REFERENCE NORTH ELECTRIC COMPANY

COMMUNITY DIAL CENTRAL OFFICES

Reference	Date	Title
PEL-2568	6-16-36	All Relay Type, 200 to 400 Line Cap. (See Notes with File Copy)
PEL-2703	3-18-37	Order Blanks
E-1897	—	CX-30, CX-60, CX-100 & CX-200
E-1898	—	CX-1000
PEL-2773	9-17-37	Improvements in North Electric Co. Eq.
PEL-2888 } PEL-2568 }	4-4-38	Improved Numbering Plan
PEC 818	6-2-39	CX10
—	9-3-40	SD-99000-011 Key Sheet CX Type North Electric
PEL-3405 } PEL-3236 }	4-9-41	CX Type Office Improvements
N.E. Bulletin	152	Improved Kellogg

REFERENCE NORTH ELECTRIC COMPANY

COMMUNITY DIAL CENTRAL OFFICES

Reference	Date	Title
PEL-2568	6-16-36	All Relay Type, 200 to 400 Line Cap. (See Notes with File Copy)
PEL-2903	3-18-37	Order Blanks
E-1897	—	CX-30, CX-40, CX-200 & CX-200
E-1898	—	CX-1000
PEL-3773	9-17-37	Improvements in Nat'l Electric Co. Cp.
PEL-3888 PEL-3788	4-4-38	Improved Numbering Plan
PEL 88	6-2-39	CX10
—	9-3-40	SB-99000-011 Key Sheet CX Type Manual Switch
PEL-3905 PEL-3916	4-9-41	CX Type Office Improvement
Bulletin	1944	Improved Re-Hung

Notes on North Electric Co.

1. Dial Back Cat.
   Ref. File: 1316 North Electric Letter 5/16/45
   Not available at this time.
   Tandem trk per BC-8902 is available.
   Start Dial signal CO-3973.
   Dial Assistance trk CC-4913.
2. Reply Tel. Conv. GOC & Gansslc on N.E. Eq.
   Ref. AT&T letter 4/30/45 File 1316
   Lists circuits for CX 10 & CX 30

3. Tandem trking N.E. letter 3,30,45 File 1316
   Lists circuits etc.

4. AT&T letter 3/22/45 File: 1316
   Application of N.E. CDO
   Features etc.

5. The following sections of Bell System Practices
   - Central Office Maintenance apply to North Electric
   Co. CX Equipt. A218.505, A218.515, A218.520
   A218.530, A218.535. (Per conv. with Mackey &
   Enclude 6/16/46

H. F. Dreichler
Room 1217 Exchange Bldg

4a

~~MR. FLEMING~~

North Dakota Area
Traffic Department
Fargo, June 15, 1954

M E M O R A N D U M

2-5 Numbering for North Electric C.D.O.'s

Single and/or repeated digit absorption features are available for four digit North Electric CDO's to provide 2-5 numbering.

Three digit offices should be converted to four effective digit operation where 2-5 numbering is required.

Blocking may be specified for digits not arranged for cut-thru, repeated, or once-only absorption and is effective until the digit arranged for once-only absorption is dialed.

The blocking treatment provides 120 IPM busy tone to subscribers or 120 IPM busy flash to operator office trunks. In offices arranged for intercepting, the blocking treatment can be arranged to advance the call to intercept.

The same absorbing and blocking features are available for incoming connectors.

Any combination of digits can be assigned for the national office code, however, certain combinations of digits will be more costly.

There is a definite advantage costwise in avoiding a duplication of digits between the office code and the D digit (next succeeding digit) (Approx. $14.00 per link for each duplication.)

Offices equipped with 2-5 numbering can be arranged to complete local calls on 5 or 7 digits or both or restricted to 7 digits only unless a conflict in EAS trunk numbering occurs, in which case, 7 digits are desirable.

There is an advantage costwise in assigning an office code in which the "c" digit is different from the "A" and "B" digits, if the "C" digit is to be used for trunking to another office. (Approx. $140.00 Per line group of 10 links.)

On exchanges of 200 lines or less there is an advantage costwise in assigning an office code, in which the A, B and C digits are different from the next immediate "D" digit. (Approx. $14.00 per link.)

Identification of coin numbers in the "9000" series is possible even though the office code contains the digit "9", however, digit "9" as the "C" digit is not desirable.

There is no advantage in assigning the same "A" and "B" digits to offices having E.A.S. between them.

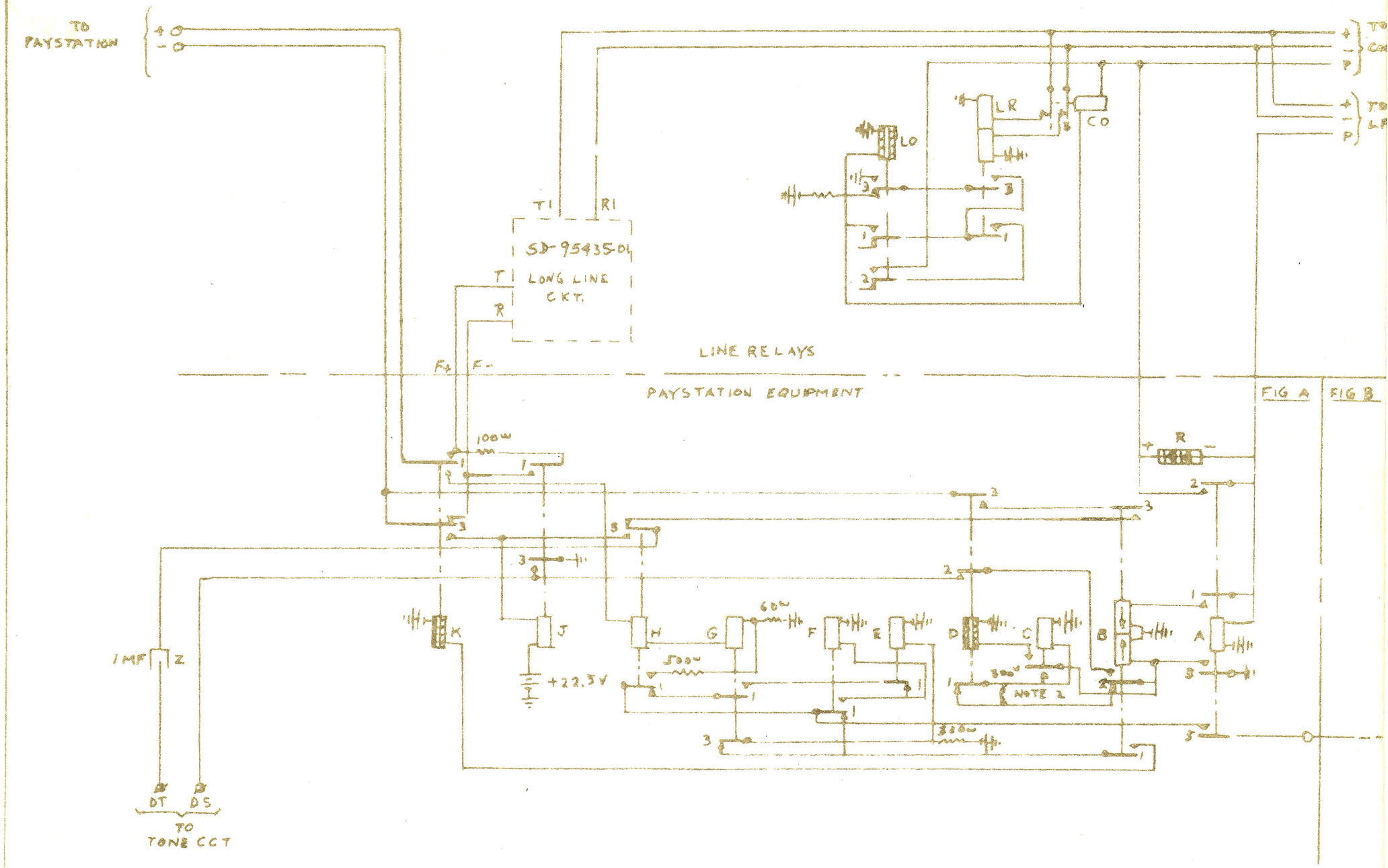
Calls to E.A.S. points can be restricted to a minimum of 7 digits regardless of the digit (A,B or C) used for trunking. Of course there must be enough digits remaining at the distant exchange to dial the required number.

Trunking may be accomplished on the "A", "B" or "C" digit, however, the "C" digit is most desirable because it eliminates the need for absorbing equipment at the called office.

Links accessible from both local and toll can optionally be arranged for a special trunk marking relay in the link to cancel all absorbing and blocking on calls incoming over operator office trunks and to omit dial tone.

Where links are accessible from both interlocal and toll trunks, the number of digits absorbed should be the same from each trunk group, however, where trunks terminate on trunk connectors, the number of digits absorbed need not be the same for each trunk group.

Signed: Mr. Taylor,
N. E. Co.



MODIFICATION OF NORTH ELECTRIC Co DWG.
EC 3047
PAY STATION TONE ADAPTER
TO INCREASE RANGE TO 2400ω SUB'S LOOP

SECTION,
PAGE
SPECIFICATION NO.

NORTH ELECTRIC DRAWINGS.

EC-3044 2-way W.E. Composite trk. from connector mult. to man. off. with dial start & voice repeater pat

LC-8500 L.F. CX-30, 60 & 100

EC-3046 circuit
EO-3046 10 or 20 code interrupter with converter transfer. (CD)
EI-3046 ckt. requirements

CC-4926 circuit
CO-4926 Busy & Dial tone (CD)
CI-4926 ckt. reqmt.

CW-6576 L.F. & Conn. Link cable, Metallic Lines with busy verification CX-60

CW-6610 LF & Conn. Link cable, Metallic lines with busy verification & 7 digit dialing

MC-8554 Conn - metallic Lines, CX 30 & CX60 with 10 code ring, busy verif., 7 digit dialing, prefix cancellation, Fast busy tone & flash on all trks. busy

BW-7775 Unit Cable for CX60

BW-7778 unit cable For CX 60 - 2nd unit

GW-8133 Aux. unit cable. (CX60) For Auto. Trk. selection & Pay station lines (1st unit)

SECTION
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SPECIFICATION NO.

GW-8200 Misc. unit cable for CX60 & CX100

GW-8190 Aux unit cable -2nd unit for auto trk. selection & Pay station lines

DW-7091 unit cable for CX60

DW-7092 unit cable for CX60 2nd unit

12-27-56

SECTION,
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SPECIFICATION NO.

NOTES ON NORTH ELECTRIC CX 2L5N & INTERCEPT

INTERCEPT

1. No intercept is now available for 4 & 8 party lines with superimposed ringing.
   Calif. is about the only other Bell area with that type of service and as yet N.E. Co. has not been requested to provide and Mr. Anderson of N.E. Co. is not sure of what all may be involved. (Contact Oregon area for info about intercept on CX200 at Huntington & North Powder)

2. Only one intercept trunk is provided at each office (CX 60, 100 or 200).
   One Trunk Selector circuit is required for each intercept trunk (one relay per opr. office trk - max 10)
   One N.E. Cabinet (10 mtg. plt. spaces 19" rack) is req'd for each incpt. trk. & incpt. trk. sel. ckt. - See note 7

3. North Electric has been providing the Bell System with the following number of intercepting lines:
   CX-60 5 intercepting lines
   CX-100 7 or 8 " "
   CX-200 9 " "

   One N.E. Cabinet (10 mtg plate spaces - 19" rack) is req'd for 19 intercepting line circuits - max 60 lines per trk. See note 7

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SPECIFICATION NO.

4. Cost of intercepting circuits will have to be obtained thru W.E.Co. (Hawthorne).

~~6. A blocking feature of a units digit for intercepting has not been studied. (Similar to that provided for 2454 = See PEL 5297)~~

7. One party code per line (max. 40 lines) can be intercepted per intercept trunk. If more than one party code on a specific line is to be intercepted the line terminals should be jumpered to recent intercepting line equip on as many different intercepting trunks. (BO-8958 N.E.Co. CD)

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SPECIFICATION NO.

2L 5N NUMBERING

1. Subscribers on a local call can complete that call with 5 or 7 digits.

   5 digits when "C" digit is different than digits "A" or "B".

   7 digits if "C" digit is the same as either "A" or "B".

   If "C" digit is the same as "A" or "B" cost of providing 2L5N feature increases.

2. Operator from the Toll Center is required to dial only last 4 digits.

3. Arrangement can be provided whereby the customer will be required to dial all 7 digits. Order must so specify or otherwise 5 digit dialing will be provided. This requires add'l. wiring changes and since the Traffic Dept. doesn't care (Richard Fleming) at small exchanges whether customer dials all or 5 digits this change is not recommended.
   Note: Eureka 749-2XXX Sub must dial either 7 or 4 then 9-2XXX [7 OR 6 DIGITS

4.

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SPECIFICATION NO.

MISCELLANEOU NOTES

1. Indications returned to the calling operator (or sender) for each of the following conditions:
   a. Link available to receive pulses.
      — Dial start. (off-hook indication)
   b. Links all busy.
      — Stop dial only. Orig. sender will time out. See note 2
   c. Subscriber line busy.
      — 60 IPM flash & tone.
   d. Vacant subscriber line or pty. line station.
      — Audible ring. (an apparent "DA")

2. Rewire of finders in the exchange to provide 120 IPM tone & flash on all links busy to operator may be provided; however, it is a big job & expensive. Traffic dept. is satisfied with "stop dial" feature.

3. Replacement of "T" & "LK" relays in the connector ckt. is sometimes req'd. to have sufficient contacts for both 60 & 120 IPM tones.

SECTION,
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SPECIFICATION NO.

BUSY TONES

1. 60 I.P.M. Tone & Flash to operator on busy line. (Order must specify)

2. 60 I.P.M. Tone to subscriber on busy line. (Order must specify)

3. 120 I.P.M. Tone to subscriber on busy trunk (Order must specify)

4. All Links Busy - See Misc. Note 2.

Community Dial Offices North Electric Company Type - Digit-Absorbing Features

AMERICAN TELEPHONE AND TELEGRAPH COMPANY

195 BROADWAY, NEW YORK 7, N.Y.

C. M. MAPES
ASSISTANT CHIEF ENGINEER

EXCHANGE 3-9800

November 12, 1953

P.E.L. 5294
Supplements P.E.L. 4998
Unnumbered Letter 8-27-48

Topical Index Code 1B6E

~~CHG~~
~~RM~~
~~RJK~~
~~RWJ~~

This is to advise you that single and/or repeated digit absorption features are available for 4-digit community dial offices of the North Electric Company type. This type of absorption is recommended for providing 7-digit numbering in such offices and is similar to that provided by circuits per SD-30976-01 for step-by-step type offices. Where 2-5 numbering is to be applied in 3-digit North Electric offices, such offices should be converted to 4 effective digit operation. As with other 4-digit offices being expanded to 7-digit numbering by means of single and/or repeated absorbing features the third digit of the 7-digit number must differ from the first and the second digit of the local office code.

Blocking may be specified for those digits not arranged for cut-through, repeated, or once-only absorption and is effective unless the blocking digit is preceded by a digit arranged for once-only absorption. The blocking treatment provides 120 IPM busy tone to subscribers or 120 IPM tone and flash to operator office trunks. These features are also similar to corresponding arrangements available for step-by-step offices with selectors per SD-30976-01 with the exception that in North Electric offices arranged for intercepting, the blocking treatment can be arranged to advance the call to intercept. Links accessible from both local traffic and operator office trunks can optionally be arranged for the trunk class relay in the link to cancel all absorbing and blocking on calls incoming over operator office trunks and to omit dial tone. The initial digit "one" that is presently arranged for repeated absorption can be arranged for single or repeated absorption or blocking. These same absorbing and blocking features are available for incoming connectors.

As with other types of community dial offices not equipped with intercept facilities, on numbers representing unused thousands digits, (fourth digit of a 2-5 number) the link multiple may be arranged to provide 120 IPM tone to subscribers and 120 IPM tone and flash to operator office trunks. Flashing busy features were discussed in Mr. Kittredge's unnumbered letter of August 27, 1948, "355-A and North Electric CDO's - Provision of Flashing Busy Features."

Community Dial Offices North Electric Company Type - Digit-Absorbing Features

AMERICAN TELEPHONE AND TELEGRAPH COMPANY

195 BROADWAY, NEW YORK 7, N.Y.

C. BARNETT
ASST. VICE PRESIDENT

EXCHANGE 3-9800

November 12, 1952

P.E.I. 2294
Supplements P.E.I. 4999
Unnumbered Letter G-27-48

Topical Index Code 1BGT

This is to advise you that single and/or repeated digit absorption features are available for 4-digit community dial offices of the North Electric Company type. This type of absorption is recommended for providing 7-digit numbering in such offices and is similar to that provided by circuits per SD-60376-01 for step-by-step type offices. Where 2-5 numbering is to be applied in 3-digit North Electric offices, such offices should be converted to 4 effective digit operation. As with other 4-digit offices being expanded to 7-digit numbering by means of single and/or repeated absorbing features the third digit of the 7-digit number must differ from the first and the second digit of the local office code.

Blocking may be specified for those digits not arranged for outthrough, repeated, or once-only absorption and is effective unless the blocking digit is preceded by a digit arranged for once-only absorption. The blocking treatment provides 120 IPM busy tone to subscribers or 120 IPM tone and flash to operator office trunks. These features are also similar to corresponding arrangements available for step-by-step offices with features per SD-60376-01 with the exception that in North Electric offices arranged for intercept, the blocking treatment can be arranged to advance the call to intercept. Like acceptable trunk both local traffic and operator office trunks can optionally be arranged for the trunk class relay in the link to cancel all absorbing and blocking on calls incoming over operator office trunks and to omit dial tone. The initial digit "one" that is presently arranged for repeated absorption can be arranged for single or repeated absorption or blocking. These same absorbing and blocking features are available for incoming connectors.

As with other types of community dial offices not equipped with intercept facilities, on numbers representing unused thousands digits (fourth digit of a 2-5 number) the line multiple may be arranged to provide 120 IPM tone to subscribers and 120 IPM tone and flash to operator office trunks. Flashing busy features were discussed in Mr. Kittredge's unnumbered letter of August 27, 1948, "SBS-A and North Electric CDO's - Providing or Flashing Busy Features."

Orders for digit-absorbing equipment should specify the digit treatment required for each digit "1" to "0". These digit-absorbing features require the addition of three relays per link. Additional apparatus will also be required to convert existing 3-digit offices to 4 effective digit operation. Some links do not have space for this apparatus and in such cases the extra equipment must be located elsewhere. For this reason it is suggested that you place an Advance Notification Order with the Western Electric Company along the lines outlined in Mr. Pilliod's letter on North Electric Company Separate Engineering Charges (February 23, 1950) in order to ascertain the cost and arrangements necessary for providing these features in a particular office. File 456

Yours very truly,

C. M. Mapes

Assistant Chief Engineer

To all Chief Engineers
(Copies included for
General Plant and
Traffic Managers.)

Orders for digit-absorbing equipment should specify the digit treatment required for each digit "1" to "0". These digit-absorbing features require the addition of three relays per link. Additional apparatus will also be required to convert existing 3-digit offices to 4 effective digit operation. Some links do not have space for this apparatus and in such cases the extra equipment must be located elsewhere. For this reason it is suggested that you place an Advance Notification Order with the Western Electric Company along the lines outlined in Mr. Pillod's letter on North Electric Company Separate Engineering Charges (February 25, 1950) in order to ascertain the cost and arrangements necessary for providing these features in a particular office.

Yours very truly,

C. M. Wagner

Assistant Chief Engineer

To all Chief Engineers
(Copies included for
General Plant and
Traffic Managers.)

Eureka #56 - Proposed 2L-5N Conversion.

Seattle, January 3, 1957

MEMORANDUM FOR W. C. MC CLAIN:

Modification of the North Electric Company CX-60 at Eureka, Washinton, for 2L-5N operation will provide the following operational features.

1. Subscribers can reach each other by dialing the complete 7 OR 6. digits. ~~or by only the last 5.~~

2. Operator at the toll center will be required to dial the last 4 digits only. Four digit dialing also applies to the intertoll dialing train.

3. Since there are no trunks reached by the operator in this office 120 IPM flash and tone to the operator at the switchboard of course will not be provided.

4. The following indications will be returned to the calling operator (or sender).

a. Link available to receive pulses
   - dial start indication
b. Links all busy
   To operator:
   - Stop dial indication, originating sender will time out
   To Subscriber:
   - No indication
c. Subscriber line busy
   - 60 I.P.M. busy tone and busy flash.
d. Vacant subscriber line on party line station
   - Audible ringing signal. (Intercept service is not being provided.)
e. All operator trunks busy to subscriber.
   - 120 I.P.M. busy tone.

IEH:lm

Staff Engineer