

**BELL SYSTEM PRACTICES**  
**Teletypewriter and Data Stations**

**SECTION P35.604**  
**Issue 2, August, 1958**  
**AT&TCo Standard**

## **14 TYPING REPERFORATOR**

### **LUBRICATION**

#### **1. GENERAL**

1.01 This section contains specific procedures for the normal lubrication of the 14 typing reperforator, including the typing-reperforator unit and base and the associated motor unit and variable features. Additional special lubrication to be done on units capable of operation at a speed of 100 words per minute is given in Section P35.652.

1.02 The section is reissued for the following reasons:

(a) To revise the lubrication procedures and to specify that they apply only to the 14 typing reperforator instead of to typing reperforators in general, and to change the title of this section accordingly.

(b) To remove the common lubrication instructions formerly in this practice and now given in the general lubrication section for teletypewriter apparatus.

Since this is a general revision, marginal arrows ordinarily used to indicate changes have been omitted.

1.03 Lubrication of the apparatus before it is placed in service should be governed by the principles given in Section P33.014. After that, because of varying conditions at each station, the apparatus should be lubricated as often as specified by local instructions.

1.04 The lubricants to be used and their methods of application, together with a list of the lubrication symbols and their meanings as used in Bell System Practices, are given in Section P30.011.

#### **2. PARTS TO BE LUBRICATED**

2.01 The parts of the 14 typing reperforator requiring lubrication, the points at which the lubricant should be applied, and the kind and amount of lubricant to be used for satisfactory results are listed in Table A.

2.02 When lubricating an entire unit, it is recommended that all parts requiring oil lubrication be oiled, then all parts requiring grease lubrication be greased, and finally all parts requiring a subsequent oil lubrication be oiled.

2.03 Overlubrication, however, which would permit oil or grease to drip or be thrown on other parts should be avoided. Special care should be taken to prevent any oil or grease from getting between the selector armature and its magnet pole faces or between electrical contacts.

**Table A — Lubrication Chart**

<u>Part</u>	<u>Points of Lubrication</u>	<u>Lubricants</u>
<b>General</b>		
All helical springs that exert a nominal tension of less than 2-1/2 lb	Both loops	O
All helical springs that exert a nominal tension of 2-1/2 lb or more	Both loops	G
<b>Selector Mechanism</b>		
<b>Note:</b> Take care that no oil or grease seeps between the pole faces of the selector magnet and the armature.		
Triplatch	Plunger	O
Triplatch	Pivot	O
Bellcrank	Pivot	O
Stoplever	Bearings (2)	O
Codebars	Posts	O
Tape-feedout lever	Bearing and point of contact with triplatch bellcrank	O
<b>Holding-magnet Selector</b>		
Armature lever	Pivot screws (2)	OS
Selector swords and selector levers	Between separator plates	O

Selector "T" levers	All points of contact	O
Selector arm	Pivot screws (2), points(2) of contact with sword arms, and at detent	O
Selector arm detent	Bearing and point of contact with arma- ture lever	O
Locking lever	Pivot, separator sur- face, and locking tip	O
Selector cam sleeve	Each cam peak and locking-lever cam surface	O
Locking wedge	Locking tip	O
Selector arm operating screw	Screwhead	OS

### Main Shaft

**Note:** Remove the rear mounting screw of the range scale and swing the scale aside to expose the top of the main shaft. Fill the main shaft with oil through the hole in the center of the retaining disc. Wipe excess oil from the top of the retaining disc.

Locking-lever cam	Felt oil ring	SAT
Selector cam clutch	Top and bottom of friction washers	SAT
Mainbail cam	Friction disc and felt washer	SAT
Main-shaft bearings	Ball bearings(2)	O
Clutch throwout lever	Bearings(2) End of lever	O G
Main clutch	Between driving and driven members and in key slots at bot- tom of driving mem- ber under compres- sion spring	OF
Clutch bushing felt wicks	Through holes(2) on bushing below punch cam	O

<u>Part</u>	<u>Points of Lubrication</u>	<u>Lubricants</u>
<b>Main Shaft (Contd)</b>		
Compression springs	Into prongs under springs(3)	O
Gears	Face of teeth	G
Mainbail cam	Surfaces	G
Punch arm cam	Surfaces	G
<b>Intermediate Shaft</b>		
Bearings	Oil cups(2)	F
Gears(2)	Face of teeth	G
<b>Mainbail</b>		
Operating arm	Roller	OGO
Plunger	Felt wicks(3)	SAT
Lever	Oil cup (just above terminal block)	F
	End of lever in mainbail plunger	O
Mainbail	Groove	F
<b>Note:</b> If typing reperforator is not equipped with mainbail roller-guides, put one drop of oil on the top of the square vertical guide-post.		
Mainbail guide rollers (2)	Pivots Roller surfaces and surfaces of guides	O OGO
Mainbail adjusting screw	End of screw	G
Mainbail spring	Anchor	G
Mainbail lever spring post	Felt washers(8)	SAT
<b>Pullbars, Typebars, and Codebar-locking Lever</b>		
Pullbars	Top of each pullbar	O (1 drop)
Pullbar lockout lever	Rollers(2) and pivot	O



Typebar gears and Pullbar gears	Top of each typebar gear at rear of segment slot (Pull each typebar down against platen)	O (1 drop)
Codebar-locking lever	Point of contact with mainbail	G
<b>Ribbon Mechanism</b>		
Ribbon-feed ratchet and feed gears	Face of teeth	O
Ribbon-feed shaft	Detent plunger and detent	O
	Oil holes(2)	O
Ribbon-feed lever	Oil hole, roller, and bearing	O
Ribbon spool shafts	Bearings(2 each)	O
Ribbon-reverse pawls and links	Bearings (4 on each side)	O
Ribbon-reverse arm shafts	Bearings (2 each)	O
Ribbon-feed shaft detent	Plunger and detent	G
<b>Platen-shift Mechanism</b>		
Shift rocker fork	Surfaces	O
Shift rocker and shift rocker arm	Pivot bearings(2)	O
Shift rocker lever	Pivot bearing and point of contact with shift rocker arm	O
Platen shaft	Bearings(2)	O
Platen block shaft	Bearing	O
Platen guide shaft	Bearing	O
Shift lever	Bearings(2) and point of contact with shift bellcrank	O
Shift bellcrank guide	Surfaces	O
FIGS pullbar	Toe(extension)	O
Bell hammer	Pivot	O

<u>Part</u>	<u>Points of Lubrication</u>	<u>Lubricants</u>
<b>Universal Contact Mechanism</b>		
Contact operating lever	Pivot and point of contact with main-bail	O
Mainbail	Point where contact operating lever hits mainbail	OS
<b>Tape-feedout Counter Mechanism</b>		
Worm follower bail	Bearings(2)	O
Feed pawl	Surfaces	O
Camlever roller	Pivot	O
Worm shaft	Bearings(2)	O
Detent drag spring	Surfaces	G
Feed ratchet	Surfaces	G
Camlever roller	Surface	G
Counter control magnet armature	Bearings(2)	O
Worm follower	Shoulder screw bearing	O
Tape-out magnet	Armature lever bearing	O
<b>Reperforating Mechanism</b>		
Punch arm casting roller	Surface	OGO
Punch arm casting bearings	Oil holes(2)	O
Punch bail adjusting link	Bearings(2)	O
Punch bail pilot screw	Bearings(2)	O
Punch selector finger bellcrank	Bearings and at slots in punch selector fingers	O
Vertical lever bellcranks	Bearings and points of contact with punch-bar bellcranks	O

Vertical lever lower guide comb	Slots	O
Vertical lever	Pivot screw	O
Vertical lever upper guide comb	Slots	O
Codebar bellcranks	Bearing and point of contact with vertical levers and codebar- locking lever	O
Punch selector fingers	Point of contact with punches and punch bail guide comb	O
Feed pawl	Bearing	O
Feed roll	Bearings(2) Teeth	O G
Feed roll detent	Bearing and roller	O
Star wheel	Surfaces	G
Tape tension lever	Bearings(2)	O

### Signal Bell Mechanism

Bell hammer lever	Bearing	O
Bell pullbar	Toe	O
Remote signal bell contact lever	Bearing	O

**Note:** Remove excess oil from the typebar segment and the typing reperforator base, and make certain that there is no oil or grease on the selector-magnet pole faces or the armature face.

### Mechanical End-of-line Indicator Mechanism

Worm shaft	Bearings(2)	O
Release bail	Bearings(2)	O
Feed pawl	Pivot	O
Camlever roller	Pivot	O
Worm shaft	Worm	G
Detent drag spring	Spring	G
Feed ratchet	Ratchet	G
Camlever roller	Surface	G
Carriage-return pullbar	Toe	O

<u>Part</u>	<u>Points of Lubrication</u>	<u>Lubricants</u>
<b>Backspace Mechanism</b>		
Feed pawl	Pivot	O
	Surfaces that contact feed roll and backspace lever	G
Feed pawl spring	Spring post and eye in feed hole	O
Backspace lever	Pivot point	O
	Surface that contacts feed pawl	G
Backspace lever spring	Spring post and eye in lever	O
Backspace feed pawl	Pivot point	O
	Point that engages star wheel	G
Backspace feed pawl spring	Spring posts(2)	O
Ribbon lift lever	Pivot point	O
Ribbon lift lever spring	Spring post and eye in lever	O
<b>Clutchlever Contact Mechanism</b>		
Contact spring	Surface of insulator of contact spring against which clutch throw-out lever bears and corresponding surface of clutch throw-out lever	GS
<b>Motor Unit</b>		
Motor pinion	Pinion	G
Motor bearing	Oilers(2)	G
	(Use grease gun)	
Motor-speed adjusting lever	Pilot screw	O

**Note:** See Section P30.011 for additional information required for proper lubrication of the motor unit.



### Keyboard Base (Upper Part of Base)

Transmitting-shaft bearings	Oil cups(2)	F
Driven clutch member	Through coils of spring	O
Intermediate pawl	Pivot	O
Tripoff pawl	Pivot and surface bearing on tripoff pawl eccentric	O
Repeat space rod	Bearing points and points of contact	O
Clutch throwout lever	Bearings(2)	O
Lock loop	Bearings(2)	O
Lock loop roller	Bearing	O
Tape-out lever	Either side of bearing	O
Tape-out bell hammer	Pivots(2)	O
Locking levers	Bearings(5)	O
Contact levers	Each side of lever (placed so oil will run down on pivot)	O (1 drop)
Spacer bar	Pivots(4) and pivot for spacer keylever	O
Keylevers	Front guide	O

**Note:** Do not permit lubricant to remain on that part of keylevers which extends in front of the keylever front guide.

Keyboard gear	Teeth	G
Transmitting-shaft cams(7)	Lubricators(5) between adjacent cam surfaces	O

### Keyboard Base (Under Part of Base)

Universal bar	Pivots(2)	O
Selector bar rollers	Pivot (1 each)	O
Selector bars	Each guide bracket	O
Keylevers	Each keylever just in front of selector bars	O
Keylever rear bearing rod	Surface (1 drop of oil on bearing rod, at 4 equidistant points)	O

<u>Part</u>	<u>Points of Lubrication</u>	<u>Lubricants</u>
<b>Keyboard Base (Under Part of Base) (Contd)</b>		
Keylever springs	Point where spring engages notch in key-lever	O
	Springs	GS
<b>Receiving-only (High) Base</b>		
Tape reel bearing	Oil hole	O
Tape retainer arm bearing	Each side	O
Tape retainer arm spring	Point of contact with top of mounting bracket	O
<b>Receiving-only (Low) Base</b>		
Gear that operates bell	Teeth	G
	Oil cup	F
Tape-out lever	Either side of bearing	O
Tape-out bell hammer	Pivots(2)	O

### 3. REFERENCES TO BELL SYSTEM PRACTICES

3.01 The following Bell System Practices contain information which may be required for use with this section.

<u>Subject</u>	<u>Section</u>
Preparation of Teletypewriter Apparatus for Installation .....	P33.014
Teletypewriter Apparatus, Lubrication, General Requirements .....	P30.011
Teletypewriter Requirements and Procedures, General Requirements .....	P30.012
Teletypewriter Tools and Maintenance Supplies.....	P30.301
14 Typing Reperforator, Auxiliary Features, Requirements and Procedures .....	P35.653
14 Typing Reperforator Base, Requirements and Procedures .....	P35.620
14 Typing Reperforator Unit, Requirements and Procedures .....	P35.651
14 Typing Reperforator Unit and Base, Operation at 100 Speed, Requirements, Procedures, and Lubrication .....	P35.652