

BELL SYSTEM PRACTICES
Teletypewriter and Data Stations

SECTION P34.425
Issue 2, June, 1961
AT&TCo Standard

28 TYPING REPERFERATOR
BASE, KEYBOARD, AND COVER
DISASSEMBLY AND REASSEMBLY ROUTINES

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3. REFERENCE TO BELL SYSTEM PRACTICES 3.01

1. GENERAL

1.01 The procedures in this section will separate the 28 typing reperforator into its major subassemblies. The material in this section, together with that in the section entitled Teletypewriter Apparatus, Disassembly and Reassembly, General Information and Routines, gives the complete disassembly and reassembly procedures necessary for the maintenance of the 28 typing reperforator.

1.02 This section is reissued to include information for the keyboard and base of the send-receive typing reperforator and to bring the other information generally up to date. Because of the extensive changes, the marginal arrows are omitted.

2. DISASSEMBLY AND REASSEMBLY

A. Cover

2.01 To remove the cover on a receive only set, hold back the tension latch located on the inside front of the cover, and lift the cover from the base. On a send-receive set, move the **LOCK** handle which projects from the front of the set to the left, and lift the cover from the base.

Reassembly Note: To replace the cover, hold it over the base and lower it until the projections of its mounting brackets are accepted by the slots in the base plate. Make certain the cover is held by its fastening device.

B. Bases

2.02 **To remove a multiple base from a multiple cabinet,** remove the connectors from the typing reperforator. Remove the cables from the clamps on the base. Release the latch and remove the base by lifting it and sliding it forward.

2.03 To Remove an Auxiliary Base from an ASR Cabinet:

(1) Disconnect the connectors terminating the cable leading from the power supply, the control panel, and the electrical service unit.

(2) Remove the three mounting screws, lockwashers, flat washers, and star washers, from the base mounting posts. Lift the base from the cabinet.

Note: After reassembly, check the **tape container** adjustment.

2.04 To Remove the Tape Container Assembly:

(1) Where a tape-out switch is present, disconnect the plug from the electrical service unit.

(2) Remove the two screws, lockwashers, and flat washers, that hold the assembly to the base.

(3) Remove the tape container assembly.

C. Typing Reperforator

2.05 To Remove the Typing Reperforator from Base:

(1) Remove any electrical connections (selector magnet leads, connectors, etc) that would prohibit removal of the typing reperforator.

(2) Remove the screw, lockwasher, and flat washer that secure the anchor bracket (at the lower left of the typing reperforator) to the base. Remove the three mounting screws, lockwashers, and flat washers from the frame. Remove the timing belt from the sprocket on the rear of the main shaft. Lift the typing reperforator from the base.

Note 1: A typing reperforator can be removed from a multiple base while the other units are in operation. Loosen the four mounting screws and relieve the tension on the timing belt (the main shaft and belt will be in motion). Slide the belt off the sprockets. Remove the mounting screws and lift the typing reperforator from the base.

Note 2: To remove the typing reperforator from the casting assembly on the keyboard base, remove the four screws that secure the typing reperforator. Remove the cable connector from the rear of the typing reperforator and lift the typing reperforator from the casting.

Note 3: When replacing the receiving only reperforator, secure the typing reperforator to the base and then loosen the three mounting screws that hold the intermediate drive assembly (or variable speed drive mechanism) on the base. Install the timing belt and make the timing belt adjustment. Auxiliary or multiple typing reperforators should be installed with the mounting screws and anchor bracket screw finger tight. Install the timing belt on the sprockets and make the timing belt adjustment by adjusting the position of the typing reperforator. Tighten all mounting screws.

2.06 To Remove the Selecting Mechanism:

- (1) Remove the screw, lockwasher, and nut from the selector clutch drum. Place the reset bail in its raised position. Hold the stoparm and marking locklever away from the cam and remove the cam clutch assembly. The assembly should come off easily. **Do not force.**
- (2) Unhook the function clutch latchlever spring. Remove the spring post, lockwasher, and nut. Remove the screw and lockwasher from the rear of the main frame. Remove the oil wick, screw, lockwasher, and wick holder. Remove the selecting mechanism.

2.07 To remove the ribbon-feed mechanism, remove the ribbon; remove the two mounting screws and lockwashers; remove the ribbon-feed mechanism.

2.08 To Remove the Perforator Mechanism:

- (1) Remove the rocker spring and disconnect the perforator drivelinek from the rocker arm.
- (2) Remove the shoulder screw and lockwasher, and the mounting screws, lockwashers, and flat washers, that fasten the rear plate to the main plate. Remove the perforator mechanism.

Note: When remounting the perforator mechanism, make certain that the reset bail fits in the fork of the reset bail triplever and that the print hammer fits in its slot in the mechanism.

2.09 To remove the transfer mechanism, remove the main triplever spring. Remove the mounting screws, lockwashers, and flat washers from the transfer mounting bracket. Remove the transfer mechanism.

2.10 To Remove the Typing Mechanism:

- (1) Remove the operating blade from the rocker bail assembly by removing the two mounting screws, lockwashers, washers, and shims. Remove the retaining ring and dis-

connect the printing triplink. Remove the nut, lockwasher, and flat washer from the eccentric on the rocker bail and disconnect the oscillating driveline. Remove the drive arm spring from the accelerator and the spring from the function blade lifter.

(2) Remove the screw and lockwasher that fasten the lifter plate to the mounting bar on the frame. Remove the screw and lockwasher that secure the axial bracket mounting to the axial post on the frame. Remove the screw (with lockwasher and flat washer) that fastens the function box front plate to the main plate. Remove the retaining ring from the idler gear eccentric shaft and remove the eccentric shaft, idler gear, and special nut and lockwasher by removing the mounting screw. Remove the three screws, lockwashers, and flat washers that secure the front plate to the frame. Remove the typing mechanism from the frame assembly.

2.11 **To remove the function box mechanism**, remove the mounting screw, lockwasher, and flat washer, that passes through the function box rear plate and spring bracket into the front plate. Remove the function box from the typing mechanism.

2.12 **To Remove the Axial Plate Assembly:**

(1) Remove the correcting driveline spring. Remove the correcting driveline by removing the retaining ring. Disconnect the ribbon guide from the ribbon oscillating lever by removing the retaining ring that secures it.

(2) Remove the three mounting screws and lockwashers from the axial mounting bracket. Remove the axial plate assembly.

Note: To remount the axial plate assembly, reverse the procedure used to remove it. The rearmost tooth of the rack on the typewheel shaft must mesh with the rearmost tooth space in the axial sector, and the forward tooth on the sector must mesh with the second tooth space on the shaft. There is an extra tooth space on the forward portion of the shaft's rack.

2.13 **To Remove the Rocker Bail Assembly:**

(1) Disconnect the printing driveline by removing the retaining ring at its left end. Remove the nut, lockwasher, flat washer, felt washer, bushing, and screw from the operating blade mounting bail.

(2) Remove the nut, lockwasher, and adjusting lever guide, and remove the rocker bail shaft. Remove the rocker bail.

2.14 To Remove the Main Shaft Assembly:

- (1) Remove the spring from the function clutch latchlever. Remove the retaining ring, spring washer, and flat washers from the forward end of the main shaft.
- (2) Remove the screw and lockwasher (if present), from the function clutch drum. Remove the screw and lockwasher from the collar. Remove the screw and lockwasher from the bearing clamp.
- (3) Pull the main shaft out of the rear of the unit, removing the cam clutch and the collar.

Note: When the main shaft is inserted into the cam clutch, hold the latter firmly, so that the drum is not pushed off the clutch, and compress the drum and cam disc together so that the holes in the drum and clutch bearings are aligned.

D. Keyboard

2.15 To Remove the Signal Generator Assembly:

- (1) Remove the subcasting with the typing reperforator.
- (2) Remove the contact box cover, and disconnect the signal line leads from the contact terminals.
- (3) Remove the two screws at the front of the signal generator frame and the screw at the right rear of the frame, that fasten the frame to the base.
- (4) Lift the signal generator carefully, while holding the universal bail back so that the nonrepeat lever clears and its spring is not excessively stretched.

Caution: If the nonrepeat lever gets pulled down approximately 90 degrees from the normal position, its spring might be stretched beyond its elastic limits, which will cause malfunction of the assembly.

2.16 To Remove the Contact Box Assembly:

- (1) Remove the contact box cover and disconnect the signal line leads.
- (2) Unhook the driveline spring.
- (3) Remove the two screws at the front of the front plate which hold the contact box assembly.
- (4) Disengage the driveline from the transfer bail and lift off the assembly. It is more economical to replace an entire contact assembly if the contacts need replacement.

2.17 To Remove the Transfer Lever Locking Bail:

- (1) Remove the signal generator assembly from the keyboard (see 2.15).

- (2) Remove the contact box assembly (see 2.16).
- (3) Remove the transfer lever locking bail spring.
- (4) To remove the locking bail, trip the clutch and rotate the shaft until the cam is positioned so that the bail can be unhooked and dropped from its guide post. Turn the locking bail clockwise until it is at right angles to the guide, and extract it from the bottom of the frame.

Note: It may be necessary to move the shaft back and forth to position the cam for maximum clearance.

2.18 To Remove the Signal Generator Shaft Assembly:

- (1) Remove the transfer lever locking bail (see 2.17).
- (2) Remove the two screws which mount the clutch shaft rear mounting plate to the signal generator frame, and remove the nut which locks the shaft to the front of the frame.
- (3) Hold the clutch latchlever and the clutch stoplever away, and pull back on the shaft rear mounting plate to disengage the shaft from the front plate.
- (4) Remove the entire cam, clutch, and shaft assembly, by rotating it to clear the various transfer levers. The codebar bail eccentric follower, the felt washer, and the cam spacer will fall free. These must be repositioned before reassembly.
- (5) To take the cam (with clutch assembly) off the shaft, disengage the clutch by holding the clutch shoe lever against the stop lug and slide the cam and clutch off.

2.19 To Remove the Keylever Guide Plate:

- (1) Remove the spacebar by unscrewing the two shoulder screws that fasten it to the spacebar bail.
- (2) Remove the screw on the keylever guide plate under the spacebar and the two screws in the upper corners of the plate which hold the plate to the frame.
- (3) Work the guide off the keytops and let them fall free.

Note: To replace the guide plate, flop all the keylevers to the rear. Place the front end of the guide plate on the frame and push the keylevers into their respective holes, starting with the bottom row and proceeding upward.

2.20 To Remove the Keyboard Lock Ball Channel:

- (1) Remove the keylever guide plate (see 2.19).
- (2) Remove the two channel mounting screws at the left and right ends.

(3) Pull the channel forward with caution to avoid dropping any of the 32 wedges that are located on the codelevers. Wedges must be replaced separately when reassembling. Avoid losing any of the 43 balls in the channel.

2.21 To Remove the Character Counter Assembly:

- (1) Remove the two screws that hold the character counter bracket to the keyboard base.
- (2) Raise the character counter and remove the two screws that hold the contact switch to the switch bracket. Remove the character counter assembly.

E. Motor Unit

2.22 **To Remove the Motor Unit:** See the section entitled 28 Motor Unit, Disassembly and Reassembly Routines.

F. Electrical Service Unit

2.23 **To Remove the Electrical Service Unit:** See the section entitled 28 Electrical Service Unit, Disassembly and Reassembly Routines.

3. REFERENCE TO BELL SYSTEM PRACTICES

3.01 The following Bell System Practices provide additional information that may be required in connection with this section.

<u>Subject</u>	<u>Section</u>
Teletypewriter Apparatus, Lubrication, General Information and Routines	P30.011
Teletypewriter Apparatus, General Requirements and Procedures	P30.012
Teletypewriter Apparatus, Disassembly and Reassembly, General Information and Routines	P30.013
Teletypewriter Tools and Maintenance Supplies..	P30.301
Teletypewriter Apparatus, Preparation of Apparatus for Installation	P33.014
Alphabetical Index of 28-type Equipment, Bell System Practices and Associated 28 ASR Station Drawings	P34.001
28 Motor Unit, Disassembly and Reassembly Routines	P34.403
28 Electrical Service Unit, Disassembly and Reassembly Routines	P34.406