

TO: ALL CUSTOMER ENGINEERS

The attached News Letter is intended to replace all News Letters issued since the announcement of the Model C in January, 1959. All information considered pertinent at this time has been grouped by mechanism for your convenience. This should be particularly helpful to new Customer Engineers who have not received back issues of News Letters.

Every effort has been made to reduce the number of items in this publication. Most Parts Manual corrections have been deleted since it is assumed that the changes were made upon receipt of the original News Letters involved. Technical items have been omitted if they no longer apply or have been included in other publications. Those items considered helpful to a majority of the Customer Engineers have been retained.

The 1961 issue of the ET Parts Manual will make possible a still further reduction in the quantity of News Letters required.



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BACKSPACE 201

C - STANDARD BACKSPACE BELLCRANK IDENTIFICATION

Standard Model C backspace bellcranks are now being marked for easy identification as indicated below:

6 2/5, 8 & 9P	Marked with a <input type="checkbox"/>
10, 12P	Marked with a <input type="radio"/>
14P	Marked with a <input type="triangle"/>

The symbol is located on the vertical portion (left side) of the bellcrank.

BACKSPACING ON ROBOT OPERATED ET

For increased efficiency and speed when underscoring on a robot-operated typewriter, the underscore can be made into a dead or non-escaping typebar. This is done by removing a portion of the typebar where it contacts the U-bar.

BACKSPACE ADJUSTMENT

When adjusting backspace it may be necessary to have more than 1/4" of travel left on the backspace cam when the backspace pawl contacts its stop. The operating link should be shortened until the ET will reliably backspace all the way to the left margin.

CARRIAGE & RAILS 202

IDENTIFICATION CODES FOR LINESPACE LEVER - MODEL C

A chart has been prepared for easy identification of linespace levers for the Model C. Compare the number stamped on the lever cam with this chart for positive identification

<u>Stamped Code</u>	<u>Part No.</u>	<u>Description</u>
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)

EXCESSIVE SIDE PLAY - INDEX PAWL CARRIER

Side play can permit the pawl carrier to latch under the upper stop arm and fail to restore. This shows up as linespace trouble. The solution is to add a spring washer, P/N 1072477, between the carriage side frame and the index pawl carrier.

INDEX PAWL CARRIER C CLIPS STANDARDIZED

All three C clips used on index pawl carrier studs are now P/N 1073418. This clip replaces two P/N 123206 clips and one P/N 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 P/N 1073418 clip is the one which is used to hold the index carrier stop arm.

INDEX PAWL LOWER STOP SCREW CHANGED

The index pawl lower stop screw, P/N 63324, has been changed to a shorter screw, P/N 1090845. This was done to prevent the end of the screw from extending through the carriage side frame too far.

IMPROVED C BAIL - ABOVE STD #1163613 & EXEC #2017893

The Model C paper bail pressure arms have been modified to insure restoring of the paper bail to its rest position. The camming surface of the left and right hand spring-loaded pressure arms have been modified as shown in the illustration below. The bail arm rollers have been slotted to keep the pressure arms on the roller. Part numbers of the pressure arms and paper bail arms remain the same.



**MODIFIED CAMMING
SURFACE**

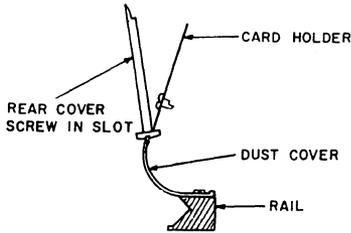
MULTIPLE COPY CONTROL OPERATION IMPROVED

The platen guide detent, P/N 1115250, has been modified to provide increased travel when the lever is moved to the B and C positions. The modified part may be installed in earlier machines.

EASY ADJUSTMENT - LINE GAGE CARD HOLDER

The Model C rear cover screw (P/N 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.



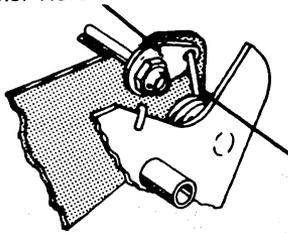
CARD HOLDERS

Installation of Model C card holders on Model B ET's with new front rail dust covers will help to hold small cards more firmly against the platens.

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.

Form Anchor Here



P/N 1116137 or
1116138, spring

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.

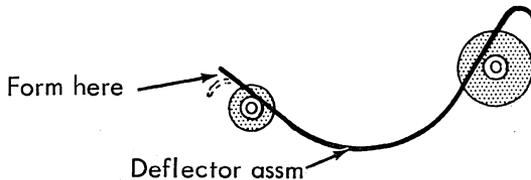
REINSERTING PAPER CORRECTLY ON WRITING LINE

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, P/N 1071318, or the Model 01 typebar spring, P/N 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.

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.

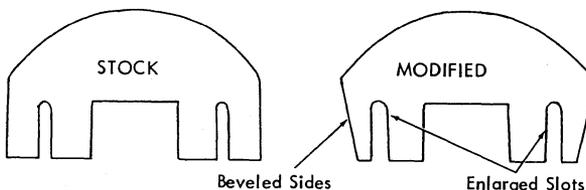


PEEN FEED ROLL RELEASE LINK FOR GREATER THROW

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, avoiding replacement. Removal of the link from the machine is unnecessary. By removing the feed roll release lever, the back portion of the link may be rotated upward, allowing easy access for peening the front top of the link.

QUICK INSTALLATION - UNDERPRINTING SHIELDS

Modify underprinting shields, P/N 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.

EASY METHOD - FEED ROLL RELEASE LEVER INSTALLATION

When installing the new style feed roll release lever, B/M1271259, 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 P/N 1115114 and nut P/N 1090037 through new style bellcrank P/N 1115113, 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 P/N 1115212.

ORDER BLACK ASPHALT SOUNDPROOFING BY THE FOOT

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

LOOSE REPOSITIONING INDICATOR LEVER MOUNTING SCREW

A thinner washer, P/N 1090222, is now used in place of repositioning indicator lever washer, P/N 1090269, under the repositioning indicator screw, P/N 1110241. This permits crimping of the screw threads after installation to prevent loosening.

CARRIAGE RETURN 203

MARGIN CONTROL BELLCRANK REPLACEMENT

When replacing the margin control bellcrank P/N 1117433, the mounting stud P/N 1117434 and mounting nut P/N 1090037 should be adjusted so the bellcrank, while still free to rotate, has a minimum of side play. Because of manufacturing specifications the

shoulder of the stud is .050" long while the thickness of the bellcrank is .062". From this it can be seen that tightening the stud completely will bind the bellcrank. The correct procedure is to adjust the stud for proper side play of the bellcrank and then tighten the stud lock nut.

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 P/N 1117425, margin control bellcrank stop stud. Make this correction to CEM #525.

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	24" - Blue
17" - Red	30" - Green
20" - White	

RETURN TAPE - CARRIAGE

If clutch pulley tension spring fails to keep proper tension on carriage return tape during operation, it might be caused by interference of switch operating link with the clutch pulley assembly. Reposition link by forming.

CARRIAGE RETURN TAPE WEAR - ANTI-WHIP GUARD SLEEVE

A polyethylene sleeve P/N 1263965 is available for field installation on the anti-whip guard of the clutch lever bracket. The sleeve will eliminate the possibility of the return tape whipping out from under the guard and becoming frayed.

CLUTCH LEVER ASSEMBLY MAY CAUSE LOCK-UPS

Carriage return lock-up may be caused by distortion of the clutch lever assembly, P/N 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.

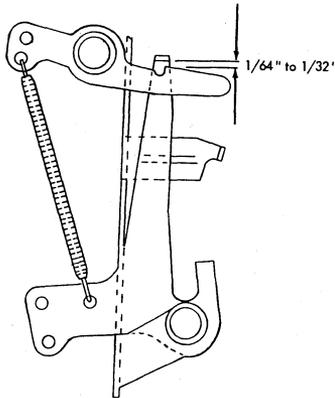
CLUTCH LEVER BRACKET ASSEMBLY STRENGTHENED

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.

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.



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 power roll shaft to contact the insert, thereby reducing clutch pressure.

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.

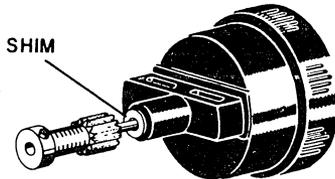
MARGIN CONTROL BELLCRANK ADJUSTING SCREW

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

<u>Old P/N</u>	<u>Price</u>	<u>New P/N</u>	<u>Price</u>
641	\$.01	1116031	\$.05

DECELERATOR - GOVERNOR 205

CENTRIFUGAL GOVERNOR BINDING



Occasionally the centrifugal governor bronze shaft bushing is assembled too far into the governor housing, causing the pinion gear to bite into and bind on the governor housing. This results in retarded carriage movement and type crowding.

This condition can be overcome by placing a thin shim #1090058 between the gear pinion and the governor housing.

INSUFFICIENT SIDE PLAY - CARRIAGE RETURN & TABULAR DECELERATOR ARMS

The Model C1 Reference Manual Section (form 241-5002-0), page 25, outlines adjustments for positioning the spring clutch collars on the shaft to allow the decelerator arms to rotate freely without exceeding .003" end play on this shaft. Overall play in the shaft is given as .003" also.

Plant tests conducted on defective assemblies returned to Lexington indicate that these tolerances may be incorrect. The correct tolerances are .003" to .005" on both the spring clutch collar and the end play of the shaft. The Reference Manual is to be changed accordingly.

When making these adjustments check for interference between the drum gear assembly and the centrifugal governor collar.

POSITION OF CARRIAGE RETURN SPRING CLUTCH CLAMP PART NO. 1117571

Failure of the decelerator to operate properly on carriage return can often be traced to the position of the decelerator spring clamp on the spring clutch. This clamp should be positioned so as to overlap the decelerator hub assembly, P/N 1117570, by 1/16".

ARM MOVEMENT IN RESTORING - CARRIAGE RETURN AND TAB DECELERATOR ARMS - BELOW STD SERIAL 1228698 AND EXEC SERIAL 2032766

Reports have indicated that the clutch springs may be too long. This can restrict the movement of the decelerator arms. If this problem cannot be corrected through increasing the side and end play adjustments previously mentioned, the offending clutch spring should be replaced.

The ends of the spring clutches nearest the decelerator arms may have sharp ends which retard arm movement. Stoning or careful forming will correct this.

BINDING ON CARRIAGE RETURN - BELOW STD SERIAL 1228698 AND EXEC SERIAL 2032766

In a limited number of decelerator assemblies of recent manufacture the chamfer on the decelerator hub assembly, P/N 1117570, has been excessive. The amount of chamfer should be held to .005" but in some cases it was found that some have approximated .014".

A bind in the carriage return decelerator cam arm, P/N 1117568, can be caused by a loop of the carriage return spring clutch that is allowed to drop into the excessive chamfer.

Binds may also be caused by chips becoming dislodged from a chipped chamfer edge which lodge under the carriage return spring clutch. Erratic deceleration on carriage return and failure of the carriage return decelerator arm to restore are symptoms of this. The tolerances between the spring clutch and their operating surfaces are very small. Almost any amount of foreign material in this area will cause a bind.

If either of these conditions is a problem, remove the hub assembly P/N 1117570 and the spring clutch. Carefully clean the spring and its operating surfaces; lubricate with molycote; and reassemble. If the hub is suspected, replace it.

DEFECTIVE BRISTO SET SCREWS, P/N 257969

Bristo set screws, P/N 257969, used to hold the decelerator hub and collars, may be found difficult to loosen and tighten. This is because of broken splines in their heads. Replace them with acceptable set screws of the same part number.

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.

CARRIAGE TENSION TAPES

To prevent carriage tension tapes from coming off the tension tape pulley, a C clip (P/N 60488), or a grip clip (P/N 1115058), may be installed to the rear of the pulley on the power frame boss.

CARRIAGE TENSION TAPE PULLEY CHANGED TO NYLON

The carriage tension tape pulley, P/N 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.

ESCAPEMENT 206

TYPE PILING

Occasional type piling may be caused by the escapement trip link clevis. If the clevis is too tightly closed, it will grip the escapement "U" bar during spacebar operation instead of sliding in the elongated slot. This prevents the trip lever from restoring, causing an occasional condition of piling.

TYPE PILING - CLUTCH PULLEY BINDS

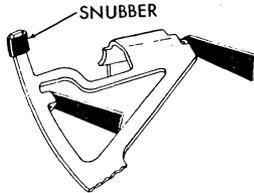
Occasional type piling may sometimes be traced to the switch operating link binding on the clutch pulley assembly. To correct this condition, invert the switch assembly on its mounting and reconnect the switch link. Switch assemblies are inverted in present manufacture.

INTERMITTENT TYPE PILING

Intermittent type piling can be caused by the tab decelerator bellcrank P/N 1117428 catching on the tab rack spring guard screw heads. This may be corrected by careful forming of the bellcrank toward the front of the machine.

ADDITIONAL "C" NOISE REDUCTION

A small plastic snubber (P/N 1118848) is now used on the ends of the universal bar to reduce the ringing noise of the U-bar as it strikes the rear of the segment. This improvement is now going into all C's above approximate Standard serial #1163613 and Executive serial #2017893.



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 S/N 1246128 if hanging up cannot be cured by minimizing escapement lever overthrow.

ESCAPEMENT PAWL WEAR, PART #1117961 & 1117962

Changes in the hardening process of the escapement pawl and escapement rack were made in all machines after serial #1164288. If escapement pawl wear occurs on machines below this serial number, the escapement rack must also be replaced or the trouble will recur.

EXEC U-BAR ADJUSTING PLATE USED ON STD ET'S

The Executive universal bar adjusting plate, P/N 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, P/N 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.

EXECUTIVE ESCAPEMENT PAWLS

All Executive escapement pawls should be washed before assembly. This applies with new parts as well. Some escapement failures, immediately after the installation of new parts, have been traced to sticky pawls.

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

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

EXECUTIVE ESCAPEMENT FAILURE

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

KEYBOARD LOCK & BELL 209

OVERPRINTING AT RIGHT MARGIN

If a timing condition exists between the operator and the machine, at the right margin, replace the rear linelock link #1117450 with a spring. This can be made by cutting a 1 1/4" piece from a type-bar rest pad spring #1105694.

In many cases an operator will release a key at the time when the linelock bail contacts the keylever. This partially depressed keylever will prevent the linelock bail from operating and permit overprinting.

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.

QUICK LINELOCK ADJUSTMENT - MODEL C

On Model C ET's equipped with removable keyplates, it is easier to make linelock 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.

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.

MODEL B BELL - INTERFERENCE WITH CARRIAGE

If the leather washer under the Model B bell stretches and rides partially over the stud the bell will become cocked. This may cause

the carriage to hang up on the bell. The leather washer may be removed without appreciably changing the tone of the bell.

MARGIN 210

CORRECT ADJUSTMENT - FINAL L.H. MARGIN STOP ECCENTRIC

Occasionally a final L.H. margin stop eccentric screw, P/N 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.

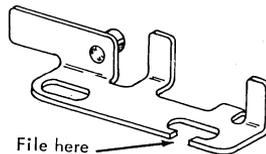
To insure this condition does not exist, check machines for the following adjustment:

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 C1 Section, ET Reference Manual.

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

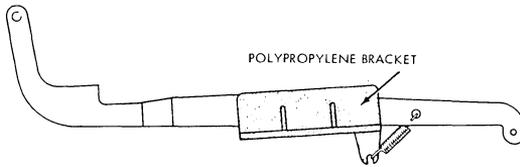
Margin set levers may be easily stopped from jamming under the carriage end plate as follows:

Remove the L.H. tab check lever keeper screw (P/N 1115735, page 23, reference 25, 1960 Parts Manual). 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.

MARGIN SET LEVER BRACKET CHANGED TO POLYPROPYLENE

The margin set lever bracket, P/N 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 P/N 1091338 to the 1960 Parts Manual.



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

The linelock bar spring, P/N 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.

IDENTIFICATION OF MULTI-TOOTH MARGIN STOP SLIDERS

10 pitch and 12 pitch multi-tooth margin stop sliders may be identified by observing the tooth formation as illustrated below.



12 PITCH



10 PITCH

MOTOR & DRIVE 211

14 - 16T MOTOR PULLEY STILL AVAILABLE

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

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.

POWER ROLL DATE CODING

The plant is now date coding all power rolls. Coding on power roll P/N 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 12-0 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.

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 (P/N 1117592) is also no longer necessary with the hooded plug. Future orders for P/N 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 & Drive index tab in the CEM binder outlines this procedure.

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.

PARTS MANUAL CORRECTION

Intermediate pulleys now being shipped use the former part number 1100552. Correct CEM 528 and Model C Parts Manual pages 13, reference 211-19, and 41, reference 311-18, to reflect this change.

PLATENS 212

REMOVING PLATEN VARIABLE BUTTON - MODEL C

The utilization of the smooth side of a cog belt makes the removal of the Model C platen variable button an easy matter. This is accomplished by wrapping the belt around the button and gripping the belt in the same manner used to loosen the centrifugal governor cover.

LINESPACING FAILURES - 66T RATCHETS

Some linespacing 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.

QUICK CHECK - PLATEN CLUTCH SLIPPAGE

Draw a pencil line across the platen clutch cover and onto the ratchet. Repeat carriage return for several revolutions of the platen. Even the slightest slippage will show up.

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.

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.

It is imperative that all available used universal platens be returned to the plant for reconditioning since reconditioning of Model A platens has been discontinued.

PLATEN VARIABLE LOCK WASHER

A lock washer, P/N 1116023, has been added under the platen variable button to prevent it from working loose.

FABRIC RIBBON 213

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 in 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 repositioning indicator, install a plastic shield to stop ribbon from hanging up on wire.
10. Replace ribbon lift bail spring, P/N 1074321, with a heavier compression spring.
11. Test ribbon in both directions.

UNEVEN TRACKING

This condition can be corrected by lengthening the ribbon lift operating link slightly to insure that all cam levers will straighten the ribbon lift toggle. Those which are already doing so will only cause it to go slightly past center without raising the ribbon further.

Lengthening the ribbon lift operating link may raise the ribbon lift off its vinylite stop. It may become necessary to shim up the stop to allow the lever to rest on it. The adjustments of the ribbon lift guide clevis and the rear lug of the repositioning plate should be rechecked after adjustment for even tracking.

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.

FORMING REAR LUG ON RIBBON LIFT MECHANISM POSITIONING PLATE

The rear lug on the ribbon lift mechanism may more easily and accurately be adjusted by moving the carriage to the left and inserting the small T-bender down through the rails.

This adjustment is made for purposes of ribbon lift limitation.

FABRIC RIBBON CLEAN CLIP

If intermittent ribbon feed failures occur, check the clean clip. It may be rubbing against the top cover.

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. Note: A stronger anchor clip spring is used on machines above approximate serial #1240471. Part number remains the same.

RIGHT HAND RIBBON SPOOL GATE

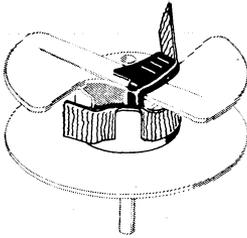
Reports indicate that the gate does not always move freely and therefore may not move into the path of the sensing finger. To free up the gate in those cases where the gate pin appears to be too tight in the spool hole, remove the gate, ream out the spool hole with the six flute bristo wrench (#9900102),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

ACTUATING LEVER SPRING REMOVED

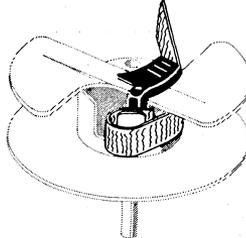
The fabric ribbon actuating lever spring P/N 1090589, Reference 213-80, has been eliminated on the fabric ribbon mechanism because it did not improve operation.

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.



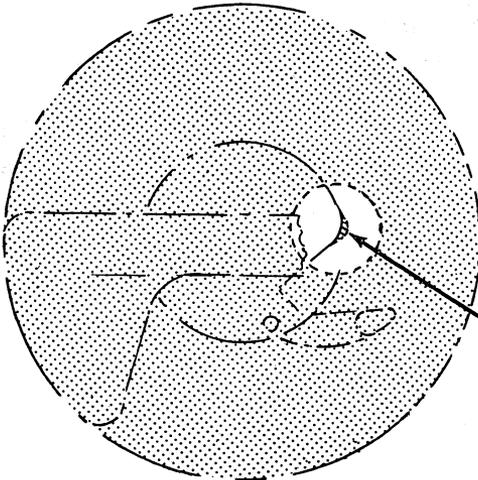
OLD WAY



SUGGESTED WAY

MODIFICATION OF RIGHT HAND PLASTIC RIBBON SPOOL

The hub of the spool has been relieved in the area on which the sensing finger rides just prior to entering the gate. This will cause the gate to be forced open insuring ribbon reverse. Former style spools may be similarly relieved with a pocket knife (see illustration).

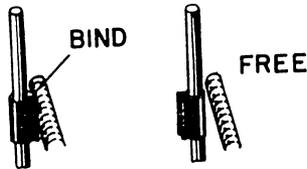


Lined Area Has Been Removed

RIBBON REVERSE FAILURES

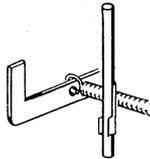
When installing clip #1110093 on the L.H. sensing finger shaft, care should be exercised to insure that the open portion of the clip faces toward the outside of the machine. Failure to do this can

result in a bind in the sensing finger thereby preventing ribbon reverse. The bind is caused by the clip contacting the sensing finger spring, P/N 1107794.



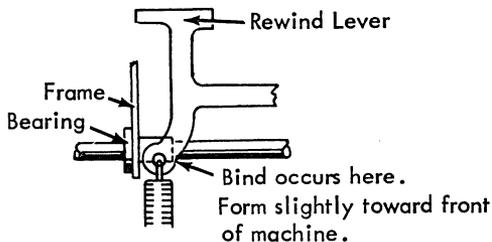
MODIFIED GRIP CLIP - L.H. SENSING FINGER SHAFT

A modified grip clip, P/N 1115123, for the L.H. sensing finger shaft is now available. The new clip is designed to prevent any interference between the clip and the sensing finger spring. When the modified grip clip is installed, the sensing finger spring must still be hooked over the top of the bracket as illustrated to prevent interference.



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 P/N 1118191 is being installed, it may be necessary to slightly form the rewind lever P/N 1118300 away from the new bearing. The rewind lever may bind on the bearing, causing rapid rewind back to the right (see illustration).



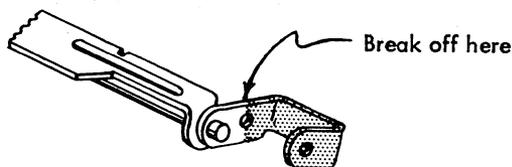
RIBBON LINK DRIVE LEVER

The ribbon link drive lever #1118266 now has two link holes and is used on both fabric and carbon ribbon Standard ET's. This change was effective with approximately serial #1153253. For machines equipped with this improved part, ribbon conversions can be accomplished without replacing the lever.

Ribbon conversion B/M's #1271009 and #1270860 will no longer include feed levers. Therefore, when planning conversions on machines prior to this change, it will be necessary to order separately lever #1118266.

EASY METHOD - LIFT BAIL REPLACEMENT

When replacing a ribbon lift bail, P/N 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.

BREAKAGE OF RIBBON LIFT BAIL MOUNTING STUD

The ribbon lift bail mounting stud lock nut P/N 7341 has been changed to elastic stop nut P/N 103372 to eliminate breakage of the stud due to excessive torque. The torque on the stud has also been reduced on the line.

EASY ADJUSTMENT - A & B RIBBON SPOOL RETAINING SPRINGS

To quickly move the ribbon spool retaining springs P/N 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.

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.

MODEL C FABRIC RIBBON FEED NOISE

A difficult to trace noise which occurs during ribbon feeding can be corrected by forming the tip of the keyplate under the ribbon control buttons. The noise is a result of the ribbon feed arm contacting the lip of the keyplate as it moves upward during ribbon feed.

FABRIC RIBBON DRIVE SHAFT

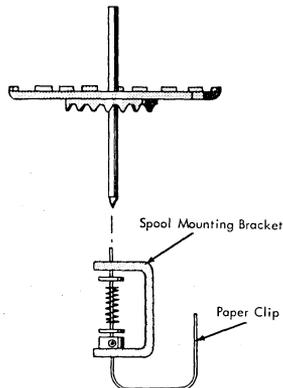
A few drops of oil on the fabric ribbon drive shaft bearings at each inspection will prevent premature bearing wear.

SERVICE HINT

When the color control linkage is inoperative, it is possible to move from the stencil position to any of the ribbon lift positions by pulling upward on the ribbon lift guide. The ET dispatcher should be instructed to use this information to reduce rush calls.

INSTALLING FABRIC RIBBON B/M #1271296 (CEM #527)

The following technique has been suggested for holding the spring, collar, and washers while inserting the ribbon spool drive plate shaft.



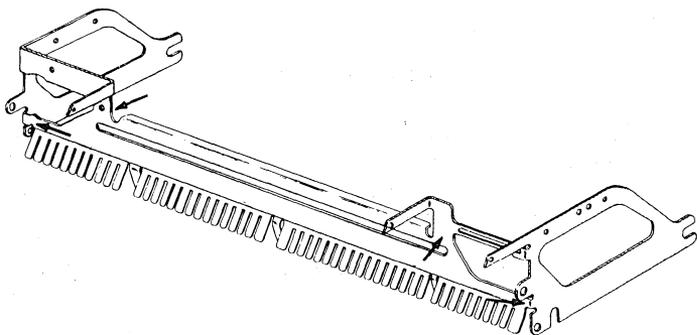
1. Open and form a paper clip (see illustration).
2. Insert formed clip through bottom hole in the ribbon spool mounting bracket.

3. Place collar, washer, spring, and second washer on paper clip. This will maintain alignment while the drive plate is inserted.
4. Gradually withdraw the paper clip while inserting the drive plate shaft.
5. Install grip clip.

MODEL C KEYLEVER ALIGNING FIXTURE

A useful tool for holding keylevers in alignment during bearing support removal can be made from a spare bearing support (part no. 1118217) as follows:

1. Cut the ends from the bearing support assembly along lines indicated by arrows in the illustration below.
2. File the cut surfaces to remove burrs and sharp edges.



By inserting this "guide comb" between the keylevers at a point immediately in front of the keylever adjusting lugs and by inserting the small fulcrum wire through the pilot hole in the keylevers (small hole to the front of pivot hole), the typewriter bearing support assembly can be removed without disturbing alignment of the keylevers. With this arrangement, it becomes a relatively simple matter to install another bearing support since the keylevers can now be reconnected to it as a unit.

This tool will prove particularly valuable in installation of new style ribbon mechanism and in converting from carbon ribbon to fabric since the fabric ribbon feed mechanism is shipped assembled to a bearing support.

CARBON RIBBON 214

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.

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 (P/N 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.

CARBON RIBBON GUIDE IMPROVEMENT - 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.

RED RIBBON INDICATOR - MODEL C CARBON RIBBON

CEM 545 (filed under "Ribbon" index tab), page 2, item 2 recommends relocating the spring anchor hole in the indicator, P/N 1117778.

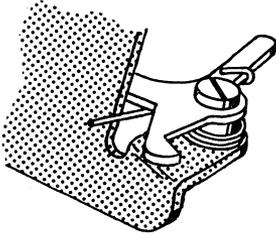
Field suggestions have provided a simple method for making this hole without the use of a drill. The procedure is as follows:

1. Straighten a paper clip.
2. While holding the paper clip with pliers, heat with a match or cigarette lighter.
3. With the clip still hot, push through the indicator plastic at the point where the hole is desired.

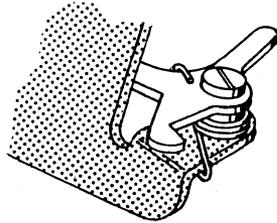
This procedure has been checked from a safety standpoint and will not cause the plastic to flame.

REPAIR OF BROKEN CARBON RIBBON REWIND RELEASE SPRING

A simple method of repairing a broken rewind release spring is to form a hook on the straight end and re-install as indicated in the drawing below.



Installation on
Production Machine



Installation after
Repair

DUAL RIBBON 215

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.

SHIFT 216

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 be occasionally 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.

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.

Two nylon bearings, P/N 1115144, have been added to the shift toggle assembly Bill of Material, #1263580. Add the part number to CEM #493.

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.

SHIFT FAILURE

Occasional shift failure may be traced to binds in the shift toggle links. If this condition exists lubricate the lower link bearing surface with IBM #17 grease and the mounting stud with IBM #6.

SHIFT TOGGLE SPRINGS MODIFIED

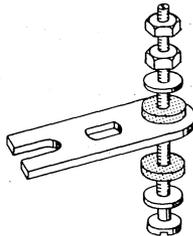
The shift toggle springs, P/N 1078049, have been altered by making their loops .005" larger. This was done to prevent possible shift binds due to tight loops. The part number remains the same. Modified springs appear on machines above approximate Standard serial #1337684 and Executive serial #2057401.

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 P/N 1110093. In some cases forming the shift lock lug slightly to the right, away from the selector bail, will correct this condition.

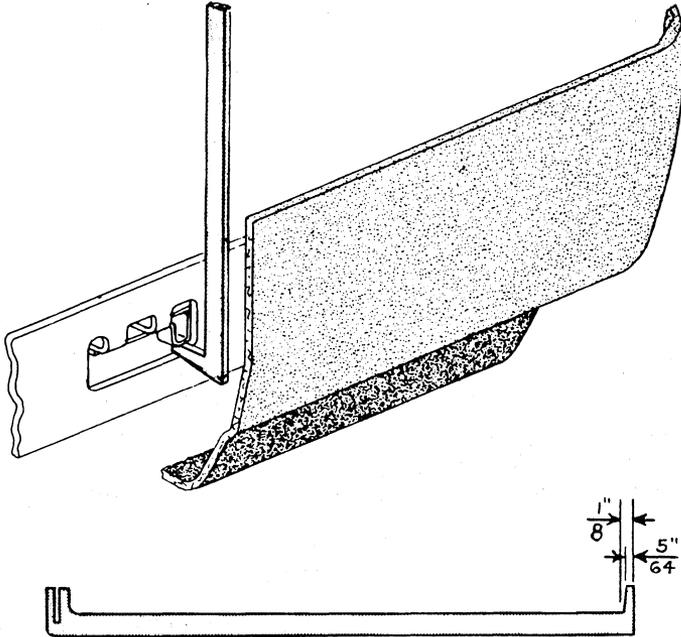
SHIFT MOTION

A washer, P/N 1090047, has been added between the phenolic washers and the head of the basket stop screw or adjusting nuts. Add part number to pages 21 and 47 of the 1960 Parts Manual.



TKO BENDER CHANGE

One end of the TKO Bender, Tool #9504486, has been modified to permit its being used to adjust the spacebar adjustable spring support, P/N 1117916, on Model C Standard ET's. By placing the tool in the hole provided in the front frame, as shown in the illustration, the adjustable support can be easily formed upward. By placing tool in U portion of the support, it can be formed downward as desired without removing the bottom cover.



This tool modification can be made to your TKO Bender by grinding the tool to the dimensions as shown in the above illustration.

CRIPPLING "C" SPACEBAR

The repeat spacebar feature on the Model C Standard machine can be easily crippled by installing a washer between the head of one of the spacebar stop screws and the spacebar slide. This will secure the slide rigidly to the frame and prevent depression of the spacebar into repeat position.

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 key-lever and spacebar. The open portion of the clip should be down.

MODEL C SPACEBAR TOUCH

In spacebar repeat touch problems, use spring (P/N 1102139) for a heavy touch of 31 ounces and spring (P/N 1117933) for a light touch of 18 ounces. Normal Model C repeat spacebar tension is 24 ounces.

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 provides a good stop.

REPEAT SPACEBAR, MODEL C

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

TAB 218

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.

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.

TYPEBAR OPERATING 219

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.

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" undersize. Power rolls should be $1.504" \pm .003"$ in diameter.

IMPRESSION INDICATOR CREEPING

Creeping of the impression indicator during typing can be corrected by hooking the cam KO bar springs, P/N 1115747, in the next forward cut-out in the side frames. This bends the springs around the impression control shaft slightly, creating sufficient drag to prevent movement during typing.

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, P/N 38281, from the impression control gear sector cams and shaft assembly, P/N 1077822, and inserting in its place a Model C ribbon lift bail stud, P/N 1117281.

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.

CHANGEABLE TYPEBARS ALIGNMENT

Alignment of changeable typebars can be held more reliably by filing or grinding a small portion of the leading edge of the changeable bar where it enters the throat of the type guide. If the changeable bar is on the left side of the type basket, grinding should occur on right edge; if on the right, the left edge.

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.

HIGH USAGE TYPEBARS

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

Pica - Models A, B, & C

<u>Character</u>	<u>Part No.</u>	<u>Character</u>	<u>Part No.</u>
A	1076600	C	1076613
S	1076605	R	1076614
E	1076609	O	1076640

Elite - Models A, B, & C

A	1076544	R	1076588
E	1076553	O	1076584

Executive Modern - Models A, B, & C

R	1076513	A	1076502
E	1076509	L	1076534
W	1076505	O	1076533
S	1076506	M	1076528

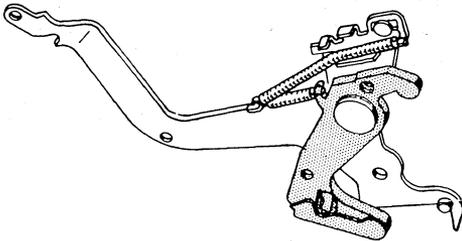
SPECIAL SEGMENT REQUIRED FOR MID-CENTURY TYPE

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.

TRIP LEVER SPRING COMING OFF - TYPAMATIC OPERATION

Try installing a Model 01 typebar spring, P/N 1090341, cut to 1 1/2" to 1 5/8" long, as illustrated.



Remove the regular trip lever spring, P/N 1105906, before installing the longer spring. Caution: A change in touch will result if the new spring is too short.

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, P/N 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.

TWO PIECE KEYLEVER

When installing a two piece keylever in the Model C, considerable time saving can be realized if the lower projection on the standard keylever is broken off near the point of contact to the resilient keyboard control spring. This will facilitate removal of the standard keylever.

KEYLEVER BEARING SUPPORT MOVEMENT - MODEL C

Upon loosening the keylever bearing support screw, P/N 58207, prior to keylever fulcrum wire movement, the keylever bearing support, P/N 1118217, may also move.

In order to maintain the proper adjustment of the keylever bearing support, a locating mark may be scribed on both the side frame and the keylever bearing support before loosening this assembly. A "t" mark for this purpose would reference movement in any direction.

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.

EASY METHOD - KEYLEVER REMOVAL - MODEL C

1. Remove the cover.
2. Disconnect the keylever spring.
3. Move the keylever fulcrum wire until the keylever is loose.

4. Flex the keylever so that it will drop between the two adjacent letter cams (it may be necessary to gently pry the letter cams apart).
5. Push the fulcrum wire end of the keylever down and toward the rear until the hooked end of the keylever can slip out of the keylever guide comb.
6. Lift the keylever out. It may be necessary to remove the key-buttons adjacent to the keylever being removed.
7. A one piece or two piece keylever may be installed using the same method.

DECIMAL TAB 230

MODEL "C" DECIMAL TAB

To minimize failure of the interposers to restore, the Plant has substituted spring #1090162 for spring #1118094 on the restoring bail. This change was effective with approximate serial #1174214.

Where failure of the interposers to restore is experienced in the Field, it is suggested that the above change be made. (Spring #1090162 is a Model "A" and "B" impression-indicator detent spring.) The lighter spring does not compress the rubber bail stop, Part #1118139, as much and could reduce bail overlap - see adj. #2, Model "C" Decimal Tab Section, ET Reference Manual. This spring change can be made from the bottom of the machine without removing covers.

CAUTION: This new spring is weaker than spring #1118094 and will not restore all interposers simultaneously; it will restore approximately three reliably. THEREFORE, OPERATORS SHOULD BE CAUTIONED AGAINST DEPRESSING DECIMAL KEYS WHEN THE SWITCH IS OFF OR WHEN THE MACHINE IS UNPLUGGED. This will cause the carriage to become locked when the carriage return is operated.

Restoring Bail Latch - Part #1118140

Within serial numbers 1130500 and 1172400 approximately 300 were shipped on which the restoring bail latch was not hardened to specification. This part should be replaced on ALL Decimal Tabs in this serial number range. Sufficient latches will be sent from Lexington to Branch Offices having these machines without originating a P & S Requisition. DO NOT ORDER parts to accompany this change.

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 spring loaded to the tab set bracket.

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.

DEC TAB LEVER ASSEMBLY NOW AVAILABLE

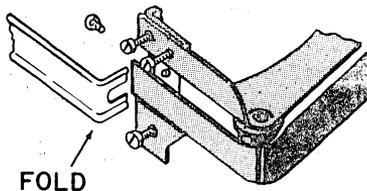
A tab lever assembly especially designed for use in Dec Tab Model C's is now available under Part No. 1118049. It will no longer be necessary to modify Standard tab lever assemblies for use in Dec Tab ET's. The price remains the same.

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.

HEKTOWRITER

B HEKTOWRITER - PLASTIC RIBBON GUIDE ADJUSTMENT



Procedure to increase guide tension is as follows:

1. Remove the three auxiliary carriage assembly screws and loosen the clamp.
2. Fold the guide at a point which will take up the slack.
3. Reclamp the guide and replace the auxiliary carriage screws.

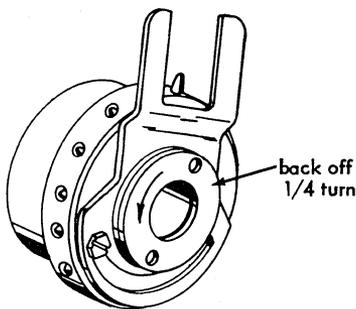
B HEKTOWRITER - CARRIAGE BIND

A hard-to-find bind in the Hektowriter auxiliary carriage may be caused by a flat having been worn on the center rollers when a binding condition occurs. Replacement may be necessary.

ATTACHMENTS

PIN FEED PLATEN - PINWHEEL BINDS

Sometimes binds occur in the pins of the pinwheel assemblies, Part Numbers 304781, 304782, 1107537, and 1107538. 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.

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.

MODEL B PIN FEED LIFT PLATEN BILL OF MATERIALS CHANGE

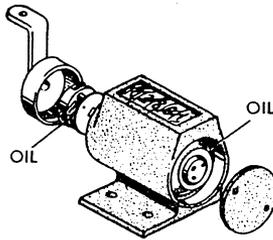
All Bills of Material for the Model B Pin Feed Lift Platen no longer include margin racks or tab racks. Margin and tab racks should now be ordered separately when ordering these Bills of Material. This change was made because Model C Pin Feed Lift Platen Bills of Material have the same part numbers as 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.

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.

KEYSTROKE COUNTER LUBRICATION

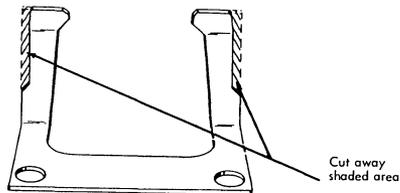
Failure of the keystroke counter can usually be corrected by placing a small amount of oil in the mechanism. Points to oil are indicated by arrows on the illustration below.



The counter ratchet assembly may be removed by removing the wire clip from the counter shaft. The assembly can then be washed thoroughly and re-lubricated. To lubricate the planetary gear system it is necessary to unscrew the end plate. This may be done by using a small punch and tapping the end plate counterclockwise. Care should be exercised not to over-lubricate as this will cloud the indicator window after use. If failing still occurs, the counter should be replaced.

I.V.I. IMPROVEMENTS

The line gage card holder center support has been modified by removing material indicated by the shaded area in the drawing below. This reduces the possibility of interference with the back of the segment in the upper case position. This improvement can be made on installed machines by modifying the part locally.



The platen sleeves on which the sector gears are mounted are being changed from aluminum to steel to improve concentricity of the sector gears.

TOLL BILLER SKIP TAB KEYBUTTON

Incorrect substitution information has been given on part #1107487, Toll Biller Skip Tab Keybutton. This part will now be shipped whenever ordered. All substitution records in the field should delete the card for this part as being replaced by 1095476, Locking Bar Assembly.

TOOLS

IDENTIFICATION - ALLEN AND BRISTO WRENCHES

The following chart identifies Allen and Bristo wrenches by some of the ET screws which they fit.

<u>Part No.</u>	<u>Wrench</u>	<u>Screws Which Wrench Fits</u>
9900028	Bristo 6 flute	Model C ribbon spool shaft collar set screw (P/N 257957).
9524402	Bristo 4 flute	Centrifugal governor collar, pin-feed form guide set screw.
9524403	Bristo 6 flute	Motor pulley, platen knobs, power roll pulley set screws.
9524404	Bristo 6 flute	Clutch bracket set screws, form line selector stop set screws, rail set screws.
9900029	Bristo 6 flute	Tab set finger set screw.
9900019	Bristo 6 flute	Form line selector gear set screw.
9003444	Allen	Proportional ribbon feed roll shaft collar set screw, justewriter motor governor collar set screw.
9001440	Allen	Model 01 GE & Westinghouse old style governor set screws, Model A V-belt motor pulley set screws.

TOOL ORDERS

The Parts and Supplies Order Department is constantly receiving orders for tools that are not shown in either the current catalog tool section or current CEM's and ET CE Bulletins. This places an extra burden on the Order Department in their attempts to ship the tools that you request. Ordering only those tools shown in current publications will help expedite delivery of tools to you.

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.

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.

CLEVIS SPINNER

Use the spring screw starter #9002145 to install clevises. The clevis is held with the screw starter and can easily be spun on to the link.

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 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.

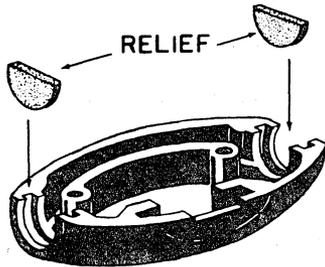
WASH AIR INTAKE FILTER SCREEN TO PREVENT POWER CLEANER OVERHEATING

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.

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.

STRAIN RELIEF, PART NO. 9900121, FOR POWER CLEANER SWITCH

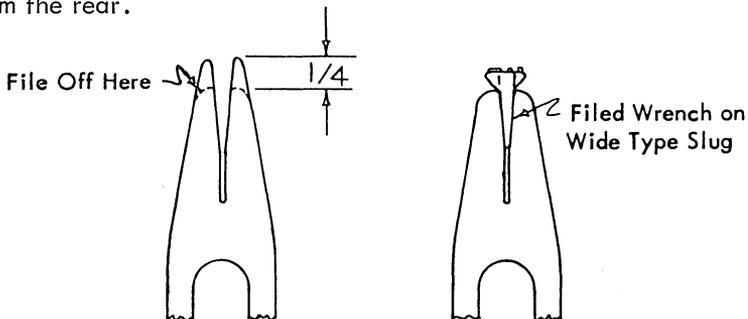


Inspect all Power Cleaner switches immediately, making certain that all switches have two of these fiber halfmoon shaped grommets. There should be one in each end where the cord enters the housing. This will clamp the cord tightly and prevent twisting and breakage.

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.



POWER CLEANER TO MODEL C CORD ADAPTOR



An adaptor cord, Part No. 9900057, is now available for adapting the Power Cleaner to the Model C cord. The adaptor makes it unnecessary to remove the Model C cord from the wall plug when using the Power Cleaner to clean a Model C ET.

The part number for the cord can also be found on page number 1 of the Tools and Supplies Section of your ET Parts Catalog.

SERVICE HINTS & MISCELLANEOUS INFORMATION

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. Alignment deficiencies appearing here are not significant since this is done by sliding the operator's finger rapidly over the row of keys.

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.

SHIPPING GROUPS

The plastic bag which contains the lead cord, instruction book and other accessories can be identified with specific carriage length ET's by a 1/8" wide stripe in the top part of the zipper. The coding of the stripe is as follows:

Clear	13" Carriage
Red	17" Carriage
Blue	20" Carriage
Black	24" Carriage
Red and Blue	30" Carriage
Red and Black	Lift Platen

This information should prove helpful in all handling of new ET's by Branch Office personnel.

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 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.

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, 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.

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.

MAINSRING TENSION - DECELERATOR REMOVAL

In the event it becomes necessary to remove the decelerator, the proper amount of mainspring tension may be retained in the following manner.

1. Mark the lug on the mainspring drum upon which the tension tape is located.
2. Count the number of turns necessary for complete unwinding.
3. After replacing the decelerator or carriage tension tape, re-wind the mainspring to the referenced tension and re-install the tension tape.

This procedure minimizes changes in carriage tension.

EMBOSSING PROBLEMS, SIGNET AND PORTFOLIO ELEVEN TYPE STYLES EQUIPPED WITH CARBON RIBBON

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.

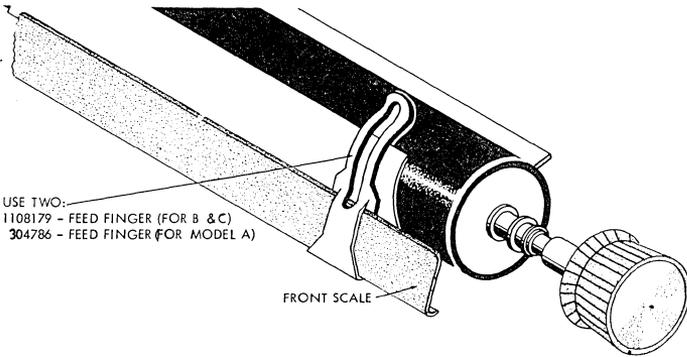
IMPRESSION TIPS - EXEC'S USED ON AUTO-TYPISTS

If the typebars fail to print evenly on Executives used on autotypists, the cause of this problem may be a bind which is caused by the interference of the interposer connecting links and the autotype 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, P/N 1110093, on both sides of the interposer link to restrict side movement.

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.

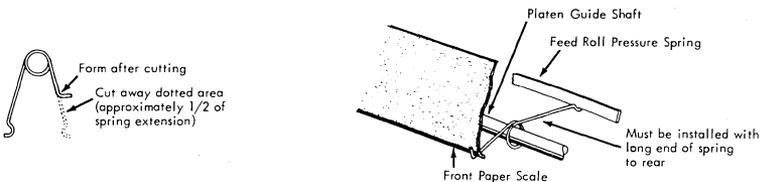


STENCIL WRINKLING

In the case of persistent wrinkling of stencils, a small amount of talcum powder can be sprinkled between stencil and stencil backing sheet. This has proven to eliminate wrinkling problems when standard adjustments will not take care of it.

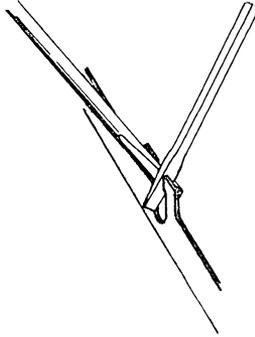
HEAVIER SPRING FOR FRONT SCALE

To increase the spring tension on the front scale for pinfeed platen ET's or on ET's that are used for typing stiff cards, a shift buffer spring (P/N 1070017) may be used. Modify and install the spring as shown in the illustration. On pin feed machines one spring may be used under each pin feed finger to prevent the forms from shifting off the pins. Care must be exercised to be sure that the increased spring tension will not offset during normal typing.



ADJUSTMENT OF KEYLEVER CLEARANCE

Keylever to trip lever clearance may be more easily adjusted by using two screwdrivers to spread the adjusting lugs as illustrated below.



REPOSITIONING INDICATOR - FABRIC RIBBON MODEL B

A repositioning indicator may be installed on a Model B equipped with a fabric ribbon by using the new style ribbon lift guide (P/N 1110492). This guide permits adjusting the wire far enough to the rear to clear the ribbon.

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. Without the keyplate, the bars hang all the way down and "stay put" very nicely.

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.

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.

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.

OILING

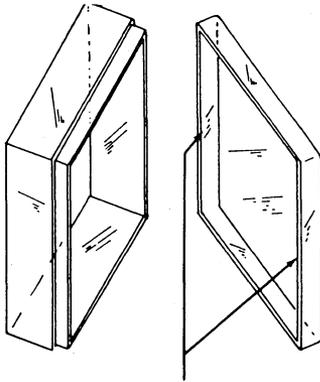
Oiling hard-to-get-at places, such as the motor oil hole (R.H.), may be accomplished with the aid of a fulcrum wire. The fulcrum wire is placed in the oil hole and the oil is then allowed to flow down the fulcrum wire.

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.

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.

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.

E-13B FONT - CHANGE IN PART NUMBERS

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

Remove: 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, P/N 1014536, with a slightly longer link, P/N 1000223. This allows the clevis to clear the bellcrank. The counter mounting bracket, P/N 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 part.

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.

WEAR OF DETENT RELEASE ASSEMBLY MODEL "C" IVI

To prevent rapid wear of the detent release assembly (P/N 1116858) of the Model C IVI, lubricate the camming surface with #17 grease. This is at the point where the detent release contacts the detent arm assembly.

PLASTIC COVER INTERLOCK ARM

If the Model C plastic cover interlock arm becomes broken and a replacement part is not available, the machine will operate by removing the interlock spring. This temporary measure allows the left hand sensing finger to engage the ribbon spool for proper reversing until replacement parts are available.

SHIFT CAMS

Shift cams can be removed from Executive Model B ET's by removing the power roll and the cam knockoff bar eccentric shaft. It is

not necessary to remove the cam knockoff bar assembly. The K.O. bar springs must be unhooked but it will not be necessary to remove the dowel pins.

CONNECTING LINK CLEVIS ADJUSTMENT

When it becomes necessary to adjust a connecting link clevis more than three half turns, it is a good indication that something else is causing the problem, possibly a broken part.

SWITCH OPERATING LINK

On Model B ET's use the T-bender to adjust (by forming) switch operating link for desired length without removing front case.

KEYLEVER BINDS

Bind in keylevers that prevent keylevers from restoring after being bottomed in guide comb appear to be a result of gummy rubber in bottom of slots. There may actually be a bind between keylever and comb due to guide being tilted. The screws on both sides of comb can be loosened and comb can be tilted to overcome binds.

REPEAT PLUNGER AND SPRING

When replacing or installing a repeat plunger and spring, form end loop of spring to hold plunger shaft tight. This will enable you to hold onto spring and guide plunger into place.

PAPER AND/OR ENVELOPES CATCH ON CARBON RIBBON CORNER GUIDES

If paper and/or envelopes catch on carbon ribbon corner guides when they are inserted into ET, and if corner guides are properly adjusted, front paper scale may be formed up high enough to prevent the envelope or paper from catching under ribbon guide.

LETTER CAM REPEATING

A letter cam which repeats occasionally can be stopped from repeating by shortening cam spring (from cam shoe to cam lever) about 1/4". This can be accomplished very quickly and produces no ill effects. A good test, after making this adjustment, is to move impression indicator to 10 with machine in upper case.

RE-ATTACHING ET TO DESK

Aid in re-attaching ET to desk. When an ET is bottom mounted to desk, CE will find it helpful to have in his possession two Model A positioning pins with hex portion ground off flush with pin. Screw pins loosely into ET, place ET and desk pad in position (pins extending down through screw holes in desk), unscrew and withdraw

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, 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.

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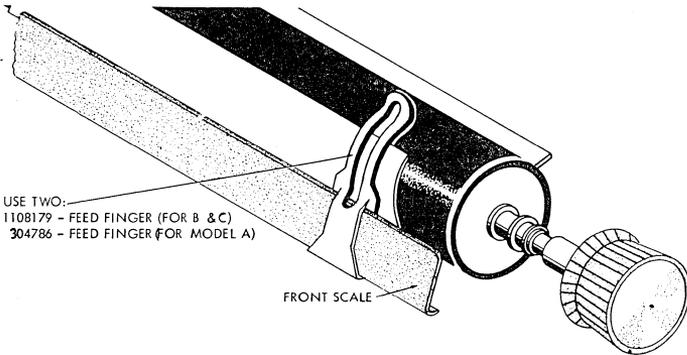
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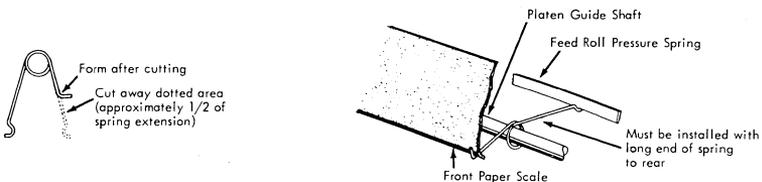


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pins; desk pad and ET are now correctly aligned over holes in desk and mounting screws may be easily inserted and tightened.

TYPING ON BOTTOM EDGE OF PAGE (LAST 6 LINE SPACES)

Having trouble with operators who wish to type on bottom edge of page (last 6 line spaces)? A good correction is to suggest that she try using a legal size sheet of onionskin paper between original and first carbon sheet. The embossing of the original and the added sheet creates an interlocking action of the two. The onionskin sheet remains between feed rolls and platen holding pack very nicely.

ADDITIONS & CORRECTIONS TO PARTS MANUAL, CEM's, ETC.

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:

<u>Part No.</u>	<u>Description</u>
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.

<u>Part No.</u>	<u>Description</u>
1079895	Model A escapement rack, 1/32 12"
1079896	Model A escapement rack, 1/32 16" L.H.

<u>Part No.</u>	<u>Description</u>
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.
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.

5. Page 81 of the Model C Parts Catalog, Code 253, shows the platen assembly for the 1202 typewriter. Reference number 61 (Platen shaft) shows part number 111620. The correct number is 1116260. Those of you who have this catalog section should record this change.

6. Model A & B Section of Parts Manual, page 7, reference 150, change P/N 1077337 to 1077336 - Bail assembly, R.H.

7. CEM #549 filed under "Ribbon" index, Records Section - change P/N 1090217 to 1092017.

TIME EQUIPMENT

8500 DRIVE MOTOR (HOWARD MANUFACTURE)

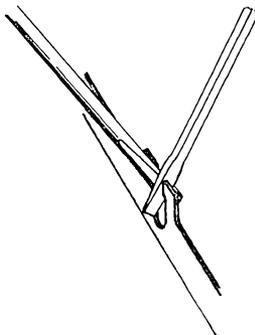
A severe impact against the brush cap of the new style "Howard" drive motor, P/N 53415, can force the brush holder against the commutator causing the motor to bind. The damage can occur in shipment or field handling.

The brush holders can be easily reset. By removing the brushes and armature, a thin pin punch or brass rod can be inserted through the hole of one brush holder to contact the inside edge of the opposite brush holder. By lightly tapping against the punch or rod, the offending brush holder can be repositioned to clear the commutator. Check for freedom of the armature and shaft as the motor is re-assembled.

The end play of the motor shaft is balanced by several thin steel and white nylon washers. Be careful not to lose or displace any of these spacers while disassembling the motor.

ADJUSTMENT OF KEYLEVER CLEARANCE

Keylever to trip lever clearance may be more easily adjusted by using two screwdrivers to spread the adjusting lugs as illustrated below.



REPOSITIONING INDICATOR - FABRIC RIBBON MODEL B

A repositioning indicator may be installed on a Model B equipped with a fabric ribbon by using the new style ribbon lift guide (P/N 1110492). This guide permits adjusting the wire far enough to the rear to clear the ribbon.

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. Without the keyplate, the bars hang all the way down and "stay put" very nicely.

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.

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.

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.

OILING

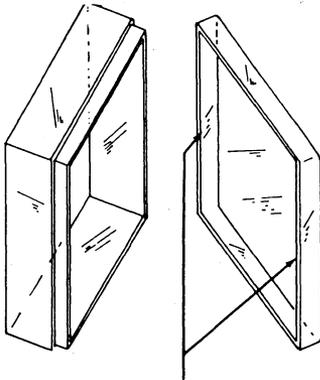
Oiling hard-to-get-at places, such as the motor oil hole (R.H.), may be accomplished with the aid of a fulcrum wire. The fulcrum wire is placed in the oil hole and the oil is then allowed to flow down the fulcrum wire.

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.

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.

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.

The three tapped 5-40 holes in the mounting plate on the base of the motor are not centered. When re-assembling this style motor, the mounting strap should be turned so that the tapped holes are closest to the shaft end of the motor, or the motor will be positioned too far forward in the 8500 for the motor coupling to properly engage the shaft of the gear reduction housing.

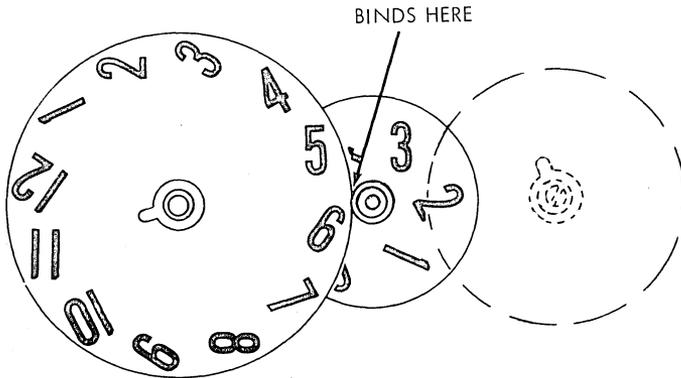
Brush caps, brushes and brush springs for the Howard drive motor have not been assigned part numbers. However, they are available as N.P.N. items when an RPQ and a P & S Requisition is submitted directly to the Lexington Parts Order Department.

The brushes, brush caps and brush springs for the Delco & GE type motors are still available for field maintenance. These items are illustrated in the 8500 section of the TE Parts Handbook.

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 $1/32$ ". A file or abrasive paper may be used for this purpose (see illustration).



OVERPRINTING WITH 8400 CONSECUTIVE SPACING TIME RECORDER

IBM discontinued manufacture of all time cards during 1959. Customers are purchasing time cards of other manufacturers. It has been reported that some of these cards do not meet the tolerances permissible for satisfactory operation of the 8400 time recorder. Excessive side play will cause overprinting. The card widths should be held very closely to 3.250" and 4.200" respectively for #2 and #4 receivers. The customer should be advised, whenever there is a variance of card widths, that this is the direct cause of his overprinting problems.

611 TRANSMITTER RECTIFIERS - TE

The Type 83 Rectifier, P/N 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, P/N 801916, should be used. In installations in which full power is required, the Silicon Rectifier, P/N 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.

MAINSRING IDENTIFICATION, PENDULUM TYPE MASTER CLOCKS

The chart below contains all pertinent information for mainspring identification:

P/N	Mach. Type	Pend. Type	Dimensions			Torque* Inch/ozs	Color Code
			Thick	Wide	Long		
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	.008"	.250"	10'6"	11.5	Blue

* One turn from fully wound position.

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.

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". 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.

TE PARTS HANDBOOK CHANGES

TE Parts Handbook Section 037, Figure 7, Reference item A3, Part No. 74821 - motor assembly - synchronous; should be changed to Reference item A3, Part No. 74829 - motor assembly - synchronous.

SIGNAL LEVEL METER, P/N 801907

The Lexington Parts Order Department now stocks the one (1) ampere fuse for the signal level meter, P/N 801907. These may be ordered by P & S Requisition in the normal manner. The following information is supplied:

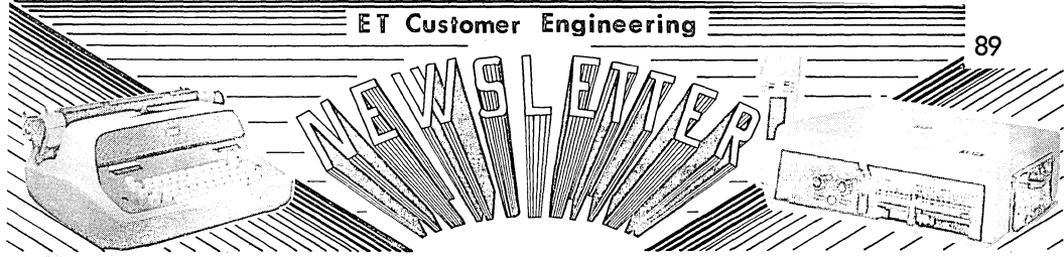
<u>Part No.</u>	<u>Description</u>
801424	Fuse, one (1) ampere - 600 volts

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.

611D TRANSMITTER - 6550 TUBE FAILURES (PART NO. 505253)

Preliminary investigation of 6550 tube failure indicates that the trouble is an open filament. However, closer examination has proved that the open circuit exists in the tube pin connections. Resoldering of pin tube pins, (pins 2 and 7) may result in a perfectly operating tube.



February 13, 1961

THIS NEWS LETTER IS DEVOTED ENTIRELY TO DICTATION
EQUIPMENT

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MOTOR PACKING REMOVAL

Use extreme care when removing the motor packing hardware. A number of "defective" motors returned indicate open or shorted windings, resulting from the slip of a screwdriver or the head of the packing screw having been forced down into the winding.

We suggest: Loosen the nut approximately one turn, using pliers or medium screwdriver, turn the screw 1/4 turn and lift out. After both screws are out, remove the two spacers between the motor and base. Reference page 121, Instruction Manual, form 241-5071-1.

An improved method of motor packing will be released in the near future to reduce the complexity of the problem.

FLYWHEEL BALANCE

Exact balance of the flywheel is not essential for good machine performance. A number of machines have been shipped with flywheels noticeably out of balance. When these machines are placed on an unstable surface, vibration is apparent. Revised techniques in manufacture of the flywheel have eliminated the problem; however, future parts will not be statically or dynamically balanced.

Other factors such as bearing tolerances, shaft end play, drive belt tension and clutch adjustments have been found to be more detrimental to machine performance than the actual balance of the flywheel. Check each of these items prior to replacement of an unbalanced flywheel.

CHECK YOUR OIL ?

Reports indicating excessive oil in the area of the flywheel have initiated a lubrication change in this area. In the near future, machines will appear without the oil hole in the flywheel bracket assembly. New manufacturing techniques are eliminating the need for annual lubrication. Present flywheel lubrication as stated in the Reference Manual (one drop of #6 oil per year) should suffice for all existing machines.

BACKSPACE FAILURE

Occasional failure may result if the wire leads to the backspace magnet are dislodged and contact the lead screw. Carefully examine these wires and check for clearance from the lead screw after maintenance or when unpacking a new machine.

A change is in process to re-route the backspace leads, preventing the above condition.

DRIVE ROLLER MOUNTING ASSEMBLY

The locating dowel pin, P/N 257572, has been eliminated from the drive roller mounting bracket assembly. This facilitates alignment during assembly. Since this operation is performed with special fixtures, removal of the bracket should be avoided if possible.

The locating pins are still used for the flywheel and LH carriage mounting assemblies.

REVERSE ROLLER BRACKET

The compression spring, P/N 1132735, has been eliminated from the reverse roller mounting bracket. Star washer, P/N 56722, is now used between the two brackets (Reference numbers 82 and 84, page 2 of the 210 Parts Catalog. Reference #83 should be changed to read #72 since screw, P/N 1132688, is now used here). Note these changes in the parts catalog section.

The nylon roller is now tapered for better speed uniformity. No change in part number for the roller.

DOUBLE TALK

Recording on a used Magnabelt without complete erasure with the bar magnet may result in a double talk condition. A slight shift of the tuning control will result in a pick up of both old and new signal during review.

With proper tuning at the start, this condition, theoretically, would never occur. However, since the original signal would be present between stop - start intervals, we suggest complete erasure with the bar magnet prior to starting a new recording.

NO OUT-PUT

Check the N/O (normally open) clutch contact for sufficient rise or dirt. For Models 212 and 213, include the N/C (normally closed) reverse contact when checking for failures.

OSCILLATIONS

Low frequency oscillations, especially during a record operation, are usually caused by a loose ground connection. Check each of the three preamplifier mounting screws for tightness. Also check the two power board mountingscrews. The LH power board screw, above the "M" receptacle, secures a ground terminal between the power board and side frame. If loose, this terminal is most deceptive.

Don't overlook lead dress. Often, oscillations or distortion will originate at a low signal or input terminal where a stray or misplaced wire is too close or has become shorted. Heat, from soldering, is transferred through the board and can very readily melt insulation from a wire touching the terminal.

Loose microphone receptacle terminals have been known to cause intermittent oscillation. Check for this condition by moving the plug during machine operation. Individual terminals will be available for replacement purposes in the near future. Part numbers will be announced as quickly as possible.

212 SPEED PROBLEMS ?

Problem: The operator comments; "My transcriber won't slow the recording sufficiently." You have checked, and all drive adjustments are proper on her machine. Solution: Slightly increase the speed of the offending dictator's machine. Check to be sure you don't over adjust, resulting in slow recordings for other persons sharing the same dictation machine. Note: The reverse conditions could apply if the transcriber would not speed up the recording.

NEW HEAD INSTALLATION

Don't forget to use the abrasive belt, P/N 1100159, to lap in the sound head after replacement. Several heads, reported defective, failed only because both gags never contacted the Magnabelt.

Allow the head to run-in on the abrasive belt for approximately two minutes without applying extra pressure other than that applied by the sound head spring.

SAFETY CHECK, SHARP EDGES

Check for sharp edges, burred or nicked screw heads, etc., during machine inspections. These may result in operator complaint or injury. Items to watch: Microphone case screws, index release lever mounting screws, and cover mounting screws.

Sharp edges have been reported on the inside top edge of the RH side cover frame. A small file or emery paper should be used to remove these edges. New machines are carefully checked for these items.

MAGNABELT INTERFERENCE

Check for burrs on the flicker light shield mounting screws. Production machines now have a harder screw, P/N 1090007, used in this location. Thread and length of the screw remain the same.

OBSOLETE PARTS

The small transformer shield over the intercoupling transformer is no longer required. Recent tests indicate that the shield was of little value. If interference or difficulty is experienced with existing shields, they may be removed and discarded. The shield, P/N 1132909, is no longer available.

The drive belt guard, P/N 1132997, is discontinued and no longer available from Parts and Supplies. Revised packing techniques eliminate the need for this item. A known source of noise, the clip may be removed from existing machines as required.

The idler roller bracket to base mounting screws and flat washers are now replaced with a flat head screw, P/N 34512. Thread size and length remain the same. Also, the flywheel and drive roller bracket mounting screws and washers are replaced with flat head screw, P/N 25627.

HELPFUL HINTS

Reverse roller adjustment hard to see? Try using a small pen cell light, holding the lamp against the nylon roller. The translucent nylon will radiate the light, illuminating the area surprisingly well. If you do not own a small pen cell light, obtain one locally.

HELPING HAND

When replacing or adjusting the reverse, backspace, or clutch magnets; slip a Model C ET line cord retainer clip, P/N 1264738, over the armature and magnet coil. By slightly pre-forming the clip's prongs closer, the magnet armature will be held closed, leaving both hands free to position and secure the magnet assembly, while maintaining proper tolerances. A thickness gage may be held between the armature and pole at the same time.

PEIRCE SERIES 500 TUBE SUBSTITUTION

Recently, we have learned that "selected" 12AX7 tubes were used in the Series 500 Peirce machines. In most machines, the 12AX7 tube operates satisfactorily; however, for extreme microphonic or distortion conditions, the substitution of a 12AY7 tube (IBM P/N 323932) may quickly solve the problem.

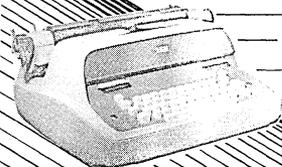
BULLETIN CORRECTION

Bulletin #67, page 3, item 6 - change the nylon screw P/N 1263903 to read P/N 1264297.

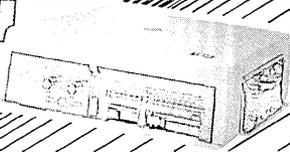
TRANSISTOR CHANGES

With reference to the new Instruction Manual, form #241-5071-1 (pages 131 through 134), you will notice the addition of a new transistor, P/N 1133725. This should be added to the parts catalog section.

Part number 1132724 is now used only in position TR1 (all models) and TR2 (Model 212). Part number 1133725 is used only in position TR2 (Models 211 and 213) and TR3 (Model 212).



NEWSLETTER



March 14, 1961

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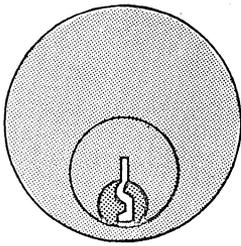
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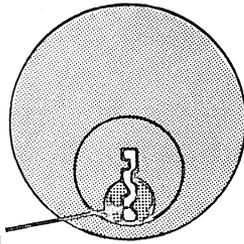
MELVILLE SHOE RECORDLOCK CYLINDERS (TE)

Letter 460-146 dated 10/10/60 outlines provisions in the maintenance agreement for Melville Shoe Recordlocks. This letter points out under item 4, page 2, that, "at time of each inspection a check must be made to be sure that only Melville Master Cylinders are installed."

This can easily be determined by reference to the comparison sketch of the key-way of the Melville Master Cylinders and the standard cylinder (see illustration). The chief visual reference point is the projection near the bottom of the right hand side of the key aperture, common only to the Melville cylinder.



Standard Cylinder



Projection

Special Cylinder

The standard cylinder, P/N 50131, is supplied from the Lexington Parts Center with four keys. The Melville cylinder which has never had a part number, is available only at the New York Reconditioning Center (277). An inter-office memo should be sent directly to J. D. Waddington at the New York Center if a Melville cylinder is needed. Blank keys for the P/N 50131 cylinder, to be cut locally, are listed in the 3310 section of the TE Parts Handbook and are supplied from the Lexington Parts Center. Blank keys are not available for the Melville cylinder.

SECONDARY CLOCK CORRECTION FAILURE (TE)

Indicating clocks, synchronous wired and electronic, can fail to regulate as a result of delay sector wear. Wear can be detected as a flattening of the sector serrations at the point where the sector contacts the gear.

MODEL C LIFT PLATEN FORMSWRITER

Some Customer Engineers have reported "gouging" of the top of the cover on these machines. It results from the lift platen release lever striking against the cover. It can be prevented by pulling the carriage all the way to the left before opening the cover.

INSTALLATION OF UNIVERSAL PLATENS ON MODEL A ET'S

Installation of the universal platen on Model A ET's will necessitate the change of the detent release lever assembly with a redesigned lever to avoid interference with the platen. This lever is available under the present part number 1072476. All detent levers shipped now are of the new design as illustrated.

MATERIAL REMOVED IN
THIS AREA TO ACCOMADATE
UNIVERSAL PLATEN



FEATURE CHANGES ON ELECTRIC TYPEWRITERS

Sometimes customers request crippling of features, such as the bell or repeat feature. Later the customer may want the feature restored for some reason, or the machine may be relocated where the feature is desired. Some Customer Engineers have found that it saves them time if they tape the removed parts to the machine so that they are readily available for re-installing.

DUAL RIBBON REVERSING - SERVICE HINT

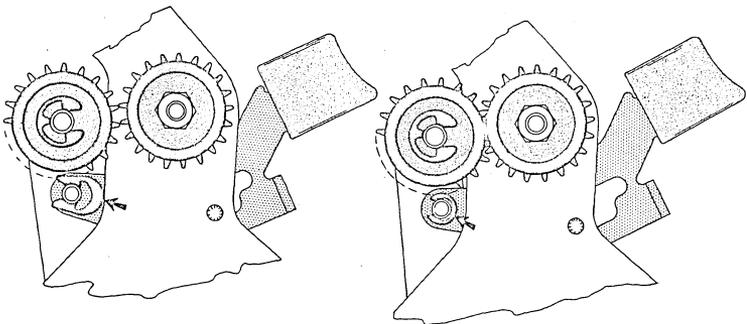
Faulty ribbon reverse on dual ribbon ET's may come from the carbon ribbon rewind release plate being too close to the left hand fabric reverse bracket assembly, preventing the reverse cycle from completing. Form the plate away to obtain the proper clearance and check to see that the lower left ribbon guide does not strike the cover when closed.

PLASTIC BOTTOM PANEL INSERTION

CEM 502 (Safety) advised these panels could be snapped out and in. Reports from the field indicate that a few of the panels have cracked when they were bowed to snap them in. Although this occurs primarily when the panels are cold, it may be advisable to slide the panels in rather than bowing them. Cracked panels should be replaced if they have sharp edges exposed.

CARBON RIBBON SLIPS THROUGH FEED ROLLERS

The carbon ribbon release arm stud has been modified to accept a smaller C clip, P/N 219633. The former style larger clip may contact the magazine plate, preventing proper engagement of the feed rollers (see illustration). Installation of the smaller clip will require replacement of the release arm, P/N 1117793.



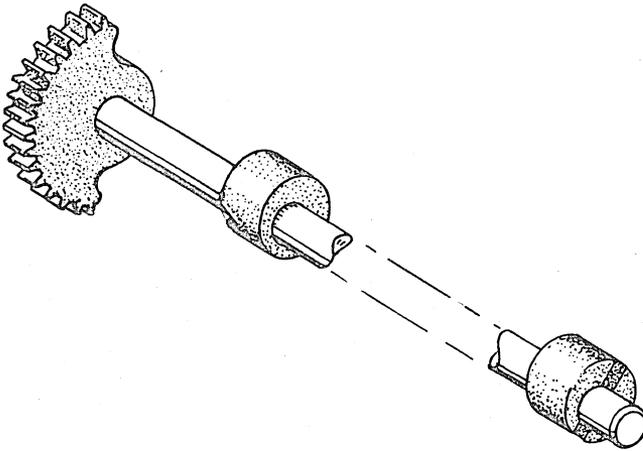
OLD

NEW

INPRESSION CONTROL SHAFT

Effective with approximate Standard serial #1406935 and Executive serial #2072562, the impression control shaft (P/N 1115080) has been modified as illustrated. This does not effect the settings of the impression indicator and is interchangeable with the former style.

A spring washer, P/N 1117026, has been added between the impression indicator, reference 219-9, and the resilient keyboard indicator, reference 219-8, to prevent the impression indicator from creeping. Add this part number to pages 24 and 50 of the Model C Parts Manual.



SERVICE HINT - POWER CLEANER USE

Lock up carriage return clutch when using power cleaner. This prevents dust and carbon ribbon dust from being deposited on surfaces of clutch parts.

PARTS CATALOG CORRECTIONS

Model C Section, page 16, reference 112, P/N 1118340 is now obsolete. If replacement is required, use B/M 1271296 announced in CEM 527 (filed under "Ribbon" index tab).

A & B Section, page 49, reference 59 - add clevis, P/N 1110529, for use with link P/N 1115182, reference 58.

Change page 37, C Section, reference 58 from P/N 1070020 to P/N 1115182.

Change page 3, C Section, reference 115 from P/N 1115345 to P/N 1115323; reference 176 from P/N 1115346 to P/N 1115322. Make similar change page 31, C Section, reference 68 and reference 69. All "C" decimal tab machines and all others 17" and above use P/N 1115322. All 13" "C" machines except decimal tabs use P/N 1115323.

Model C Section, page 18, reference 60 and page 45, reference 55, change to P/N 219633.

CORRECTION TO CEM 531 (filed under "Spacebar").

Stop, P/N 1071881, was listed in CEM 531 as being unavailable for field service. This is no longer used on Model C's but is available for earlier models. Records section is correct in the CEM.