LOCAL EXCHANGE NUMBERING PLANS
AND SELECTOR LEVEL ASSIGNMENTS

CONTENTS

1. GENERAL
2. SELECTORS
3. CONNECTORS
4. THE SUBSCRIBER DIRECTORY NUMBER
5. OTHER SERVICES REQUIRING LEVEL ASSIGNMENTS
6. EXAMPLES

1. GENERAL

1.1 This section provides REA borrowers, consulting engineers, manufacturers, and other interested parties with technical information for use in the design and construction of REA borrowers' telephone systems. It describes in particular the numbering plans and assignments of dial central office selector or connector levels, or their equivalent, and has been revised to place more emphasis on numbering assignments on terminal-per-station and common control switching systems.

1.2 This revision replaces Section 208, Issue No. 4, dated August 1962. In this section it is assumed that the numbering plans for all local dial offices are in accord with the National Numbering Plan as described in "Notes on Distance Dialing," 1961 Issue, published by the American Telephone and Telegraph Company. This plan formerly assigned to each office an office code consisting of the first two letters of an office name, and one numeral, such as AD-4 (ADams 4). Because of the increased demand for office codes, however, it was decided to change from two-letter, five-numeral numbering to All Number Calling (ANC). This change is necessary because each Numbering Plan Area had only about 540 usable central office codes with two-letter, two-digit numbering. All Number Calling will provide approximately 800 office codes. Other reasons which make the introduction of ANC appear desirable are such things as misunderstanding of office names (MUtual and MItchell), and misspelling of office names (MU instead of ME for MErcury, LI for LY in LYric). Also, dialing errors result from confusion between the letter "O" and numeral "zero," and between the letter "I" and the numeral "one." These reasons are secondary to the fundamental need to expand the numbering system that assigns a unique telephone number to each subscriber throughout the United States, Canada, and Bermuda. In exchanges currently on the two-letter, five-number plan, this change may be introduced gradually as new telephones are installed, although in some areas, the resulting mixture of numbers and letters has met with distinct subscriber resistance. ANC is recommended for all new offices. No deadline has been set for complete conversion. In the discussion and examples contained in this issue, ANC (all number calling) will be used as a basis for number assignment instead of the two-letter, five-numeral plan.

1.3 Telephone users are generally instructed to dial all seven digits of the called number. In many REA borrowers' systems local intraoffice calls can be completed even though only the last four or five digits are dialed, especially if the equipment is direct response type. Manufacturers of common control equipment often recommend that local intraoffice calls require all seven digits. This permits use of all possible directory numbers within the office code. For example, if a common control switchboard were required to complete local calls on the last four digits, and if 623 were the directing digits to an EAS trunk group, then it would not be possible to use station digits 6230 through 6239 locally. As another example, if the first digit 6 was the directing digit to the EAS group, then the entire 6XXX series would be lost. Therefore, when common control switchboards are used, all seven digits should be required.

1.4 The terminology and illustrations in this section are based on the use of step-by-step equipment, but the material is applicable to any direct-response type of dial switching system. The overall objectives described are the same for common control systems, but the assignment procedures would be different as direct association of digits and levels on selectors is not required.

1.5 When direct-response type of equipment is used, the trunking arrangements are directly related to the digits of the called number or code as dialed by the customer. The flexibility of the numbering plan and of dial equipment permit a wide choice in switch assignments in a particular office and a thorough understanding of the subject is essential to design the most economical arrangement and one that will best meet the needs of the customers.

1.6 If an improved mobile telephone system (IMTS) is planned for a given project, the numbering for the IMTS should be coordinated with the authority charged with assigning such numbers. This is so because the last four digits of a mobile number must not be duplicated within any numbering plan area (NPA).

1.7 With common control equipment, the dialed digits may be stored wholly or partially in a register sender, and signals transmitted into other equipment designed to extend the call to local terminating equipment or to interoffice trunk groups. In the types of this equipment that are available for REA borrowers' terminal-per-station systems, number groups are generally used to associate lines with directory numbers. The party or ringing digit, in terminal-per-station systems, is marked in the number groups via a matrix panel or ring field assignment. It is possible to interpose register senders between the linefinders and selectors of a step-by-step system to provide common control features and thereby give more flexibility in handling complex numbering schemes and special features.

1.8 Additional information on numbering and other assignment problems involving toll traffic is contained in the publication "Notes on Nationwide Dialing - 1961," mentioned in Item 1.2. Copies may be obtained from the independent company representatives of the various associated Bell Companies.

1.9 Familiarity with the "Specifications - Telephone Central Office Equipment," REA Form 558, and the following sections of the Telephone Engineering and Construction Manual will be helpful in the understanding of this section:

        REA TE & CM-510 - Telephone Traffic - Dial Central Office Equipment Switch Quantities
        REA TE & CM-511 - Telephone Traffic - Dial Equipment for Toll Centers
        REA TE & CM-156 - Nationwide Toll Dialing
        REA TE & CM-350 - Basic Types of Switching Systems

2. SELECTORS

2.01 Two types of selectors are available. In the normal operation of the selector in general use, the trunk selection (cut-through) follows after any digit is dialed. In a "digit absorbing (DA)" type of selector, individual levels may be arranged so that when the digit corresponding to a particular level is dialed, the switch will be reset and will then be ready to receive the next digit. Present practice is to use the digit absorbing type as first selectors in local offices, as first selectors for EAS trunks, and as intertoll first selectors in dial toll centers, and to use the regular type in most other places in both local and toll dial systems.

2.02 All manufacturers of direct-response dial equipment on the REA "List of Materials Acceptable for Use on Telephone Systems of REA Borrowers" are able to meet the requirements of the digit absorbing selectors as described in the following paragraphs. These manufacturers are also able to provide additional digit absorbing features. In situations where the type of dial equipment is known, the consulting engineer should become acquainted with these features as they may make it possible to avoid code changes or to economize on equipment. See Item 2.09 for further details. Manufacturers of common control dial systems meet the requirements for digit absorption, but by other means.

2.03 Although there are variations of the functions that are described in the following, any level of a digit absorbing selector may be made to act in accordance with one of these functions. For convenience, the following abbreviated notations are associated with the various functions:

NOTATION	FUNCTION DESCRIPTION
N	Normal
AR	Absorb repeatedly until unlocked
A	Absorb once and unlock
B	Blocked until unlocked

2.04 Function N levels will cut through when dialed.

2.05 Function AR (Absorb Repeatedly) levels operate as follows:

2.051 If it is the first digit dialed, dial tone will be removed and the switch will reset, that is, it will be prepared to receive another digit.

2.052 If the digit is dialed after dial tone has been removed, but before an unlocking digit (Function A) has been dialed, the switch will reset.

2.053 If the digit is dialed after the unlocking digit has been dialed, the switch will cut through.

2.06 Function B (Block) levels operate as follows:

2.061 If the digit is dialed before an unlocking digit has been dialed, dial tone is removed and the selector will return the 120 IPM all trunks busy tone.

2.062 If the digit is dialed after an unlocking digit has been dialed, the switch will cut through.

2.07 Function A (Absorb and Unlock) levels operate as follows:

2.071 If it is the first digit dialed, dial tone will be removed and the switch will reset. Any level of the selector switch, including this one, will then cut through on the succeeding digit. That is, the selector is "unlocked."

2.072 If an AR digit has already removed dial tone, and if the A digit is dialed for the first time, the switch will reset. Any level of the selector switch will then cut through on the succeeding digit.

2.08 Ordinarily these functions are used for subscriber first selector levels in offices requiring four effective digits to make selection as follows:

N When a level is available for seizure at any time.

AR Primarily used to absorb digits of office code prior to the dialing of the absorb and unlocking digit. Can be used to absorb the same ineffective digit of one or more office codes.

A Normally used to absorb one digit of the SDN (Subscriber Directory Number) on intraoffice and interoffice calls, and to make the succeeding digit effective. May absorb the first digit on calls to EAS offices routed via a tandem office.

B Used when a level is to become available only after an A (Absorb and Unlock) digit is dialed. Assigned to a level when it is desirable that customers not have access to the level until certain preceding digits of the called number are dialed. Proper use of this feature will avoid misrouting calls incorrectly dialed. It also may be used to compel seven-digit dialing on all local calls. Vacant levels should be routed to intercept rather than have the B function assigned.

2.09 Levels may be assigned dual functions if necessary. For example, "AR" the first time the level directing digit is dialed and "A" the second time this digit is dialed. Or, as another example, "AR" the first time dialed and "N" the second time dialed. Strapping may be done between a vertical bank and a vertical off-normal terminal assembly on a digit-adding step-by-step switch to provide these dual functions. Other types of equipment use different techniques. Some manufacturers assign their own designations to the various level functions, such as "CI," "N & V," etc. Inasmuch as there are so many variations of these functions it will not be practicable to make a detailed list of all of them. Mark the level with a "SPL" designation on the switching diagram and include a note describing what action is required. As an example, designate the level "SPL-Note 1" and add "Note 1: AR first time dialed, N second time dialed." See Item 6.4, Example 2.

2.10 Different selector groups in the same office, even if all are first selectors, may have different functions assigned to the same level. Local subscriber first selectors generally are arranged to absorb part or all of the office code while incoming toll and EAS selectors may or may not require digit absorption. On trunked (interoffice) calls any necessary digit absorption is usually done at the originating office except on incoming toll calls at toll centers. On operator dialed calls to a dial office where the trunk is taken up at a jack in the switchboard multiple, the routing bulletin shows the operator which digits, if any, should be omitted. Digit absorbing selectors are provided only where required since they are somewhat more expensive than regular selectors.

2.11 Figure 1 illustrates the use of the digit absorbing feature on local first selectors in a small terminal-per-station dial office. Although the customers are instructed to dial all seven numerals of the called number on local calls, they need dial only the last four. If the first three numbers of the office code 5, 4, and 3 are first dialed, they are absorbed and the switch is reset. On receipt of the fourth numeral "2," the switch is reset and unlocked and the remaining three digits make selection. Digit absorption is provided on the toll incoming selectors because four digits are received over the toll trunks.

2.12 In common control equipment, the register generally controls the functions of the dialed digits by means of strapping options. Absorbing or routing action is determined in the register or in a translator instead of selectors.

3. CONNECTORS

3.1 Connectors are either terminal-per-station (TPS) or terminal-per-line (TPL). As the name of each implies, the TPS connector has one set of terminals for each station and the TPL one set for each line (one to ten stations).

3.2 TPS equipment is recommended in most central offices, regardless of size, in order to give better service and to permit higher subscriber line fills. This type of equipment also offers other economic advantages such as allowing longer periods between directory issues and more efficient intercept arrangements. When one party service is proposed, it is recommended that TPS operation be specified to preclude the installation of a permanent multiple between linefinders and connectors and to obtain the flexibility of assigning any line to any connector terminal.

3.3 The choice of the type of connector affects the line numbering. When TPL connectors are used in a finder-selector-connector system with full selective ringing, three digits are required by the connector. The first two digits select the terminal of the line and the last digit selects the side of the line and the ringing frequency. TPS connectors require only two digits which select the terminal of the called station. The ringing frequency is associated with this terminal by jumpering or strapping in the equipment. TPS connectors make subscriber directory number changes unnecessary when customers move to another location within the area served by the same central office or whenever the customer's telephone must be reassigned to another line.

3.4 With common control systems the borrower also has a choice of using TPL or TPS. However, one of the advantages of common control is the relative ease of providing TPS features, so in practice, these boards should always be equipped for TPS.

4. THE SUBSCRIBER DIRECTORY NUMBER

4.01 Subscriber directory numbers (SDN) have in the past been most commonly found in the following
       forms:

TYPE	LOCAL CALL DIAL PULLS	EXAMPLE
Four Digit	4	2345
Five Digit	5	2-3456
Six Digit	6	23-4567
Seven Digit	4 to 7	522-3456 (JAckson 2-3456)

The seven-digit SDN as shown in the last line is the recognized standard which will permit
national dialing of toll calls. It is recommended that for new dial offices numbers be
assigned on the basis of "all number calling."

4.02 The seven-digit directory number consists of three numerals of an office code followed by
       the four numerals of the customer's station number, such as 522-3456. The office code in
this case is 522 and 3456 is the station number.

4.03 When TPS type connectors are used, the last four digits of the SDN select in order: the
       thousand group, the hundred group of connectors, the tens group, and the station terminal
number. The fourth from last digit may be absorbed for TPS connector groups in offices serving
connectors directly from first selector levels. With TPL connectors, the four digits select in
order: the hundred group of connectors, the tens group, the line terminal, and the last digit
selects the ringing frequency and side of the line.

4.04 Many REA offices are small enough so that no more than four digits are required to establish
       connections to numbers within the office. However, where EAS is provided to link two or more
exchange areas, or where interoffice trunks link offices within an exchange, seven-digit dialing is
preferable. In general, seven-digit dialing should be prescribed in the telephone directory in
order to establish uniform dialing procedures. This practice will aid in teaching subscribers to
accept multi-digit dialing, and will be of benefit when DDD becomes available. It will also help
to ensure that subscribers will report their full directory number to a toll operator, and thus
reduce the possibility of billing errors or delays in recording billing information. Of course,
where the first two or three digits are absorbed in the first selector, the subscriber can simply
omit dialing them and the public generally learns to do this.

4.05 Office codes are assigned by the Bell System, and every effort should be made to obtain
       the most satisfactory code so that it will fit in with other codes in the EAS area. It
is desirable that the codes be assigned so that a minimum amount of selector equipment will be
required in each office. It is not always possible to obtain a convenient code, so there will
be occasions where one or more additional selector stages must be used in order that subscribers
may be able to reach all other exchanges in an EAS area by dialing the SDN. In some cases the
only available code, or codes, will not allow all subscribers to dial one another by using the
subscriber's directory number using direct control equipment. Rather than resort to a directing
digit, it is possible to insert register senders between the linefinders and first selectors.
This equipment will route the calls in somewhat the same fashion as crossbar common control
equipment.

4.06 In direct-response offices it is desirable to restrict the third digit of the office code
       to one of the numerals from two to nine. Zero will usually interfere with the dial "O"
trunks, and level one of local first selectors should be used for, or reserved for, access to
DDD equipment. The use of 9 as the third digit of an office code should be avoided if some
other digit can be obtained, as the 9 will interfere with the 9000 series for coin numbers.

4.07 In small TPS offices (without second selectors), the fourth from last digit must unlock.
       On larger TPS offices, the level of first selectors used for trunking to second selectors
should be assigned a "N" function and the three digits of the office code should be designated
for an "AR" operation. It would also be possible to assign an unlocking function to the third
numeral of the office code and trunk to second selectors on the fourth from last digit of the
SDN. This is done when several EAS outlets are required from levels of the first selectors
and the only access to connector equipment is via second selectors.

4.08 As shown in the illustrative examples that follow, the choice of an office code may affect first selector level assignments in another office when universal numbering is desired. Universal numbering means the selection of office codes for several offices having extended area service so that any subscriber in the area can dial any other subscriber by dialing the SDN with no prefix digits or intermediate dial tones. By terminating all trunks on incoming switches the need for intermediate dial tones is eliminated. The use of universal numbering will also permit the use of a directory which lists all subscribers in an EAS area in alphabetical order regardless of the exchange from which they are served. This has obvious advantages in rural areas where exchange boundaries do not necessarily follow geographic boundaries.

4.09 When exchanges are located very near state lines it is not unusual to have subscribers in both states served from one exchange. It is necessary to assign a different office code for the out-of-state subscribers so that toll calls to and from such telephones will be distinctive and the proper interstate or intrastate rate may be applied. This means effectively that the exchange straddles the boundary between Numbering Plan Areas, and it is customary to "protect" both office codes in the adjacent Numbering Plan Area so that toll calls will be properly routed regardless of what Numbering Plan Area is used. That is to say each office code will be used only once in the area encompassed by both NPA codes. It is desirable to separate the subscribers in connector groups according to states, so that when automatic line identification is installed there will be no problem in identifying the calling office as well as the calling station number.

4.10 There will be occasions where EAS is offered between exchanges which are in different Numbering Plan Areas. This should present no particular problem as the access code for DDD will distinguish a toll call going to the exchange in the same NPA from the EAS call to the nearby exchange in an adjacent NPA.

5. OTHER SERVICES REQUIRING LEVEL ASSIGNMENTS

5.1 Other services rendered by a telephone system may require central office switch level assignments. Depending on the volume of traffic, size of the office and contiguous offices, the trunk groups required to handle the miscellaneous items of traffic may justify the provision of separate trunk groups or several classes may be routed over one group. However, at least one trunk group to a toll center or toll point will be required for each end office.

5.2 Operator Calls - The preferred method, and the one commonly used, of obtaining an operator for toll or assistance is by dialing "O." The zero level of the subscriber first selector, or its equivalent, is used for this purpose.

5.3 Extended Area Service (EAS) - trunks will usually require a first selector level, and sometimes a second selector level. It is highly desirable to use office codes which permit universal numbering.

5.4 A Revertive Call, which is a call from a subscriber to another on the same line, may be completed by dialing the SDN or by dialing a one, two, or three-digit code followed by dialing the SDN, depending upon how the equipment is designed.

5.41 When revertive calls are made by dialing the SDN, no level assignment is required. Revertive call identifying tone or recorded announcement is furnished to the calling party and identifying tone to the called party on newer equipment. This eliminates the requirement for notifying all subscribers on a particular party line when there is a change of subscribers on the line.

5.42 If a code plus SDN is the method selected, a single digit code can be used to reach the revertive switches provided a vacant normal level (N) is available on the first selectors. When a level must be used with the function "AR" or "A," then a two-digit code is required, the first digit being an unlocking digit. The second digit of the revertive code may be any digit from two to eight depending on the first selector level assigned to the trunks to revertive switches.

5.43 If no vacant level is available on the local first selectors, special second selectors are usually used to reach revertive call switches. Paragraph 5.6 contains further information about special second or service code selectors.

5.44 Do not use levels of local second selectors to reach revertive call switches, unless unavoidable. Should a subscriber or an operator, on an incoming call, inadvertently dial the digit associated with the level to revertive call equipment, the call would reach a "no ring, no answer" condition. Furthermore, since these switches usually require a second off-hook signal as a release signal, it would be possible to hold the incoming trunk for as long as four minutes.

5.5 First Selector Level "One" is subject to "preliminary impulses," which are false dialing pulses caused by lifting the handset off its cradle incorrectly or by intermittent shorts in outside plant. When level "1" is not used for auxiliary service codes or DDD, it usually is arranged to absorb repeatedly. When the exchange is arranged to originate direct distance dialing calls, the trunks for this purpose ideally should be assigned to level "1" for station-to-station (S-S) traffic and "0" for person-to-person, coin, and special instruction (PPCS) traffic. The distinction between dial "0" to operator and dial "0" to PPCS is by virtue of whether the subscriber continues to dial. Dial "0" calls are routed to the operator after a three to five-second delay. It is recognized that, where swinging shorts are a problem in rural territory, the use of the first digit "1" is not practical for access to DDD or anything else. In such a case many installations use 12 and 10 for S-S and PPCS calls, respectively.

5.6 Special Services such as information, repair or business office are generally provided by dialing "0" or by dialing subscriber lines designated for these purposes in the directory, particularly in smaller offices. In larger exchanges, the amount of this traffic may justify the provision of separate trunk groups for some or all classes of this traffic. When separate trunk groups are to be provided, it is customary to establish a group of service code selectors assigned to level "1" of the subscriber first selectors. The assignment of codes usually is as follows:

Level	Codes	To
0	10	Reserved for direct distance dialing trunks (PPCS)
9	19	Revertive call switches
8	18	Dial and ringer test
7	17	Test desk
4	14	Repair service
3	13	Information
2	12	Reserved for direct distance dialing trunks (S-S)

If level "1" of the first selector is also used for access to station-to-station DDD, then the codes shown above could be 113, 114, 117, etc. A "double-headed" trunk is required to accomplish the access to DDD. The first digit "1" routes the call to the double-headed trunk, which seizes a special service code selector and a DDD ticketer or recorder. The next digit dialed is registered in both the special service code selector and the DDD equipment. If the second digit is "1," the DDD equipment is dropped and the call continues through the service code selector. If the second digit is "2" through "0," the special service code selector is dropped and the call continues through the DDD. It will be quickly noted that this scheme precludes the use of the circle digit "1" in the DDD equipment.

5.7 Busy Verification permits an operator to override a busy condition of a subscriber line in order to determine whether a conversation is actually taking place. The ability of an operator to override a busy line within the area served by her operator office is considered an essential service.

5.71 Generally, verification is accomplished by the operator dialing a prefix digit into the incoming selector to obtain access to a special group of switches, then she dials the number usually used in completing calls to the subscriber. The choice of a digit to be used for verification will preferably be the one already used in the operator office for verifying at other existing offices. Where verification is desired and no limitation as to choice of digit exists, it is recommended that the digit "0" be used because this level of the toll selector will ordinarily not be used for any other purpose. This group of switches should be accessible only from the operators' incoming selectors, and from a test desk at the local office.

5.72 The majority of dial offices installed on REA projects are equipped with one toll trunk group, which is used by the operator to access verification equipment. Since incoming direct distance dialing calls use the same trunks, it is necessary to provide means to prevent the DDD calls from overriding a busy. The method which is suggested to provide this blocking

is one which employs the use of a double or triple digit verification code. This builds out the number of digits beyond the digit storage capacity of the common control equipment employed for direct distance dialing. The double digit code most commonly used is "00," although the digits do not necessarily have to be "0." If the equipment is designed to cut-through to the called line on a verification call on the next to last digit as is usually the case for terminal-per-line equipment, it becomes necessary to use a triple digit code, usually "000." Arrangements to be provided when the "00" or "000" is required for verification should be discussed with the connecting company. The absorption required will be provided by the supplier and should not be shown on the switching diagram.

5.73 Sometimes one of the Community Dial Office toll trunks at the toll center is made available only to the toll center operators. This trunk is the sole access to the busy verification equipment at the CDO. This arrangement effectively excludes all persons except the operators from reaching verification. The subscribers at the CDO may be given access to this trunk toward the toll center, usually as a last choice trunk.

5.8 Coin Lines should be assigned in a distinctive number series in order that toll operators may more readily recognize coin station numbers so that collect calls to these numbers may be handled with minimum delay. The preferred thousand for coin numbers, and the one quite generally used, is in the 9,000 series. Should it be impractical to use this series in some special case, the 8,000 or 7,000 series can be used. It is not necessary that these thousands be equipped as the selector level corresponding to the 9, 8, or 7 can be multipled to some other working level of the selector, or in the case of terminal-per-station equipment, an "A" function can be assigned to the level designated for paystation identification so that this level will operate the same as the level assigned for trunking to a connector group. However, when a coin series is equipped, flat rate stations also may be assigned in this series of numbers.

5.81 In central offices where trunk hunting is limited to one or more special connector groups, it is suggested that the paystation numbers be assigned to portions of a trunk hunting connector group. For instance, if a PBX group is assigned to terminals 11-14, the paystations could be assigned to terminals 15-10 (without the trunk hunting, of course). A public paystation number can be changed if the terminal to which it has been assigned is needed for a PBX trunk. In contrast, if terminal 15 was assigned to a business subscriber, a growth of PBX group 11-14 would require a change in the directory number of a business. In addition, the low incoming call rate for paystations tends to offset the high PBX traffic. In estimating connector requirements for trunk hunting groups, no allowance need be made for the low incoming call rate for paystations as these usually are too few in number to make a material difference.

6. EXAMPLES

6.1 Due to the needs of different areas, there are a very large number of combinations of services and office codes. This makes it necessary for the engineer to master the principles above before attempting the development of a numbering plan. The examples which follow, though fairly typical, probably will not exactly represent the problems of any one situation. They are included rather to demonstrate applications of the principles discussed. If the method of operating illustrated in the following examples is to be employed, it will be necessary to use a type of digit absorbing similar to that described in Paragraph 2.03.

6.2 Provision for growth in the number of connector groups for an office must not be overlooked when designing a trunking plan. In order to use a minimum number of switches, as many connector groups as possible should ordinarily be assigned to first selector levels and the remainder can be assigned to levels of second selectors. In the case of terminal-per-station operation, when an office is designed in this manner with all first selector levels assigned initially, one connector group should be planned so that in the future it can be transferred easily and without a number change to a new group of second selectors to be served from the vacated first selector level. Such a transfer should not be planned if it will be required at the next addition; instead the connectors should be served by a planned group of second selectors or by a new group of second selectors. In large offices (see Example 4), the savings in serving some terminal-per-station connectors from first selectors may not be justified.

6.3 EXAMPLE 1

100-Line, 200-Terminal Office - No EAS - Intraoffice Calls Completed by Dialing Last Four Digits of SDN - Terminal-Per-Station.

An office which is to have 100 lines has been assigned the office code 543. The group of operator office trunks will be reached by dialing "0." Revertive call switches shall be used. The operator office shall perform verification by means of the prefix digits "00." The fourth from last digit of the two paystations shall be 9. Local calling may be accomplished by dialing only the last four digits of the SDN, but if all seven digits of the SDN are dialed, the call must be completed. A schematic trunking diagram showing the assignment of all intraoffice and interoffice trunk groups, including directory numbering information, is shown in Figure 1.
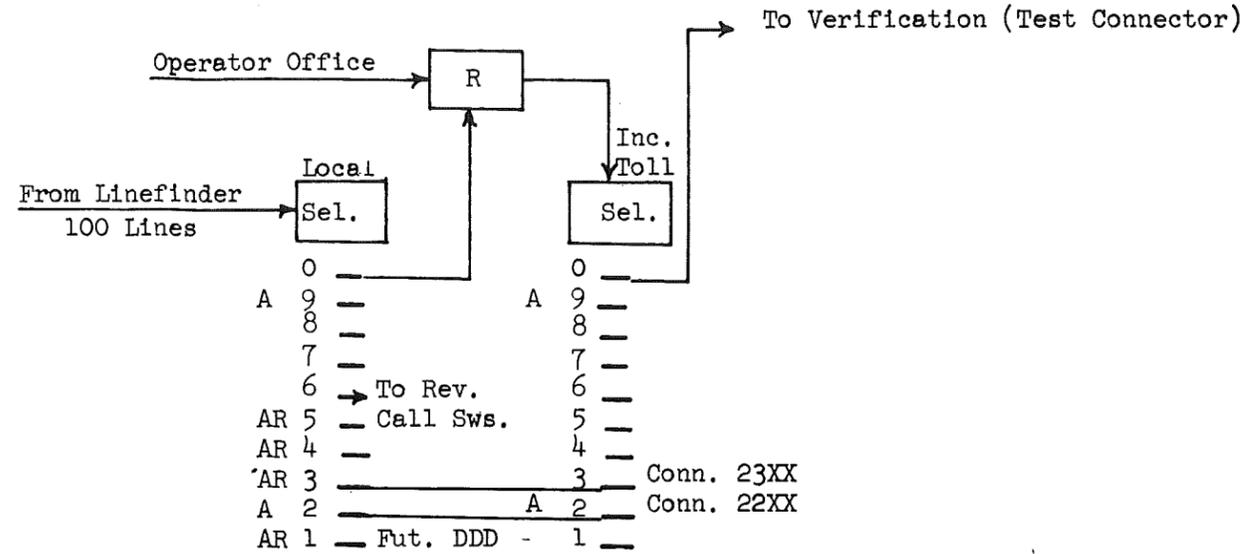
NOTES:

1. Local office is 543 - 2XXX
                        - 9XXX (Paystation)
2. For significance of level notation, refer to Paragraph 2 of this section.
3. SDN's shall be as follows:

   543-2211 to 543-2300
   543-9211 to 543-9300 (Paystations)

4. For revertive calls, dial "6" plus the SDN.
5. Long distance and information, dial "0."
6. "R" denotes trunk impulse repeater.
7. Intraoffice calls shall be completed by dialing the last four digits of SDN or the complete seven-digit SDN.
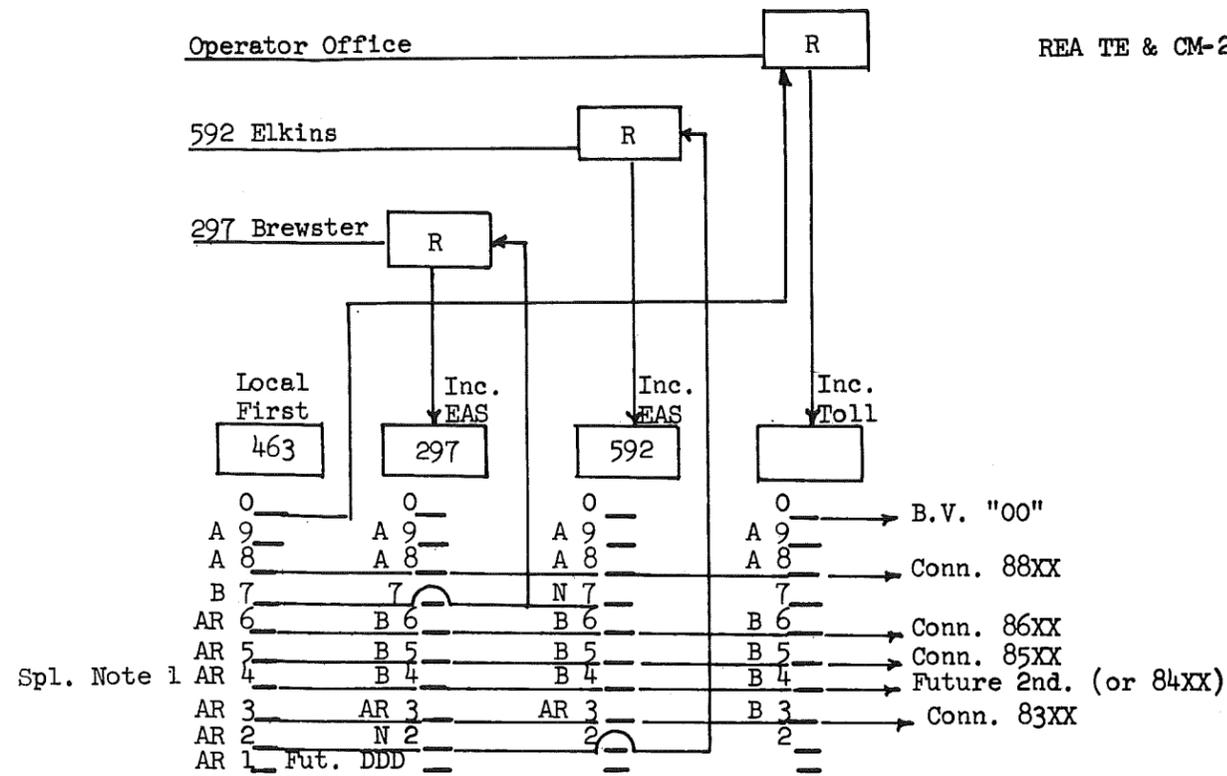8. All vacant selector levels shall be connected to intercept.

NUMBERING PLAN DRAWING
SOLUTION TO EXAMPLE 1

Figure 1

6.4 EXAMPLE 2 - Anytown Central Office

200-Line, 400-Terminal Office - Tandem for Two EAS Offices, Elkins and Brewster - EAS Calls by Dialing SDN.

An office which is to have 200 lines is assigned the office code 463. The group of operator office trunks will be accessed by dialing "0." Revertive call shall be by directory number. The operator office shall be able to perform verification by means of the prefix digits "00." The fourth from last digit of the six paystations proposed shall be 9. This office shall have extended area service with the Brewster (297) and Elkins (592) offices. The Elkins and Brewster offices shall also have extended area service with each other by means of tandeming through Anytown, but shall have separate toll outlets. Incoming EAS calls will deliver the last five digits of the SDN in every case. Intraoffice calls can be completed by dialing the last five digits of the SDN, but it is recommended that the full SDN be dialed. All EAS calls shall use complete SDN. A schematic trunking diagram showing the assignment of all intra-office and interoffice trunk groups for the 463 office, with directory number information, is shown in Figure 2.

Operator Office ———————————— [R]

592 Elkins ———————————— [R]

297 Brewster [R]

	Local First	Inc. EAS	Inc. EAS	Inc. Toll	
	463	297	592		
	0	0	0	0	B.V. "00"
A	9	A 9	A 9	A 9	
A	8	A 8	A 8	A 8	Conn. 88XX
B	7	7	N 7	7	
AR	6	B 6	B 6	B 6	Conn. 86XX
AR	5	B 5	B 5	B 5	Conn. 85XX
AR	4	B 4	B 4	B 4	Future 2nd. (or 84XX)
AR	3	AR 3	AR 3	B 3	Conn. 83XX
AR	2	N 2	2	2	
AR	1 Fut. DDD				

Spl. Note 1

NOTES:

1. Local office is 463. Note 1: Level 4 "AR" first time dialed; "N" second time dialed.
2. EAS offices are Brewster 297 and Elkins 592. They have EAS to each other.
3. For significance of level notation, refer to Paragraph 2 of this section.
4. All subscribers, locally and in EAS offices, shall be reached by dialing SDN.
5. SDN's shall be as follows:

   463-8311 to 463-8300
   463-8511 to 463-8500
   463-8611 to 463-8600
   463-8811 to 463-8800

   Paystation 463-93XX (Paystations could be assigned in any connector group).

6. For revertive calls, dial the SDN.
7. For long distance and information, dial "0."
8. "R" denotes trunk impulse repeater.
9. All vacant selector levels shall be connected to intercept.
10. 100 additional terminals can be added from level four, or second selectors may be added.
11. Unanticipated subscriber requirements can be met by trunking to second selector addition from level eight by assigning an "N" function to this level and trunking to existing connector groups and added groups from levels of the second selectors.

NUMBERING PLAN DRAWING
SOLUTION TO EXAMPLE 2

Figure 2

6.5 EXAMPLE 3 – Glenston Central Office

450-Line Office – One EAS Office – EAS Calls by Dialing the SDN – Terminal-Per-Station.

An office to be equipped with 450 lines and 1200 terminals is assigned the office code 275. It shall have extended area service with the 563 office. Intraoffice calls can be completed by dialing only the last four digits of the SDN, but it is recommended that seven-digit dialing should be used for both intraoffice and EAS calls. Incoming EAS calls deliver the last four digits of the SDN. The operator office is secured by dialing "O" and the operator performs verification by dialing "OO." Revertive calls shall be made by dialing the directory number. The fourth-from last digit of the ten paystations shall be 9. A PBX trunk hunting connector group is required. A schematic trunking diagram showing the assignment of all intraoffice and interoffice trunk groups and directory numbering information for the Glenston office is shown in Figure 3. Provision for growth is made in the number of connector groups to permit expansion of the office at a reasonable cost.
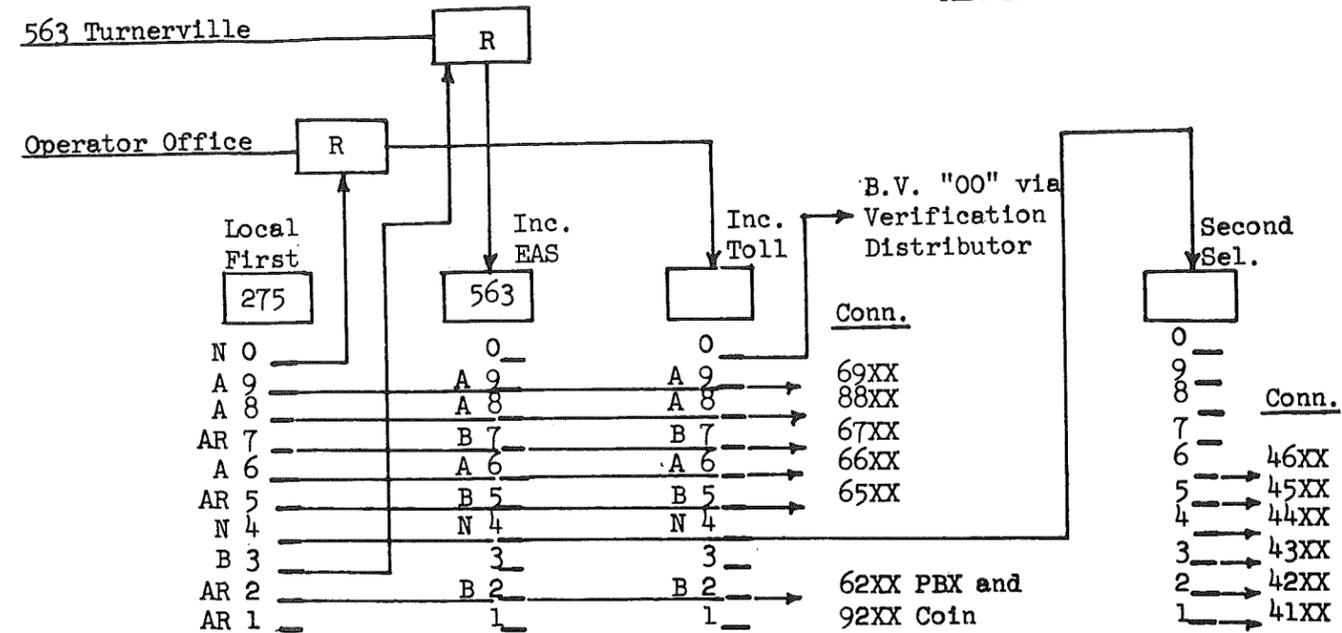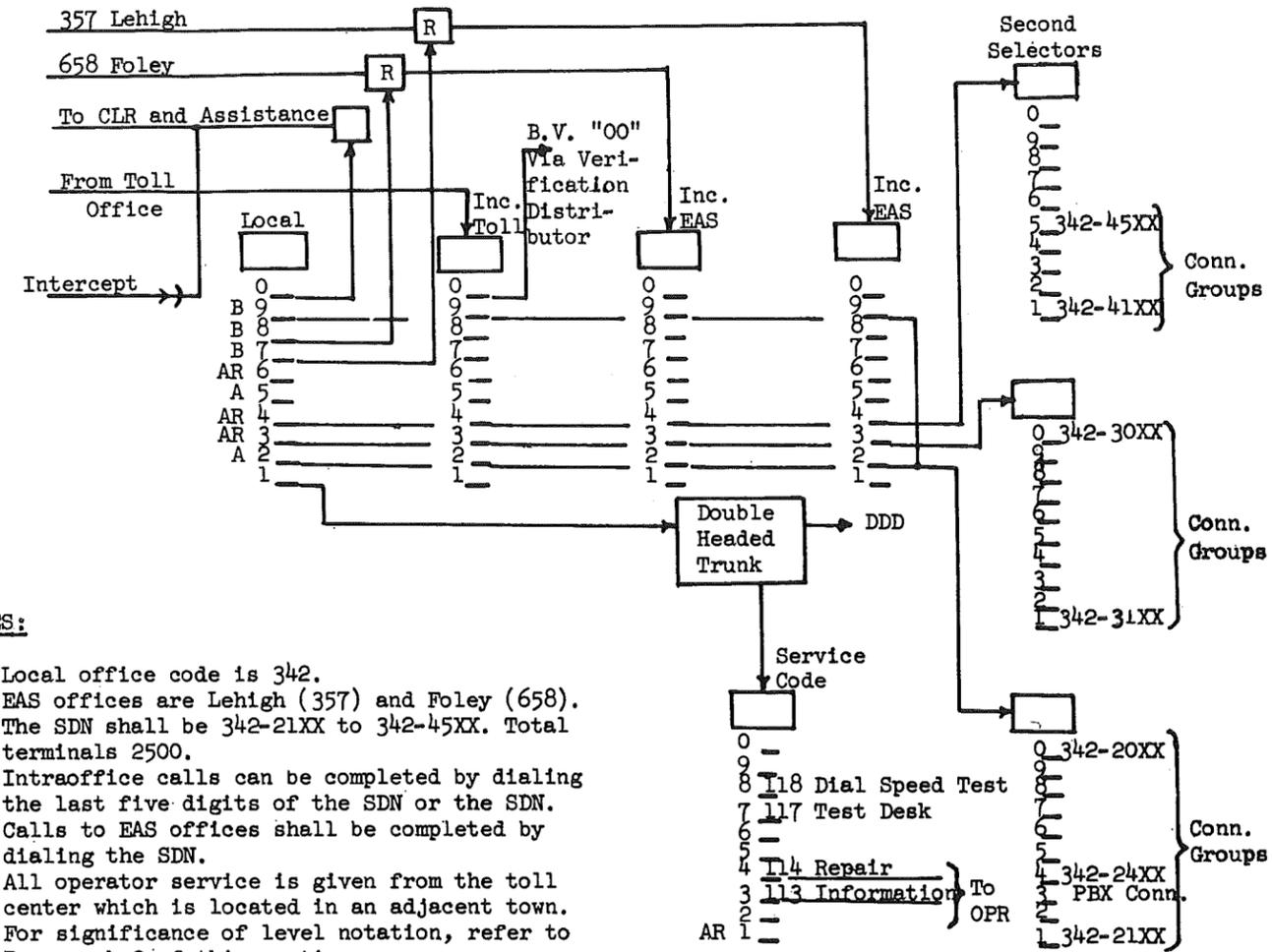

NOTES:

1. Local office is 275.
2. EAS office is 563.
3. For significance of level notation refer to paragraph 2 of this section.
4. SDN's shall be as follows:

   275-6211 to 275-6200 (PBX hunting group)
   275-9211 to 275-9200 (Coin lines in same group)

   275-6511 to 275-6700
   275-8811 to 275-8800
   275-6911 to 275-6900
   275-4111 to 275-4600

5. For revertive calls, dial directory number.
6. For long distance and information, dial "O."
7. "R" denotes trunk impulse repeater.
8. Local intraoffice calls can be completed by dialing only the last four digits of the SDN.
9. Subscribers in the 563 (Turnerville) office shall be reached by dialing the SDN.
10. To care for future growth beyond filling up 4XXX, level 8 is arranged for conversion to access to new group of second selectors without directory number change of subscribers in 88XX series.
11. All vacant selector levels shall be connected to intercept.

NUMBERING PLAN DRAWING
SOLUTION TO EXAMPLE 3

Figure 3

6.6 EXAMPLE 4 - Bison Central Office

The Bison office, which is to have 2500 terminals (terminal-per-station), is assigned the office code 342. It shall have extended area service to Lehigh 357 and Foley 658 offices. Incoming EAS calls deliver the last four digits of the SDN. Local and EAS calls shall be completed by dialing the SDN. All operator service is given from the toll center which is located in an adjacent town. The operator office for toll, assistance, information, and repair is secured by dialing "0." Separate incoming and outgoing trunk groups are planned. Service code selectors are required for reaching miscellaneous trunk groups, using the "11X" series of codes. Double headed trunks are required for reaching DDD, Dial "1." The operator office shall be able to perform verification by means of prefix digits "00." A schematic trunking diagram showing the assignment of all intraoffice and interoffice trunk groups for the Bison office, with directory numbering information, is shown in Figure 4. Instructions to users will be to dial all seven digits of the SDN, but local calls actually will be completed if only the last five are dialed.

NOTES:

1. Local office code is 342.
2. EAS offices are Lehigh (357) and Foley (658).
3. The SDN shall be 342-21XX to 342-45XX. Total terminals 2500.
4. Intraoffice calls can be completed by dialing the last five digits of the SDN or the SDN.
5. Calls to EAS offices shall be completed by dialing the SDN.
6. All operator service is given from the toll center which is located in an adjacent town.
7. For significance of level notation, refer to Paragraph 2 of this section.
8. "R" denotes trunk impulse repeater.
9. PBX trunk hunting lines are in the 342-24XX series. Paystations are in same connector group, 342-94XX.
10. All vacant selector levels shall be connected to intercept.
11. Reverting call by directory number.

NUMBERING PLAN DRAWING
SOLUTION TO EXAMPLE 4

Figure 4