easily be brought away from the platen.



MODEL B PIN FEED LIFT PLATEN BILL OF MATERIALS CHANGE

All Bills of Material for the Model B Pin Feed Lift Platen no longer include margin racks or tab racks. Margin and tab racks should now be ordered separately when ordering these Bills of Material. This change was made because Model C Pin Feed Lift Platen Bills of Material have the same part numbers as Model B Bills of Material and the Model C does not require the margin or tab rack for conversion. All part numbers remain the same.

LINE SPACING FAILURES - 66T RATCHETS

Some line spacing failures on 66T ratchets can be traced to a blunt index pawl. Stoning the point to a sharper edge will aid in correcting this trouble.

Also, for correcting linespace trouble on any ratchet, using the heavy 66T detent spring may help.

REINSERTING PAPER CORRECTLY ON WRITING LINE

To prevent the paper from rising above the writing line when the feed rolls are engaged after reinserting paper, two springs may be installed from the front feed roll shaft to the rear feed roll shaft. These springs should be positioned between the last two feed rolls on each end. Convenient springs to use are the Model A,B, & C cam

lever spring Part #1071318 or the Model 01 typebar spring Part #1090341. The springs will cause the deflector to tip back slightly preventing the paper from buckling in the area of the front feed rolls. Caution: The spring tension must be reduced to prevent the front lips of the deflector from touching the paper. If this is not done, marking of the copies may result.

SERVICE TIP - INSTALLING HARD TO REACH NUTS

When installing a nut in a hard to reach place, the nut may be held in an open end wrench by applying a piece of scotch tape across the jaws.

14 - 16T MOTOR PULLEY STILL AVAILABLE

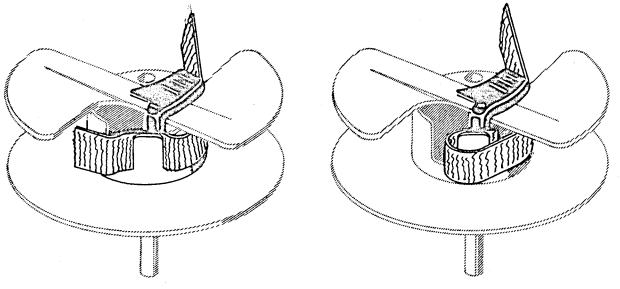
The 14 - 16T motor pulley (PN 1100536) is obsolete but is still available in a limited number. It can be ordered on a regular P & S Requisition.

ORDERING INFORMATION - 13' MOTOR EXTENSION CORDS

Thirteen-foot 2-wire motor extension cords (PN 1261975) must be ordered through Lexington Sales Engineering Department on a "Request for Price Quotation" (RPQ) basis. These cords should not be ordered on a regular P & S Requisition basis.

FABRIC RIBBON - INTERFERENCE WITH R.H. SPOOL GATE

If a customer is using a ribbon without the IBM "Clean Clip" it is suggested that the ribbon be installed as illustrated. This will prevent the loose end of the ribbon from covering the spool gate and causing ribbon reverse failure.



OLD WAY SUGGESTED WAY

SERVICE TIP - COTTON SWABS FOR CLEANING

Cotton swabs of the "Q-Tip" variety may be dampened with IBM cleaning fluid and used for cleaning the inside surfaces of motor and power roll bearings, drive gears, bushings, etc. The swabs eliminate using bulky rags in small places and give good control over the cleaning process. They may be purchased locally on an individual basis.

ASSIGNMENT OF SERIAL NUMBERS TO ELECTRIC TYPEWRITERS

Serial number tags are installed on Electric Typewriters at the beginning of the Assembly Line. This makes it possible to bring together the necessary paper work, type and segment, base and any special features at the start of the assembly process. As the machine passes on down the assembly line each operator's name is placed on a card bearing the serial number, thus making it possible to pinpoint any quality problems to a specific individual. This person is then given the necessary instruction to improve that particular phase of assembly or adjustment.

Since different machines require a different amount of time to pass down the assembly line it is not possible to pin point an Engineering Change to an exact serial number. For this reason only approximate serial numbers are released in CEM's, Bulletins, and News Letters.

CUSTOMER ENGINEERING
CE News Letter

March 17, 1960

SAFETY - SECURE LOOSE END OF GROUND WIRE

On machines with cut and capped ground wires, (CEM 483), the cut wire should be tucked under the motor leads so that it cannot become tangled in the decelerator arm. If the decelerator arm contacts the ground wire, the wire end cap could be knocked off.

EASY ADJUSTMENT - MODEL "C" U-BAR

The following method may be used to adjust the Model "C" U-Bar for equal tripping point:

1. Remove rear top cover.

2. Position typebars in typeguide as per Reference Manual.

3. Using the small socket wrench, approach the U-Bar adjusting screw from the rear of the machine. Place the wrench between the upper right corner of the motor and the bottom of the backspace mechanism to reach the U-Bar adjusting screw.

4. Make adjustment and replace cover.

CEM INDEX CORRECTION AND FILING INFORMATION

CEM #465 was omitted from the "discard" list of the CEM Index dated February 12, 1960. The information in CEM #465 is in the 1960 Parts Manual, so this CEM should be removed from the "Escapement" section of the CEM binder and destroyed.

- - - - - - - -

Occasionally two or more CEM's are at the printer's at the same time on the same area of the machine (for example "ribbon"). When this

occurs, it is difficult to assign filing information as one CEM should follow the other under the same index tab. Every effort is being made to furnish correct filing information for CEM's.

CORRECT ADJUSTMENT - FINAL L.H. MARGIN STOP ECCENTRIC

Occasionally a final L.H. margin stop eccentric screw, Part No. 1072684, may shear off in the margin rack. This may be a result of the final stop taking the force of carriage return when the margin is set at zero and the margin slider pin assembly has failed to bottom in a rack tooth.

To insure this condition does not exist, check machines for the following adjustment:

> "Adjust the final L.H. margin stop eccentric so that the margin slider and pin assembly bottoms freely in the margin rack teeth with the margin set at zero. The margin stop should not be in contact with the final stop eccentric when the margin is set at zero."

Incorporate the above adjustment as adjustment #4, Page 16, of the Model C-1 Section, ET Reference Manual.

EASY REPLACEMENT - MODEL B TAB LEVER

A quick way to remove and replace tab levers in Model B ET's without removing the margin rack or tab rack is as follows:

1. Remove platen and rear cover.

2. Remove R.H. Carriage end cover.

3. Remove margin set finger bracket.

4. Move the carriage to the extreme left beyond the final stop, as in replacing an Executive escapement pawl spring. Without disconnecting either tape, the carriage may be pulled far enough to the left to expose the tab lever horseshoe.

5. Hold the carriage against mainspring tension with your left hand. (Note: one set of front and rear carriage trucks on

each end of the carriage may be exposed enough to be loose or fall out when the carriage is far enough to the left to expose the horseshoe bracket. Before they are completely exposed, a small dab of IBM #17 grease on each truck will hold the trucks in place.)

6. Remove the tab lever assembly mounting screws and tab lever assembly with your right hand.

7. Reverse the above procedure for reassembly.

1960 PARTS MANUAL CORRECTIONS

1. Change Page 61, A & B Section, Reference No 162, from "1073431, link, ribbon feed" to "1100524, link, ribbon feed, with welded clevis". Cross out Reference No. 150, "pin clevis".

2. Change Page 29, C Section, Reference No. 59, from "56722, lockwasher, backspace rack mounting screw" to "55901 (same description)". Washer 55901 provides for easier and more positive adjustment of the 1/45 pitch backspace rack. The former washer became cupped in the rack hole. This change has been made in current production.

3. Add Part No. 1270497 to Pages 33 and 67, A & B Section. This is a B/M for converting Model A leaf-spring mounted type rest assemblies to the current style assemblies.

4. Add Part No. 1071937 to Pages 21 and 55, A & B Section. This is the upper motor mounting grommet for shaft mounted motors.

5. Add Part No. 1270470 to Pages 11 and 44, A & B Section. This is a B/M for replacing Model A double link toggle type C.R. clutch latches.

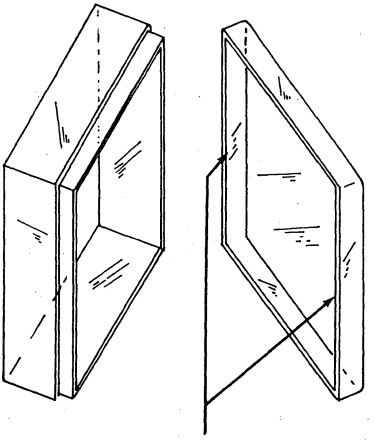
6. Change Page 44, A & B Section, Reference No. 13, from "1071361 Spring, Carriage Return" to "1070079 (same description)".

CARBON RIBBON SUPPLY SPOOL IMPROVEMENT

A slot has been added in the end of the carbon ribbon supply spool mounting bracket (Part No. 1117781), to facilitate removal and replacement of the supply spool assembly when working on the clutch.

QUICK-FIX FOR PLASTIC PARTS BOXES (LOOSE LIDS)

To make plastic parts box lids snap on securely, touch the lids with a soldering iron as illustrated. A tiny notch melted on opposite inside surfaces of the lid makes a snug, snap-on fit. Wear safety glasses when using soldering iron.



Touch these points on inside surface with soldering iron.

In future News Letters the contents will appear on the last page. This change was made to provide space on the cover for "Front Page" news. With the contents consistently placed on the last page, information will continue to be easy to locate.

CONTENTS

CUSTOMER ENGINEERING
CE News Letter

April 5, 1960

CHECK SHIFT TOGGLE PLATE FOR ALIGNMENT TROUBLE

When alignment trouble exists in a machine and the basket seems to be shifting to the left or right, the trouble may occasionally be caused by a loose shift toggle plate link pin. The symptoms of a loose pin are lower case characters crowding next to the upper case characters. The shift toggle plate should be replaced if the link pin is loose.

"NEUTRAL" CARRIAGE RAIL GUARDS ARE COLORED LIGHT GREEN

The carriage rail guards described in CEM #487 as "Part No. 1115112, guard, rail, neutral" are light green in color. Some of these guards have been returned to the Plant due to the belief that the "neutral" guards were colorless.

The light green "neutral" guard is made of a special plastic that can be repainted in the Branch Offices to match any machine. Paint will not adhere properly to guards of any other color.

1960 PARTS MANUAL CORRECTIONS

1. Change Page 16, Reference No. 78, and Page 44, Reference No. 54, Model C Section, from "1118362 - Retainer, grip-type" to "1063797 - collar". Add "1078469, set screw, collar" to these pages. The grip clip shown is not and will not be used on the ribbon feed and reverse shaft. The collar and set screw now used will continue to be used.

2. Change Page 46, Reference No. 132, Model C Section, from "1117831 - Stud, ribbon lift bail" to "1117281 (same description)".

3. Delete Page 8, Reference No. 4 and Page 35, Reference No. 4, Model C Section. The centrifugal governor pin is not available as a field replacement part. Reference No. 2 and 3, same pages, should be ordered if replacement of the centrifugal governor pin is necessary.

4. Change Page 3, Reference No. 75, Model C Section, from "1115798, support, carriage rails, (specify color)", to "1077110 (same description)".

5. Change Page 81, Reference No. 84, A & B Section, from "1100036 - bushing, LH" to "1093560 (same description)".

6. Change Page 3, Reference No. 178 and Page 31, Reference No. 178, Model C Section, from "1117940, screw, hex" to "63324 (same description)". The new screw is used on all ET's above Serial No. 1262691 Standard and 2040072 Executive. It has a larger head to prevent the index pawl lower stop from loosening in the Field.

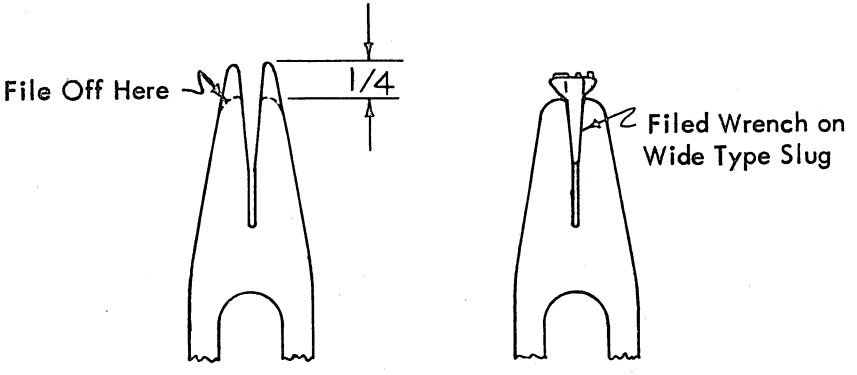
QUICK FIX - OUTER REWIND FLANGE

To temporarily repair a broken plastic grip-lug on the Model C carbon paper outer rewind flange, Part No. 1117820, a paper table gage spring, Part No. 1072853 may be used. Insert the gage spring inside the hub of the spool, where it will act as a temporary lug.

Since the broken flange is seen and used by the operator, it should be replaced with a new flange as soon as possible. Current flanges have been reworked to prevent future breakage.

ALIGNING WRENCH MODIFICATION FOR WIDE TYPE FACES

On 4 and 5-unit characters, the type face is often wider than the type slug, preventing the aligning wrench from grasping the type slug from the rear. The aligning wrench may be filed off 1/4" as illustrated to enable the jaws of the tool to grasp these typebars from the rear.



MODEL C DUAL RIBBON FEED IMPROVEMENTS

A lockwasher, Part No. 56313, has been added between the ribbon rewind button stop and the ear of the keylever bearing support to which the stop mounts. This will prevent loosening of these parts.

MODELS A, B, & C - CARRIAGE LOCKING ON SIMULTANEOUS BACKSPACE AND CARRIAGE RETURN

If the carriage locks up on simultaneous backspace and carriage return, the following adjustments will usually overcome the trouble:

1. Form the backspace pawl guide lug to guide the pawl into the escapement rack with .020" ± .005" between the working side of the pawl tooth and the escapement rack tooth. This increased clearance is being used in current production.

2. Adjust the backspace operating link for 1/4" to 3/8" remaining cam travel after the escapement pawl has dropped into the next rack tooth. This increased choke-off provides more power to overcome lock-ups. Note: Do not make this adjustment on Model C ET's with the old style backspace bellcrank stud or straight link. Change the stud and link first, then adjust for increased choke-off. (See CEM #513 for changing backspace link and stud to the new style parts.)

CORRECTION - ORDERING INFORMATION FOR 13' MOTOR EXTENSION CORDS

The ordering information for 13' 2-wire motor extension cords, Part No. 1261975, was incorrect as stated in News Letter 74. These cords should not be ordered on an RPQ basis as stated in News Letter 74, but should be ordered on a regular Parts & Supplies Requisition from the Lexington Plant.

HIGH USEAGE TYPEBARS

According to current figures, the following typebars have the highest National useage. This list should be helpful in planning what typebars to carry.

Pica - Models A, B, & C

Character	Part No	Character	Part No
A	1076600	C	1076613
S	1076605	R	1076614
E	1076609	O	1076640

Elite - Models A, B, & C

Character	Part No.	Character	Part No.
A	1076544	R	1076588
E	1076553	O	1076584

Executive Modern - Models A, B, & C

Character	Part No.	Character	Part No.
R	1076513	A	1076502
E	1076509	L	1076534
W	1076505	O	1076533
S	1076506	M	1076528

CONTENTS

CE News Letter

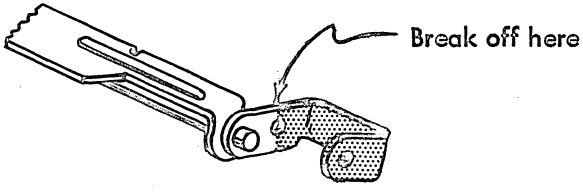
April 29, 1960

CHECK GOVERNOR COLLAR FOR DECELERATOR FAILURE

What may appear to be intermittent decelerator failure (carriage returning hard - no governor action, may actually be a loose governor pinion gear. Both the inner and outer set screws in the governor collar must be tight to secure this gear to the governor shaft. If, in rare cases, slippage occurs with the new style pinned gear, replace the pin with the former style collar, Part No. 1117506, and set screws, Part No. 257969.

EASY METHOD - LIFT BAIL REPLACEMENT

When replacing a ribbon lift bail, Part No. 1100526, on a Model A or B Executive with carbon ribbon only, break off a portion of the R. H. ribbon feed arm, as illustrated.



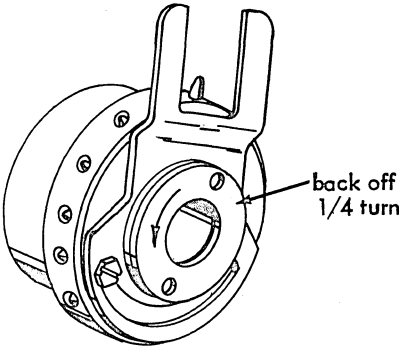
The old one can be broken off in the machine and the new one broken off before installing. The bail may then be removed by loosening the R.H. bail bearing and disconnecting the links and spring.

TOP COVER SPRINGS - GOLD APPEARANCE

Some top cover springs, Part No. 1118769, have a gold appearance on their finish. These springs are not defective. The color is caused by the chromite conversion cycle of the cadmium plating operation.

PIN FEED PLATEN - PINWHEEL BINDS

Sometimes binds occur in the pins of the pinwheel assemblies, Part Numbers 304871, 304872, 1107537, and 1107358. These binds may often be overcome by loosening the inner plate, as illustrated.



This plate is threaded and may be backed off 1/4 turn with gas pliers to open up inside clearances in the assemblies. Caution: Do not remove this plate from the assembly as it is difficult to replace.

EASY METHOD - ALIGNING MODEL C TYPE

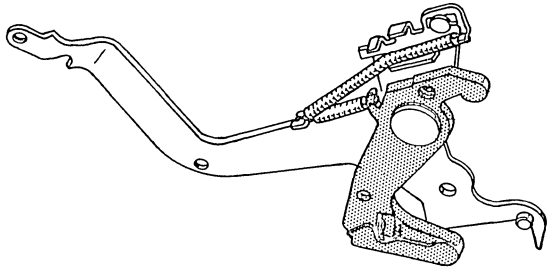
If you have several typebars to align on a Model C, the aligning wrench striking the top cover is annoying and time consuming. The top cover arms are screwed to the inside of the top cover with two screws in each arm. The upper screw on each arm may be removed, making it possible to pivot the top cover on the bottom screws. It will tilt back out of the way, leaving the basket area clear to work on.

CHECK TYPE REST PAD FOR IMPRESSION TROUBLE

Impression and touch problems may be caused by the type rest pad not floating and restoring freely on its spring support. Impression varies because the cam clearance varies with the rest position of the typebar. Check for rubber dust in the area under the type rest resulting from burrs on the inside of the type rest frame assembly. It may be necessary to disassemble the type rest frame and polish the metal surfaces. Surfaces are polished in current manufacture. Make sure the type rest is free-floating on its spring support after reassembly.

TRIP LEVER SPRING COMING OFF - TYPAMATIC OPERATION

Try installing a Model O1 typebar spring, Part No. 1090341, cut to 1 1/2" to 1 5/8" long, as illustrated.



Remove the regular trip lever spring, Part No. 1105906, before installing the longer spring. Caution: A change in touch will result if the new spring is too short.

QUICK LINE LOCK ADJUSTMENT - MODEL C

On Model C ET's equipped with removable keyplates, it is easier to make line lock adjustments from the front of the machine. Remove the keyplate and form the lug on the linelock bar with a T-bender. This saves rear cover removal and clevis adjustments.

PLANT ALIGNING SAMPLE - IMPRESSION CHECKED AT TEN

The last line typed on the plant aligning sample is typed with the impression indicator set at ten. This is done to make sure no cams will hang up on the power roll at high impression settings.

1960 PARTS MANUAL CORRECTIONS

1. Change Page 43, Reference No. 34, A & B Section, from "tape, carriage tension" to "tape, carriage return" for all tape lengths listed.
2. Change Page 17, Reference No. 149, Model C Section, from "1078469 - screw, bristo" to "1077919 (same description)". Make the same change to Page 44, Reference No. 122, C Section. This substitution was made to help prevent loosening of the primary cam.

3. Change Page 28, Reference No. 20, A & B Section, from "1105512 - plunger, repeat" to "1106595 (same description)".
4. Change Page 3, Reference No. 115, C Section, from "1115345 support, margin rack" to "1115322 (same description)". Make the same change to Page 31, Reference No. 68, C Section.
5. Change Page 3, Reference No. 176, C Section, from "1115346 support, universal bar assembly" to "1115323 - (same description)". Make the same change to Page 31, Reference No. 69, C Section.

INDEX

CUSTOMER ENGINEERING

ET News Letter

May 20, 1960

TABLE OF CONTENTS

EXECUTIVE U-BAR ADJUSTING PLATE USED ON STANDARD ET'S

The Executive universal bar adjusting plate, Part No. 1108610, is now being used on all Model C's in production to facilitate adjustment of the escapement trip link clevis. The Executive plate replaced the Standard plate, Part No. 1107812. Make the substitution on Page 9, Reference No. 8, Model C Section, 1960 Parts

Manual. Former style Standard plates will remain available for Field Service until present parts in stock are depleted.

NYLON BEARINGS ADDED TO SHIFT TOGGLE BILL OF MATERIALS

Two nylon bearings, Part No. 1115144, have been added to the shift toggle assembly Bill of Materials, B/M #1263580. Add the part number to CEM #493.

LOCKWASHER REMOVED FROM SHOCK MOUNTED RACKS

Lockwasher, Part No. 56722, has been removed from the Model 11 and 15 rubber shock mounted escapement racks. A shorter screw, Part No. 55726, is now used. Make the change to CEM #478A and Page 9, Model C Section, 1960 Parts Manual.

INSPECTION STICKER MAY BE USED FOR POWER CLEANER

A convenient way to keep track of power cleaner check-ups is to use an inspection sticker, Form #140-6238-3. The sticker may be placed on the power cleaner or inside the service case and marked at each power cleaner inspection.

USE OF TWO-COLOR RIBBONS WITH CORINTHIAN SCRIPT

Two color ribbons are not recommended for use with Corinthian Script type. The tops and bottoms of some characters tend to print in the wrong color due to the height of the characters.

PRICE CORRECTION - CEM 518

New prices have been established for the following parts released in CEM 518, Redesigned Rear Frame. Change CEM 518 to include the new prices.

Part No.	Description	Price
1115169	Frame, rear, stamped steel	2.15
76574	Washer, motor mounting stud	.05
1090254	Spacer, interposer mechanism mounting	.05
1093611	Screw, interposer mechanism mounting	.15
1115100	Frame, rear, stamped steel (for shaft mounted motors)	3.50
38362	Screw, ring clamp	.05

1960 PARTS MANUAL CORRECTIONS

Parts Manual corrections have been printed on a separate sheet for easy insertion in the manual. This will be done from time to time when extensive corrections are listed in News Letters.

1. Escapement racks listed under Reference No. 16, Page 14, A & B Section, are for Model A's and early B's only. Model B ET's above approximate Serial No. 399631 use the following escapement racks and related parts:

Part No.	Description
38279	Screw, tension tape mounting
1090003	Screw, escapement rack
1103540	Escapement rack, 12", 6 - 2/5P
1103544	Escapement rack, 12", 8P
1103548	Escapement rack, 12", 9P
1103536	Escapement rack, 12", 10P
1103555	Escapement rack, 12", 12P
1103559	Escapement rack, 12", 14P
1109807	Escapement rack, 16", 6 - 2/5P
1109808	Escapement rack, 16", 8P
1109809	Escapement rack, 16", 9P
1109810	Escapement rack, 16", 10P
1109811	Escapement rack, 16", 12P
1109812	Escapement rack, 16", 14P

Add the above parts to Page 14, A & B Section. Prices are in the Price List dated April 15, 1960.

2. Change Page 81, Ref. No. 84, A & B Section, from "1100036 - Bushing, L.H." to "1093560 - Bushing, L.H."

3. Change Page 24, Ref. No. 18, A & B Section, from "Reconditioned Stencil Platen Assembly (for Model A)" to "Reconditioned Standard Platen Assembly (for Model A)".

4. Add the following to Page 47, Ref. No. 24, A & B Section:

Part No.	Description
1079895	Model A escapement rack, 1/32, 12"
1079896	Model A escapement rack, 1/32, 16", L.H.
1079897	Model A escapement rack, 1/32, 16", R.H.
1079896	Model A escapement rack, 1/32, 20", L.H.
1079898	Model A escapement rack, 1/32, 20", R.H.

4. (continued)

Part No.	Description
1074059	Model A escapement rack, 1/36, 12"
1074060	Model A escapement rack, 1/36, 16", L.H.
1074061	Model A escapement rack, 1/36, 16", R.H.
1074060	Model A escapement rack, 1/36, 20", L.H.
1074062	Model A escapement rack, 1/36, 20", R.H.
1093730	Model A escapement rack, 1/45, 12"
1093731	Model A escapement rack, 1/45, 16", L.H.
1093732	Model A escapement rack, 1/45, 16", R.H.
1093731	Model A escapement rack, 1/45, 20", L.H.
1093733	Model A escapement rack, 1/45, 20", R.H.

The prices for these parts are in the Price List dated April 15, 1960.

FEED ROLL RELEASE LEVER RETAINING SPRING CHANGED - PIN FEED PLATEN ET'S

The feed roll release lever retaining spring, Part No. 1116291, has been increased in diameter. The formed contour of the spring finger has also been changed. Both changes provide more spring strength for pin feed platen ET's.

CHECK CARRIAGE U-BAR SPRING FOR DEC TAB FAILURES

If a Model C Dec Tab fails to tab properly, the carriage universal bar restoring spring, Part No. 1071499, may be off. Operators sometimes knock this spring off while brushing out their machines. With the spring off, the U-bar drags across the pawl release lever enough to cause tab failure.

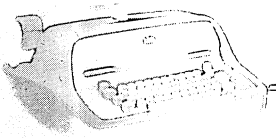
SOUND DEADENER REMOVED FROM SPACEBARS

The foam plastic sound deadening material has been removed from all Model C spacebars. A product test of this material has revealed that no sound deadening results from its use as a spacebar filler.

CLUTCH LEVER ASSEMBLY MAY CAUSE LOCK-UPS

Carriage return lock-up may be caused by distortion of the clutch lever assembly, Part No. 1117481. The vinyl plastic sleeve on the anti-whip guard sometimes presses on the power frame. This pressure may distort the clutch lever assembly. Cut the sleeve tip if it is too long. Present production parts are hardened to prevent distortion. Some machines with the soft lever assemblies have a small outer reinforcing bracket, Part No. 1115942, mounted outside the clutch lever bracket with longer clutch lever mounting screws, Part No. 38281.

CUSTOMER ENGINEERING



CE News Letter

June 3, 1960

PACKAGE PARTS PLAN READY!

HERE IT IS!

Certain small parts are now prepackaged in the quantities you use and supplied in an assortment under one part number!

HERE IS HOW IT WORKS....

You will be supplied with two packets each of the following assortments:

1. Nuts & Clips
2. Screws
3. Springs
4. Springs
5. Springs
6. Springs, etc.
7. Miscellaneous
8. Miscellaneous

Pour one parts packet in each plastic vial in your service case. Keep the other one in your automobile parts chest or wherever you keep your reserve parts.

When you use the last part of one variety in the vial, discard the balance of the other parts - and replace, with your reserve packet.

TO REORDER....

A new reserve packet you merely sign your name on the empty packet - send in with your call reports and the stockroom will send you a new packet.

YOU NEED NOT ACCOUNT FOR THESE PARTS....

Because they are charged to the over-all local CE Operating Statement in the same manner as grease, cleaning fluid, etc. You do not need to list the parts in these packets on any call reports. You don't count these parts in the annual inventory. You can essentially forget about them and yet - - - -

YOU ALWAYS HAVE THE SMALL PART YOU NEED!

IMPORTANT: The specific parts in the packets are the only ones not to be accounted for. All other parts are to be accounted for as usual.

CEM #529 will release all necessary part numbers and ordering information.

CUSTOMER ENGINEERING
CE News Letter

June 17, 1960

TABLE OF CONTENTS

CORRECTION TO CEM #525

B/M 1265134, Margin Control Bellcrank and Stud, was erroneously stated to contain Part No. 1117434, margin control bellcrank mounting stud. This B/M actually contains Part No. 1117425, Margin control bellcrank stop stud. Make this correction to CEM #525.

EASY METHOD — INSTALLATION OF FABRIC RIBBON ANCHOR CLIP SPRING

Did your last fabric ribbon anchor clip spring fly across the room while you were trying to install it? Try this next time:

1. Press the spring in its groove in the ribbon spool and put your segment pick over about 1/3 of the spring.

2. Put the anchor clip over its pivot peg and push it down as far as possible.

3. Push in the free end of the spring with the butt of the small spring hook until the spring is compressed beyond the spring lug on the anchor clip.

4. Push the anchor clip the rest of the way down.

5. Slip out the segment pick and secure the bottom lug on the anchor clip.

Even if you slip while compressing the spring, the spring hook tail will keep the spring from flying out before the clip is in place.

CHECK ALL CAM CLEARANCES AFTER A POWER ROLL CHANGE

When installing new power rolls, all cam clearances should be checked. Some power rolls now in Model B machines are as much as .007" under size. Power rolls should be 1.504" ± .005" in diameter.

CORRECTION TO CEM'S

1. Change CEM #517, Records Section, from "Page 58" to "Page 48".

2. Change CEM #520, Records Section, from "Page 45" to "Page 44".

ORDER BLACK ASPHALT SOUNDPROOFING BY THE FOOT

The black asphalt soundproofing used in deflectors will be shipped by the foot under Part #1115998. One foot of wrapping paper contains five strips of soundproofing. Therefore, if five feet of soundproofing are needed, order "one foot of Part #1115998". This is a CE Maintenance Supply item. It is not for sale and not to be included in inventories.

REMOVING WHITE IBM CLEANING FLUID SPOTS

Sometimes spilled IBM cleaning fluid will cause white spots on linoleum or composition desk tops. These spots may be removed by rubbing them with #6 oil and then with a dry cloth.

QUICK CHECK — PLATEN CLUTCH SLIPPAGE

Draw a pencil line across the platen clutch cover and onto the

rachet. Repeat carriage return for several revolutions of the platen. Even the slightest slippage will show up.

1960 PARTS MANUAL CORRECTIONS

Model A & B Section

1. Add the following B/M numbers for Model A Executive Pawl Block Assemblies to Page 48, Ref. No. 100:

1074055	Pawl block assembly, Model A, 1/32 P
1074098	Pawl block assembly, Model A, 1/36 P
1074289	Pawl block assembly, Model A, 1/45 P

2. On Page 73, the reference number and part number for the eccentric nut which adjusts the front bellcrank latch were omitted. The nut is located on the extreme right edge of the illustration. Its part number is 1100121.

3. On Page 21, change the part number for R & M red nameplate shaft mounted motors from 1107011 to 1107009. This is found in the second block in the left column of the motor chart.

4. Change Page 104, Ref. No. 36, from 1013302 to 1107508.

5. Change Page 62, Ref. No. 62 from 1105691 to 1100065.

Model C Section

1. Change Page 44, Ref. Nos. 131 to 163, from "Refer to carbon ribbon mechanism for descriptions and part numbers" to "Refer to Model C Standard fabric ribbon feed".

2. Change Page 67, Ref. No. 68, from 1117750 to 1076932. Change Ref. No. 86 from 1076932 to 1117750.

3. Change Page 5, Ref. No. 30, from 641 to 1116031. Make the same change to Page 32, Ref. No. 42.

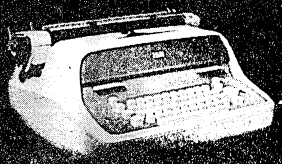
4. Change Page 58, Ref. No. 139, from 1090024 to 1109024.

5. Change Page 72, Ref. No. 34, from 1013302 to 1107508.

April 15, 1960, Price List

1. Change Page 61, Part #1271102, from "Button Set" to "Type Set and Segment".

CUSTOMER ENGINEERING



CE News Letter

June 29, 1960

TABLE OF CONTENTS

NEW MODEL A LIFT PLATENS NO LONGER AVAILABLE

INDEX PAWL CARRIER C-CLIPS STANDARDIZED

1960 PARTS MANUAL CORRECTIONS

EASY ADJUSTMENT - BALANCE CONTROL - TE 611-D TRANSMITTER

The Balance Control must be properly adjusted in order to obtain normal life expectancy and maximum output from the amplifier tubes.

The Balance Control is often maladjusted as a result of mistaking it for the drive control.

Balance Control adjustment may be re-established by connecting the IBM Voltmeter, DC volts scale, between the Screen Grids of the amplifier tubes and adjusting for zero reading.

This adjustment should be rechecked when amplifier tubes are replaced.

Safety precautions as outlined in TE CEM #234 must be observed while making this adjustment.

MAINSPRING IDENTIFICATION, PENDULUM TYPE MASTER CLOCKS

The chart below contains all pertinent information for mainspring identification:

P/N	Mach. Type	Pend. Type	Dimentions Thick	Wide	Long	Torque * Inch/ozs.	Color Code
72865	15-17 18-19 25	Ball or Invar	.007"	.250"	11'0"	7.0/7.5	Red
72866	25	Invar or Merc.	.0075"	.250"	11'0"	7.5/8.0	Yellow
97827	37	Invar or Merc.	.008"	.250"	10'6"	11.5	Blue

*One turn from fully wound position

lock nut of the margin control bellcrank adjusting screw. The screw may now be adjusted without removing the rear top cover. This applies mainly to the Model C Standard machine. Interference caused by the aligning and grouping links reduces the wrench's effectiveness on the Executive.

NEW MODEL A LIFT PLATENS NO LONGER AVAILABLE

Discontinue ordering new Model A lift platens as these parts are no longer available. Order only the universal platens for replacement in Model A typewriters.

INDEX PAWL CARRIER C-CLIPS STANDARDIZED

All three C-clips used on index pawl carrier studs are now Part No. 1073418. This clip replaces two Part No. 123206 clips and one Part No. 147297 clip. The dimensions of the studs on the pawl carrier have been changed to permit this standardization. Because of this, "old style" C-clips should not be used on "new style" studs as the former clips will be too loose and could easily fall off. The Part No. 1073418 clip is the one which is used to hold the index carrier stop arm.

1960 PARTS MANUAL CORRECTIONS

1. The longnose pliers are listed on Page 19, Tool Section, Ref. No. 3, as Part No. 9900104. The correct part number is 460808.

2. Delete Part No. 1116031 and its description from Page 13, Model C Section, Ref. No. 52. The hooded plug and cord assembly is Part No. 1117600, also listed under the same reference number.

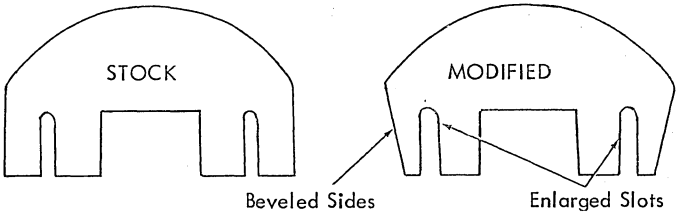
3. Delete all part numbers and descriptions under Ref. No. 34, Page 43, A & B Section. The correct information is as follows:

1103674	Tape, carriage return, 12"
1103675	Tape, carriage return, 16"
1103676	Tape, carriage return, 20"

This correction was erroneously reported in NL #77 as a change in nomenclature only. Be sure to make the part number changes announced here.

QUICK INSTALLATION - UNDERPRINTING SHIELDS

Modify underprinting shields, Part No. 1260385, as illustrated for easy insertion and adjustment.



The beveled sides make insertion easier and the enlarged slot makes vertical adjustment easier after the shield is in place.

IDENTIFICATION CODES FOR LINE SPACE LEVER & CAM ASSEMBLIES, MODEL C

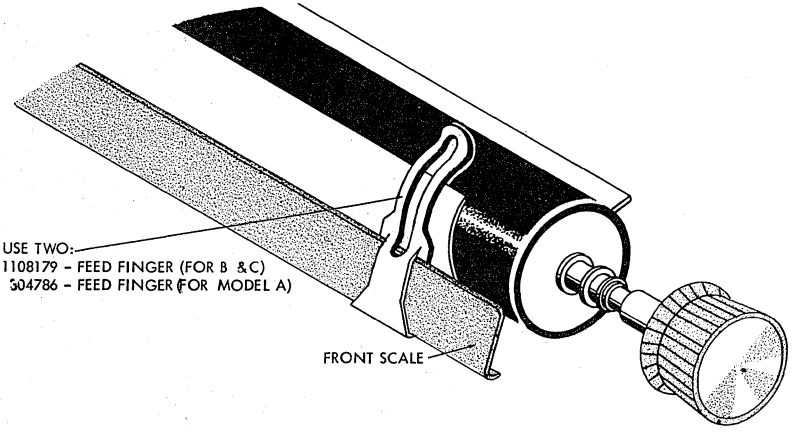
A chart has been prepared for eady identification of line space lever & cam assemblies for Model C's. Compare the number stamped on the cam with this chart for positive identification.

LINE SPACE LEVER AND CAM ASSEMBLIES		
Stamped Code	Part No.	Description
1	1115681	29T(123), 60T(246)
2	1115682	32T(123), 33T(123), 34T(123)
3	1115683	35T(123), 36T(123), 44T(123)
4	1115684	38T(123), 39T(123), 40T(123)
5	1115685	41T(234)
6	1115686	44T(234)
7	1115687	45T(124), 46T(124)
8	1115688	48T(235), 49T(235)
9	1115689	50T(234), 51T(234), 52T(234)
10	1115690	53T(234), 55T(234)
11	1115691	54T(246), 62T(246)
12	1115692	57T(234), 58T(234), 59T(234)
13	1115693	58T(246), 66T(246)
14	1115694	60T(234), 61T(234), 62T(234)
15	1115695	66T(234)

TYPING THE TOP LINE OF STIFF CARDS

Try inserting a feed finger for pin feed platens on each side of the front paper scale as illustrated. Some forming of the finger foot to

fit the scale closely may be necessary to clear any obstruction to a free carriage travel.



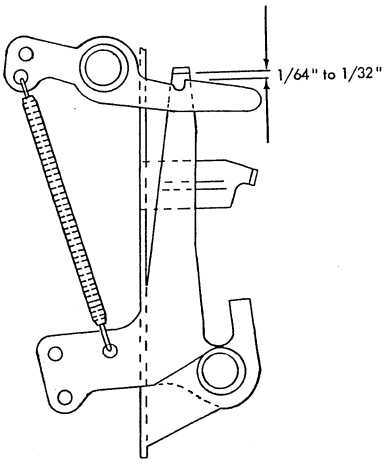
CHECK SELECTOR BAIL FOR EXECUTIVE SHIFT LOCK FAILURES

Shift lock failure on Model C 4's may sometimes be traced to the shift lock lug on the keylever hitting the selector bail. This prevents the lock lug from locking under the shift lock bracket, even if the bracket is correctly positioned. To correct for this condition, form the shift lock lug slightly to the right, away from the selector bail.

EASY METHOD - OBSERVING CLUTCH UNLATCHING LINK ADJUSTMENT

To check the Model C clutch for unlatching during the last 1/64" to 1/32" of the carriage travel, do the following:

1. Hold the carriage to the right.
2. Push the rear of the clutch lever to the left, almost to the latching position.
3. The rear of the clutch latch should clear the upright lug of the clutch lever by 1/64" to 1/32", as illustrated.



IDENTIFICATION CODE - 11 PITCH MACHINES

The fourth digit of the Machine identification Code designates pitch. The pitch code for 11 pitch machines is zero (0). Add this code number to Page 15, Machine Identification Code Section, 1960 Parts Manual.

DEC TAB SET FINGER HITTING CARRIAGE END COVER

When the carriage returns beyond the left margin on Model C Dec Tab ET's, the rear of the L. H. carriage end cover may strike the tab set finger, knocking it out of adjustment. To prevent this condition, position the L.H. carriage end cover far enough to the left to allow clearance between the cover and set finger when the carriage is all the way to the right. The L.H. platen knob and detent release lever may also need to be moved to the left to provide sufficient clearance.

EASY REMOVAL - SMALL PLASTIC PARTS BOXES FROM LARGE BOX

Don't sweat over gripping those small parts boxes to get them out of their partition. Cut "V" notches with diagonal pliers in each partition where parts boxes are stored. Make the notches big enough for your thumb and finger.

EASY METHOD - FEED ROLL RELEASE LEVER INSTALLATION

When installing the new style feed roll release lever, Bill of Material 1271259, the following steps will save time:

1. Move the feed roll release lever to rear.
2. Remove platen.
3. Remove feed roll release lever and right hand end cover.
4. Lift the rear of the feed roll release link and break off rear bellcrank with duckbills and longnose pliers. Snap the rivet out with the duckbills.
5. Install stud #115114 and nut #1090037 through new style bellcrank #115113, then install new style bellcrank on former style feed roll release link.
6. Check to see if the bellcrank clears the tab rack final stop. If it clears, leave the old one in. If it interferes, break the end of old stop, then pull it out the top. To install new stop, push tab fulcrum wire to extreme left, which allows the new stop to slip down with very little interference with the paper bail shaft.
7. Replace the parts removed in steps 2 & 3 and tighten bellcrank screw part #1115212.

SERVICE TIP - DROPPING MODEL C TYPE

Do unpleasant thoughts cross your mind when the typebar links become disconnected from the typebars during type dropping? Next time, remove the keyplate from that Model C. With the keyplate left on the typebars rest against it, but the edge of the keyplate doesn't offer enough support for them and they turn sideways. Poof--no link! Without the keyplate, the bars hang all the way down and "stay put" very nicely.

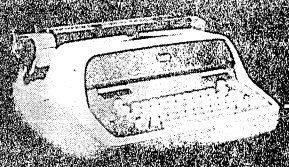
GRIND PLASTIC FEED ROLL RELEASE BELLCRANK WHEN USED ON PIN FEED PLATEN ET'S

The right rear corner of the plastic feed roll release bellcrank must be ground off 1/8" to 3/16" when installing the bellcrank on pin feed platen ET's. An unmodified bellcrank will fail to fully restore because it hits the right hand upright guide of the form guide.

OBSTRUCTION WRENCH MODIFIED

The obstruction wrench, Part No. 9900022, has been redesigned for a greater angle between the shank and socket to permit its use on the

CUSTOMER ENGINEERING



CE News Letter

July 22, 1960

TABLE OF CONTENTS

CHECK LINELOCK BAR SPRING FOR R.H. MARGIN SET TROUBLE

EASY ADJUSTMENT - A & B RIBBON SPOOL RETAINING SPRINGS

QUICK FIX - REPEAT KEYLEVERS

USE PLASTIC BOTTOM PANEL FOR A CUSHION

1960 PARTS MANUAL CORRECTIONS

PEEN FEED ROLL RELEASE LINK FOR GREATER THROW

BE ALERT FOR SHARP RAIL EDGES

CARRIAGE RETURN AND TENSION TAPES COLOR CODED

Model C carriage return and carriage tension tapes are now color coded for easy identification. Colored thread is used to sew them together at the ends. The colors are as follows:

13" - black
17" - red
20" - white
24" - blue
30" - green

ACTUATING LEVER SPRING REMOVED

The fabric ribbon actuating lever spring, Part No. 1090589, Reference 213-72, has been eliminated on the fabric ribbon mechanism because it did not improve operation.

CORRECTION TO CEM #518

CEM #518, Redesigned Rear Frame, contains a typographical error. Reference No. 14 should be Part No. 38262 instead of 38362. Correct this error in the CEM and the 1960 Parts Manual.

CHECK NEW ET'S FOR BASKET BINDING RIBBON DRIVE SHAFT

Some new Model C's have been delivered with the basket binding on the ribbon drive shaft when shifted into upper case. The line has been alerted to this problem. If a bind is occurring, form the bottom of the type rest toward the front of the machine until it clears the drive shaft in upper case.

WASH AIR INTAKE FILTER SCREEN TO PREVENT POWER CLEANER OVERHEATING

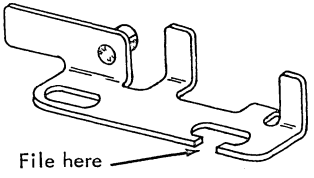
Power cleaner overheating may be reduced considerably by washing the power cleaner air intake filter screen in IBM cleaning fluid. Brushing removes accumulated dirt but does not leave the screen oil free. Degreasing the screen by washing will increase the cooling circulation by as much as 50% and reduce motor cut-off caused by overheating.

PRICE CHANGE - FIESTA RED TOUCH-UP LACQUER

Fiesta Red touch-up lacquer in 1/4 pint cans, Part No. 1280016, has been reduced in price from $2.85 to $.95 per can. Make this correction to the April 15, 1960 Price List.

EASY METHOD - FUTURE MARGIN SET BRACKET REMOVAL

When installing the replacement backspace bellcrank stud assembly, B/M 1271216, also remove the margin set bracket and file a portion from the right screw slot as illustrated. This will make it unnecessary to remove the backspace stud screw when the margin set bracket is removed in the future. By loosening the screw, the margin set bracket can be pivoted past the screw and removed.



QUICK FIX FOR MARGIN SET LEVER JAMMING UNDER CARRIAGE BEYOND R.H. MARGIN

Margin set levers may be easily stopped from jamming under the carriage end plate as follows:

Remove the L.H. tab check lever keeper screw (Part No. 1115735, Page 23, Reference 25). Place any suitable washer under this screw and replace it. The head of the screw being raised by the washer will prevent the margin set lever, which is directly above the screw head, from going low enough to permit the carriage to ride up and over the margin set lever. Engineering has added material to the margin set lever to eliminate this problem.

CLUTCH LEVER BRACKET ASSEMBLY STRENGTHENED

The clutch lever bracket assembly, Part No. 1117841, has been strengthened by the addition of material and by heat treating to a harder degree. This will reduce carriage return failures due to bending of this bracket. The anti-whip guard has been lengthened, eliminating the need for the plastic sleeve. The plastic sleeve will remain available for field use.

CARRIAGE TENSION TAPE PULLEY CHANGED TO NYLON

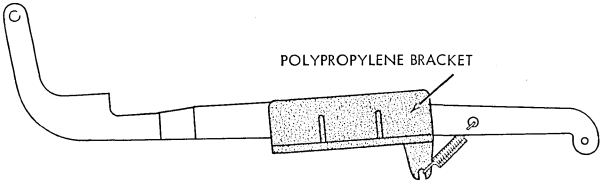
The carriage tension tape pulley, Part No. 1115936, is now made of nylon. It is mounted to the power frame using screw 1115939, nut 1090037, and spacer 1092168. Add the part number of the spacer to mechanism 205 and 305 sections of the 1960 Parts Manual.

IMPRESSION TIPS - EXEC'S USED ON AUTO-TYPISTS

If the typebars fail to print evenly on Executives used on auto-typists, the cause of this problem may be a bind which is caused by the interference of the interposer connecting links and the auto-type connecting links to the keylevers. Interference may be set up by too much side movement where the interposer links connect to the selector bails. This causes the interposer links to come in contact with the auto-type links on either side of the interposer link and restrict the motion of the selector bails, selector bars, etc. This results in a light impression or no impression at all. This problem can be corrected by installing a feed roll retainer clip, Part No. 1110093, on both sides of the interposer link to restrict side movement.

MARGIN SET LEVER BRACKET CHANGED TO POLYPROPYLENE

The margin set lever bracket, Part No. 1115572, has recently been changed to polypropylene. The part number remains the same. To prevent spreading of the polypropylene, washers are now used between the head of mounting screws and the bracket. Add washer Part No. 1091338 to the 1960 Parts Manual.



EASY METHOD - INSTALLING CARRIAGE RETURN TAPE WITHOUT REMOVING COVERS

An easy and positive method to install a new carriage return tape is as follows:

Facing the front of the machine, wind the clutch pulley spring fully and let it slowly unwind until one of the eyes in the pulley is visible from the front of the machine. With the power off, latch the clutch manually. Take new return tape and place the retaining hook of the tape on the pulley in its proper relation. Unlatch clutch and let pulley unwind two revolutions while holding the return tape. This threads the tape around the pulley and through the clutch mechanism properly. Again latch the clutch manually. Take a spring hook and catch the tape on the back side of the clutch pulley and pull the loose end through clutch mechanism at the top of the clutch pulley and thread it through the right hand carriage return pulley assembly. Unlatch the clutch to finish the hook-up, move the carriage all the way to the right and secure the end of the tape in one of the holes in the bottom of the carriage. Then move the carriage to the left, drawing the carriage return tape through the machine. It may then be removed from the bottom of the carriage and installation completed.

ELIMINATING ELECTRONIC SYSTEM INTERFERENCE - TE EQUIPMENT

Many cases of electronic system interference caused by telephone battery charger rectifiers may be eliminated by the addition of a small capacitor across the charger output circuit. The 105-D charger may be effectively silenced by the addition of a one microfarad capacitor across the load. Telephone company personnel are usually cooperative in providing this assistance.

EASY REMOVAL - MODEL A TOP COVER SCREWS

By using the diagonal pliers and cutting off the outside edge of the Model A front feet, the two front cover screws may be removed and replaced without having to remove the front feet. This will save time in future Model A front cover removal.

CHECK LINELOCK BAR SPRING FOR R.H. MARGIN SET TROUBLE

The linelock bar spring, Part No. 1072703 (the small spring under the switch lever), may cause the margin stop to move to the right enough to miss the correct groove in the margin rack as the margin set lever

is released. This would cause the margin to set one space to the right of the desired number.

This spring's tension may be reduced to a point where it will not cause the above trouble. The tension should not be reduced to a point where the linelock bar will not restore.

EASY ADJUSTMENT - A AND B RIBBON SPOOL RETAINING SPRINGS

To quickly move the ribbon spool retaining springs, Part No. 1000159, up or down to adjust spool tracking, carefully form the ribbon feed plate to which the springs mount. This saves cover removal and disassembly. Be careful no binds are created in the ribbon reverse lever stud after any forming adjustments.

QUICK FIX - REPEAT KEYLEVERS

When two-piece repeat, non-repeat keylevers go into the repeat position too easily, remove the keylever compression spring and replace it with a clutch-operating arm spring, Part No. 1072207. This heavier spring supplies a definite "repeat-position" which is more nearly equal to that on the plunger-type repeat keylevers and the Model C repeat keylevers.

USE PLASTIC BOTTOM PANEL FOR A CUSHION

To save the paint on Model C ET's and the finish on desks, place the foam coated bottom panel on the desk or working surface. The ET may then be placed on the panel while the machine is tipped up.

1960 PARTS MANUAL CORRECTIONS

Page 15, Model C Section, Reference No. 13, calls out part No. 1116242 as a tan platen knob. This is a gray knob. "Tan" knobs are Part No. 1116270, described in the Manual as "brown". Also make this change to Page 43, C Section.

PEEN FEED ROLL RELEASE LINK FOR GREATER THROW

Sometimes the feed roll release mechanism will not lock securely in the "release" position. The problem is that the front portion of the feed roll release link does not travel sufficiently far to "lock." This link may be carefully peened, avioding replacement. Removal of the link from the machine is unnecessary. By removing the feed roll re-

lease lever, the back portion of the link may be rotated upward, allowing easy access for peening the front top of the link.

BE ALERT FOR SHARP RAIL EDGES

Installing protective end covers on rails may not eliminate the possibility of operators catching fingers or nails on upper sharp corners of some rails. This can be corrected by rounding the corners of any sharp rails with a file. Most rails have the corners "broken" enough at the Plant, but CE's should be alert to any machines in the Field on which this has not been done. This is being done at the Plant in current production.

CUSTOMER ENGINEERING

ET News Letter

August 30, 1960

TABLE OF CONTENTS

PARTS PACKETS SCHEDULED FOR PERIODIC REVIEW

INDEX PAWL LOWER STOP SCREW CHANGED

FORM DEFLECTOR FOR FORMS TEARING ON ROLLBACK

1960 PARTS MANUAL CORRECTIONS

* * * * * * *

CHECK LIST FOR RED & BLACK RIBBON TRACKING

Many stubborn red and black tracking problems may be overcome by referring to the following list of suggested corrections:

1. Raise the corner guides as high as they will go.
2. Make sure there are no binds in the ribbon lift guide.
3. Move pointer as far back as it will go without hitting the front scale.
4. Take all excess play out of lift mechanism.
5. Make sure ribbon vane is straight.
6. Place a 1/16" shim under the rubber stop on the ribbon lift mechanism.
7. If necessary, cut about 1/8" off the tip of the position 39 cam to bring the underscore into line.
8. Adjust ribbon drag so that it is equal in both directions.
9. If there is a reposition indicator, install a plastic shield to stop ribbon from hanging up on wire.
10. Replace ribbon lift bail spring, Part No. 1074321, with a heavier compression spring.
11. Test ribbon in both directions.

LOUDER BELL FOR MODEL C ET'S

The bell on Model C ET's may be inaudible above office noise. The Model B bell, Part No. 1105753, is louder and may be readily substituted in the Field to provide a louder bell.

B/M AVAILABLE FOR MOTOR CONVERSIONS

All parts necessary to convert Model C ET's from a DC motor to a 115V 60 CPS AC motor are contained in B/M 1270872. The motor itself must be ordered separately. This B/M is available on a regular Lexington P & S Requisition. Add the B/M number to Pages 13 & 41, Model C Section, 1960 Parts Manual.

SAFETY - ADJUSTING INTERMEDIATE PULLEY SHAFTS

The intermediate pulley shaft, Part No. 1106171, is hardened and may occasionally chip when loosened or tightened. Flying chips could result in serious eye damage to the Customer Engineer or to customers should they be standing nearby.

CE's should take some precaution when making this adjustment, such as placing a shop towel over the shaft.

QUICK FIX - MODEL A & B IMPRESSION CONTROL LEVER

When a Model A or B impression control lever breaks, often it is the "stop" that breaks off, making it necessary to replace the control lever. A temporary stop can be made by removing the rear screw, Part No. 38281, from the impression control gear sector cams and shaft assembly, Part No. 1077822, and inserting in its place a Model C ribbon lift bail stud, Part No. 1117281.

REPEAT KEYLEVERS - MODEL C DEC TAB

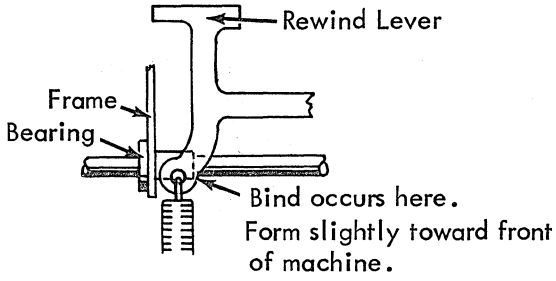
The 2-piece keylever, Part No. 1115040, will work only in the 4th row on Model C Dec Tabs. If repeat keylevers are desired in any other row, the lug must be modified on the 1-piece keylever to provide repeat action. NOTE: This provides a straight repeat action only - NOT repeat/non-repeat. This applies to all positions except 39 and 41, which may be loaded to the tab set bracket.

CARBON RIBBON SUPPLY SPOOL MECHANISMS MODIFIED

An extra form has been added to the carbon ribbon supply spool follower arm to help prevent ribbon spill-off. Also, a hole has been added nearer the fulcrum point of the supply indicator. The follower spring is attached to the new hole to provide more uniform drag on the ribbon from a full-to-empty spool. In addition, the supply bracket is now slotted for easy removal of the supply spool.

CHECK FOR REWIND LEVER BINDS WHEN INSTALLING NEW STYLE RIBBON FEED AND REVERSE SHAFT BEARING

When the new type L.H. ribbon feed and reverse shaft bearing, Part No. 1118191, is being installed, it may be necessary to slightly form the rewind lever, Part No. 1118300, away from the new bearing. The rewind lever may bind on the bearing, causing rapid rewind back to the right (see Figure 1).



(Figure 1)

CHECK POINTS FOR CARBON RIBBON BREAKAGE

Carbon ribbon breakage and creep can be caused by the spasmodic jerking of the take-up spool due to the retaining "C" clip binding on the take-up gear, Part No. 1117833, when the gear is idling. The following measures may help solve this problem:

Polish the surface of the gear to eliminate molding marks and remove .005" from the shoulder of the gear to give a margin of play between the "C" clip and the face of the gear to allow for any distortion of the clip.

E13B FONT - CHANGE IN PART NUMBERS

Make the following corrections to CEM #526, Replacement Parts Section:

Remove the following:

1263754	Bracket assembly, tab lever
1263732	Rack assembly, 17" 1/32 escapement

The above special parts are obsolete and are replaced by the following regular production Executive parts:

1117945	Bracket assembly, tab lever
1115607	Rack assembly, 17" 1/32 escapement

STROKE COUNTER LINK AND BRACKET MODIFIED

The new style margin control bellcrank is too wide at its fulcrum point for machines with stroke counters. It will bind off the former link to the counter and cause piling. Replace the stroke counter

actuating link, Part No. 1014536, with a slightly longer link, Part No. 1000223. This allows the clevis to clear the bellcrank. The counter mounting bracket, Part No. 1118727, has been slightly modified to accommodate the longer link. The bracket must be changed when installing the new link. The part number remains the same. New counter B/M's contain the modified parts.

DEC TAB LEVER ASSEMBLY NOW AVAILABLE

A tab lever assembly especially designed for use in Dec Tab Model C's is now available under Part No. 1118049. It will no longer be necessary to modify Standard tab lever assemblies for use in Dec Tab ET's. The price remains the same.

SHIFT TOGGLE SPRINGS MODIFIED

The shift toggle springs, Part No. 1078049, have been altered by making their loops .005" larger. This was done to prevent possible shift binds due to tight loops. The part number remains the same.

PLATEN LATCH ECCENTRIC LOCKING SCREWS CHANGED TO HEX HEAD

The platen latch eccentric locking screw, Part No. 7040, has been changed from a round head to a hex head. The part number remains the same.

This change was made to allow easier adjustment of the eccentric when the carriage end covers are in place.

EXECUTIVE SHIFT SHIPPING GROMMET MAY NOW BE USED FOR CENTERING

Executive ET's are again being shipped with round shift stop grommets so that operators may use the grommets over the type guide when centering. The clothespin style of the grommet will continue to be used for shipping Standard ET's.

PARTS PACKETS CONTENTS SCHEDULED FOR PERIODIC REVIEW

A number of suggestions have been received from the Field on the contents of parts packets. Provisions have been made for automatic periodic review of the contents of these packets, adding and deleting parts according to nation-wide usage figures and other factors such as

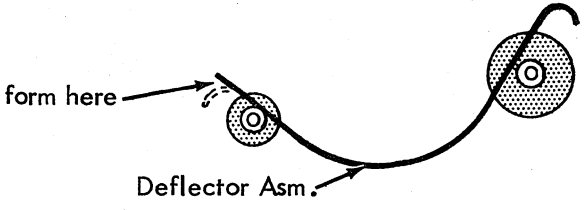
cost, size, new products, etc. Your interest in the Suggestion Program is appreciated, but suggestions in the areas of service techniques and cost reduction will probably prove most fruitful to all concerned.

INDEX PAWL LOWER STOP SCREW CHANGED

The index pawl lower stop screw, Part No. 63324, has been changed to a shorter screw, Part No. 1090845. This was done to prevent the end of the screw from extending through the carriage side frame too far.

FORM DEFLECTOR FOR FORMS TEARING ON ROLLBACK

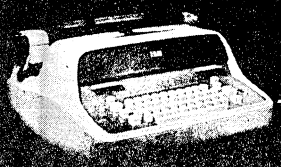
Tearing of continuous forms during rollback may be traced to the form catching on the front lips of the deflector. The front lips may be formed outward as illustrated to remedy this condition. CAUTION: After forming, be sure the front scale clears all obstructions without binding.



1960 PARTS MANUAL CORRECTIONS

Change Page 30, Model C Section, Reference Number 23, from 1090346 to 1090343. This was a typographical error.

CUSTOMER ENGINEERING



CE News Letter

October 11, 1960

TABLE OF CONTENTS

* * * * * * *

RETURN USED UNIVERSAL PLATENS FOR RECONDITIONING

These are urgently needed in the platen reconditioning program since Model A reconditioned platens are no longer available.

GRIP RING, REMOVAL AND INSTALLATION

Safe and easy removal is accomplished by sliding the ring off the end of a shaft. Any attempt to spread will either result in ring damage or cause it to fly off. With a screwdriver inserted between the ring and the part against which it rests, the ring can be slid to the end of

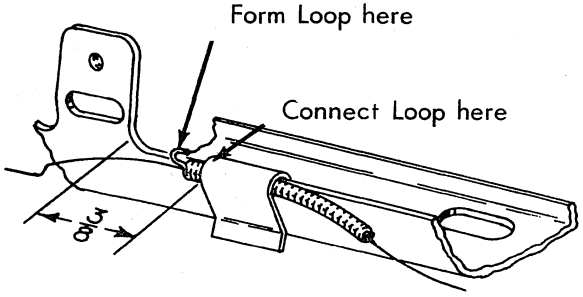
the shaft. A finger held over the shaft end will prevent loss of the ring.

Installation is accomplished by holding the ring (slightly tilted) against the shaft end. An application of pressure to both sides of the ring (fingers or long-nose pliers) will cause it to slide on the shaft.

REPOSITIONING INDICATOR CLIP

If you have service calls due to the repositioning indicator wire breaking, try the following corrections:

1. If the clip (P/N 1110453) does not hold the cable securely, form a loop in the cable as shown in the illustration below.
2. Position the clip 3/8" to the right of the tab on the front rail dust cover (see illustration).
3. Place left end of the outer cable flush with the left side of the retaining clip.
4. Lubricate with #6 oil during each inspection.



FORMSCARRIER RIVETS

A change in customer forms sometimes requires that the slitters be repositioned on the slitter blades. Rivet #1100381 has now been made available to facilitate this change.

RIBBON TRACKING PROBLEMS

When experiencing tracking difficulties, check for worn ribbon lift bails (P/N 1104468). Some obscure tracking problems have been traced to bails worn in the area where the cam tails contact the bail.

RECONDITIONED PLATENS

A request for a reconditioned platen may be filled with either a universal or a standard Model B platen. If a Model A platen is required and a standard Model B reconditioned platen is received, the left hand bushing from a universal platen can be installed. This will enable the standard Model B platen to be used in a Model A. The bushing part number is 1110577.

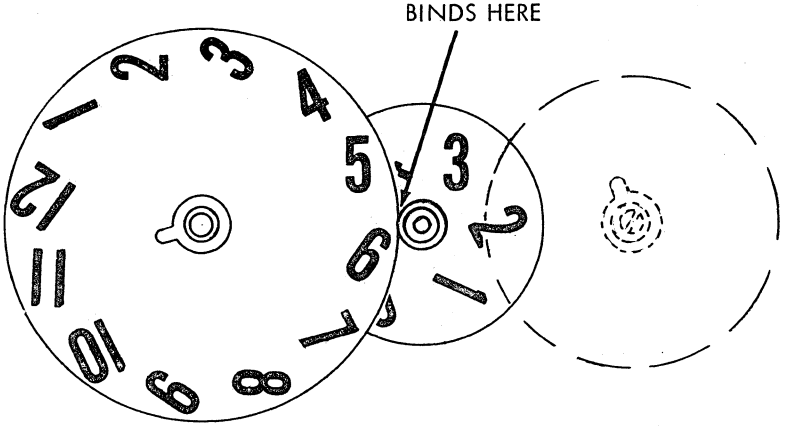
THREE TOOTH SLIDERS

Requests for sliders should be limited to actual requirements for 60 days. These slider numbers are 1116007, 1116008, and 1116010.

INTERMITTENT LOSS OF TIME, 8500 - TE

Intermittent loss of time is often the result of the plastic hours disc binding under the tens disc retaining flange.

This obscure trouble is eliminated by reducing the diameter of the hours disc by approximately 1/32 inch. A file or abrasive paper may be used for this purpose (see illustration).



INDICATING CLOCK CRYSTALS - TE

The use of available compression and/or retaining springs will facilitate installation of oversize or undersize replacement crystals. These springs are available in diameters of .135, .150, and .165 inch. They are listed in the TE Parts Handbook on all pages listing crystals. Their use is as follows:

.150 spring is standard.
.135 is listed as small and is used with an oversize crystal.
.165 is listed as large and is used with an undersize crystal.

MOLYKOTE - TE USE

Molykote is preferable to IBM #17 on synchronous motor cams and other machine areas subject to rust. Its application to operating surfaces should be after thorough removal of all old lubricant.

611 TRANSMITTER RECTIFIERS - TE

The Type 83 Rectifier, Part No. 68260, continues to be a high usage part for Field replacement. It is suggested that the use of the 83 tube should be curtailed wherever possible. In installations in which full transmitter power is not required, the Type 5Z3 Rectifier, Part No. 801916, should be used. In installations in which full power is required, the Silicon Rectifier, Part No. 82769, should be used.

For 611 Transmitters on M.A., the far greater life and dependability of the Silicon Rectifier over the 83 should make the difference in cost a justifiable economy in many cases.

NEWS LETTER CORRECTIONS

Change page 2, News Letter 70, Volt-Ohm Meter (P/N 801907) to Signal Level Meter (P/N 801907).

Change page 4, News Letter 82, carriage tension tape pulley spacer, from Part No. 1092168 to Part No. 1092086.

Change page 4, News Letter 82, margin set lever bracket washer, from Part No. 1091338 to Part No. 1091388.

PARTS MANUAL CORRECTION

On page 52 of the Model C section, 1960 Parts Manual, change character designation of position 41 typebar from !/slash to !/1.

News Letter

October 28, 1960

This News Letter has been devoted almost entirely to passing along helpful hints, service aids, and suggestions from Customer Engineers all around the country.

One category of helpful aids comes from suggestion winners. Another category comes from CE's through correspondence. Other helpful hints come from several other sources and are intended to keep you well informed.

TABLE OF CONTENTS

* * * * * * * * *

CONTRIBUTIONS BY SUGGESTION WINNING CUSTOMER ENGINEERS

J. W. Miller, Minneapolis

Sticking or sluggish typebars can cause the punch clutch to cycle twice giving double punching or repeat punching. If the typebar is slow restoring, the type interlock contacts don't open fast enough. This will allow the punch to start another cycle. If a punched card is in the read station when a typebar sticks it may cause additional punches to operate from holes read by the sensing pins.

K. P. Charron, Pittsfield, Mass.

A possible cause . . . .

Check the tab cam contact air gap if you are getting an intermittent skip of an extra field on card punches. The tab cam contact made too soon and held too long will cause an extra skip cycle. Increasing the air gap may correct this problem.

K. P. Charron, Pittsfield, Mass.

A service hint for use in scoping duo relays 2, 3, 4, 5, 6, and 7 follows: Using a buffer or keyboard entry test tape, enter a zero. Pull relay 218 and depress program start.

The ET will go into a continuous spacing operation. The above duo's will run in a non-functional race allowing you to quickly scope the timing of these relays.

J. W. Butts, San Francisco

Check CEM 52 ! ! ! !

Can you state that you have all these changes recorded as the last sentence of the CEM reiterates? Be sure any changes you have made on any 632 are recorded on the machine wiring diagram index or Page 0-010 of the System Diagrams.

M. A. Endacott, San Antonio

Don't throw away all of your old platens. For 632's that use pin feed platens keep an old standard platen in the machine for use with the functional test tapes. (The end of the machine beneath the print box is a good place.) Often the space between pins is not enough to run complete lines of test typeout. A standard platen is a handy thing to have around in cases like this.

H. E. Massa, Elizabeth

Use an insulated or non-conductive tool to vibrate directly on the electronic gate sockets. Some examples of existing tools are a section of a used "red handle cleaning brush"; type cleaning brush handle or the TE slug tuning tool P/N 74738. Tap the end of this insulated tool with another tool to obtain the vibration.

Teck Speck says: "Don't you be vibrated,
Use tools that are insulated."

J. M. Kiblinger, Miami

A service hint to aid in relieving high resistance in the ET Program Unit is to make sure the windows in the adjusting plate and the crook of the program contact wires are clean. Use a burnishing blade or other sharp tool to clean the windows.

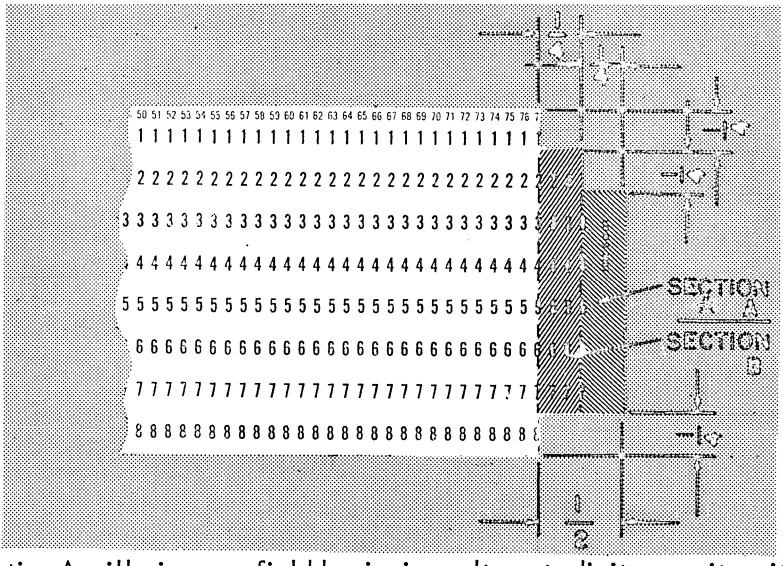
G. R. Arozarena, Cincinnati

Use the 48 V test lamp, P/N 802000 for a continuity check on Program Drum Starwheels.

Here's how: Punch a test program card 12 thru 9 repeated for eight times or to the card end. Place on drum and lower the starwheels. Remove starwheel terminal shields. Place the 48 V test lamp on any starwheel screw, 12 down to 9, and press the release button. You should be able to count 8 flashes of the light. This procedure can be followed for each and every starwheel. This procedure, however, is a continuity check and cannot be used accurately for contact timing or for contact bounce.

J. F. McConnell, Louisville

Use the following aid as a tool for checking keyboard entry, field length and typeout results instead of program tapes. Tear or cut a tab card to the dimensions shown below. Insert over the starwheels and lower the tape lid to hold in position.



Section A will give you field beginning, alternate digit capacity with no punctuation. Section B will give you field beginning, maximum digit capacity, and no punctuation. Since channel 8 is always made there is no need to position the ET carriage for type out of buffer.

A. L. Kelly and C. Bushelon, (DP), White Plains

If you are having trouble with cards sticking or catching between the upper plastic card guide and the metal rail as they move from the punching station, then replace the clear plastic card guide with the new style guide (same as P/N 345644, available from DP). The card will be flattened closer against the card bed.

G. R. Arozarena, Cincinnati

Be certain that the card punch program starwheel contact straps are perfectly straight while cleaning them. Their adjustment is lost if these straps get bent.

M. A. Endacott, San Antonio

A lock up in repeat type out of the same number may be due to excessive rebound of the typebar after falling back against the type rest. The typebar may be in the peak of a bounce when the type magnet is impulsed for the second character and will not allow the cam to contact the power roll. For example: You found a lock up on the third four when the 632 was supposed to have typed $444.40. This may have been caused by this excessive bounce. It may be necessary to increase tension on the type rest spring or to replace the sleeve spring (P/N 1105693).

M. A. Endacott, San Antonio

An aid in visually reading channel punches of program tapes is to cut off the first 2 1/2" to 3" of an old program tape that still has the channel markings on it. Place the program tape over this small guide and move the tape until the desired column is directly over the channel markings of the guide.

J. M. Kiblinger, Miami

Correct CEM #30, Change "IBM P/N 326370" to "IBM P/N 326364". Add to 632 Parts Manual, Capacitor listing, page 9, "326364 .047 mfd. 400 V, 10%" under reference 31.

P. B. Blair and B. L. Erickson, Lexington

Can't reset storage groups and you need a place to start? Try holding 109 latch tripped with your finger for a line of the diagnostic tape.

P. B. Blair and B. L. Erickson, Lexington

Don't throw away the green felt covered shipping blocks when unpacking a 632. They make fine seats and even better knee blocks.

F. A. Papst, Lexington (Formerly Youngstown)

Success has been made on tightening loose duo relay contact points. Use the long nose pliers, but to protect the contact surface place a small piece of mylar program tape between the plier jaw and the contact point.

AIDS SUBMITTED FROM AROUND THE COUNTRY

Brooklyn, New York

Check the wick in the print wire housing of 636's for oil. The wick should be lubricated as per item 3 under Print Wire, page 12-57 of the 632 Reference Manual.

R. V. Dujmich, New York Uptown

Card Punch - Program sensing contacts sometimes wear their surfaces flat and pit or burn one or both surfaces. The source of the arcing may be checked but the point should be replaced. A concave surface can cause variations in make and break timing.

V. Glasspool, Los Angeles Wilshire

If you have a resistor blown in a scale of the Ohmmeter the needle will zero even though resistance may be present in the component being measured.

J. M. Kiblinger, Miami

Corrected a problem when he found a DS unit in an older machine that had the metal center ground pin. A naked wire was shorted to it. Check your DS-12's in the earlier 10000 serial numbers, if you are having troubles.

J. W. McCabe, Washington

The 150 V failures causing the keyboard not to restore, requiring the operator to turn the 632 off and back on may be caused by the RY 1 AL n/o point. Check for arcing or dirt accumulation on the points.

SERVICE HINTS

Loose Diodes

Diodes in all "D" pluggable units should be checked periodically for looseness. Those that may tend to loosen much faster would be those pulled out and snapped back while servicing the machine. The diode clips in the new style "D" unit (Clip snaps through fibre board) will spring back to rest without readily changing the gripping power of the clip jaws when diodes are inserted or removed. The old style diode clips (clip riveted to fibre board in unit) would change the gripping strength after a diode had been inserted and removed a number of times.

PM Schedule

Account for all your inspection dates on the Preventive Maintenance Schedule and Record Card (Form 241-5038-0) kept in each machine. This should be used as the equivalent to an ET Service Sticker. Someone else working in your territory may not know what has been inspected if the record is out-of-date.

Service Aid from 632 Assembly Line, Lexington Plant

We can place a check on borderline program reading by manually holding down R 219. It will not reveal all cases of borderline program reading but is certainly worth trying as a diagnostic technique.

Wire Contact Relay Information

Much apparently contradictory information has been released concerning wire contact relays, although at the time of publication it was accepted as being correct.

To review the latest information, the following excerpts were taken from a letter to all Branch Offices dated June 17, 1960, on the subject of wire contact relays (signed by W. A. Pribble):

"Section 1 of the CE Reference Manual on relays (Form 22-5857-2) gives proper information on what constitutes a good relay. A minimum of adjustments should be made in the Field but under certain conditions some adjustments will be necessary."

"To measure the tension per pair of wires the leaf of the gage should be placed between the wire bracket (insert molded to the armature) and the contact terminal."

"A difference of approximately three grams between the wire bracket and the contact terminal can be experienced by tilting the tip of the blade. An error in reading the gage may also introduce as much as a 1 to 3 gram error in addition to the original 3 grams."

"Because of the less accurate method of reading gram tension in the field, some relays received from the plant may not fall within the 15 to 18 gram category listed in the relay Reference Manual. The Reference Manual lists the tension with the maximum accumulated error with the leaf type gage."

"News Letter #2 listed wire contact tension on new relays as normally being 10 grams. This gram pressure has reference to tension at the tip of the wires (within n/o, n/c contact terminals) and not the reading obtained on a leaf gage between the contact terminal and the wire bracket."

Any time new information on a subject is received, accept it to supercede prior information on the same subject.

* * * * * * * *

Did you know that many 632 parts are now located in Emergency Parts Centers? Check the EPC parts listing for a part needed in a hurry!

TECK SPECK SEZ

When installing RPQ or MES changes that involve wires and taper pins or spade clips, solder the terminals to the wires, always using rosin core solder.

* * * * * * * *

A few mylar program tapes were shipped to the field with a poor bond on the ink markings. Flaking of the ink is a sure sign of one of these bad tapes. A quick check for a bad tape is to flex it sharply and see if the ink loosens.

* * * * * * * *

If you are having troubles between the pick and hold of wire contact relays, check this: Some wire strands may not have been crimped in the pick or hold terminals properly. These loose strands may be shorting the pick and hold terminals together.

* * * * * * * *

If the 159-5 n/o points were shorted, a "one bit" would be added to the multiplier each time the multiplier was being placed in the counter bit relays by type matrix relays. The product of the multiplication would appear as though it received an extra over and over add of the multiplicand.

This failure would not occur, however, if a "one bit" were required in the bit logic of a multiplier digit. Even numbers of the multiplier would cause consistent failures if the 159-5 n/o point was continuously shorted.

This type of failure is not limited specifically to "one bits" in digit logic; it could be caused by "two, four, or eight bits" in the multiplier digit if the 160-5 n/o, 162-5 n/o or the 163-5 n/o were shorted continuously.

For example, suppose the 159-5 n/o point were shorted and the multiplier was a "3". No failure would be apparent in the product of a multiply. The digit 3 requires a "one bit" and a "two bit" in a digit logic. If a multiply were performed with the digit "2" as the multiplier (and the multiplicand were the same) the product of the multiply would be the same as was obtained with the multiplier of "3". The digit "2" only requires a "two bit" but the shorted 159-5 n/o also picks the "one bit" relay causing an extra over and over add of the multiplicand.

Examples of simple and compound multipliers follow:

Multiply a quantity of two times a price of $1.00, supposing the 159-5 n/o were shorted. 2 x $1.00 = $3.00 (an error).

Multiply a quantity of three times a price of $1.00 with the same point shorted. 3 x $1.00 = $3.00 (same as above).

Multiply a quantity of 23 times a price of $1.00 with the 159-5 n/o point shorted. 23 x $1.00 = $33.00.

Try other combinations with 160-5 n/o shorted. This would convert 5's to 7's, 4's to 6's, 6's to 8's, etc. Determine what some results of these point faulures will look like. Some of the failures may be recognized immediately. (Note: Because of the similarity, do not confuse these failures with the type that are discussed in CEM 51A.)

SOME TIPS ON WIRING

Wiring diagrams should be followed when adding special features or making wiring changes in 632's. Cable drawings should be used only for reference, not to plug individual wires by. Wiring diagrams may be more up-to-date than cable drawings. Sometimes it is economically sound to use a supply of cables to an older engineering level when it is only a matter of adding or not using a few wires.

When wiring changes or special devices are made in machines, be neat. The wires should run along cables and down or up to other cables. Don't be a "Cross Wire Willy" and run wires helter-skelter across the gates.

When removing Special Features or changing from one to another, remove the old MES/RPQ completely. There are no instructions in any change to "cripple" parts of a MES/RPQ. All instructions are to remove. This rule must not be violated.

* * * * * * * *

From the Test Lab:

Lightly lubricate the pedestals of duo relays on each inspection.

* * * * * * * *

A quantity of Blue System Diagrams covers were received from the binder manufacturers and are now being released in 632's. The normal color would be ET Green, but due to the urgent need for covers when these "off color" covers were received, the Plant decided to ship them. We will return to green when the blue supply is exhausted.

* * * * * * * *

New wire contact relays shipped recently may exhibit difficulties with the rubber damper bumper moving. These bumpers are prone to unseat when the relay has been shipped upside down. Twelve position relays generally present more trouble than 6 or 4 position relays. If the bumper has shifted it will appear as though the relay n/c contacts were bouncing.

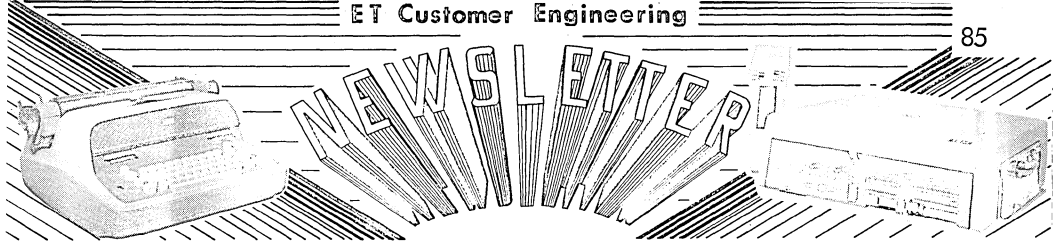
To correct this problem place the thumbs on each side of the armature and force the rubber damper back in place.

BITS TO BITE

You are scoping electronics with the test switch in the off position and no storage selection relays picked. Trigger the scope on a zero pulse, .2 volts/div. and time/div. on 20. You probe test the output obtained at Rp11. Two waveforms appear on the face of the scope, however, the left one of the two has a closed trace. Is this waveform correct? Why? (Answer in next News Letter.)

Answer to Bits to Bite in News Letter #2:

"Read CEM #18 and Form No. 241-5070-0 entitled 'Detailed Preventive Maintenance Procedures for Intermittent Failures - 632 Electronic Typing Calculator' for this information."



November 29, 1960

TABLE OF CONTENTS

* * * * * * *

PARTS PACKET #7, P/N 1280107

A number of these packets were assembled with the old style indicator window, P/N 1117321. These packets should be used and new style windows ordered independent of the packets. Future packaging will include the new style window.

SPECIAL SEGMENT REQUIRED FOR MID-CENTURY TYPE

When ordering a segment for a Mid-Century ET, be sure to order the special 86 character segment, P/N 1115083 or the 88 character segment, P/N 1093921. Other segments will not work with this type style.

Add these part numbers to page 66, A and B Section, and page 50, C Section, 1960 Parts Manual.

EXECUTIVE ESCAPEMENT FAILURE

Check for a loose rail support bracket screw, P/N 1079999 (Ref 302 - 132). A lock washer is now being installed under this screw.

RIBBON CONTROL LEVER, P/N 1071935

Material thickness has been increased in the area of the set screw to prevent set screw strippage. Current production machines incorporate this improvement.

EXECUTIVE TAB SET HINTS

1. Clear all tab stops.
2. Carriage return to margin.
3. Set expand key to expand.
4. Space with the 3 unit spacebar (expanded to 4 units). The tab set can be operated anywhere the carriage stops.

SIGNAL TRACER, P/N 9900160

Because of previous experience with shelf life battery deterioration, signal tracers will be shipped without batteries. Two 1 1/2 volt cells of the same type used in the recently announced Triplett VOM (P/N 9900167) are required. The following or any other equivalent battery will be satisfactory:

Mallory RM - 401R
General EP 671
Eveready 904
NEDA 910

TRIPLETT METER

Test Prod Tips: The tip of the black lead test prod assembly is designed to be removable (see page five of Triplett Instruction Manual). If you prefer that this tip be non-removable, modify as follows:

1. Pull tip from test prod.
2. With a small screwdriver, remove the threaded insert (RH threads) from the plastic insulating tube.

3. Solder the tip to the threaded insert and reassemble the test prod assembly.

Alligator Clips: When either a new meter or test leads are received, the alligator clip may require adjustment. Proper fit to the test prod tip is adjusted by either opening or closing the slot in the alligator clip shank.

MARGIN CONTROL BELLCRANK ADJUSTING SCREW

This screw has been hardened and is now black Du-lite. The old and new parts are interchangeable. Part numbers are as follow:

Old P/N	Price	New P/N	Price
641 - -	$.01	1116031 - -	$.05

SAFETY GLASSES

Do you wear yours? We thought you would be interested in the recent personal experience of a Customer Engineer and his safety glasses.

Ron Hamilton is an ET Customer Engineer assigned to the Kansas City office. In September he was working on a Time Recorder when a "hot" wire accidentally shorted to the backplate. The resulting arc threw small pieces of metallic material into his face. The lenses of his safety glasses were scratched and pitted beyond repair.

Why tell you about it? Because Ron was not injured and was able to continue his normal way of life. There is no bigger booster for safety glasses than Ron anywhere in IBM. Ron says, "As of today, I am a firm believer in safety glasses."

Safety glasses were designed to protect you. They are recommended for use when you are riveting, drilling, removing pins, cutting springs, soldering, and other similar activities. A good rule to follow is to wear your glasses whenever an actual or potential hazard exists. If there is any doubt, wear them.

RIGHT HAND RIBBON SPOOL GATE

Reports indicate that the gate does not always move freely and therefore may not move into the path of the sensing finger. To free up the gate in those cases where the gate pin appears to be too tight in the spool hole, remove the gate, ream out the spool hole with the six flute bristo wrench (#9900102), and replace the gate.

CLEANING TYPEWRITER COVER

Sometimes stubborn stains on typewriter covers won't come off with a regular application of NL Concentrate. Some CE's successfully use

a pencil type eraser to rub these spots gently while the cover is wet with concentrate. If you try this method don't rub so hard that you damage the finish.

FABRIC RIBBON ACTUATING SPRING (P/N 1090589)

In News Letter 82 we advised this spring was eliminated and gave reference #213-72. This should have been reference #213-80 (clutch stop lever spring), same part number.

PARTS MANUAL CORRECTIONS - MODEL C SECTION

Carriage and Rails Section - Standard - page 3, reference 139. Change P/N of screw to 1079999. Add washer P/N 62031. Executive - page 31, reference 132, change P/N to 1079999. Add washer P/N 62031.

Platen Section - Standard page 15 and Executive page 43, reference 2 and 12. Change P/N of screw to 1116388. Standard page 15 and Executive page 43, reference 1 (both sections) - change to "Button, platen vari gray."

Ribbon Section - Standard page 17, reference 120; Dual Ribbon Feed page 20, reference 152; Executive page 45, reference 49 - change P/N of screw to 1115389.

Cover Section - Standard page 6, reference 36; Executive page 33, reference 34 - change P/N of screw to 1090731.

CEM CORRECTIONS

CEM 531, filed under "Space Bar" - change P/N 1116079 to 116079. Change price from $.05 to $.50.

CEM 539, filed under "Safety" - add price of clip, P/N 1115982, $.05.

NEWSLETTER

December 25, 1960

IBM

This is the season when all of us as individuals should review the year that is ending and plan for the year ahead.

I sincerely appreciate your many individual contributions which helped us attain our divisional goals this year. Some of these may have appeared small at the time, but in total they added greatly to our reputation for outstanding service and complete customer satisfaction.

I am confident that 1961 will be one of the best years in our history. However, each of us must continue to put forth his best individual efforts to make this prediction come true.

We sincerely thank you and wish you and your families health, happiness, and prosperity in the coming year.

J E Bon

TABLE OF CONTENTS

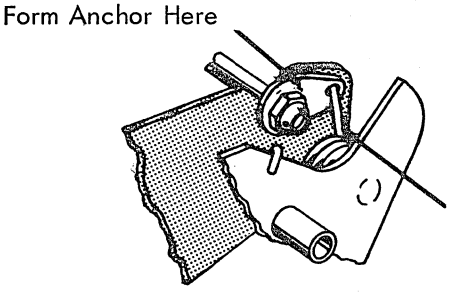
* * * * * *

EMBOSSING PROBLEMS, SIGNET AND PORTFOLIO ELEVEN TYPE STYLES

All machines with the above specifications are now being shipped with a 14 tooth motor pulley and a number 1 platen in order to reduce embossing problems.

SPRING LOADED INNER CARRIAGE TO REDUCE IMPRESSION TROUBLE

The inner carriage on any Model C may be spring loaded to prevent floating. Install P/N 1116137 (L.H.) and P/N 1116138 (R.H.) new style springs and two spring anchors, P/N 1013363, as shown in the illustration below.



The former method of spring loading the inner carriage used a stud, P/N 1115316, and spring, P/N 1115331 (See CEM 532A). Field replacement of this stud is impractical, however, the method shown in the illustration can be used if the stud, P/N 1115316, breaks.

EXECUTIVE ESCAPEMENT PAWL B/M 1270778, 1270779, & 1270780

The B/M's now include eight escapement pawl springs, one escapement pawl pin, and one escapement pawl stop. The price of these B/M's will remain the same until the next general price revision.

REPEAT SPACE BAR, MODEL C

Heavy action of the repeat space bar may be reduced by substituting the Model B repeat plunger spring, P/N 1105514, for the Model C spring, P/N 1115210.

ET MAIN SPRING DRUM ASSEMBLY - ALL MODELS

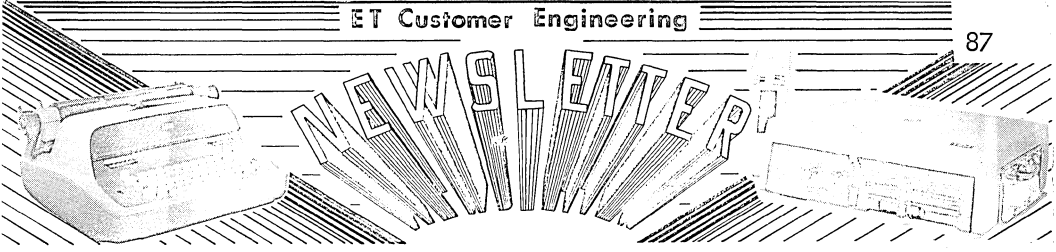
Whenever it is necessary to remove the carriage tension tape from the spring drum, the following suggested safety measure should be observed to prevent possible injuries from the main spring drum.

A 30 inch carriage tension tape #1073036 should be carried in the tool bag at all times to be attached to the next drum lug before removing the typewriter tension tape. In this manner, it will be possible to control the unwinding of the mainspring with no danger of the drum slipping from your grasp.

When the main spring is to be wound up again, it is a simple process to do so by pulling on the extra tension tape. This method assures the same carriage tension as before the main spring was unwound.

CEM CORRECTIONS

CEM 549A, Records Section - change P/N 1090217 to P/N 1092017.



December 28, 1960

TABLE OF CONTENTS

* * * * * *

RADIO INTERFERENCE

If a local radio broadcast is picked up, connect a .005 mfd capacitor between the base of TR-1 and ground. This will shunt the RF signal to ground without affecting the recorded signal. IBM P/N 1132681 may be used.

DOUBLE TALK AT LEFT MARGIN - 211

Occasionally, information from two recorded channels will be reproduced after backspacing completely to the L.H. margin on Models 211 and 213. However, the signal should be clear after the belt rotates 180° or 1/2 revolution, maximum. This should not occur on Model 212.

The belt and lead screw turn at the same ratio, i.e., 1:1. When the carriage is backspaced into the L.H. margin, it is possible for the lead screw to be 1/2 turn from the original starting position of the recorded information. If the transport gear falls to the left side of a lead screw thread, the transport gear will be camming into proper mesh during the first 180° of lead screw rotation.

The transcriber, Model 212, when adjusted properly, will not produce the above condition since the L.H. margin is adjusted .025" further to the left, the follower should be in proper mesh at the start of the recorded information.

MOTOR PULLEY NOISE

A faint popping noise may be noticed as the motor pulley set screw hole contacts the drive belt when running. This results from captive air and may be quickly eliminated by cutting a small vee notch in the rubber drive surface, between the hole and outer edge of the pulley. This vents the hole and, provided the notch is narrow, has no effect on flutter.

BACKSPACE FAILURE

Malfunction of the backspace may occur if the pawl carrier pivot screw is tightened excessively. Check for binds after replacing this screw.

NO OUTPUT

Listening Device:

Check for proper listening device cord. Machines prior to serial numbers 212 - 100425 and 213 - 100210 require cord #1132730. Machines after these serials use cord #1133716.

Cord #1132730 may be identified by the absence of a mark on the machine plug connector. Output is via pins #M-11 and #M-12/13, pins 12 and 13 being jumpered together.

Cord #1133716 may be identified by a small numeral 1 molded on the machine plug between the prongs. Output is via pins M-9 and M-12.

These cords are not interchangeable.

Foot Control:

If the machine in question is above serial number 212 - 100425 or 213 - 100210, check for the new style foot control. A pronounced click will be noticed when depressing the playback side, as compared to the reverse side. With the playback switch down, zero ohms are read between pins M-7 and M-5.

Clutch Contact:

Insufficient rise or a dirty clutch contact results in a loss of signal. If the signal is present at terminal C-10 but not at C-8, check and clean the clutch contact.

On Model 213, if an output is present at C-10 but not at C-14, the reverse contact may be at fault.

LOW AMPLIFIER GAIN

Degeneration or low amplifier gain may occur by as much as 60% while all resistance, voltage, and current readings check normal. Generally, this is the result of an open capacitor in an emitter circuit. For a quick check when this condition is encountered, bridge the emitter capacitors, one at a time, with a known good capacitor. Since results are dramatic, the capacitor may be held in place while checking, eliminating soldering and resoldering.

CARRIAGE GUIDE RAIL

When replacing the guide or guide rail on the early demonstrator machines, both rail and guide must be changed. A reduction on rail thickness is noticed. Part numbers remain the same since old style parts are not available.

MICROPHONE HANGER AND MOUNTING BRACKET

When replacing the microphone hanger on the early demonstrator machines, both the hanger and its bracket must be replaced. The mounting slot of the hanger was moved up and no longer appears as illustrated in the July 1960 parts catalog. Part numbers remain the same since old style parts are not available.

TEST BELTS

IBM Executary test belts are available on the red oxide belt only. This material has been found satisfactory for test purposes.

As a result of recording the first test belts by hand, several reports have indicated that the three test signals were slightly out of phase. Retuning was required between signals. Improved manufacturing techniques have corrected this condition.

SPEEDY SPEED CHECK

Using the IBM Magnabelt, count the number of flashes as the belt revolves over the indicator lamp. On Model 211, approximately 80 flashes per minute should occur. For Models 212 and 213, 76 flashes at the slow speed and 84 flashes at the fast speed position should occur per minute.

If you wish, reduce these figures 1/2 for a 30 second check, however, do not expect as accurate results.

BELT INDICATION LAMP REMOVAL

Insert a Model C Decimal Tab rubber bail stop, P/N 1118139, in the socket of the 5/16" nut driver. The driver will now firmly grip the tip of the lamp for removal or replacement. Support the bottom of the socket to prevent lamp misalignment.

LISTENING DEVICE IDENTIFICATION

In order to quickly identify your listening device from the operator's, mark it with your initials or a stripe of paint.

CORRECTIONS

IBM - 210 Reference Manual, page 18A, terminal C-8 between the speaker switch and reverse contacts should be changed to read C-14. Also, the terminal between the output transformer and the clutch operating strap should be labeled C-10.

IBM - 210 Parts Catalog, page 2, illustration reference numbers only: Reference #56, a nylon washer to the left of the flywheel bearing #78 should be changed to read #57. Reference #59, same location, should be changed to read #56. Also, reference numbers 57 and 59 appearing to the right of the bearing assembly should be transposed.