

INSTRUCTIONS FOR INSTALLING THE 162490  
MULTIPLE WIRE OUTPUT MODIFICATION KIT ON A  
MODEL 28 TRANSMITTER DISTRIBUTOR LXD4, AND UP

1. GENERAL

a. The 162490 Modification Kit when installed on a Model 28 Transmitter Distributor LXD4 and up (Serial Nos. 7515 and up) provides simultaneous (parallel) five wire output. In addition units with Serial Nos. 7514 and below require the latest 156649 Front Plate, Serial Nos. 5400 and below require the latest 156836 Cam Shaft with a cam lobe that operates the sensing bail. This cam lobe is located 1.529 inches from the end of the clutch drum side of the cam shaft.

b. Teletype Specification 5969S covers instructions for installing the 163317 Modification Kit to provide multiple wire output facilities on the Model 28 Transmitter Distributor Base LXDB3 (Bell System 28 H).

c. The 162490 Modification Kit consists of:

2	2191	Washer, Lock	23	155754	Sleeve, Insulating
2	3598	Nut 6-40 Hex.	1	162491	Cable Assembly
1	80945	Spring	1	162492	Post, Guide
7	110743	Washer, Lock	1	162493	Bail W/Stud
<i>119647</i> 2	<del>119648</del>	Ring, Retaining	1	162495	Plate W/Roller
1	119652	Ring, Retaining	1	162498	Screw 4-40 Eccentric
7	125011	Washer, Flat	1	162499	Nut 4-40 Shoulder
1	130683	Washer, Lock	5	162500	Arm, Sensing
4	151152	Screw 4-40 x 3/16 Hex.	1	162501	Post, Spring
1	151880	Nut 4-40 Hex.	1	162502	Post, Stop
2	153799	Screw 4-40 x 21/64 Hex.	1	162503	Shaft, Spring
1	156078	Contact Assembly	1	162504	Contact Assembly
3	155750	Sleeve, Insulating	1	162506	Bracket W/Studs
5	<del>159804</del>	Spring	1	3708WD	Diagram, Wiring
	<i>151399</i>				

d. For part numbers referred to and for parts ordering information see Teletype Model 28 Transmitter Distributor Parts Bulletin 1161B.

2. INSTALLATION

NOTE

Reference made to "Left" or "Right," "Front" or "Rear," apply to the unit in its normal operating position on a self-contained base as viewed from the operators position in "Front" of the unit.

a. Remove the transmitter distributor unit from its base and retain the mounting screws.

b. Disassemble the unit in accordance with standard practice. Do not disassemble the 156667 Front Plate Assembly.

c. Place the 162493 Bail W/Stud on the 162492 Guide Post. Install the 119652 Ring Retainer on the guide post adjacent to the hexagon portion of the post.

d. On the 162493 Bail W/Stud, install the 162503 Spring Shaft using the two ~~119648~~ Ring Retainers.

*119648*

e. Install the five 162500 Sensing Arms on the guide post. The position of the sensing arms on the post should be checked so that they align with their associated transfer levers when installed.

f. Install the five ~~162500~~ Springs to the spring shaft and 162500 Sending Arms.   
151398

g. Position the assembled parts on the front plate and secure the guide post with a 2191 Lock Washer and 3598 Nut.

h. Secure the 162502 Stop Post on the front plate with a 2191 Lock Washer and 3598 Nut.

NOTE

Prior to installation of the 156078 and 162504 Contact Assemblies, check the applicable adjustment in accordance with standard practice.

i. Solder the 162491 Cable Assembly to the contact assemblies in accordance with Wiring Diagram 3708WD. Solder the other ends of the cable assembly to the connector plug on the unit. Cover the code reading contact assembly and connector plug terminals (except the common lead of the contact assembly) with the 155754 Insulating Sleeves. Cover the auxiliary contact assembly terminals with the 155750 Insulating Sleeves.

j. Install the 162504 Contact Assembly on the front plate with two 125011 Flat Washers, 110743 Lock Washers, and 151152 Screws.

k. Install the 162506 Bracket W/Studs on the front plate using two 125011 Flat Washers, 110743 Lock Washers, and 153799 Screws.

l. Secure the 156078 Code Reading Contact Assembly to the 162506 Bracket with two 125011 Flat Washers, 110743 Lock Washers, and 151152 Screws. Place the contact assembly below the bracket.

NOTE

Reinstall the center plate assembly.

m. Install the 162495 Plate W/Roller on the 162492 Guide Post using a 130683 Lock Washer and 162499 Nut.

n. Connect the 162495 Plate W/Roller to the 162493 Bail W/Studs using a 162498 Eccentric Screw, 110743 Lock Washer, and 151880 Nut.

o. Remove the left 151692 Retaining Screw that secures the 156638 Transfer Lever Guide to the front plate. In its place install the 162501 Spring Post with the retained 2191 Lock Washer.

p. Place the 80945 Spring on the 162501 Spring Post and 162495 Plate W/Roller.

q. Complete the reassembly of the LXD unit.

3. ADJUSTMENTS (Figures 1 through 5 inclusive) AND LUBRICATION

a. For adjustments procedure refer to standardized information. Make the following adjustments.

(1) See Figures 1 and 2.

(2) Split Bail Eccentric - Preliminary (Figure 5)

(a) Requirement:

1. With the blank combination selected and the clutch tripped, there should be .025" to .030" clearance between the "Y" levers and their associated sensing arms.

2. With the blank combination selected and the locking bail just beginning its locking action, and all the play taken up in the sensing arms, there should be some to .010" clearance between the contact swingers and the insulator on the contact sensing arms.

(b) To Adjust:

1. Loosen the nut that secures the split bail eccentric screw and turn the screw until the requirement is met. Tighten the nut.

2. Loosen the contact bracket mounting screws and position the bracket to satisfy the requirement. Tighten the screws.

(3) Split Bail Eccentric - Final (Figure 2)

(a) Requirement:

With the blank combination selected, rotate the main shaft until the contact sensing arms are at their maximum upward travel. There shall be some to .010 inch clearance between the contact swinger and the insulator on the contact sensing arm.

(b) To Adjust:

Refine the split bail eccentric adjustment above.

(4) Contact Assembly Position

(a) Requirement:

The swinger of each contact pile-up should be aligned with its associated sensing arm as gaged by eye.

(b) To Adjust:

Loosen the screws that mount the code reading contact assembly to the contact bracket and position the assembly to meet the requirement. Tighten the screws.

(5) Contact Sensing Arm Up-Stop (Figure 3)

(a) Requirement:

With the letters combination selected, the clutch engaged, and the mainshaft rotated until the sensing arms are against the eccentric up-stop, there should be some to .008 inch clearance between the code reading contact spring and its associated backstop.

(b) To Adjust:

Loosen the nut that secures the eccentric up-stop to the front plate and turn the eccentric until the requirement is satisfied. Tighten the nut.

(6) Auxiliary Contact Assembly - Preliminary (Figure 4)

NOTE: It is recommended that the following adjustments be made before installation of the auxiliary contact assembly.

(a) Requirement:

1. It should require 4 to 5 ounces applied just in front of the contact point to open the normally closed contact.
2. The normally open contact gap shall be .015 to .020 inch.
3. It should require 5-1/2 to 6 ounces to move the normally open contact spring away from its stiffener.

(b) To Adjust:

1. Bend the swinger contact spring to satisfy the requirement.
2. Bend the normally open contact stiffener to meet this requirement.
3. Bend the normally open contact spring to meet this requirement.

(7) Auxiliary Contact Assembly - Final (Figure 4)

NOTE: The following adjustment shall be made with the auxiliary contact assembly mounted in the unit.

(a) Requirement:

1. With the clutch disengaged and latched, there should be .025 to .035 inch clearance between the insulator on the swinger and the operating surface on the bail.
2. When the swinger is contacted by the operating bail, the insulator pad on the swinger shall be centrally located on the operating bail extension and the mating contact points shall be aligned.

(b) To Adjust:

1. Loosen the auxiliary contact bracket mounting screws and position the bracket until the requirement is met. Tighten the screws.
2. Loosen the contact mounting screws and position the contact springs to meet the requirement.

(8) Code Reading Contact Sensing Arm Spring Tension (Figure 5)

(a) Requirement:

With the clutch disengaged, it should require 1 to 2 ounces to start the sensing arm in motion.

(b) To Measure:

Place the push end of an 8 ounce scale on the sensing arm between the insulator and spring hook and press downward.

NOTE: If the horizontal and vertical tabulator is installed in the LXD unit, remove the timing bail spring before measuring the spring tensions.

(9) Auxiliary Contact Operating Bail Spring Tension (Figure 5)

(a) Requirement:

With the clutch disengaged, it should require 5 to 7 ounces to move the follower roller away from the lower part of its associated cam.

(b) To Measure:

Invert the unit and hook an 8 ounce scale adjacent to the roller and pull until the roller just starts to leave the cam.

NOTE: If the horizontal and vertical tabulator timing set of parts is installed in the LXD unit, remove the timing bail spring before measuring the spring tension.

Replace the 156648 Contact Box Assembly and adjust in accordance with standard practice.

b. Lubrication

For lubrication procedure refer to standardized lubrication information.

(1) Lubricate each contact sensing arm pivot point with two drops of oil.

(2) Lubricate the follower roller with a light coat of grease.

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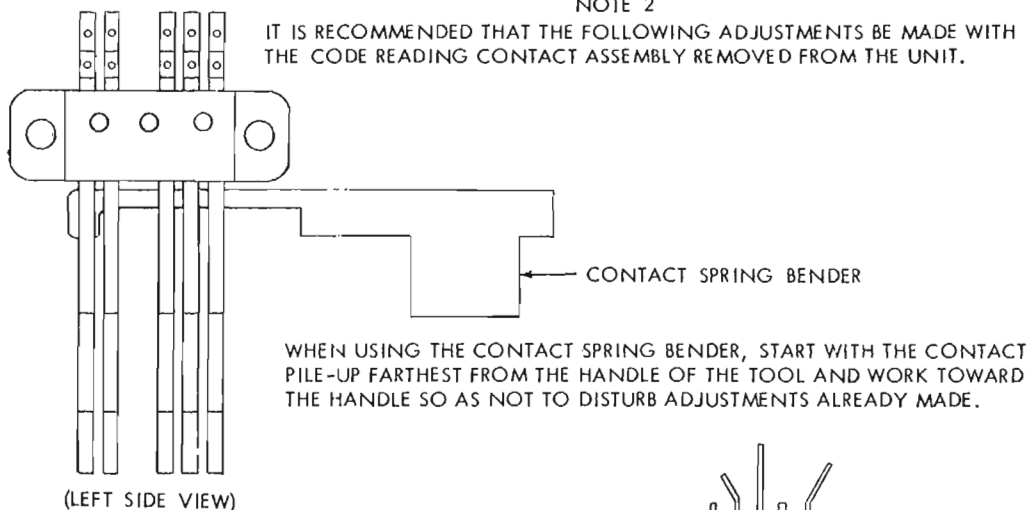
d. CODE READING AND TIMING CONTACTS

NOTE 1

UNLESS SPECIFICALLY STATED OTHERWISE, THE FOLLOWING CODE READING CONTACT ADJUSTMENTS APPLY TO BOTH THE TRANSFER (BREAK BEFORE MAKE) TYPE AND MAKE TYPE CONTACTS. WHEN AN ADJUSTMENT IS APPLICABLE TO BOTH TYPES, THE TRANSFER TYPE CONTACTS ARE USED IN THE ILLUSTRATIONS.

NOTE 2

IT IS RECOMMENDED THAT THE FOLLOWING ADJUSTMENTS BE MADE WITH THE CODE READING CONTACT ASSEMBLY REMOVED FROM THE UNIT.



(A) MARKING CONTACT BACKSTOPS

REQUIREMENT

AS GAUGED BY EYE, FIVE MARKING CONTACT SPRINGS SHOULD ALIGN WITH EACH OTHER AND BE PARALLEL WITH MOUNTING PLATE.

TO ADJUST

BEND MARKING CONTACT BACKSTOPS.

MARKING CONTACT BACKSTOP

MOUNTING PLATE

(B)

MARKING CONTACT SPRINGS-PRELIMINARY

REQUIREMENT

WITH SWINGER CONTACT SPRING HELD AWAY:

MIN. 2 OZS.

MAX. 6 OZS.

TO MOVE EACH SPRING AWAY FROM BACKSTOP.

TO ADJUST

BEND MARKING CONTACT SPRINGS.

NOTE:

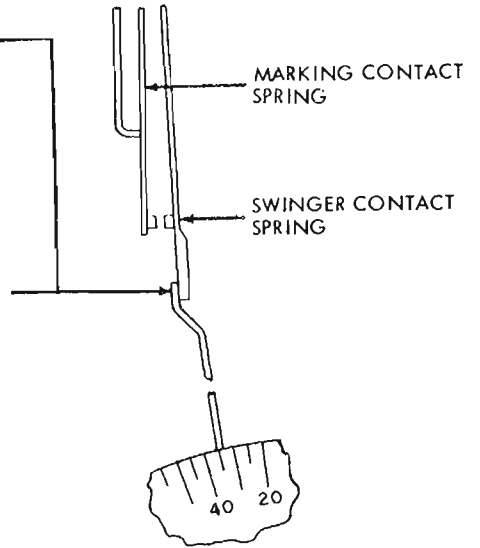
TO INCREASE TENSION OF MARKING CONTACT SPRING, IT MAY BE NECESSARY TO BEND BACKSTOP AWAY FROM SPRING, BEND SPRING AND THEN RE-BEND BACKSTOP TO MEET REQUIREMENT OF MARKING CONTACT BACKSTOPS ADJUSTMENT (ABOVE).

MARKING CONTACT SPRING

SWINGER CONTACT SPRING

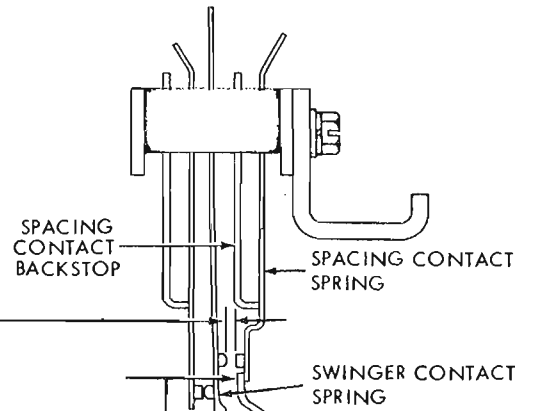
FIGURE 1. CODE READING CONTACTS

(A) SWINGER CONTACT SPRINGS-PRELIMINARY  
 REQUIREMENT  
 MIN. 30 GRAMS  
 MAX. 40 GRAMS  
 TO OPEN MARKING CONTACTS.  
 TO ADJUST  
 BEND SWINGER CONTACT SPRINGS.

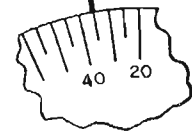


NOTE:  
 SPACING CONTACTS (ON TRANSFER TYPE CONTACT ASSEMBLIES ONLY)  
 ARE NORMALLY OPEN WHEN CONTACT ASSEMBLY IS REMOVED FROM UNIT.

(B) SPACING CONTACT BACKSTOPS (APPLIES  
TO TRANSFER TYPE CONTACTS ONLY)  
 REQUIREMENT  
 GAP BETWEEN SPACING CONTACTS  
 MIN. 0.010 INCH  
 MAX. 0.015 INCH  
 TO ADJUST  
 BEND SPACING CONTACT BACKSTOPS.



(C) SPACING CONTACT SPRINGS-PRELIMINARY  
 (APPLIES TO TRANSFER TYPE CONTACTS ONLY)  
 REQUIREMENT  
 MIN. 30 GRAMS  
 MAX. 40 GRAMS  
 TO MOVE EACH CONTACT SPRING AWAY FROM BACKSTOP.  
 TO ADJUST  
 BEND SPACING CONTACT SPRINGS.



NOTE:  
 TO INCREASE TENSION OF SPRING, IT MAY BE NECESSARY TO BEND BACKSTOP  
 AWAY FROM SPRING, BEND SPRING, AND THEN RE-BEND BACKSTOP TO MEET  
 REQUIREMENT OF SPACING CONTACT BACKSTOPS ADJUSTMENT ABOVE.

FIGURE 2. CODE READING CONTACTS

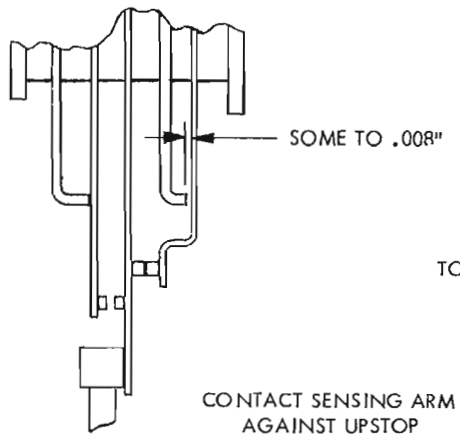


FIGURE 3

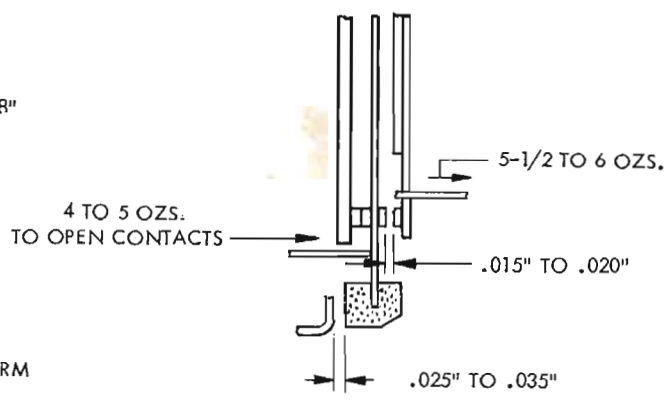


FIGURE 4

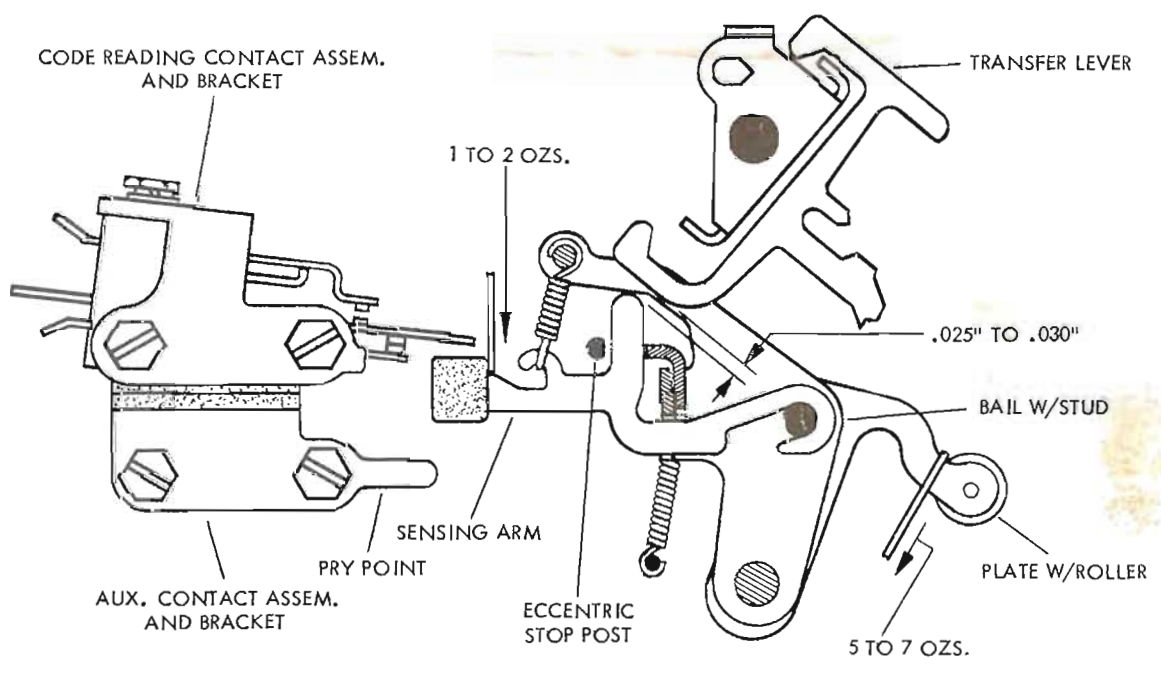


FIGURE 5

FIGURE 6. 162490 MODIFICATION KIT TO PROVIDE MULTIPLE WIRE OUTPUT FOR THE TRANSMITTER DISTRIBUTOR

