

35 TAPE PRINTER KEYBOARD  
DISASSEMBLY AND REASSEMBLY

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1. GENERAL	
1.01 This section is reissued to incorporate recent engineering changes on the disassembly and reassembly of the 35 tape printer keyboard (Figure 1). Since this is a general revision, marginal arrows, used to indicate changes, have been omitted.	
1.02 Disassembly, as outlined in this section, covers the procedure for removing the principle subassemblies which make up the unit. If further disassembly is required, refer to the illustrated parts section, 574-232-800. Where it will help in determining location, the numbers of the parts are given in the instructions.	
1.03 Most maintenance, lubrication, and adjustments can be accomplished simply by removing the subject component from the cabinet. If possible, disassembly should be confined to subassemblies, which can, in some cases, be removed without disturbing adjustments. When reassembling the subassemblies, be sure to check all associated adjustments, clearances, and spring tensions.	
1.04 If a part that is mounted on shims is removed, the number of shims used at each of its mounting screws should be noted so that the same shim pile-up can be replaced when the part is remounted.	
1.05 Retaining rings are made of spring steel and have a tendency to release suddenly when being removed. Loss of these retainers can be minimized as follows: hold the retainer with the left hand to prevent it from rotating.	

Place the blade of a suitable screwdriver in one of the slots of the retainer. Rotate the screwdriver in a direction to increase the diameter of the retainer for removal.

1.06 Avoid loss of springs in disassembly by holding one spring loop with the left hand while gently removing the opposite loop with a spring hook. Do not stretch or distort springs in removing them.

1.07 Operate the latch underneath the front of the keyboard to unlatch the cover. Remove the cover.

1.08 Disconnect the wires from the selector magnets.

1.09 Remove the four screws which secure the subcasting to the base. Remove the tape printer with the subcasting.

2. DISASSEMBLY AND REASSEMBLY

2.01 In removing a subassembly from the unit, the procedure followed and the location from which parts are removed must be carefully noted so that reassembly can be done correctly. Where no specific instructions are given for reassembly, reverse the procedure used in removing it.

SIGNAL GENERATOR

2.02 To remove: Take cover off contact box and disconnect the signal line leads. Pull up on the line cable, with its strain relief and grommet intact, and push it aside out of the way.

2.03 Remove two mounting screws at front of the signal generator frame casting and one at the rear.

2.04 Hold the TP170372 universal bail back so that the TP170392 nonrepeat lever clears, without stretching its spring, when the signal generator is lifted out.

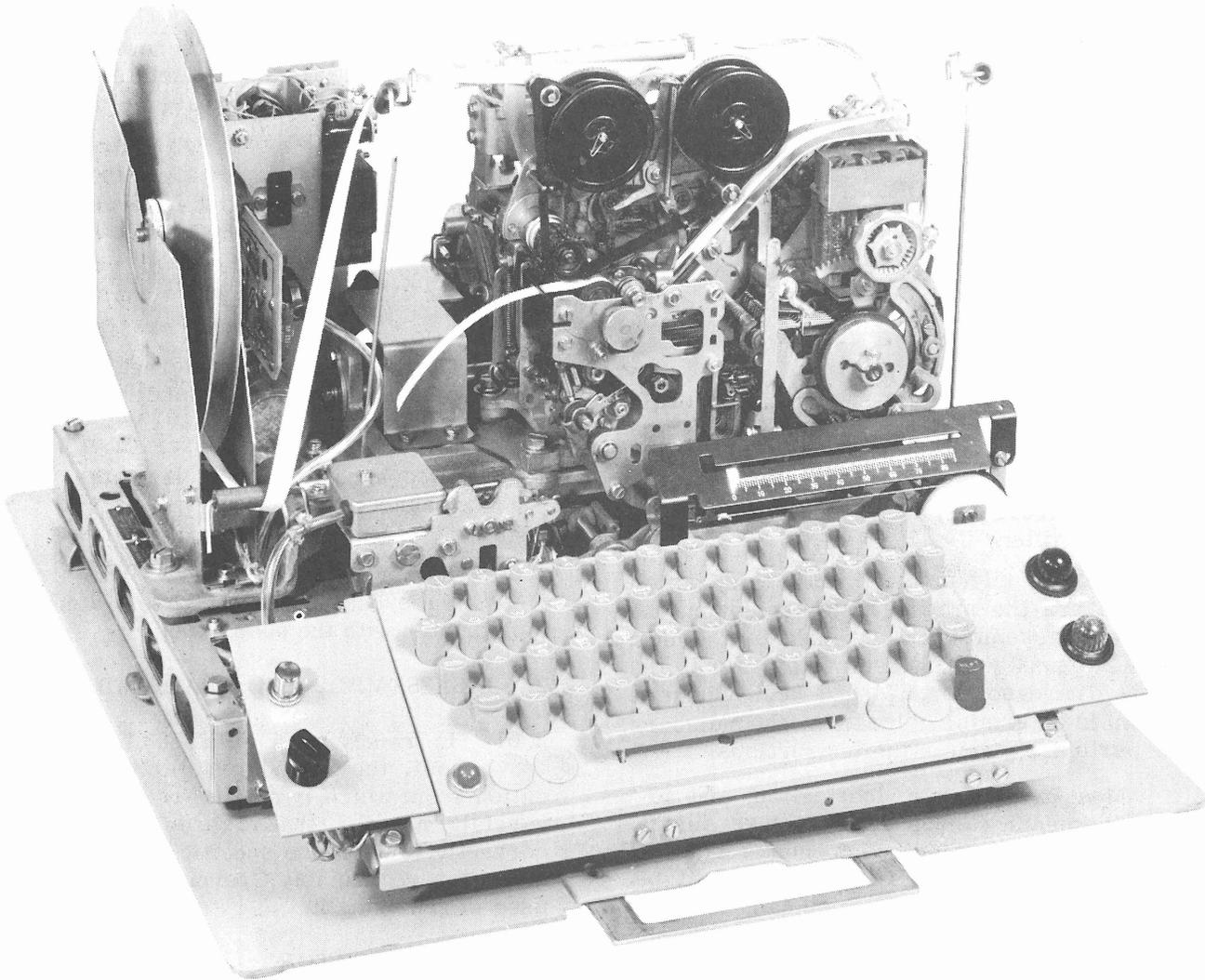


Figure 1 - 35 Keyboard Tape Printer Set - Cover Removed

**CAUTION: PREVENT THE NONREPEAT LEVER FROM BEING PULLED TOO FAR DOWNWARD. IF IT IS PULLED DOWNWARD AS MUCH AS 90° FROM ITS OPERATING POSITION, THE SPRING WILL BE STRESSED BEYOND ITS ELASTIC LIMIT. MAKE SURE THE LEVER IS IN ITS SLOT BEFORE SETTING IT DOWN.**

2.05 To disassemble the signal generator for replacing parts, the following procedure should be used.

- (a) Disconnect the suppressor leads at the contact terminals.
- (b) Unhook the drive link spring. Remove the two contact box bracket mounting screws. Disengage the drive link from the transfer bail and lift the contact box off.
- (c) Remove the locknut from the top of the phenolic block. Turn the box over and remove the two screws which secure the contact assembly in place. Slip the drive link out through the slot in the contact box and disconnect the link from the contact toggle by removing the connecting screw and insulator bushing.
- (d) To remove the TP154034 clutch stop arm, unhook the spring and unscrew the adjusting screw.
- (e) To remove the TP170392 nonrepeat lever, unscrew the locknut and remove the shoulder mounting screw.
- (f) To remove the TP154010 transfer bail, unhook the drive link spring. Remove the locknut at the end of the transfer bail shaft on the front plate of the signal generator. Disengage the drive link from the transfer bail and pull the bail and shaft toward the rear.
- (g) To remove the TP154036 detent plate, after the transfer bail and shaft have been taken out, remove the two detent plate mounting screws on the front plate of the signal generator. The detent plate assembly can then be lifted out of place. The TP156516 detent latches can then be taken off by removing the retainer from the studs.
- (h) To remove the TP158268 codebar bail latch, remove the retainer from the end of its stud. Unhook the spring from the latch.

Strip the latch off to allow the codebar bail to move to its extreme right-hand position. Work the latch to the front off its stud.

- (i) To remove the TP154236 universal bail latchlever after the nonrepeat lever mechanism is removed, unhook the spring. Remove the mounting screw and eccentric bushing. Move the latchlever toward the rear to extract it from its slot.
- (j) To remove the TP160090 transfer levers:
  - (1) Trip the clutch and rotate the shaft approximately 270 degrees. Unhook the locking bail spring. The locking bail can be dropped down and unhooked from the guide post under the cam. Reach underneath the assembly and turn the locking bail clockwise. It may be necessary to move the gear back and forth to get clearance to drop the locking bail out of the upper guide post through the bottom of the assembly.
  - (2) Remove the screws from the upper right-hand TP170391 transfer lever guide, and rotate the guide about the locking bail spring post so that it does not interfere with removing the transfer lever.
  - (3) Remove the transfer lever springs. Remove the TP151631 screw and lockwasher from the TP154094 right angle clamp in back of rear plate. Remove the TP3599 nut and lockwasher from the TP192534 locking bail post. Remove the nut from the rear end of the TP170388 guide post. Loosen to the end of the threads the nut on the rear end of TP154015 codebar bail mounting post. Remove the TP192589 stop pin.
  - (4) Drop the transfer lever. Reach under the cam with a pair of tweezers and remove the oil wicks.
  - (5) Unhook the transfer levers from the lower guide post and pull them up out of the assembly one at a time from rear to front. If the same levers are to go back into the assembly, number them in a manner to insure replacement in the same sequence.
- (k) To remove the camshaft assembly:
  - (1) With the locking bail removed, remove the two screws from the TP154101 rear gear plate, and the nut from the front end of the shaft.

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(2) Hold the stop lever and latchlever out of the way and pull rearward on the shaft assembly to disengage it from the front plate. The entire cam clutch and shaft assembly can be removed toward the rear by gently rotating rearward. The eccentric follower arm and spacer washers will fall free and must be carefully positioned when reassembling.

(3) To remove the cam (with clutch) from the shaft, disengage the clutch by holding the clutch shoe lever against the stop-lug and sliding the cam off the shaft. For ease of reassembly, tie the clutch shoe lever and stop-lug together with wire. Place the shaft in first.

(4) After the cam and clutch assembly are removed, the clutch itself may be disassembled from the cam. To do so, carefully remove the springs. Remove the clutch shoes. Remove the two clamp screws in the clutch disc, and then remove the disc. The clutch disc can then be removed from the cam by removing the two screws securing it to the cam.

Note: If a new cam is being installed, the clutch shoes and disc should be tried in their respective grooves to see that they move freely before reassembly.

(1) To remove the TP154240 codebar bail, unhook its spring. Remove the locknut at the front and rear ends of the TP154015 pivot shaft. Remove the locknut from the rear end of the TP170388 transfer lever guide post. Remove the nut from the rear end of the TP192534 upper locking bail guide post (if these nuts have not already been removed). Pull the rear plate toward the rear until the codebar bail pivot post clears sufficiently to be removed.

### KEYBOARD

2.06 To disassemble the keyboard assembly for replacing parts, two procedures may be followed: (a) With keyboard removed from base; (b) With keyboard attached to base.

(a) Keyboard removed from base.

(1) To remove the keyboard from the base, remove the four screws which hold the front frame to the front of the base.

(2) From the top of the base remove the two screws with flat washers at the right and left rear side of the codebar assembly brackets. Remove the two screws at the extreme left and right ends of the right angle bracket at the front of the codebar assembly. Remove the screw and cable clamp at the left of this bracket.

(3) When these eight screws have been removed, the keyboard assembly can be removed from the base by tipping it upward slightly at the front and pulling it forward so as to disengage the function levers. Note that all the function levers are under their corresponding function bails, so that they may be replaced correctly when reassembling.

(4) Remove the four screws from the spacebar. Lift spacebar out. Remove the four screws from the plastic keylever guideplate. Lift the guideplate out.

(5) To remove a keylever, hook one lug of the associated code lever, and the other lug in the slot of the keylever. A pull forward on the tool will snap the keylever from its code lever.

(6) Disconnect the TP154021 space bail link at its code lever by removing its retainer. Remove the screw at each end of the lock ball track to remove the track. The TP154080 wedge locks may then be removed from their code levers.

(7) To remove the codebars after the signal generator has been removed, unhook the codebar springs from the spring bracket at the right end. Leave springs on codebars. Loosen the adjusting screws at the right and left end bracket. Lift the codebar guides to the top limit of their adjusting slots. Move the codebar to the right until it clears the left-hand guide. Lift the codebar slightly and move it to the left until it clears the right-hand guide.

(8) To remove a function lever or codelever after the keyboard assembly has been dismantled to the keylever guide assembly stage and the codebars have been removed, turn the assembly upside

down. Remove all code lever springs. Remove the inner retainer from the pivot shaft and pull the shaft out until the levers are free. Remove the levers toward the front.

(b) With keyboard attached to base.

(1) To remove a keylever assembly, hook the end lug of the keylever remover over the top of its associated code lever and the other lug in the slot of the keylever. A pull forward will snap each keylever from its pivot stud on the code lever.

(2) To remove the lock ball channel, remove the 4-40 screws at each end of the wedge retainer plate. Loosen the clamp at the center. As the wedge retainer is removed note the number of spacer washers at each end. Remove the mounting screws at each end of the lock ball bar assembly to free it from the keyboard.

(3) The 53 lock balls can be removed by taking the adjusting screw out at the end channel and permitting the balls to roll out.

(4) Remove the pivot screws which fasten the spacebar assembly to the spacebar bail. Remove the hold-down screw located under the spacebar, and the two screws at each end of the keylever guideplate. Work the guideplate upward and off the keylevers.

(5) To remove the universal bail, set the keyboard up vertically on its rear side using the motor as a prop. Remove the bail spring. Loosen the locknut on each universal bail pilot screw. Back off one pilot screw and lift the bail out.

(6) To reinstall the keylever guideplate with the keylevers attached, flip them all toward the rear. Place the front edge of the guideplate on the frame and push the keylevers of the front row into their respective holes. Then work in the second, third and fourth rows in a similar manner.

#### CHARACTER COUNTER

2.07 To remove the character counter, take out the two screws which fasten the TP179279 character counter bracket to the base and lift the assembly out.