THE ADOSO SYSTEM
(Automatic Distribution of Service Orders)
ADOSO EQUIPMENT REQUIREMENTS

Contents

1. GENERAL

1.01 This sub-section P65.924.02 is the third in a series of point sections on the ADOSO System. The main section, P65.924.00, describes the system in general terms. Sub-section P65.924.01 outlines a trouble locating procedure using test tapes.

1.02 This sub-section covers some special equipment requirements found necessary to apply on No. 15 teletypewriters used on ADOSO circuits.

1.03 Changes outlined in this practice apply to the ADOSO System and shall not be interpreted as changing or modifying existing information for standard layouts.

2. THE TP 94294 SET OF PARTS (Answer-Back)

A. Material

2.01 Ten TP 3458 shims are required for this modification.

B. Installation

2.02 Remove the keyboard from the base and place it upside-down with the key levers toward the front.

2.03 Remove the TP 74590 right and left guide plates.

2.04 Drill the tapped hole which formerly held the resistor. Drill to .196 diameter using a No. 9 drill.

2.05 The end of the TP 94320 cable having two green leads should be inserted through the hole in the casting adjacent to slip-connector terminal 51. Solder the ends of these two leads to the terminals on the answer-back magnet. Tape each magnet terminal, and continue back on the wires soldered to them to prevent possibility of contact to the casting.

2.06 Install the TP 94309 magnet bracket with the M209 magnet using the TP 49056 screw and TP 2669 lockwasher in the redrilled hole (Par. 2.04). Install the TP 94314 armature assembly on the magnet bracket using the TP 6746 screw, TP 2191 lockwasher and TP 94318 washer.

2.07 Mount one TP 6814 pilot screw and TP 2191 lockwasher in each of the TP 94305 bail brackets. Screws to be inserted from the inside.

2.08 On one of the TP 94305 bail brackets, mount the TP 96833 eccentric using the TP 2191 lockwasher and TP 74986 screw in the non-threaded hole in the forward lobe. The eccentric to be on the outside.

2.09 Remove and discard the four TP 8539 screws which mount the TP 7396 and TP 7397 left and right universal bar brackets. Retain lockwashers.

2.10 Using TP 6811 screws and the lockwashers retained in Par. 2.09 add TP 3458 (.015) shims as follows: Put two shims under the TP 9203 bracket at each end and three shims under the TP 7396 and TP 7397 brackets. (Five shims to be added at each end). Mount the TP 94305 bail bracket (prepared in Par. 2.08) against the right universal bar bracket with the lobe to the front. See Par. 2.25.

2.11 Mount the other TP 94305 bail bracket against the left universal bar bracket with its lobe to the rear.

2.12 Assemble the TP 81599 eccentric using the TP 74986 screw and TP 2191 lockwasher on the TP 94306 bail from the outside.

2.13 Mount the TP 94306 bail onto the TP 94305 bail brackets by means of the TP 6814 pilot screws already in the brackets. The TP 81599 eccentric shall engage the fork in the magnet armature.

2.14 Remove the TP 78986 screw and TP 2191 lockwasher which mounts the TP 2528 spring plate nearest the answer-back magnet.

2.15 Install the TP 94307 bail spring beneath the lockwasher of the TP 78986 screw.

2.16 Position the TP 94307 bail spring so it will not touch the TP 71449 key lever guide-rear as the screw is replaced through the TP 2528 spring plate.

2.17 Install the TP 94308 key-lever link on the lever assigned for the answer-back so that the hook on the link engages the bail. Use the TP 1163 screw furnished, to clamp the link.

2.18 Solder the short green wire of the TP 94320 cable to the clip connector terminal No. 52. Solder the other green wire to terminal 58.

NOTE: Adjustments should be made on the newly installed keyboard parts and the TP 74590 guide plates should be replaced.

C. Adjustments

2.19 Bail Adjustment:

(a) Place an orange stick or some similar tool under the TP 94307 bail spring, and over the TP 2528 spring plate and the TP 71449 key lever guide. This will hold the spring clear of the TP 94306 bail while the next step is being done.

(b) Adjust the two TP 94305 bail brackets so that their surfaces are parallel with the inner sides of the TP 94306 bail. The TP 94306 bail should have some end play.

(c) Remove the orange stick.

2.20 Key Lever Bail Adjustment: The key lever link should be positioned on its key lever to provide a .020 to .040 inch clearance between the vertical edge of the link and the vertical side of the bail. To adjust, loosen the link clamping screw and position the link. The .020 clearance shall be at the closest point between the link and the bail.

2.21 Bail Spring Tension: With the keyboard upside-down, hook an eight ounce scale under the end of the bail spring and pull vertically upward. It should require a tension of three to three and one-half ounces

to start the spring moving away from the bail. To adjust, bend the spring. If necessary to adjust, be sure, the TP 94307 bail spring does not touch the TP 71449 key lever guide-rear (see Par. 2.16).

2.22 Bail-Backstop Adjustment: There should be some clearance, not more than .004 inch between the edge of the bail and the hook on the key lever link. To adjust, loosen the bail-backstop eccentric mounting screw. Hold the bail against the eccentric backstop, and turn the eccentric. Tighten the screw.

2.23 Answer-Back-Magnet Heel-Piece Air Gap Adjustment: There should be a clearance of .025 to .030 inches between the end of the heel piece and the armature when the armature is held in the operated position. To adjust, loosen the armature-yoke mounting screw and place a .025 inch gauge between the heel piece and the armature. Hold the armature firmly against the gauge and tighten the mounting screw.

2.24 Bail Eccentric Adjustment: The eccentric bushing on the bail which is engaged in the forked end of the answer-back-magnet armature lever should be adjusted to provide full travel of the key lever it operates. To adjust, loosen the eccentric bushing screw, fully depress the answer-back key lever, place the magnet armature in its operated position and rotate the eccentric bushing until the bail just touches the key-lever link. Keep the large part of the eccentric to the rear of the unit. Tighten the eccentric bushing screw.

2.25 Keyboard Adjustments: The 15 type keyboard shall be adjusted in accordance with the standard adjustments as covered in P36.620 except for paragraph 2.13. Also check paragraphs 2.14 and 2.15. (See (b), following).

(a) In paragraph 2.13 the requirements shall be changed to min. .040 to max. .045 instead of min. .040 to .060 as shown.

(b) If necessary to readjust the universal bar to meet the requirement given in (a), then paragraphs 2.14 and 2.15 must also be checked, and readjusted if necessary, to meet the standard requirements.

3. TELETYPEWRITER SELECTOR FUNCTION PLATE AND CONTACT ASSEMBLY (P92.905.01)

3.01 Because of variations in typing units and the repositioning of the function plates, difficulties are being experienced in installing and adjusting the Teletypewriter Selector Function Plate and Contact Assembly when used on the ADOSO System. The following modifications of existing information may be helpful in solving these problems.

3.02 Reference should be made to Bell System Practice P65.917. Certain modifications of this information are suggested when the miniature "stuntbox" is used on ADOSO machines.

A. Material and Tools

3.03 The following material and tools will be needed: Three TP 6746 screws, a 415B spring adjuster and a 300 tool.

B. Suggested Additions and Changes in Section P65.917

3.04 In Par. 3.02(3), add a 415B spring adjuster and a 300 tool.

3.05 In Par. 3.04, Step 19(c): Use TP 6746 screws instead of TP 1160 or TP 1161.

3.06 In Par. 3.04, Step 22(d): Change to read: Release the function plates. Check the contact spring tension. It shall require 28-42 grams (1-1 1/2 oz) to open the contacts.

3.07 In Par. 3.04, Step 27: Add - If this adjustment cannot be met, enlarge the mounting holes.

3.08 In Par. 3.04, Step 29: Add - Position eccentric post on bail. Adjust eccentric roller so it does not touch FP.

3.09 In Par. 3.04, Step 30: Delete.

3.10 In Par. 3.04, Step 35: Change requirement to read .020-.030.

3.11 In Par. 3.04, Step 36: Change spring tension requirements to read 28-42 grams (1-1 1/2 oz) with clearance between contact post and insulator when selected. When not selected, but FP resting against the vanes, there shall be a contact gap of .025-.030.

3.12 In Par. 6.02(1): Change requirement to read .020-.030.

3.13 In Par. 6.02(3): Change requirement to read .025-.030.

C. Modification of Eight Contact Unit

3.14 Make the following modification of the standard eight contact version of the Teletypewriter Function Plate and Contact Assembly for four contact use as supplied in the ADOSO System. Reference BSP Section P65.917 and P92.905.01.

3.15 Remove the P92.905.01 contact assembly from the typing unit.

3.16 If the contact assembly is equipped with a full fiber shield between the contacts and the mounting plate, remove the contact bracket and discard the fiber shield. If the contact assembly is equipped with the small fiber shield as shown in FIG. 6 of P65.917, leave it in place.

3.17 Remove contact bank No. 2 (outside) from the contact bracket. Disconnect and tape back leads.

3.18 Remove and number all function plates (21 to 28). Leave the last TP 6987 washers and TP 6859 collars in place.

3.19 Place two sets of collars and washers back on the guide post. This will leave position 27 and 28 equipped with washers and collars but no function plates.

3.20 Assemble function plates and contact posts per Table A. When the assembly is complete, function plates 25, 26, 27 and 28 will be centered in the unit and plates 21, 22, 23 and 24 will not be used. Adjust the Hex Nuts on the guide posts per Par. 3.04, Step 20 and FIG. 10 of P65.917.

TABLE A

POS	FUNCTION PLATE	CONTACT POST
28	Collar & Washers Only	NONE
27	Collar & Washers Only	NONE
26	Plate from POS 28	Post from POS 26 (DET 13)
25	Plate from POS 27	Post from POS 25 (DET 14)
24	Plate from POS 26	Post from POS 24 (DET 15)
23	Plate from POS 25	Post from POS 23 (DET 16)
22	Collar & Washers Only	NONE
21	Collar & Washers Only	NONE

3.21 Replace the contact bracket on the mounting plate. Place a TP 7002 washer on each TP 1163 screw between the contact bracket and the mounting plate. This will provide a clearance between the contact bracket and the mounting plate.

3.22 Loosen the P 283332 screws in the BANK 1 contact pile-up. Adjust for .030 to .040 clearance between mounting plate and the free end of the contact springs. If the mounting plate is equipped with the small fiber strip, the clearance shall be .020 to .030. Tighten the spring pile-up screws.

3.23 Adjust contacts per Par. 3.04, Step 22 of P65.917.

D. Check of Related Typing Unit Adjustments

3.24 Before installing the contact assembly, check and correct the following adjustments in the typing unit where necessary. Ref: P36.610.

1. Pull Bar Adjustment Par. 2.40.
2. Function Lever Bail Par. 2.41.
3. Function Lever Bail and Blocking Plate Adjustments Par. 2.41 and 2.42.

4. TELETYPEWRITER SELECTING CODE PRINTING SUPPRESSOR (P92.904.01)

4.01 The variations in No. 15 typing units and irregularity in manufacture of material is also causing some difficulty in installing and adjusting the printing suppressor used on ADOSO circuits.

4.02 Reference should be made to Bell System Practice P65.918, Issue A, dated May, 1957. Certain modifications of this information are listed when the printing suppressor is used on ADOSO machines.

A. Material

4.03

Quantity	Item
1	TP 82392 shims
1	TP 89963 eccentric
1	TP 156632 screw
1	TP 82963 sixth vane extension

B. Modifications

4.04 Adding shim to adapter plate post: Excessive end-play of the blocking lever on the adapter plate post has been experienced in some cases. This can be corrected by adding a TP 82392 shim (.004) between the TP 41675 washer and the blocking lever. The blocking lever should move freely with a minimum of end play. See P65.918, page 10.

4.05 Adding eccentric for armature backstop: Because of lack of a backstop on the magnet armature, unreliable action of the printing suppressor magnet sometimes occurs. To correct this condition, an eccentric, TP 89963 is added just back of the armature. To do this, proceed as follows:

(a) Replace existing screw on right end of adapter plate (in back of armature), with a TP 156632 screw, positioning the eccentric with its lobe towards the rear of the typing unit. Tighten screw friction tight.

(b) Place a .005 gauge between the armature and pole face of the printing suppressor magnet.

(c) Hold blocking lever stop surface (See Fig. 16 of P65.918) against auxiliary lever. Move adapter plate to right until the armature is against the .005 gauge. Position the adapter plate front-to-rear for a clearance of .010 to .015 between the blocking lever's stop surface and the auxiliary lever. Tighten the two screws holding the adapter plate.

(d) With the printing bail in the forward position, adjust the eccentric on the adapter plate, moving it clockwise until a clearance of .035-.045 clearance is obtained between the blocking lever side, and the auxiliary function lever side. Tighten screws.

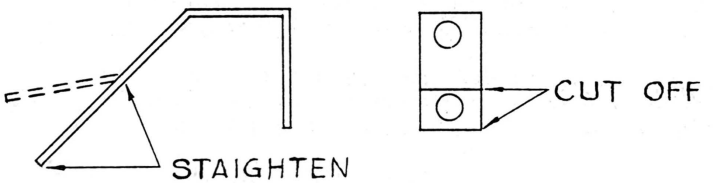
(e) With the blocking lever held upward, taking up all excessive play, the top surface of the blocking lever shall not be above the auxiliary function

lever blocking surface. To adjust, bend the adapter plate; not the blocking lever. Use caution. (See P65.918, pages 14 and 15). Recheck clearances. Adjust if necessary.

(f) Manually operate and release the armature slowly. It should move freely, without touching the frame. If necessary, file frame.

NOTE: Be sure that the TP 1163 screws holding the armature bracket do not touch the magnet coil. Use extra washers if necessary.

4.06 Adding Modified Sixth Vane Extension: Because of variations in adjustment on some typing units, occasional stoppage of printing has been caused by the auxiliary function lever slipping under the blocking bail. This trouble can be prevented by installing the modified sixth vane extension (Fig. 1) to hold the auxiliary function lever away from the edge of the blocking bail. It can be installed as follows:



MODIFICATION OF TP82963 SIXTH VANE EXTENSION FOR SPECIAL PURPOSE

Fig. 1

(a) Remove the screw and washers from the blocking bail between "BELL" and "FIGS."

(b) Place the modified extension on the blocking bail with the straightened end pointing down and towards the front of the typing unit. Install screw and washers friction tight.

(c) With the printing bail in the rearmost position, place a .010 gauge between the auxiliary function lever and the right edge of the blocking bail. Hold the function lever against the gauge and adjust the modified sixth vane extension so that it just touches the auxiliary function lever. Tighten screw.

(d) Lube between auxiliary function lever and modified sixth vane extension at the point of contact.

5. MODIFYING THE TP 121130 SET OF PARTS PLATEN-INDEX MECHANISM

5.01 This describes a modification to improve the operation of the Platen-Index Mechanism used on 15 typing units in the ADOSO System.

5.02 The modification consists of replacing the existing micro-switch with one having better timing action.

5.03 The change will be made by field forces.

A. Material

5.04 One 1MD1-13AXX Switch Acro.

B. Modification

5.05 Replace the TP 122057 switch (No. 1MD2-12AXX or 1MD2-2AXX or 1MD2-2AXX-BM2232), with the 1MD1-13AXX. Position switch as far down as possible.

5.06 Check the contact lever eccentric bushings. The Hex heads of the two eccentrics shall be together.

5.07 Check the contact lever spring. It shall have the long end of the spring holding the contact lever against the cam.

5.08 Adjust contact lever as follows:

(a) Position the contact lever eccentric with the high part towards the front of the TTY unit.

(b) Connect an ohmmeter across the 1MD1-13AXX acro switch.

(c) With the contact lever on the peak of its cam, rotate the left eccentric bushing in such a direction as to obtain .030 between the bottom of the contact lever and the switch plunger. (Be careful not to distort the contact lever spring). This is a preliminary adjustment.

(d) Rotate the cam so that the cam peak is to the top of the unit and the cam lever is resting on the cam.

(e) Place a flat .010 gauge between the cam and the tip of the contact lever. The meter should show no continuity.

(f) Slowly rotate the left contact eccentric in a downward direction until the ohmmeter just shows continuity. Tighten the nut which clamps the eccentric.

(g) Manually pull the contact lever tip away from the cam surface until the ohmmeter shows no continuity and hold.

(h) Place a flat .006 gauge between the contact lever and tip of cam.

(i) Slowly lower the contact lever against the .006 gauge. The ohmmeter must show continuity.

(j) Pull contact lever out again and place a .012 gauge in place of the .006 gauge.

(k) Slowly lower contact lever against the .012 gauge. The meter should not show continuity.

(l) If adjustments of Pars. (h), (i), (j) and (k) are not met, recheck Pars. (e) and (f).

5.09 See BSP P36.619. Disregard Pars. 4.01-4.03 and 4.06. Check 4.04, 4.05, 4.07, 4.08 and 4.09.

5.10 Contact lever spring tension. It shall require 10 to 14 oz. pull in a horizontal direction to start lever moving from cam surface.