

AUTOMATIC
LINE SWITCHING SYSTEM ORIGINATING STATION
TELETYPEWRITER EQUIPMENT
TAPE PREPARATION
CIRCUIT DESCRIPTION

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SECTION I - GENERAL DESCRIPTION

1. PURPOSE OF CIRCUIT

a. This circuit provides a means whereby a 28 automatic sending teletypewriter can prepare a perforated tape for transmission to the line.

2. COMPONENT PARTS OF STATION

a. The sending station operator prepares a Teletype tape by using special keys on the 28 ASR Keyboard and the Codomat. The keys are designated as SOM (Start of Message), EOA (End of Address) and EOM (End of Message). Depression of these keys will cause automatic perforation of the format sequence indicated on the key. The Codomat is provided to initiate automatic perforation of address information in the tape by inserting prepunched cards, with station DDD number and mnemonic code, in the Codomat head. The station operator may manually perforate DDD numbers, CDC's and mnemonic codes in the tape by using four special keys. These keys are designated "Local Area, Distant Area, PSNM and CDC." The functions of the special keys will be explained later.

b. The components of the 28 ASR used in the tape preparation are:

- (1) Keyboard.
- (2) Multimagnet Perforator.
- (3) Codomat and Codomat Drum.

(a) The codomat drum will hold 1,800 cards. The cards are punched to include DDD numbers and Mnemonic Codes. The cards are inserted in the codomat head which reads the card and transmits the information to the multimagnet perforator to be punched in the tape.

(4) A 24 hour clock to code the time the message was prepared.

SECTION II - DETAILED DESCRIPTION

1. START OF MESSAGE

a. SOM Key operated (Start of Message). This operates Relay SMR.

b. RELAY SMR OPERATED

- (1) Locks through own contact and SESS Arc 1.
- (2) Operates SESS Magnet.
- (3) Partially closes another operate path to SESS Magnet.
- (4) Partially closes operate path to LARP clutch magnet.
- (5) Opens path from SESS Arc 2 to SESS Magnet.
- (6) Disables all control keys.

c. SESS MAGNET OPERATED

- (1) Opens SESS interrupter contact stepping SESS Switch to position one.
- (2) Operates SESS off normal contact and releases SESS magnet.

d. SESS SWITCH ON POSITION 1

- (1) Arc 5 wipers operate 7 level selector magnet.
- (2) Arc 7 wipers operate 5 level selector magnet.
- (3) Arc 8 wipers operate 4 level selector magnet.
- (4) Arc 9 wipers operate 3 level selector magnet.
- (5) Arc 10 wipers operate 2 level selector magnet.

- (6) Arc 11 wipers operate 1 level selector magnet.
 - (7) Arc 4 wipers operate LARP clutch magnet.
- e. LARP CLUTCH MAGNET OPERATED
- (1) LARP shaft rotates and LETTERS combination with a 7 level control hole is perforated in tape.
 - (2) LARP shaft rotates and Aux. I contact close operating SESS Magnet. Aux. II opens releasing level selector magnets and LARP Magnet. Aux. I contact opens and SESS switch steps to position two. Aux. II contact closes operating LARP Magnet and selector level magnets.
- f. SESS SWITCH ON POSITION 2
- (1) Arc 8 wipers operate 4 level selector magnet.
 - (2) Arc 4 wipers operate LARP clutch magnet.
- g. LARP CLUTCH MAGNET OPERATED
- (1) LARP shaft rotates and CARRIAGE RETURN combination perforated in tape.
 - (2) LARP shaft rotates and steps SESS Switch to Position three in same manner as described previously.
- h. SESS SWITCH ON POSITION 3
- (1) Arc 10 wipers operate 2 level selector magnet.
 - (2) Arc 4 wipers operate LARP clutch magnet.
- i. LARP CLUTCH MAGNET OPERATED
- (1) LARP shaft rotates and LINE FEED combination is perforated in tape.
 - (2) LARP shaft rotates and steps SESS Switch to Position 4 in the same manner as described previously.
- j. SESS SWITCH ON POSITION 4
- (1) Arc's 7 through 11 will operate 1 through 5 level selector magnets.
 - (2) Operates LARP clutch magnet.
 - (3) Letters combination perforated in tape.
- k. LARP CLUTCH MAGNET OPERATED
- (1) LARP shaft rotates and steps SESS Switch to Position 5 in same manner as described previously.
- l. SESS SWITCH ON POSITION 5
- (1) Opens operate path to LARP clutch magnet.
 - (2) Arc 3 operates SESS magnet through SESS interrupter contacts and SESS Switch will step to Position 24.
- m. SESS SWITCH ON POSITION 23
- (1) Released Relay SMR.
- n. RELAY SMR RELEASED
- (1) Activates all control keys.
 - (2) Operates SESS magnet through SESS off normal contacts and interrupter contacts and Arc 3 SESS Switch. SESS switch will step to home position.

Note: If SOM Key is still operated at time SESS Switch is on Position 24, switch will not home, but will home when SOM key is released.

2. ADDRESS FROM CODOMAT CARD
 - a. Operator selects and pulls Codomat card into reader.
 - b. Card in position contact operated.
 - (1) Operates codomat magnet.
 - (2) Disables all control keys.
 - c. CODOMAT MAGNET OPERATED
 - (1) Operates codomat armature-up contact.
 - (2) Operates code sensing contacts.

Note: The operation of codo sensing contacts depend upon the combination perforated in codomat card that is inserted in codomat. All cards start with a figures combination associated with a \emptyset level control hole. Codo sensing contacts \emptyset , 1, 2, 4, and 5 will operate.
 - d. CODOMAT ARM UP CONTACT OPERATED.
 - (1) Operates Relay CMR.
 - e. RELAY CMR OPERATED
 - (1) Operates Relay BRR.
 - (2) Operates level selector magnets associated with operated codo sensing contacts.
 - (3) Partially closes operate path to LARP clutch magnet.
 - f. RELAY BRR OPERATED
 - (1) Operates LARP clutch magnet.
 - (2) Figures combination with a \emptyset level control hole is perforated in tape.
 - g. LARP CLUTCH MAGNET OPERATED
 - (1) LARP shaft rotates and opens LARP magnet release contact and LARP Aux. II contact.
 - h. LARP MAGNET RELEASE CONTACT OPEN
 - (1) Releases Codomat magnet.
 - i. LARP AUX. II CONTACT OPEN
 - (1) Releases LARP clutch magnet.
 - (2) Releases level selector magnets.
 - j. CODOMAT MAGNET RELEASED
 - (1) Releases arm-up contact which releases Relay CMR.
 - (2) Releases codo sensing contacts which release Relay BRR.
 - k. LARP Aux. II and LARP magnet release contacts close before LARP shaft completes full cycle. When LARP magnet release contacts close, codomat magnet will operate and the cycle described will be repeated for the next combination perforated in card, this cycling will continue until CODO SENSING contacts sense blank.
 1. RELAY RSR OPERATED
 - (1) Releases codomat magnet.
 - (2) Operates Relay MRR.
 - (3) Opens operate path to LARP clutch magnet.
 - m. CODOMAT MAGNET RELEASED
 - (1) Releases codomat arm-up contact which releases Relay CMR.
 - (2) Releases CODO SENSING contacts.
 - n. RELAY MRR OPERATED
 - (1) Operates codomat motor.
 - o. CODOMAT MOTOR OPERATED
 - (1) Holds Relay RSR operated through Codo-Reset contacts.
 - (2) Codomat reset contact will operate and codomat card will be ejected mechanically from codomat. Relays RSR and MRR will release. Motor will stop.
 - (3) All control keys will be activated.

Note: EASS number and mnemonic code of receiving station have now been perforated in tape.

3. END OF ADDRESS WITH TIME AND STATION IDENTIFICATION MNEMONIC
 - a. EOA KEY OPERATED (END OF ADDRESS)
 - (1) This operates Relay EAR.
 - b. RELAY EAR OPERATED
 - (1) Operates clock blocking magnet.
 - (2) Operates EASS Magnet.
 - (3) Locks through own contacts and EASS Arc 1.
 - (4) Partially closes operate path to LARP clutch magnet.
 - (5) Opens operate path from EASS off-normal contact to EASS magnet.
 - (6) Disables all control keys.
 - c. CLOCK BLOCKING MAGNET OPERATED
 - (1) Mechanically locks in time of day on clock cams.
 - d. EASS MAGNET OPERATED
 - (1) Opens EASS interrupter contacts stepping EASS Switch to position one.
 - (2) Operates EASS off normal contacts.
 - e. EASS SWITCH ON POSITION 1
 - (1) Arc 8 wipers operate 4 level selector magnet.
 - (2) Arc 4 wipers operate LARP clutch magnet.
 - (3) Carriage return combination perforated in tape.
 - f. LARP CLUTCH MAGNET OPERATED
 - (1) LARP shaft rotates and Aux. I contact closes operating EASS magnet. Aux. I contact opens and EASS switch steps to position two.
 - g. EASS switch will be stepped in this manner until EASS switch Arc 1 wipers arrive on Position 22. When EASS switch was on Position 7, 8, 9 and 10 level selector magnets were selected by clock punch units associated with time of day. On position 13 level selector magnets were operated to start to perforate sending station mnemonic code.
 - h. EASS SWITCH ON POSITION 22
 - (1) Releases Relay EAR.
 - i. RELAY EAR RELEASED
 - (1) Activates all control keys.
 - (2) Operates EASS magnet through EASS Switch will step to home position.
 - (3) If EOA key is still operated at time EASS Switch is on Position 22, Switch will not home, but will home when EOA key is released.
- Note: End of address code has now been perforated in tape to be transmitted.
4. END OF MESSAGE
 - a. EOM KEY OPERATED (END OF MESSAGE).
 - (1) This operates Relay EMR.
 - b. RELAY EMR OPERATED
 - (1) Locks through own contact.
 - (2) Operates SESS Magnet.
 - (3) Partially closes operate path to SESS Magnet.
 - (4) Partially closes operate path to LARP clutch magnet.
 - (5) Opens path from SESS Arc 3 to SESS Magnet.
 - (6) Disable all control keys.

c. SESS MAGNET OPERATED

- (1) Opens SESS interrupter contact stepping SESS switch to Position 1.
- (2) Operates SESS off normal contact.

d. SESS SWITCH ON POSITION 1

- (1) Arc 2 wipers operate SESS magnet through SESS off-normal contact and interrupter contact SESS switch will step to Position 6.

e. SESS SWITCH ON POSITION 6

- (1) Arc 8 wipers operate 4 level selector magnet.
- (2) Arc 4 wipers operate LARP clutch magnet.
- (3) Carriage return combination perforated in tape.

f. LARP CLUTCH MAGNET OPERATED

- (1) LARP shaft rotates and Aux. 1 contacts close operating SESS magnet. Aux. 1 contact opens and SESS switch steps to Position 7.
- (2) SESS switch will be stepped in this manner until SESS switch Arc 4 wipers arrive on Position 22.

g. SESS SWITCH ON POSITION 22

- (1) Arc 2 wipers operate SESS magnet. SESS switch steps to Position 23.

h. SESS SWITCH ON POSITION 23

- (1) Relay EMR released.

i. RELAY EMR RELEASED

- (1) Activates all control keys.
- (2) Operates SESS magnet through SESS off-normal contact, and interrupted contact SESS switch steps to home position.

- (3) If EOM key is still operated at time SESS switch is on Position 25, switch will not home, but will home when EOM key is released.

Note: End of Message combination has now been perforated in tape.

5. MANUAL PUNCHING OF LOCAL AREA DIALING NUMBER

- a. LA Key Operated (Local Area). This Operates Relay LAR.

b. RELAY LAR OPERATED

- (1) Lites LA lamp.
- (2) Partially closes operate path to Relay FGR.
- (3) Partially closes operate path to CCSS Magnet.
- (4) Locks through own contact.
- (5) Partially closes operate path to \emptyset level selector magnet.
- (6) Opens homing path to CCSS magnet.
- (7) Opens operate path to codomat magnet.
- (8) Disables all control keys.
- (9) ~~Opens~~ **CLOSES** operate path to 7 level magnet.

- c. FIGURES KEY OPERATED. This operates Relay FGR, keyboard code reading contacts and keyboard aux. contacts.

d. RELAY FGR OPERATED

- (1) Operates \emptyset level selector magnet.
- (2) Operates CCSS magnet which, when operated, opens CCSS interrupter contact stepping CCSS switch to Position.1.

- (1) \emptyset level selector magnet operated.

e. KEYBOARD CODE READING CONTACT OPERATED

- (1) Partially close operate path to level selector magnets.

f. KEYBOARD AUX. CONTACT CLOSING

- (1) Operates level selector magnet.
- (2) Operates LARP clutch magnet.
- (3) Figures combination perforated in tape associated with \emptyset level control hole.

g. LARP CLUTCH MAGNET OPERATED

- (1) LARP shaft rotates. Aux. 1 contact closes holding Relay FGR operated. Aux. II contact open releasing level selector magnets and LARP clutch magnet. Aux. II contact closes \emptyset level selector magnet will operate through CCSS Arc 4 wipers on position 1.

h. KEYBOARD AUX. CONTACT OPENS

- (1) Opens operate path to LARP clutch magnet.

i. RELAY FGR RELEASED

- (1) Places CCSS magnet under control of LARP Aux. 1 contact.
- (2) When desired digit key is operated, it will operate keyboard code reading contacts and keyboard aux. contact.

j. KEYBOARD CODE READING CONTACT OPERATED

- (1) Partially closes operate path to level selector magnets.

k. KEYBOARD AUX. CONTACT CLOSING

- (1) Operates level selector magnets.
- (2) Operates LARP clutch magnet.

- (3) Digit perforated in tape associated with \emptyset level control hole.

l. LARP CLUTCH MAGNET OPERATED

- (1) LARP shaft rotates. Aux. I contact closes operating CCSS magnet. Aux. II contact opens releasing level selector magnets and LARP clutch magnet. Aux. I contact opens and CCSS switch steps to Position 2. Aux. II contact closes operating \emptyset level selector magnet.

m. KEYBOARD AUX. CONTACT OPENS

- (1) Opens operate path to LARP clutch magnet.

Note: The circuit operation just described will be repeated when next desired digit key is operated. When third desired digit key is operated the operation will repeat until CCSS switch steps to Position 4. When Aux. II contact closes CCSS Arc 3 wipers will operate 7 level selector magnet in conjunction with \emptyset level selector magnet. \emptyset and 7 control holes will be associated with fourth through tenth digit, and circuit operation will repeat for each digit key operated.

n. CCSS SWITCH ON POSITION 11

- (1) Opens CCSS off-normal contacts (Home Position)

o. When letters key is operated it operates code reading contacts, keyboard aux. contact and releases Relay LAR. Letters combination perforated in tape.

p. RELAY LAR RELEASED

- (1) Extinguishes LA lamp.
- (2) Opens operate path to CCSS magnet
- (3) Closes operate path to codomat magnet.

(4) Activates all control keys.

Note: Desired local area dialing number has now been perforated in tape by keyboard operation.

6. MANUAL PUNCHING OF DISTANT DIRECT DIALING NUMBER

a. D.A. KEY OPERATED (DISTANT AREA)

(1) This operates Relay DAR.

b. RELAY DAR OPERATED

(1) Operates DA lamp.

(2) Partially closes operate path to Relay FGR.

(3) Partially closes operate path to CCSS magnet.

(4) Locks through own contact.

(5) Partially closes operate path to \emptyset level selector magnet.

(6) Partially closes operate path to 7 level selector magnet.

(7) Opens homing path to CCSS magnet.

(8) Opens operate path to codomat magnet.

(9) Disables all control keys.

c. FIGURES KEY OPERATED

(1) This initiates the same circuit operation described under MANUAL PUNCHING OF LOCAL AREA DIALING NUMBER. In this case when Aux. II contacts close with CCSS switch on Position 1, \emptyset level selector magnet will operate through CCSS Arc 4 wipers and 7 level selector magnet will operate through CCSS Arc 6 wipers. Thus all digits will have \emptyset and 7 control holes associated with the DDD number.

Note: Desired distant area dialing number has now been perforated in tape by keyboard operation.

7. MANUAL PUNCHING OF PSEUDOMNEMONIC CODE

a. PSMN Key operated

(1) This operates Relay PMR.

b. RELAY PMR OPERATED

(1) Operates PMN lamp.

(2) Locks through own contact.

(3) Operates CCSS magnet.

(4) Partially close operate path to 7 level selector magnet.

(5) Opens homing path to CCSS magnet.

(6) Disables all control keys.

c. CCSS MAGNET OPERATED

(1) Opens CCSS interrupter contact. CCSS switch stepped to Position 1.

d. CCSS SWITCH ON POSITION 1

(1) Arc 6 wipers operated 7 level selector magnet.

e. Required character key operated for pseudomnemonic. This operates keyboard code reading contact and keyboard aux. contact.

f. KEYBOARD CODE READING CONTACT OPERATED

(1) Partially close operate path to level selector magnets.

g. KEYBOARD AUX. CONTACT CLOSES

(1) Operates level selector magnet.

(2) Operates LARP clutch magnet.

(3) Character perforated in tape with 7 level control hole.

h. LARP CLUTCH MAGNET OPERATED

(1) LARP shaft rotates. Aux. I contact closes operating CCSS magnet. Aux. II contact opens releasing level

selector magnets and LARP clutch magnet. Aux. I contact opens and CCSS switch steps to Position 2. Aux. II contact closes operating 7 level selector magnet.

i. KEYBOARD AUX. CONTACT OPENS

- (1) Opens operate path to LARP clutch magnet.

Note: The operation just described will be repeated for next seven keys operated when CCSS Arc 1 wipers move to Position 9 Relay PMR will release.

j. RELAY PMR RELEASED

- (1) Extinguishes PMN lamp.
- (2) Opens operate path to 7 level selector magnet.
- (3) Activates all control keys.
- (4) Homes CCSS switch.

Note: Desired pseudomnemonic code has now been perforated in tape by keyboard operation.

8. MANUAL PUNCHING OF CALL DIRECTING CODES

a. CDC KEY OPERATED (CALL DIRECTING CODE).

- (1) This operates Relay CDR.

b. RELAY CDR OPERATED

- (1) Operates Relay CRR.
- (2) Locks through own contact..
- (3) Operates CDC lamp.
- (4) Opens homing path to CCSS magnet.
- (5) Partially closes operate path to 6 level selector magnet.
- (6) Operates CCSS magnet.
- (7) Disables all control keys.

c. RELAY CRR OPERATED

- (1) Locks through own contact..
- (2) Partially closes operate path to CCSS magnet.
- (3) Opens homing path to CCSS magnet.
- (4) Partially closes operate path to 6 level selector magnet.

d. CCSS MAGNET OPERATED

- (1) Opens CCSS interrupter contact. CCSS switch stepped to Position 1.

e. CCSS SWITCH ON POSITION 1

- (1) Arc 5 wipers operate 6 level selector magnet.

f. Desired character Key operated. This operates keyboard code reading contacts and keyboard aux. contact..

g. KEYBOARD CODE READING CONTACTS OPERATED

- (1) Partially close operate path to level selector magnet.

h. KEYBOARD AUX. CONTACT CLOSES

- (1) Operates level selector magnet.
- (2) Operates LARP clutch magnet.
- (3) First character of CDC combination perforated in tape associated with 6 level control hole.

i. LARP CLUTCH MAGNET OPERATED

- (1) LARP shaft rotates. Aux. I contacts close operating CCSS magnet. Aux. II contacts open releasing level selector magnets, Relay C and LARP clutch magnet Aux. I contact opens and CCSS switch to Position 2. Aux. II contact closes operating 6 level magnet.

j. KEYBOARD AUX. CONTACT OPENS

- (1) Opens operate path to magnet.

k. The operation just described will be repeated for each desired character key, but not to exceed nine characters.

l. LETTERS KEY OPERATED - This operates code reading contact, keyboard aux. contact and releases Relay CDR. Relay CDR released activates all control keys and extinguishes CDR lamp.

m. KEYBOARD CODE READING CONTACT OPERATED

(1) Partially closes operate path to level selector magnets.

n. KEYBOARD AUX. CONTACT CLOSES

(1) Operates level selector magnets.

(2) Operates LARP CLUTCH MAGNET.

(3) Letters combination perforated in tape with 6 level control hole.

o. LARP CLUTCH MAGNET OPERATED

(1) LARP shaft rotates. Aux. I contact closes operating CCSS magnet. Aux. II opens releasing level selector magnets, Relay CRR and LARP clutch magnet. Aux. I contact opens and CCSS switch homes. Aux. II contact closes. Relay CRR does not reoperate as operate path is now open.

p. KEYBOARD AUX. CONTACT OPENS

(1) Opens operate path to LARP clutch magnet.

Note: Desired call directing codes have now been perforated in tape by keyboard operation. Stepping switch CCSS self steps home.

9. RUB-OUT

a. Rub-out key operated

(1) This operates Relay ROR.

b. RELAY ROR OPERATED

(1) Operates all selector level magnets.

(2) Operates LARP clutch magnet.

(3) Perforates \emptyset through 7 holes in tape.

c. LARP CLUTCH MAGNET OPERATE

(1) LARP shaft rotates. Aux. I contact closes operating Relay RRR. Aux. II contact opens releasing level selector magnets and LARP clutch magnet. Relay RRR operated releases Relay ROR. Aux. I contact opens releasing Relay RRR if key is released. Aux. II contact closes.

Note: If rub out key is still operated at time LARP shaft completes its rotating cycle, operation described above will not be repeated until key is released and operated again.

10. FEED OUT

a. FEED OUT KEY OPERATED

(1) This operates LARP clutch magnet.

b. LARP CLUTCH MAGNET OPERATED

(1) LARP shaft rotates. Aux. II contact opens releasing LARP clutch magnet. Aux. I contact closes operating LARP clutch magnet if feed out key is still operated. Operation will cease when feed out key is released.

11. THE T OPTION

The "T" Option provides for addition of an auxiliary transmitter per BSP P90.926.05 to the tape preparative circuit for the purpose of making eight level tape from five level tape.

Address now codomat using ADS(address key).

a. The function of the ADS key and its associated ADR relay in P90.926.05 is to mark any mnemonic inserted by codomat card as a pseudo mnemonic. This is done whenever it is desired to use the mnemonic following the DDD number for confirmation purposes only and not part of the address.

- b. Assume it is desired to mark a mnemonic inserted by codomat card as a pseudo mnemonic.
- c. The ADS (address) key is operated which operates the ADR relay and it locks via the released RSR relay and released LTRS key.
- (1) The ADS key receives its ground to operate the ADR relay via released control relays thus preventing operation of the ADR during any other tape preparation function.
- (2) The operation of the ADR prevents preparation of tape by any key on the keyboard, also lights the ADS (address) lamp.
- (3) The LTRS key on the keyboard may be operated to release the ADR relay and restore the circuit to normal.
- d. With the ADR relay operated and the ADS lamp lighted to so indicate, the codomat card is pulled and the LR1 (codomat) card in position switch is operated.
- (1) The operation of the LR1 (Codomat) card in position switch operates the LR1 (Codomat) magnet.
- e. The operation of the LR1 (Codomat) magnet performs the following:
- (1) Causes the LR1 (Codomat) sensing pins to sense the holes in the first position of the card and operate the associated LR1 (Codomat) code reading contacts.
- (2) Operates the LR1 (Codomat) armature up contact.
- f. The operation of the LR1 armature up contact operates the CMR relay and operated CMR performs the following:
- (1) Furnishes ground via operated LR1 code reading contacts to operate the associated LARP selector magnets.
- (2) Allows relay BRR relay to operate by removing the shunt provided by released CMR-4 contact.
- g. The operation of BRR completes the path to operate the LARP clutch magnet via operated CMR and BRR also releases CMR.
- h. The operation of the LARP clutch magnet causes the LARP shaft to rotate and the following occurs:
- (1) Closes the LARP auxiliary contact I which operates the EASS magnet and allows the EASS to step upon opening of the Aux. I contact.
- (2) Opens the LARP auxiliary contact II which opens the circuit to the LARP selector magnets and the LARP clutch magnet.
- (3) Opens the LARP magnet release contact which releases the LR1 (Codomat) magnet.
- i. The release of the LR1 magnet opens the LR1 code reading contacts and allows relay BRR relay to release. The release of the LR1 magnet also releases the LR1 armature up contact.
- (1) The release of the LR1 armature up contact allows relay CMR to release.
- j. The rotation of the LARP shaft closes the LARP magnet release contact and closes the path to operate the LR1 magnet once more and repeats the entire cycle from paragraph e. through i..
- k. As the card is being sensed the EASS is being stepped and on points 12 through 19 the path is closed via operated ADK to operate the #7 selector magnet on the LARP thus inserting the seventh level in the tape to mark the mnemonic as a pseudo mnemonic.
- l. The sensing of a blank in the codomat card removes the shunt provided to the RSR relay and it operates to perform the following:

- (1) Release the ADR relay in P90.926.C5 and release of ADR allows EASS to home.
- (2) Releases the LRI magnet.
- (3) Operates the MRR relay in the codomat thus starting the LRI motor.
 - m. The LRI motor causes the codomat cam to rotate thus resetting the LRI code reading contacts, ejecting the card and operating the LRI reset contact.

- (1) The operation of the cam causes the card to be ejected thus releasing the card in position contact.

- n. The cam rotates and releases the LRI reset contacts.

- (1) With the card in position contact open and the LRI reset contacts released, the RSR relay is released.

- o. The release of RSR releases the MRR and opens the path to the codomat motor.

- p. The codomat is now restored to normal and the path to operate any other control functions is restored by release of the LRI card in position contacts.

Note: The diodes provided per option T in series with the wiper leads from EASS banks 5,7,8,9,10 and 11 are to prevent back paths from falsely operating any punch magnet as the codomat is sensing a card and the EASS is being stepped.

SECTION III

1. WORKING LIMITS OF THE CIRCUIT

- a. The circuit is designed to operate under all the norms and extremes of office environmental conditions including any special conditions which may arise at offices in airport locations.
- b. The teletypewriter equipment is designed to operate on 115 V \pm 10%, 60 cps power. Rectifiers are included in the system

where necessary for functions requiring dc power.

- c. The originating station teletypewriter equipment is designed for continuous operation at 100 wpm or less as governed by operator efficiency.

2. FUNCTIONAL DESIGNATION OF OPERATING ELEMENTS

a. Relays

BRR Break Relay
CDR CDC Relay (CDC-Call Directing Code)
CMR Codomat Relay
CRR CDC Reset Relay
DAR Distant Area Relay
EAR End of Address Relay
EMR End of Message Relay
FCR Figures Relay
LAR Local Area Relay
PMR Pseudo-Mnemonic Relay
ROA Rub-Out Relay
RRR Rub-Out Reset Relay
RSR Reset Relay
SMR Start of Message Relay

b. Stepping Switches

SESS Start and End of Message Stepping Switch
EASS End of Address Stepping Switch
CCSS Control Punch Stepping Switch

3. CIRCUIT FUNCTIONS

- a. The tape preparation circuit under direction of an operator will function to prepare a message tape of proper format for use in the Automatic Line Switching System Message Processing circuitry.
- b. A message is to be prepared according to the following format:

- (1) Feed-Out - Operator depresses Feed-Out key until tape fed out bridges the transmitter.
- (2) SOM - Operator depresses the SOM key and "letters", carriage return, "line feed", "letters" is punched into the tape with appropriate control holes.

- (3) Address - Operator either manually keyboards in address or operates Codomat for automatic insertion. An address will consist of "figures", "M", "letters", and a mnemonic, all with the appropriate control code holes which are inserted automatically from the keyboard or Codomat card. If access to a Broadcast network is being sought, a pseudo mnemonic will be substituted for the regular mnemonics and will be followed by one or several Broadcast addresses composed of a "CDC", "letters", and a mnemonic. This mnemonic is not necessary to system operation and may be omitted. A multi-address message is prepared by perforating several addresses successively.
 - (4) EOA - The operator depresses the EOA key and the end of address function is automatically punched into the tape with proper control code levels. End of address is composed of "carriage return", "line feed", "figures", "M", "letters"; the optional time of day feature which may be strapped out if not included; and the station identity.
 - (5) TEXT - The operator will keyboard in the text for normal operation. Every text will have "carriage return", and "line feed" as its first two characters. They are non printing functions.
 - (6) EOM - The operator depresses the EOM key and the end of message function is automatically punched into the tape. EOM consists of "carriage return", "line feed", "figures", "V", "letters", "six line feeds", and "four N's" with appropriate control code holes.
- c. The tape preparation equipment is designed such that an operator is able to prepare tape and feed it directly into the transmitter - a part of the message processing equipment.