BELL SYSTEM PRACTICES
Teletypewriter and Manual Telegraph Station and PBX Installation and Maintenance

SECTION P35.601
Issue 3, August, 1949
AT&T Co Standard

14-TYPE TYPING UNIT AND BASE LUBRICATION

1. GENERAL

1.01 This section covers the lubrication of the 14-type typing unit and base.

1.02 This section is reissued to add to and revise the procedures.

1.03 The oils and grease referred to herein are those specified in Section P30.011, Teletypewriter Apparatus—Lubrication—General Requirements.

2. APPLICATION

2.01 Oil should be applied by means of a KS-8239 oil can, or by one having a slender spout not less than 3" long.

(a) In lubricating small parts apply only a single drop of oil so that the oil remains on the part and does not flow off. Too much oil will give unsatisfactory results.

(b) Oil cups should be well filled.

2.02 Grease should be applied with a KS-7461 or KS-8319 grease gun, toothpick, screwdriver blade, or a R-2119 brush.

2.03 After lubricating wipe off excess oil or grease which may have found its way onto surfaces not requiring lubrication, being careful to avoid wiping old oil, grease or dirt into spaces between bearing surfaces.

2.04 New felt washers, wicks and fibre gears, before being used, should be thoroughly saturated with oil.

2.05 Lubrication intervals shall be as specified in other instructions.

2.06 The main-bail roller and the main-bail guide rollers, marked with (+) in 3.01 and with (#) in 3.02, shall be lubricated first with oil, second with grease and finally again with oil.

3. PARTS TO BE LUBRICATED

3.01 The following parts shall be lubricated with oil.

(A) **General**

(1) Both loops of all helical springs that exert a nominal tension of less than 2-1/2 lbs

(B) **Typing Unit**

(1) Stop Pawl: (Old Style—2 Bearings)—(New Style—Oil Hole).
(2) Trip latch: pivot.
(3) Trip-latch bell-crank pivot.
(4) Trip plunger.
(5) Selector cams; drop of oil on each cam peak.
(6) Locking-cam felt oiler; saturate.
(7) Pivots of locking lever and selecting levers.
(8) Selector-sword bearings; drop oil through rear end of slots in separator plates and on sword points.
(9) Selector "T" lever pivots and all points of contact.
(10) Code bars; at posts.
(11) Locking wedge.
*(12) Selector arm: Pivots, locking wedge detent pin, sword-contacting surfaces and operating-screw contacting surface.
*(13) Selector-arm-stop detent: One drop on bearing surface of stop-detent eccentric.

* Holding-magnet selector only.

(14) Armature bearings: Very sparingly. Be careful that no oil reaches that part of the armature opposite the magnet-core ends or armature stops (if so equipped).
(15) Main shaft: Remove rear orientation-plate mounting screw, loosen front mounting screw and swing plate to expose top of main shaft. Insert spout of oil can in hole in center of retaining disc and fill shaft with oil. Wipe excess oil from top of retaining disc. If the main shaft is not drilled to allow passage of oil, lubricate the printing clutch and sleeve freely through the two opposite holes located just above the worm gear.
(16) Main-shaft bearings: Oil liberally the top of each bearing.

(17) Selector-clutch felt washers: Pry the driving discs apart with a screwdriver and saturate with oil. Do this at two diametrically opposite places at both top and bottom felt washers.
(18) Main-bail operating-arm spring post: Saturate felt oilers.
(19) Clutch-throwout lever: Two bearings.
(20) Main-shaft felt washers located in recess of fibre gear:

Apply oil in the following manner:

1. Place a quantity of oil in the gear recess so that it covers the exposed edge of the friction disc.
2. Allow the unit to remain idle for at least five minutes.
3. Turn the motor by hand so that the friction disc will make a few revolutions with respect to the gear in order to facilitate the distribution of oil to the washer.
4. Remove the excess oil from the recess with a rag so that it will not be thrown out by the operation of the unit.

(21) Main-shaft-clutch friction disc: Oil upper projections of disc located inside the coil spring.
(22) Main-bail-cam prongs: Apply oil through the springs.
Note: Swing the motor back to give access to the rear of the unit.
+(23) Main-bail roller.
(24) Main-bail plunger: Fill oil cup.
(25) Main-bail lever: Two bearings.
(26) Main bail: Fill groove with oil.
(27) Square vertical guide posts (old style units): One drop of oil on top of each post.
+(28) Main-bail guide roller (new style units).
(29) Main-bail guide (new style units): One drop of oil on each side of roller-contacting surface.
+(30) Main-bail roller.
(31) Pull bars: One drop of oil on top of each bar.
(32) Type-bar gears: Pull each type bar down against the platen. Put one drop of oil on top of type-bar gear at rear slot. Avoid excess oil on these parts.
(33) Ribbon-feed shaft: Two oil holes.
(34) Ribbon-feed lever: Oil hole.
(35) Ribbon-feed-lever roller.
(36) Ribbon-feed gears: One drop of oil on teeth.
(37) Ribbon-feed ratchet: One drop of oil on teeth.
(38) Ribbon-spool shafts: Two bearings each.

(39) Ribbon-reverse pawls and links: Four bearings on each side of unit.
(40) Ribbon-reverse shafts: Two bearings each.
(41) Ribbon-feed-shaft detent plunger.
(42) Ribbon-feed-lever roller.
(43) Tape-feed roll: Oil hole.
(44) Platen shaft: Four bearings.
(45) Carriage—Frame guide.
(46) Spacer shaft: Two bearings and gear. Oil through hole in main casting.
(47) Shift rocker and shift-rocker lever: Two pivot bearings.
(48) Pull-bar lockout lever: Pivot and two rollers.
(49) Signal-bell hammer: Pivot.
(50) Carriage-locking pawl: Pivot bearing.
(51) Spacer-locking bail: Two pivot bearings.
(52) Spacer-locking pawl: One pivot bearing.
(53) Spacer-detent lever: Pivot bearing and roller. Apply oil from right side.
(54) Spacer-operating lever and roller.
(55) Spacer-feed pawl.
(56) Keyboard driving gears: Two oil cups.

(C) **Bell and Break Signal Mechanism**

(1) Finger arm: Pivot.
(2) Detent arm: Pivot.
(3) Contact arm: Pivot.
(4) Detent-arm extension: One drop of oil in fingerarm fork.

(D) **Mechanical End of Line Indicator Mechanism**

(1) Worm shaft: Two bearings.
(2) Release bail: Two bearings.
(3) Cam-lever roller: Bearing.
(4) Cam lever: Bearing.
(5) Feed pawl.

(E) **Motor Control on Upper Case "H" Mechanism**

(1) Contact lever: Two bearings.
(2) Latch lever: Two bearings.
(3) Operating lever: Two bearings.
Note: For lubrication of motor-control unit, see P32.003.

(F) **Base**

(1) Keyboard-shaft bearings: Two oil cups or
(2) Receiving only gear bearing: One oil cup.

(3) Driven clutch: Apply two drops of oil through coils of spring.
(4) Intermediate pawl: Pivot.
(5) Trip-off pawl: Pivot and surface bearing on trip-off pawl eccentric.
(6) Clutch lever: Two bearings.
(7) Locking loop: Two bearings.
(8) Locking-loop roller: One bearing.
(9) Tape-feed-roll lever: Two side bearings.
(10) Locking levers: Five or six bearings.
(11) Contact levers: Apply one drop of oil on each lever on the side toward the cam cylinder so that it will run down on the pivot bearing.
(12) Spacer-bar loop: Three or four bearings.
(13) Repeat space or repeat "S" yoke: Apply one drop of oil at each bearing and point of contact.
(14) Tape-out bell hammer extension: Point of contact with pin on fibre gear.
(15) Tape-out bell hammer: Bearing points.
(16) Tape-out bell locking pawl: Pivot bearing.
(17) Tape lever: Pivot bearing.
Note: Item 18 to 23 inclusive should be lubricated with the base turned on its back and the base plate removed.
(18) Key-lever shaft: Apply one drop of oil on shaft at each of four equidistant points.
(19) Universal bar: Two pivots.
(20) Selector-bar rollers: Ten bearings.
(21) Key levers: Surfaces which rub against selector bars. Oil to be applied to key levers just in front of selector bars so that oil will run down and lubricate surfaces which rub on selector bars.
(22) Locking-lever adjusting screw of electric end of line indicator: Face which bears against key lever.
(23) Selector bars: At guide brackets.

(G) Electric End-of-Line Indicator

(1) Feed pawl: Pivot.
(2) Check pawl: Pivot.
(3) Latch: Pivot.
(4) Rachet: Shaft bearing and teeth.
(5) Contact lever: Pivot.
(6) Dash-pot-plunger rod: Lubricate very sparingly.
(7) Release-armature-latch extension.
(8) Release-armature-extension adjusting screw: Face which bears against check pawl.
(9) Contact cam: Outer edge.

(H) **Positive-Shift Mechanism**

(1) Shift-lock lever: Pivot bearing and point of contact with carriage-shift plate eccentric screw.
(2) Figures-locking pawl: Pivot bearing and point of contact with carriage shift plate.

3.02 The following parts shall be lubricated with grease.

(A) **General**

(1) Both loops of all helical springs that exert an average tension of 2-1/2 lbs. or more.

(B) **Typing Unit**

(1) Five large gears at rear right of the unit: Apply sparingly.
(2) Code-bar lock lever: Contact surface with main bail.
(3) Ribbon-feed-shaft detent.
(4) Main-bail operating-arm adjusting screw: Contacting surface.
#(5) Main-bail roller.
#(6) Main-bail-guide rollers.
(7) Motor bearings. Depress ball oiler with nozzle of grease gun and lubricate bearing with one stroke of plunger, after which run motor for a few minutes to work out excess grease. After motor has come to rest, wipe off excess grease.

Caution: Lubrication intervals, specified in other instructions, should be closely adhered to as too much grease causes starting switch troubles on synchronous motors, commutator troubles and false grounding on DC motors and AC series motors.

Note: Replacement bearings should be packed with grease before installation and thereafter lubricated as above.

(C) **Mechanical End-of-Line Indicator**

(1) Worm shaft.
(2) Detent drag spring.
(3) Feed ratchet.
(4) Cam-lever roller: Surface.

(D) **Base**

(1) Sending-shaft gear.
(2) Sending cams: Outer surfaces. Remove all but light film of grease.

3.03 The main-bail roller and the main-bail-guide rollers, lubricated with grease in accordance with 3.02, should again be lubricated with oil.