

BELL SYSTEM PRACTICES
Teletypewriter and Manual
Telegraph Station and P.B.X.
Installation and Maintenance

SECTION P40.601
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TELETYPEWRITER—LUBRICATION OF 26 TYPE REQUIREMENTS AND PROCEDURES

I. GENERAL

1.01 This section covers the lubrication of 26 type teletypewriters in service. It is reissued to cover latest design of type wheel page teletypewriter. Previous issues covered earlier design (24 type) which has been superseded by the 26 type.

1.02 The grease and oils referred to herein are those specified in the section on Teletypewriter Apparatus Lubrication—General Requirements.

1.03 Light mineral oil per KS-6232 and Bell System office machine oil are approved only for use on machines which are required to operate at temperatures below 40° F. (see 2.05).

2. APPLICATION

2.01 Oil should be applied by means of an oil can, preferably one having a slender spout not less than 3" long unless otherwise specified.

(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 grease gun, toothpick, screwdriver blade or similar instrument.

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 and wicks, before being used, should be thoroughly saturated with oil and kneaded by hand. Before assembling wicks excess oil should be removed by squeezing by hand.

2.05 Lubrication intervals shall be as specified in other instructions. Machines operating at temperatures below 40° F. which are lubricated with oil, as specified in 1.03, may require more frequent lubrication than those receiving the heavier lubricants, depending on service conditions. Care should therefore be taken to see that the parts are adequately lubricated at all times until a definite schedule is determined.

2.06 When lubricating an entire unit it is recommended that all parts requiring oil lubrication (see 3.01) be oiled, then all parts requiring grease lubrication (see 4.01) be greased.

3. PARTS TO BE LUBRICATED WITH OIL

3.01 The following parts shall be adequately lubricated with oil. Parts marked (†) shall also be lubricated with grease (see 4.01).

General

Both loops of all helical springs that exert a nominal tension of less than 2-1/2 lbs. (1130 gms.)

Typing Units

(a) Main Shaft Assembly

- (1) Main shaft bearings—2 oil cups.
- (2) Main clutch-driven member—oil thoroughly both above and below sliding member.
- (3) Cam sleeve assembly—oil thoroughly between sliding clutch member and clutch engaging cam sleeve collar.
- (4) Clutch throw-out lever—2 bearings and extension which engages driven clutch.
- (5) Brake rollers.
- (6) Selector cam sleeve assembly.
 - (a) Shaft bearings—fill oil hole in upper end of shaft.
 - (b) Selecting cam surfaces.
 - (c) Friction clutch felt washers—saturate.
 - (d) Armature lever cam felt washer—saturate.

Note: To oil friction clutch felt washers hold driving discs apart with screwdriver and saturate washers. Do this at two diametrically opposite points on the washers.

Caution: Press screwdriver into felt washer sufficiently so that it does not burr driving discs when twisted to separate the discs.

(b) Selecting Mechanism

- (1) Selector levers and swords—drop oil between separating plates of swords and levers.
- (2) Transfer levers—all points of contact.
- (3) Code disc levers—drop oil between separators and on pivot bearings;—connections with code discs. See 4.01 (b) (1).
- (4) Code disc bearing.
- (5) Type wheel stop pins—at guide slots and rollers.
- (6) Armature lever—2 pivot screws.

Caution: Be careful that no oil or grease reaches that part of armature opposite magnet core ends.

- (7) Selector arm—2 pivot screws, 2 sword contact points, locking wedge tip, and detent.
- (8) Locking lever—separator surface and locking tip.
- †(9) Transfer bail roller.
- (10) Transfer bail shaft—felt washers—saturate.
- (11) Range finder—trip latch, trip latch plunger, bell crank lever, and stop lever.

(c) Front Shaft Assembly

- (1) Front shaft—fill hole in top of shaft.
- (2) Clutch throw-out lever—2 bearings.
- (3) Clutch driven member—oil thoroughly both above and below sliding member.
- (4) Cup at lower end of shaft—several drops.
- (5) Type wheel lifting bail shaft—saturate 2 felt washers.
- †(6) Type wheel lifting bail rollers and felt wick—saturate.

(d) Function Mechanism

- (1) Function bail—saturate felt washer and wick.
- †(2) Function roller.
- (3) Function pawl pivots.

- (4) Function pawl latches—pivot and guide slot.
- (5) Function levers—pivot, guide slot, and point of contact with function arm.
- (6) Function intermediate levers—pivot, and guide slot.
- (7) Type wheel shift assembly—entire slide assembly at stud, shift plate at guide, detent lever at bearing and bushing, and felt washers—saturate.
- (8) Shift and unshift levers—pivots.
- (9) Space cut-out levers—oil pivots.
- (10) Line feed mechanism.
 - (a) Line feed bail—2 pivots.
 - †(b) Line feed roller.
 - (c) Line feed pawl shaft—2 bearings.
 - (d) Line feed pawl—pivot, points of contact with ratchet, and eccentric stop.
 - †(e) Line feed detent roller.
 - (f) Line feed detent arm pivot.
- (11) Carriage return release lever link shoulder screw.
- (12) Break lock lever latch pivot. Also points of contact with break lock release lever and break lock operating lever.
- (13) Printing bail—2 pivots.
- (14) Printing hammer—at guide and shoulder screws.

(c) Type Wheel Shaft Assembly

- (1) Friction clutch felt washers—saturate.
Note: See note under 3.01 (a) (6).
- (2) Main bearings—oil groove in upper bearing.
Caution: Care should be taken to see that sufficient oil gets into the interior of shaft housing to saturate felt wick wrapped around shaft.
- (3) Type wheel drive arm at slot.
- (4) Type wheel stop arm latch—pivot, guide and latch face.
- (5) Type pallets—brush pallets and guides with light oil per 1.03 when assembling.
- (6) Type wheel shaft gear hub—2 oil holes.

(f) Ribbon Feed Mechanism

- (1) Ribbon feed arm (vertical) pivot.
- (2) Ribbon feed pawl arm (horizontal) pivot.
- (3) Ribbon feed pawl pivot.

- (4) Ribbon feed reverse lever pivot.
- (5) Ribbon feed ratchet bearing felt washer—saturate.

(g) Platen Carriage Mechanism

- (1) Spacing pawl yield spring and bushing.
- (2) Spacing pawl cut-out latch pivot.
- (3) Spacing shaft (assembly)—2 bearings, saturate felt washers.
- (4) Spacing retaining pawl pivot.
- (5) Carriage return lever pivot.
- (6) Carriage return lever latch pivot.
- (7) Carriage return release lever pivot slot.
- (8) Carriage return release plunger—bearings.
- (9) Dash pot lever pivot.
- (10) Dash pot piston rod—one drop rubbed over surface of rod.
- (11) Carriage return spring—oil thoroughly when assembling; oil through 3 holes in spring drum for subsequent lubrication.
- (12) Carriage return spring drum—saturate felt washers on hub and oil end of hub at nut.
- (13) Platen carriage.
 - (a) Carriage support—tracks and ball bearings.
 - (b) Platen roll bearings—two.
 - (c) Pressure roll assembly—4 roller shaft bearings, 2 release shaft bearings, 1 release lever cam surface and 2 assembly guide pins.
 - (d) Platen crank handle bushing.
- (14) Margin bell hammer pivot.
- (15) Margin bell hammer pawl pivot.
- (16) Margin bell adjusting bracket—lower surface.

Keyboard and Base Unit

(h) Bottom Side of Keyboard

- (1) Code bars—in slots and rollers.
- (2) Universal bar pivot screw bearings.
- (3) Trip off pawl link—joint.
- (4) Key levers on key lever shaft and rear comb.
- (5) Locking levers—between pins in code bars.

(i) Top Side of Keyboard

- (1) Key levers—in front comb.

- (2) Space bar loop—on space bar loop shaft.
- (3) Keyboard shaft—2 oil cups.
- (4) Keyboard clutch sliding member.
- (5) Cams—surfaces of all six.
- (6) Locking loop pilot screw bearings and roller.
- (7) Contact lever pivoting shaft and guide comb.
- (8) Locking levers in locking lever comb.
- (9) Clutch throw-out lever bearings.
- (10) Trip-off and clutch lever pawls.
- (11) Repeat space rod at each end.
- (12) Intermediate shaft gear—3 oil holes in center of plate on upper gear.

4. PARTS TO BE LUBRICATED WITH GREASE

4.01 The following parts shall be adequately lubricated with grease.

General

Both loops of all helical springs that exert an average tension of 2-1/2 lbs. (1130 gms.) or more.

Typing Unit

(a) Main Shaft Assembly

- (1) Function, operating and printing cams.
- (2) Type wheel lifting bail cams.

(b) Selecting Mechanism

- (1) Code disc levers—connections with code discs when assembling. See 3.01 (b) (3).
- (2) Code disc bearings—grease when assembling
- (3) Transfer bail yield springs at points of contact with bail and selector levers.
- (4) Transfer lever lock arm.
- (5) Transfer bail roller.

(c) Front Shaft Mechanism

- (1) Front shaft cam surfaces.
- (2) Front shaft clutch throw-out lever stud.
- (3) Type wheel lifting bail cam rollers.

(d) Function Mechanism

- (1) Function roller.
- (2) Function pawls—guide slot and latch points.

- (3) Function pawl latches—latch tip and point of contact between function pawl latches and stop.
- (4) Type wheel shift assembly—type wheel fork and lifting bail stud; entire slide assembly at stud.
- (5) Shift and unshift levers—forks.
- (6) Line feed bail—surface on which roller bears.
- (7) Line feed bail link—shoulder screw and point of engagement with bail.
- (8) Line feed roller.
- (9) Line feed ratchet teeth—grease all lightly.
- (10) Line feed detent roller.
- (11) Single-double line feed lever—points of contact with pawl.
- (12) Carriage return release lever link guide slot.

(e) Ribbon Feed Mechanism

- (1) Ribbon feed arm (vertical)—upper and lower contact points.
- (2) Ribbon feed pawl—at points of contact with ribbon reverse lever, detent stud and retaining pawl shift stud.
- (3) Ribbon feed reverse lever—reverse engagement points and detent.
- (4) Ribbon feed ratchet teeth.
- (5) Ribbon feed ratchet friction spring.

(f) Platen Carriage Mechanism

- (1) Spacing pawl guide slot, and cut-out stud.
- (2) Spacing pawl latch at latch point.
- (3) Spacing shaft ratchet teeth and spacing rack and gear teeth.
- (4) Spacing retaining pawl at point of contact with carriage return lever.
- (5) Carriage return lever latch shoulder.
- (6) Carriage return lever latch at latch point.
- (7) Carriage return release lever—tip end and point of contact with carriage return release plunger.
- (8) Dashpot lever at points of contact with piston and carriage stop extension.
- (9) Platen crank shaft—sparingly.

(g) Gears

- (1) Motor gear teeth.

- (2) Main shaft gear teeth.
- (3) Type wheel shaft gear teeth.
- (4) Front shaft gear teeth.

(h) **Motor Bearings:** Depress ball oiler with nozzle of KS-7461 grease gun and lubricate bearing with one stroke of the 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 in synchronous motors, commutator and false grounding on governed motors.

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

Keyboard Unit

- (a) Cams—surfaces of all six—sparingly.
- (b) Keyboard gear teeth.
- (c) Intermediate shaft gear teeth.