IBM CUSTOMER ENGINEERING

REFERENCE MANUAL

PREVENTIVE MAINTENANCE

Automatic Carriage Type 921

Form 22-5744-1

PREVENTIVE MAINTENANCE

Automatic Carriage, Type 921

I. Cleaning

The platen should be washed with cleaning fluid to remove ink. All dust and dirt shoud be brushed out of the platen clutch gears. The governor should be cleaned with cleaning fluid and re-lubricated. All dirt and grease should be removed from the contact assembly. The teeth and stroke arm shoe sliding surface of the take-up mechanism should be free of all oil and grease.

II. Inspection

1. Binds. It is extremely important that no binds occur, and that the carriage restores to the zero block after every ejection. This may be checked for in the following manner:

   Attract the eject magnet and turn the ejecting mechanism over to dead center. Set arm 3 to 1″, and with a screwdriver raise and lower the feed sector link and check for a smooth sliding action of the feed sector link shoe along the surface of the take-up mechanism.

   Continue to turn the ejecting mechanism over to a point just before the take-up mechanism release for the stroke arm shoe is relatched in its normal position. At this point, with the pinion gear disengaged, it is possible to pull the sector all the way forward by hand. With arm 3 set for the maximum sheet length, pull the sector forward and allow it to return slowly several times while checking for binds.

   At this point, with the platen clutch held disengaged, the pinion gear shaft is free to rotate so that it may be checked for binds.

   Continue to turn the eject mechanism until the eject clutch pawl is disengaged from the eject clutch drive wheel. Check and see that the eccentric screw used to relatch the take-up mechanism does not support the take-up mechanism so that the clutch drive disc is prevented from going to its fully locked position.

2. Governor for freedom of operation. Best operation of the old style governor will be obtained if a slight amount of oil, approximately 20 drops of IBM lubricant 6, is used for lubrication. For the new style governor, note the paragraph under Lubrication.

   The bronze sleeve should extend up only through the first shoe support assembly, since the second one which carries the governor hub may not have its center hole in line.

   The spring on the governor drive hub should not be allowed to extend above the hub. It may be moved back by placing a screwdriver in the hub to hold it while turning the spring back.

   The governor idler gear stud must be tight in order to eliminate any binds resulting from twist in the gear train.

3. Line Space Mechanism

   (a) PLATEN CLUTCH for .005″ clearance. It is necessary that the line space mechanism move the platen from one detent position to the next. The line space mechanism will not move the platen a full space with too much take-up of the platen clutch teeth; therefore, this clearance is set at .005″. This is obtained by spacing the carriage a few spaces, so that the sector is away from the zero block, then loosen the three clamping screws on the drive clutch gear and shift the gear for this take-up clearance.

   (b) LINE SPACE LINKAGE for full spacing movement. Hold the platen clutch detent roller clear of the spacing clutch detent teeth and operate the manual trip lever for line spacing so that the platen moves ahead several lines manually. Then lower the detent roller into detent teeth and watch for any forward or backward movement of the platen. Any movement of the platen indicates an improper adjustment of the line space pawl.

4. Ejecting Mechanism. The ejecting mechanism must move the platen from a fully detented position at the start of the motion to a fully detented position at the end.

   (a) ECCENTRIC BUSHING in the connecting rod will control whether or not the sector always advances to the same point. This may be checked by moving the eject mechanism to the extreme forward part

of its movement (stroke arm connecting rod at top dead center) at which time it should be possible to move the stroke arm dog from one end of the stroke arm to the other without causing movement of the sector. Move the dog up and down along the stroke arm with a rod or screwdriver and watch the pointers attached to the sector to detect movement. A movement of 1/64 should not give trouble. If movement is 1/32 and machine is giving trouble with variable ejection for different sheet lengths, it indicates trouble to be due to stroke arm and adjustment of the bushing is necessary.

(b) FEED PINION BLOCK. The relation between the end of the ejection and the platen detent is determined by the position of the feed pinion block on the shaft. The sector at the extreme limit of its travel should move the platen to a position that allows the platen detent to be fully seated. This may be checked by watching the platen clutch. If the platen side moves, the feed pinion block should be shifted counterclockwise on the shaft, and if the clearance is not all taken up, the feed pinion block should be shifted clockwise on the shaft.

Another test on this is to hold the platen detent out of the gear until the carriage sector is ready to restore. If the detent is released at this point it should drop into the proper tooth with little or no motion of the detent gear.

(c) ZERO BLOCK. The relation between the beginning of the ejection and the platen detent is determined by the position of the zero block. With the sector restored against the zero block, the platen clutch teeth should have the .005" clearance so that the clutch teeth can drop into proper mesh when the sector restores. The zero block is positioned to arrive at this adjustment.

(d) SECTOR SCALE. Position of the sector scale will affect the amount of ejection from different sheet length settings. This should be checked by setting sheet length arm at zero, at the middle of the scale and at the end and checking that the platen clutch clearance does not change. Correction is made by raising or lowering the left end of the scale.

5. Motor for worn brushes and dirty commutator.

III. Lubrication

The new governors now being used on the carriage are extremely sensitive to oil on the shoes. Any oil on these surfaces increases the governing action and can cause the sector to fail to restore. To insure this governor's correct operation the shoes must be kept free from oil.

IBM 6

(1) Bearings of drive motor.

IBM 9

(1) Oil lines under drive gear cover. These lubricate the drive gear bearings.
(2) Drive gear teeth.
(3) Contact assembly pivots.
(4) Eject cam pivots.
(5) Sector pivot.
(6) Feed pinion gear.
(7) Clutch disc lock pivot.
(8) Clutch lock cam lever pivot.
(9) Connecting rod pivots.
(10) Take-up mechanism pivots. Take care not to get oil on stroke arm shoe sliding surface.
(11) Stroke arm shoe pivot.
(12) Platen drive gear bearings.
(13) Platen bearings.
(14) Platen pressure roll bearings.
(15) Platen detent roller.
(16) Any time center casting is removed all of the line space pivot points should be lubricated with IBM 9.

IBM 21

(1) Pinion feed shaft ball bearing race.