

INSTRUCTIONS FOR INSTALLING MODIFICATION KITS TO
 PROVIDE SYNCHRONOUS PULSED TRANSMISSION FROM
 MODEL 28 KEYBOARD LAK, LK, OR LTRK

1. GENERAL

a. The 164659 (for LAK), 194425 (for LAK), 164660 (for LK), 194424 (for LK) or 193800 (for LTRK) Modification Kit when installed on a Model 28 Keyboard provides synchronous pulsed transmission. Signal transmission occurs after reception of an external synchronous pulse (50 or 100 MA of 20 millisecond duration). The predetermined rate of signal transmission allows associated apparatus to lengthen the stop pulse in crypto systems used by the military. This feature can be disabled when desired. The 173008 Modification Kit is factory installed.

b. The Modification Kit consists of:

			164659	194425	194424	164660	193800
1	49420	Spring	X	X	X	X	X
1	164410	Modification Kit (listed in Paragraph 1 c)	X			X	
1	164485	Bail W/Hub	X	X	X	X	X
1	164489	Bar Assembly, Universal	X	X			
1	164490	Bar Assembly, Clutch	X	X			
1	164652	Bar Assembly, Universal			X	X	X
1	164656	Bar Assembly, Clutch			X	X	X
1	179988	Modification Kit (listed in Paragraph 1 c)		X	X		
1	193720	Modification Kit (listed in Paragraph 1 c)					X
1	158099	Lever	X	X			

c. The Modification Kit consists of:

			193720	164410	173008	179988
1	252M	Magnet - 100MA		X		
1	263M	Magnet - 50MA	X		X	X
*12	2191	Washer, Lock	X			
*13	2191	Washer, Lock		X	X	X
1	2481	Washer, Flat	X	X	X	X
1	3598	Nut		X	X	X
2	3640	Washer, Lock	X	X	X	X
*10	7002	Washer, Flat		X	X	
*11	7002	Washer, Flat				X

*Indicates change
 © 1961 by Teletype Corporation
 All rights reserved.

Printed in U.S.A.

			193720	164410	173008	179988
*9	7002	Washer, Flat	X			
1	88891	Spring, Armature	X	X	X	X
1	121125	Washer, Spring	X	X	X	X
1	121242	Clamp, Cable		X	X	
2	121242	Clamp, Cable				X
1	121243	Clamp, Cable	X	X	X	X
2	151073	Screw	X	X	X	X
1	151442	Screw				X
3	151630	Screw		X	X	X
4	151630	Screw	X			
5	151631	Screw		X	X	X
4	151631	Screw	X			
*2	151632	Screw	X			
3	151632	Screw		X	X	X
1	151657	Screw	X	X	X	X
*4	155750	Sleeve, Insulating	X	X	X	X
1	158753	Armature	X	X	X	X
1	158754	Core, Magnet	X	X	X	X
1	158859	Spring, Post	X	X	X	X
1	164379	Cable Assembly	X	X	X	
1	164644	Post	X	X	X	X
1	164645	Post	X	X	X	X
1	164646	Plate, Nut	X	X	X	X
1	164647	Bracket	X	X	X	X
1	164649	Plate, Mounting	X	X	X	X
1	164650	Contact Assembly		X	X	X
1	164651	Armature Assembly	X	X	X	X
1	179362	Cable Assembly				X
1	179363	Cable Assembly				X
1	193719	Contact Assembly	X			
*2	193654	Clamp	X	X	X	X
*2	155753	Sleeve, Insulating	X	X	X	X

d. For part numbers referred to and for parts ordering information see Teletype Model 28 Page Printer Set (KSR & RO), Typing Reperforator Set or Automatic Send-Receive Set (ASR) Parts Bulletin 1149B, 1167B, or 1169B respectively.

2. INSTALLATION (Figures 1 and 2)

a. Remove the signal generator from the keyboard in accordance with standard practice.

b. Disassemble and replace the 154053 Clutch Trip Bail with the 164485 Bail.

c. Replace the 154129 or 162309 Clutch Trip Bar in its slot with the 164652 (LK or LTRK) or 164489 (LAK) Universal Bar.

d. Install the 164656 (LK or LTRK) or 164490 (LAK) Clutch Bar in the slot just in front of the universal bar. Attach the 49420 Spring between the clutch bar and the code barspring bracket.

e. Reinstall the signal generator in accordance with standard practice.

f. Remove and discard the 154094 Angle Bracket and install the 164650 or 193719 Contact Assembly on the signal generator frame using the 151631 Screws, 2191 Lock Washers and 7002 Flat Washers which held the angle bracket in place.

g. Mount the 164649 Plate to the keyboard base. Attach; the 158753 Armature to the 164651 Armature Bail, the 1964651 Armature Bail to the 164647 Magnet Bracket, and the 88891 Armature Spring between the 158859 Spring Stud and the extension of the 164651 Bail. Insert the 153754 Magnet core through the 121125 Spring Spacer and then the 263M or 252M Magnet. Mount the magnet assembly on the magnet bracket keeping the solder lugs pointed upward. Place the completed magnet bracket assembly on the 164649 Mounting Plate keeping the armature extension in front of the 164656 Code Bar.

NOTE

To make keyboard operable without electrical pulse to operate stepping magnet, loosen the 151632 Screw and rotate the 193654 Clamp counter-clockwise to hold the armature in the operating position. Re-tighten the 151632 Screw.

h. Route the 164379 or 179379 Cable along the right and rear inside surfaces of the keyboard. Solder the 164379 Cable to connector pins 9 and 11, (LTRK Pins 5 and 7). Mount the 179363 Cable to the keyboard with the 121242 Clamp, 151442 Screw and 7002 Washer. See Figure 2. The 179362 Cable mates with the 179363 Cable and mounts to two open cabinet terminals. Tie up slack in 179362 Cable. Attach the leads from the contact assembly to the keyboard next to the keyboard identification screw using the 121242 Cable Clamp, 151631 Screw, 2191 Lock Washer, and 7002 Flat Washer. Attach the leads from the contact and magnet assemblies to the keyboard using the 121243 Cable Clamp, 151632 Screw, 2191 Lock Washer, 7002 Flat Washer, and 3598 Nut; mount the clamp to an existing hole near the magnet armature.

i. This paragraph applies to keyboards (LAK) not equipped with the 158099 Lever (present keyboards use the 194452 Lever). Proceed as follows:

(1) With the unit in the keyboard position, strike the letters key.

(2) Remove the 119649 Retaining Ring and 158094 Stud. Move the 194452 Selection Lever to the left and remove the 158093 Spacer.

(3) Remove two 1095 Screws, 110743 Lock Washers, 42823 Flat Washers, and 119651 Retaining Rings that fasten the 158135 Clutch Trip bar link and 158139 Bell Crank. Remove the bell crank.

(4) Remove the 161440 Spring mounted on the 158116 Reset Lever.

(5) Disconnect the end of the 7603 Spring from the 158117 Cam follower.

(6) Remove the 119651 Retaining Ring that retains the 158117 Reset Cam follower and remove the 158117 Reset Cam follower and 158116 Reset Lever.

(7) Remove the 119651 Retaining Ring that retains the left side of the 158135 Clutch Trip Bar Link.

(8) Lift the left end of the 158135 Clutch Trip Bar Link from its mounting post as high as play will allow and pivot clockwise until it is disengaged from the 194452 Selection Lever Assembly.

(9) Move the 194452 Lever to the left and downward to remove and discard.

(10) Install the 158099 Lever furnished. Reverse procedure (1) through (9) above.

*3. ADJUSTMENTS AND LUBRICATION

For adjustments and lubrication procedure refer to standardized information, Teletype Bulletin 217B, 250B or 247B.

Make the Synchronous Pulsed Magnet Mechanism Adjustments and the following adjustments

Clutch Trip Bar Spring Tension
Code Bar Spring Tension
Perforator Clutch Release Trip

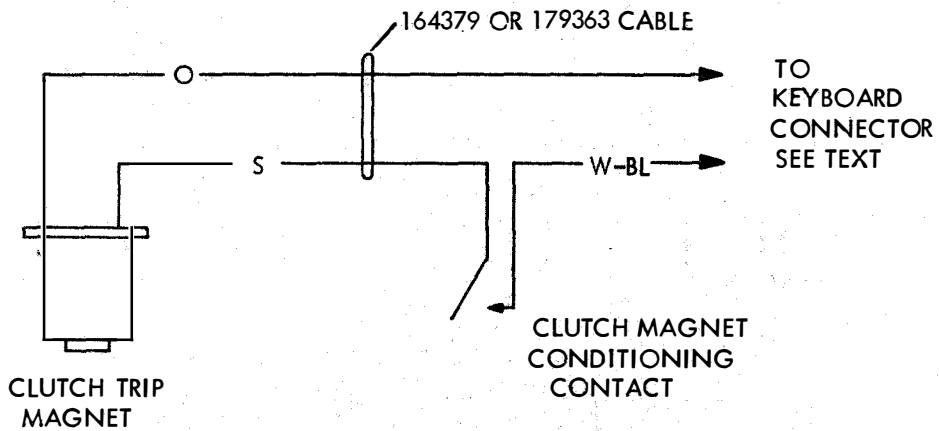
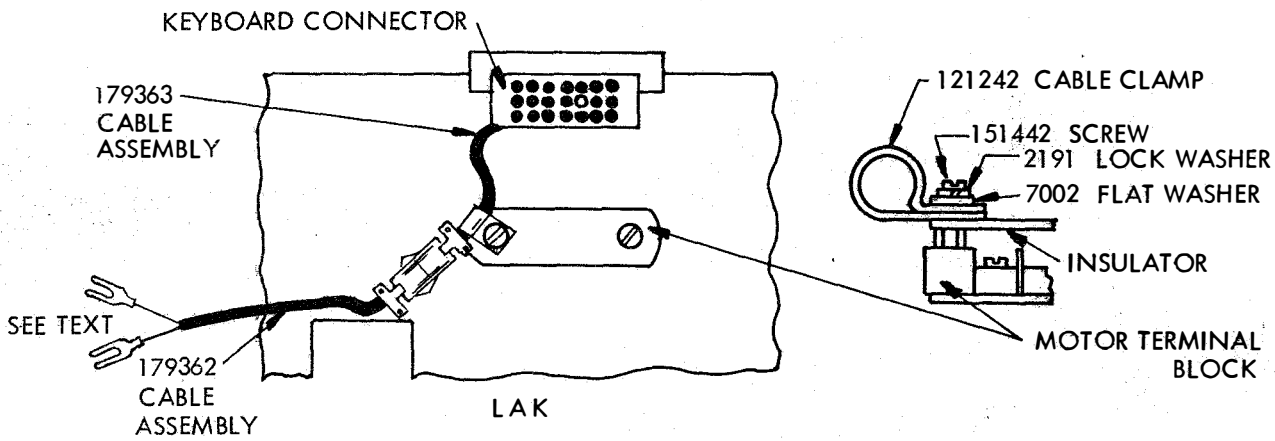
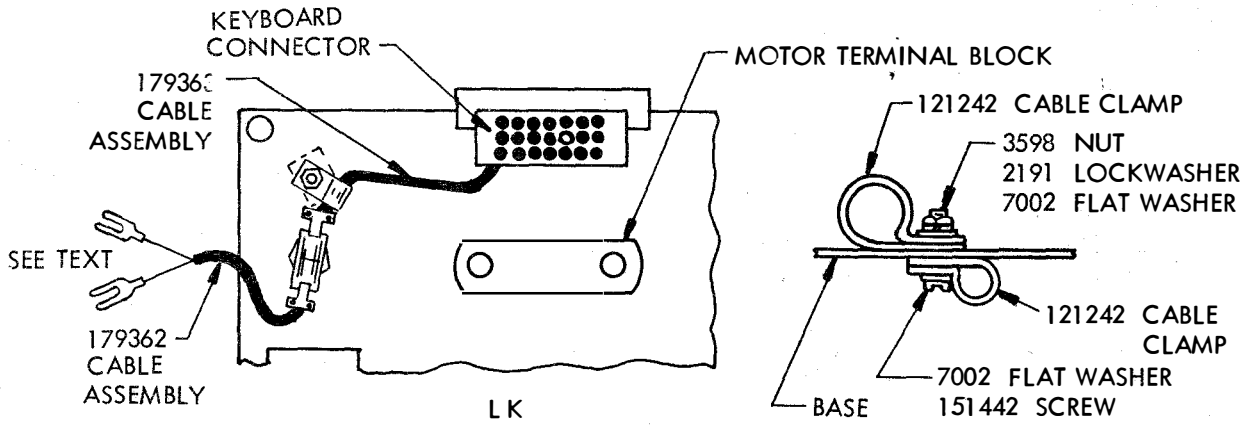


FIGURE 2.