# FEATURE DOCUMENT

# DIAL CALL WAITING FEATURE

# 2-WIRE NO. 1 AND NO. 1A ELECTRONIC SWITCHING SYSTEMS

## INTRODUCTION

### 1. GENERAL INFORMATION

**SCOPE**

**1.01** This document describes the Dial Call Waiting (DCW) feature when used with the No. 1/1A Electronic Switching Systems (ESSs). Coverage is also included for the silence, tone, and audible ringing (STAR) option, and the distinctive burst of call waiting tone patterns.

**REASONS FOR REISSUE**

**1.02** This document is reissued for the following reasons:

(a) To provide coverage for the STAR option

(b) To provide coverage for the distinctive burst of call waiting tone patterns.

Since this reissue is a general revision involving conversion to the standard 18-part format, no revision arrows have been used to denote significant changes.

**FEATURE AVAILABILITY**

**1.03** The DCW feature is available with all active No. 1 and No. 1A generic programs. The STAR option is initially available with the 1E(B4)5/1E5/1AE(C4,B4)3/1AE5 generic programs. Both the DCW feature and STAR option are located in the base generic program.

**1.04** The distinctive burst of call waiting tone is initially available with the 1E6/1AE6 generic programs. It requires the optionally loadable Distinctive Ringing/Distinctive Call Waiting Tone (DRNG/DCWT) feature group.

### 2. DEFINITION/BACKGROUND

**DEFINITION**

**2.01** The *Dial Call Waiting (DCW) feature* provides a capability whereby originating centrex stations can invoke call waiting service on selected intragroup calls by dialing a DCW access code followed by the extension number of the station to be call waited. The called party may elect to answer the call by flashing the switchhook or by hanging up and being rung back.

**BACKGROUND**

**2.02** The silence, tone, or audible ringing (STAR) option, provides a choice of termination to which the calling party is terminated during dial call waiting. The two choices available are:

(a) Music, announcement or special tone (music source must be supplied by the customer).

(b) Audible ringing.

**2.03** When DCW is invoked on a busy station, both the calling party and called party are alerted by specific signals and/or tones as outlined below.

**2.04** Prior to generic programs 1E5/1AE5, audible ringing is the only tone to which the calling party can be terminated during DCW. Effective with 1E5/1AE5, the STAR option may be used. If music, announcement, or special tone is used, and all routes to this source are busy, the system defaults to audible ringing.

**2.05** Prior to generic programs 1E6/1AE6, the called party is alerted to DCW by a 440-Hz call waiting tone which is repeated 10 seconds later if the called party has not answered. Effective with 1E6/1AE6, only one burst of call waiting tone is applied. If the customer also has the DRNG/DCWT feature, this tone is a distinctive pattern based upon the class assigned to the call source. For class, call source, and tone pattern applicable to the Dial Call Waiting feature, see reference A(14) in Part 18.

## DESCRIPTION

### 3. USER OPERATION

**CUSTOMER**

**3.01** To invoke DCW, the station user dials the assigned DCW access code and the extension number of the desired station. If the station is idle, the call is completed normally. If the station is busy, call waiting is invoked and both the calling party and called party are alerted by specific signals and/or tones as discussed in paragraphs 2.02 through 2.05. Further progress on the call is determined

by the supervisory inputs occurring on the call by the calling and/or called party. If call waiting is not allowed (e.g., the station is already call waited), busy tone is returned to the calling party.

**3.02** To answer an incoming call waiting call, the called station party flashes the switchhook or abandons the original connection. In the latter case, the called station is immediately rung. If the called station party flashes, the original call is effectively placed on hold and a talking connection is established with the third party. From this point, the call waited station party may alternate between parties by switchhook flashes. If the call waited station party abandons either call, the called station is rerung and upon answer is connected to the held party. If the held party disconnects, the conference connection is disconnected and a simple 2-party connection between the call waited party and held party is established.

**TELEPHONE COMPANY**

**3.03** Not applicable.

**4. SYSTEM OPERATION**

**HARDWARE**

**4.01** The DCW feature requires the use of a 3-port conference circuit SD-1A284 and tone or recorded announcement circuit SD-1A218. The 3-port conference circuit is used to connect three parties associated with a DCW call through the network. The burst of call waiting tone is provided via a SD-1A218 tone circuit connected to a 440-Hz tone source. The incoming party to a call waited station may receive: (1) Music/other tone or announcement or (2) Audible ringing via a standard SD-1A218 circuit. If music is chosen with the STAR option, a music on queue circuit SD-1A432

is also required to interface with the customer's music source.

**OFFICE DATA STRUCTURES**

**A. Translations**

**4.02** Centrex digit interpreter table entry data type 5, subtype 18, sub-subtype 29 is used to provide an access code for the Dial Call Waiting feature. (See Fig. 1.)

**4.03** The standard LEN translator is used to allow the Dial Call Waiting feature. When the DCW item of LENCL3 word is set to 1, dial call waiting is provided for a customer line. (See Fig. 2.)

**4.04** To implement the STAR option, the CXOO item of word 0, in the centrex supplementary data auxiliary block is set to 1. (See Fig. 3.) When the CXOO item is set to 1, optional word O containing the call waiting attendant tone (CWAT) and call waiting nonattendant tone (CWNT) options can be provided by setting the appropriate item to 1. If either CWAT or CWNT is set to 1, a route index (RI) for "tone" (special tone, music, or recorded announcement) is specified in optional word O to provide access to the associated trunk group for the "tone" selected by the customer. Failure to find a path through the network to that "tone" or a busy circuit associated with that "tone" causes a default to audible ringing. Audible ringing is also provided when neither the CWAT or CWNT items are set to 1. Since only one RI for tone can be specified per centrex group, only one selection for "tone" can be provided per group, therefore, another translation word is necessary to allow for expansion of the route index. (See Fig. 4.)

| | 23 | 22 | 20 | 19 | 10 | 9 | 5 | 4 | 0 |
|---|---|---|---|---|---|---|---|---|---|
| WORD 1 TYPE 5B | * | DTYP=5 | | | | SUB–SUBTYPE=29 | | SUBTYPE=18 | |
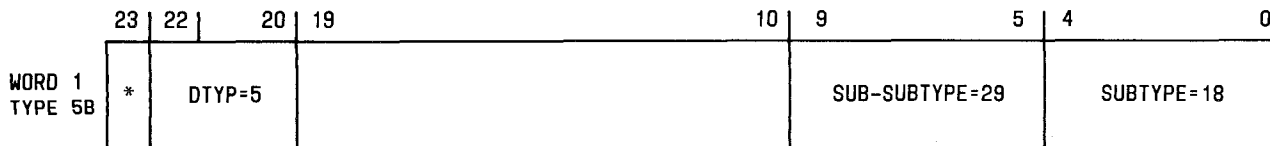
\* BIT 23 DOES NOT EXIST IN THE TRANSLATION WORD FOR NO. 1 ESS.
  IT IS EQUAL TO 0 IN THE NO. 1A ESS

Fig. 1—Centrex Digit Interpreter Table Word

| | 23 | 22 | | 3 | 0 |
|---|---|---|---|---|---|
| LENCL3 | * | | | D C W | |
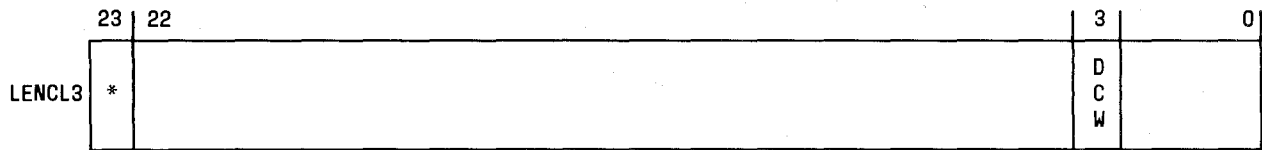
```
* BIT 23 DOES NOT EXIST IN THE TRANSLATION WORD FOR NO. 1 ESS.
  IT IS EQUAL TO 0 IN THE NO. 1A ESS
  DCW - DIAL CALL WAITING
```

**Fig. 2—Line Equipment Number Class 3 Word (LENCL3)**

### B. Parameters/Call Store

**4.05** A 3-port conference register is required for each DCW activation. Parameter word I4CF, located in the I4REGS table, contains the quantity and call store address of 3-port conference registers. (See Fig. 5.) The quantity of 3-port conference registers in the office is defined by set card NCF.

**4.06** DCW calls that provide audible ringing or one of the choices of termination available with the STAR option to the calling party requires conference assistance registers for the duration of the alerting signal and/or tone. The quantity of conference assistance registers in the office is defined by set card NAC.

**4.07** Parameter word B6PORT contains the address of 3-port traffic registers for collecting traffic counts for features that use 3-port conference circuits. (See Fig. 6.)

### FEATURE OPERATION

**4.08** The DCW feature is initiated when the calling party dials the access code assigned to the feature. The access code is collected and interpreted through the digit interpreter tables resulting in a data type 5, subtype 18, sub-subtype 29 entry.

**4.09** The system checks the LEN translations of the originating party for availability of the feature. If the feature is not allowed, busy tone is returned to the calling party. If the feature is allowed, the extension number is collected and interpreted with call forwarding, series completion, and multiline hunting features being inhibited. With these features inhibited, ringing is applied to the called station if the station is idle. If the called station is busy, call waiting treatment is given as outlined below.

**4.10** A trace function is performed to determine the status of the line, the network path involved, and the identity of any call register associated with the call. For the call waiting function to be successful, the line to be call waited must be in a stable, valid connected path. All cases that do not meet this criteria cause busy tone to be returned to the originating party.

**4.11** The system seizes and initializes a conference register and seizes a 3-port conference circuit. (Refer to Fig. 7 for a typical dial call waiting setup.)

**4.12** The original party talking to the call waited station is first connected to one of the ports of the 3-port conference circuit. The call waited line is then connected to a 440-Hz call waiting tone circuit, and a path is reserved for the call waited line to another port of the 3-port conference circuit. When the call waiting tone circuit is released, the reserved path from the call waited station is connected to the 3-port conference circuit. At this time the call waited station and the original party are connected via the 3-port conference circuit.

**4.13** While the call waited station is connected to the 440-Hz call waiting tone, the originating line is reserved to the third port of the 3-port conference circuit and connected to audible ringing or other tone. (See paragraph 2.02 for the two choices available with the STAR option.) No ringing or tone register is seized at this time.

**4.14** If the call waited station flashes, the originating line connection to audible ringing or other tone is taken down, and the reserved

```
   | 23 | 22 | 21 | 20 | 19 | 18 | 17   16 | 15 | 14 | 13                              5 | 4              0 |
   |─────────────────────────────────────────────────────────────────────────────────────────────────────|
   |                                         LENGTH IF > 31                                                |
   |─────────────────────────────────────────────────────────────────────────────────────────────────────|
WORD 0 | * |    WRDN    |      |  †  |                                                                      |
   |─────────────────────────────────────────────────────────────────────────────────────────────────────|
```

```
          | C | C |
OPTION | * | W | W |              |                RI FOR TONE                |
  "0"    |   | A | N |              |                                           |
         |   | T | T |              |                                           |
```
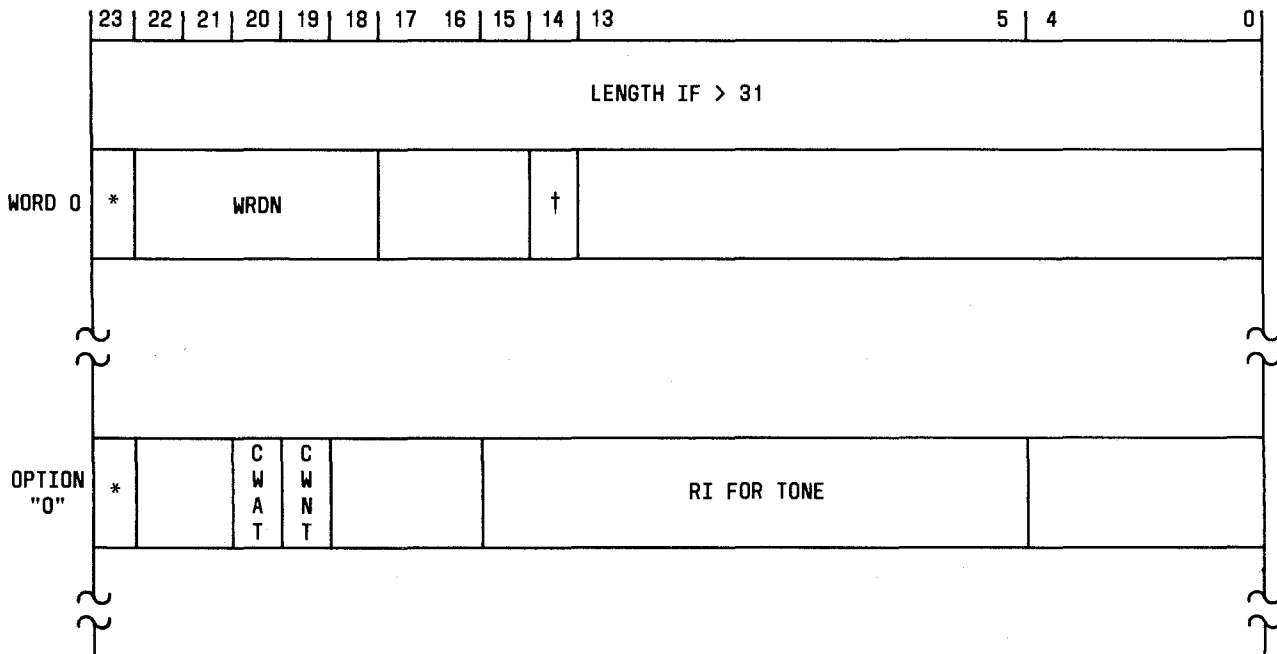
* BIT 23 DOES NOT EXIST IN THE TRANSLATION WORD FOR NO. 1 ESS.
  IT IS EQUAL TO 0 IN THE NO. 1A ESS

† CX00 - SET TO ONE TO INDICATE OPTIONAL WORD 0 REQUIRED

CWAT — CALL WAITING ATTENDANT TONE OPTION INDICATOR
       = 1 IF TONE (OR MUSIC OR ANNOUNCEMENT) IS PROVIDED TO ATTENDANT LINES INVOKING
         DIAL CALL WAITING, WHICH ORIGINATE A CALL TO A BUSY STATION IN THE SAME
         CENTREX GROUP.
       = 0 IF AUDIBLE RINGING IS PROVIDED.

CWNT — CALL WAITING NONATTENDANT TONE OPTION INDICATOR
       = 1 IF TONE (OR MUSIC OR ANNOUNCEMENT) IS PROVIDED TO NONATTENDANT LINES
         INVOKING DIAL CALL WAITING WHICH ORIGINATE OR TRANSFER A CALL TO A BUSY
         STATION IN THE SAME CENTREX GROUP.
       = 0 IF AUDIBLE RINGING IS PROVIDED.

RI — ROUTE INDEX FOR TONE
     ROUTE INDEX ASSOCIATED WITH A TRUNK GROUP TO PROVIDE TONE (OR MUSIC OR
     ANNOUNCEMENT) OPTIONS. MUST BE PROVIDED IF CWAT OR CWNT = 1.

**Fig. 3—Centrex Supplementary Data Auxiliary Block**

path to the third port of the 3-port conference circuit is set up. The party to whom the call waited party was originally talking is split off (effectively put on hold). When the call waited party disconnects from the talking party, a ringing register is seized and ringing is connected to the call waiting station. When the call waiting party answers the call, the connection is dropped off the 3-port conference circuit, and the call waited line is put in a talking path through the network with the party who was previously on hold. The 3-port conference circuit, conference register, ringing circuit, and ringing register are idled at this time. Further progress on the call is determined by the supervisory inputs occurring on the call. The action to be performed is then determined by the type of input and the current configuration of the call.

| 23 | 22 | 21 | 20 | | 10 | 9 | | 0 |
|---|---|---|---|---|---|---|---|---|

WORD 0 | * | TYPE = 01 | | NXTRID = AUDIBLE RI | | TGN |

WORD 1 TYPE 0 | * |
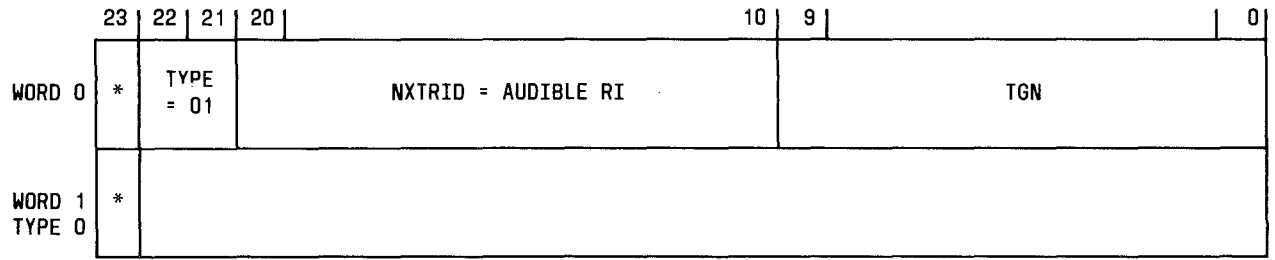
* BIT 23 DOES NOT EXIST IN THE TRANSLATION WORD FOR NO. 1 ESS.
  IT IS EQUAL TO 0 IN THE NO. 1A ESS

**Fig. 4—Route Index Expansion Table**

| 36 | 31 | 30 | 21 | 20 | 0 |
|---|---|---|---|---|---|

| | NO. OF 3-PORT CONFERENCE REGS IN C.O. | STARTING ADDRESS OF 3-PORT CONFERENCE REGISTERS |

NO. 1 ESS (PROGRAM STORE)

| 23 | 22 | 10 | 9 | 0 |
|---|---|---|---|---|

0 | STARTING ADDRESS OF 3-PORT CONFERENCE REGISTERS
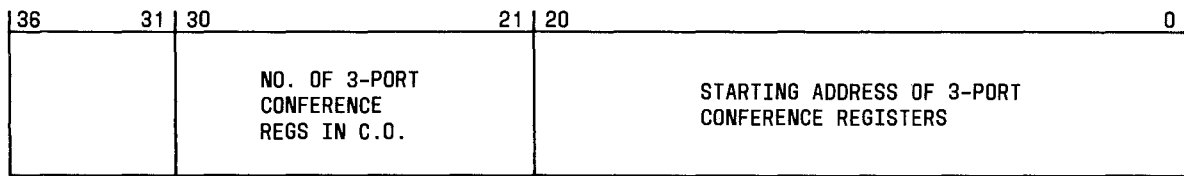
0 | | NO. OF 3-PORT CONFERENCE REGS IN C.O.
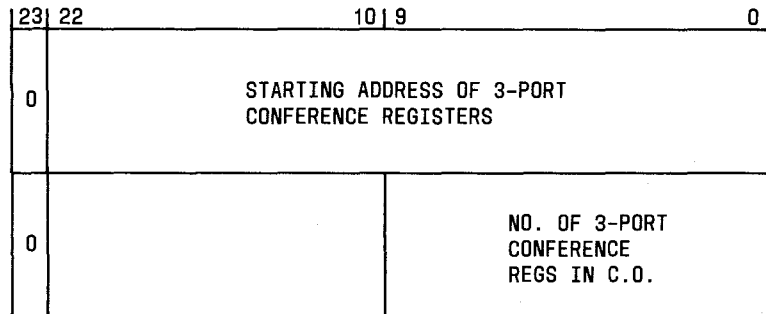
NO. 1A ESS (UNDUPLICATED
CALL STORE, FILE STORE)

**Fig. 5—Parameter Word I4CF (I4REGS Table) 3-Port Conference Registers**

## CHARACTERISTICS

## 5. FEATURE ASSIGNMENT

**5.01** The DCW feature and STAR option are provided on a per centrex group basis.

## 6. LIMITATIONS

### OPERATIONAL

**6.01** Dial call waiting service is provided only if the called station is in a valid, stable talking state.

```
| 36                              23| 22                                         0 |
|                                   |                                              |
|                                   |  CALL STORE ADDRESS OF 58                    |
|                                   |  WORD BLOCK FOR 3-PORT                       |
|                                   |  TRAFFIC COUNTS                              |
|                                   |                                              |
```

NO. 1 ESS (PROGRAM STORE)

```
| 23| 22                                                        0 |
|   |                                                            |
|   |  DUPLICATED CALL STORE ADDRESS                             |
|   |  OF 58 WORD BLOCK FOR 3-PORT                               |
|   |  TRAFFIC COUNTS                                            |
|   |                                                            |
```

NO. 1A ESS (UNDUPLICATED
CALL STORE, FILE STORE)

**Fig. 6—Parameter Word B6PORT, 3-Port Traffic Counts**

**ASSIGNMENT**

**6.02**  Not applicable.

**7.  INTERACTIONS**

**STATIC**

**7.01**  Not applicable.

**DYNAMIC**

**7.02**  The Call Forwarding, Call Forwarding Busy Line, Call Transfer, Series Completion, and Multiline Hunt features are inhibited when the DCW feature is invoked.
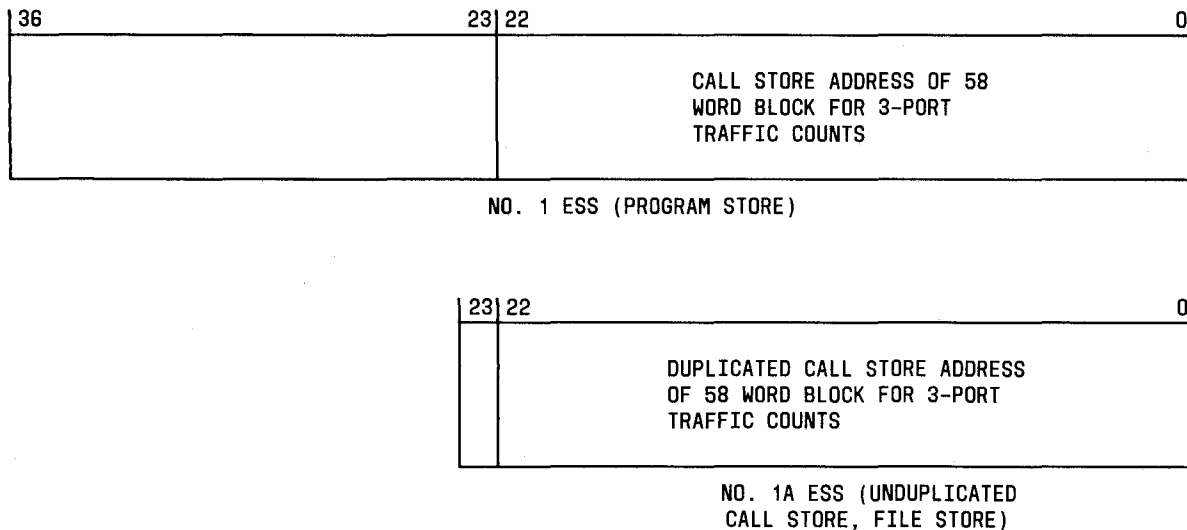
**7.03**  Stations with both Dial Call Waiting (DCW) and Call Hold (CHD) features will have a slight modification in the operation of the DCW feature, since the switchhook flash of a station with CHD is always interpreted as a request for dial tone. Thus, when a station user with call waiting flashes, dial tone is returned and the station user dials the call hold access code which causes the present call to be placed on hold. The call waited call is then automatically connected to the call waited party.

**7.04**  The burst of call waiting tone that alerts a busy station user to call waiting is inhibited during certain service operations that are provided

with the Interface With Voice Storage System (VSS) feature (1E6/1AE6 and later). For specific interactions between DCW and VSS, refer to A(15) in Part 18.

**8.  RESTRICTION CAPABILITY**

**8.01**  Not applicable.

*INCORPORATION INTO SYSTEM*

**9.  INSTALLATION/ADDITION/DELETION**

**9.01**  Figure 8 illustrates the procedures for assigning the DCW feature and STAR option to a centrex group.

**9.02**  Set cards applicable to the DCW feature are:

(a)  NAC—Number of conference assistance registers

(b)  NCF—Number of 3-port conference registers.

**10.  HARDWARE REQUIREMENTS**

*Note:*  This part contains cost factors and determination of quantities. Central Office Equipment Engineering System (COEES) Planning and Mechanized Ordering Modules are the recommended procedures for developing these requirements. However, for planning
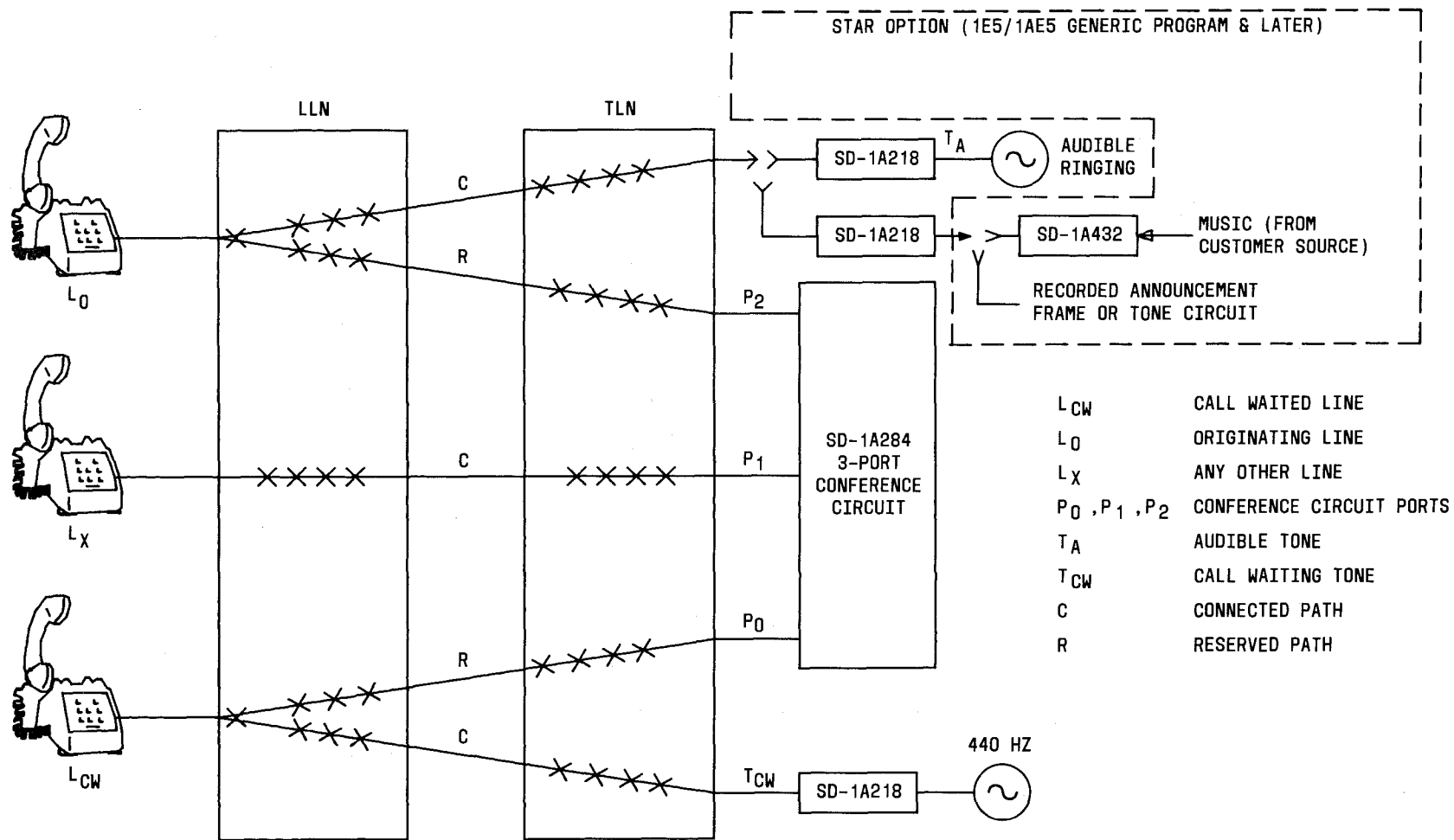
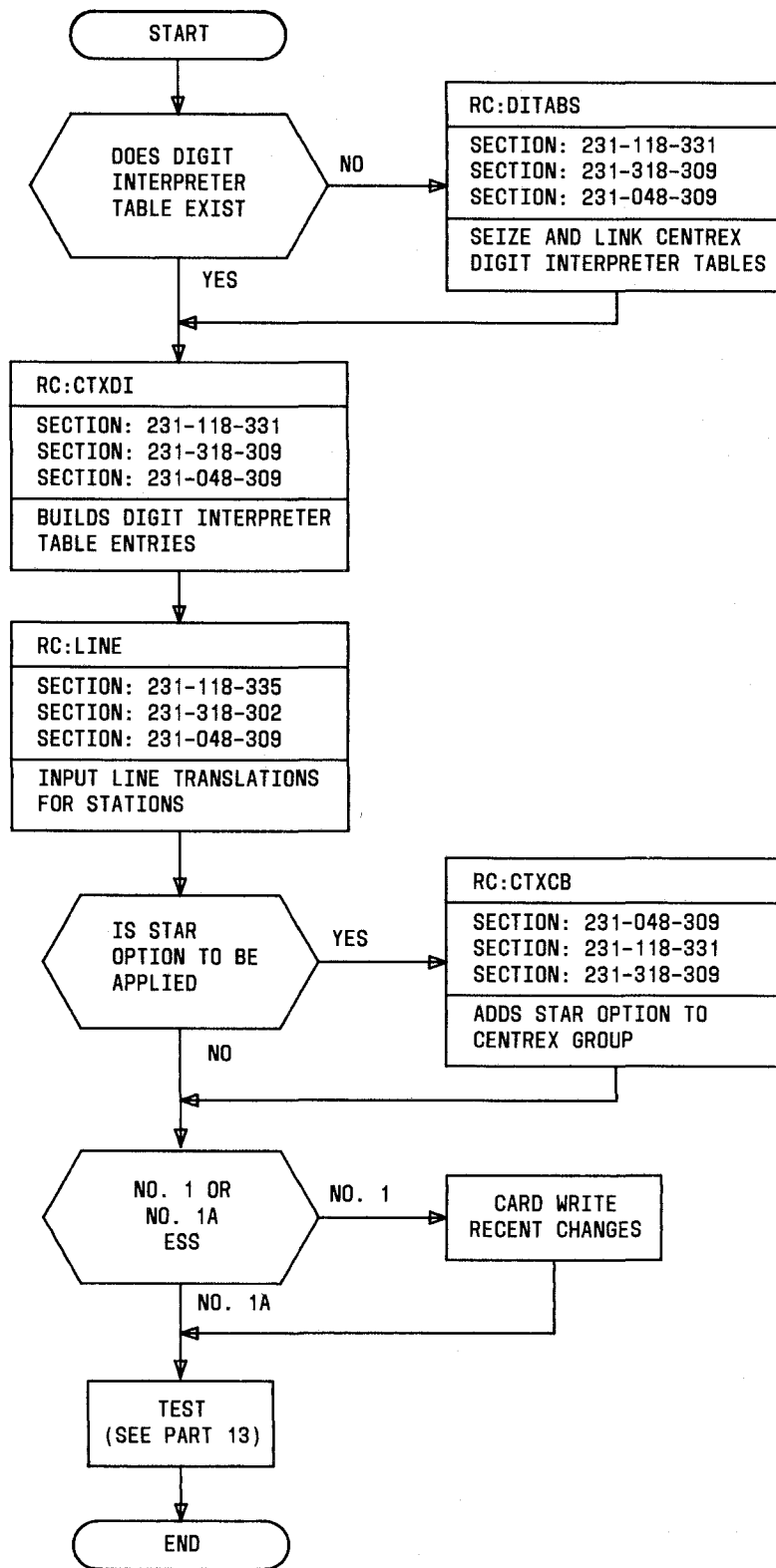Fig. 7—Typical Dial Call Waiting Setup

```
                    ┌─────────────┐
                    │    START    │
                    └──────┬──────┘
                           │
                           ▼
                                            ┌──────────────────────────┐
        ╱─────────────────╲                 │ RC:DITABS                │
       ╱   DOES DIGIT       ╲     NO         ├──────────────────────────┤
      │    INTERPRETER        │─────────────▶│ SECTION: 231-118-331     │
       ╲   TABLE EXIST       ╱               │ SECTION: 231-318-309     │
        ╲─────────────────╱                  │ SECTION: 231-048-309     │
               │                             ├──────────────────────────┤
              YES                            │ SEIZE AND LINK CENTREX   │
               │                             │ DIGIT INTERPRETER TABLES │
               │                             └──────────────────────────┘
               ▼
        ┌──────────────────────────┐
        │ RC:CTXDI                 │
        ├──────────────────────────┤
        │ SECTION: 231-118-331     │
        │ SECTION: 231-318-309     │
        │ SECTION: 231-048-309     │
        ├──────────────────────────┤
        │ BUILDS DIGIT INTERPRETER │
        │ TABLE ENTRIES            │
        └──────────────────────────┘
               │
               ▼
        ┌──────────────────────────┐
        │ RC:LINE                  │
        ├──────────────────────────┤
        │ SECTION: 231-118-335     │
        │ SECTION: 231-318-302     │
        │ SECTION: 231-048-309     │
        ├──────────────────────────┤
        │ INPUT LINE TRANSLATIONS  │
        │ FOR STATIONS             │
        └──────────────────────────┘
               │
               ▼                             ┌──────────────────────────┐
        ╱─────────────────╲                 │ RC:CTXCB                 │
       ╱   IS STAR          ╲    YES         ├──────────────────────────┤
      │    OPTION TO BE       │─────────────▶│ SECTION: 231-048-309     │
       ╲   APPLIED          ╱                │ SECTION: 231-118-331     │
        ╲─────────────────╱                  │ SECTION: 231-318-309     │
               │                             ├──────────────────────────┤
              NO                             │ ADDS STAR OPTION TO      │
               │                             │ CENTREX GROUP            │
               ▼                             └──────────────────────────┘
        ╱─────────────────╲                 ┌──────────────────────────┐
       ╱   NO. 1 OR         ╲   NO. 1        │ CARD WRITE               │
      │    NO. 1A             │─────────────▶│ RECENT CHANGES           │
       ╲   ESS              ╱                └──────────────────────────┘
        ╲─────────────────╱
               │
             NO. 1A
               │
               ▼
        ┌──────────────────────────┐
        │ TEST                     │
        │ (SEE PART 13)            │
        └──────────────────────────┘
               │
               ▼
        ┌─────────────┐
        │     END     │
        └─────────────┘
```

**Fig. 8—Procedure for Assigning the Dial Call Waiting Feature**

purposes or if COEES is not available, the following guidelines may be used.

**10.01** Three-port conference circuits require three master scan points, nine signal distributor points, and three network appearances (one per port). For SD-1A284-01 (J1A033JG), the order code is 04370. For the miniature version, SD-1A284-05 (J1A088JG), the order code is 04302.

**10.02** A 3-port conference circuit SD-1A284 is required as long as three parties are associated with the call waiting call. Three-port conference circuits are engineered on a one-to-one basis with 3-port conference registers.

**10.03** The tone or recorded announcement circuit requires one master scan point, two signal distributor points and one network appearance. For SD-1A218-01 (J1A032DC), the order code is 07870. For the miniature version, SD-1A218-05 (J1A084DC), the order code is 07800.

**10.04** A tone or recorded announcement circuit SD-1A218 connected to a 440-Hz tone source SD-81652-01 is required each time the call waited station receives the burst of call waiting tone. The average holding time for this circuit is 0.5 seconds. This circuit is also required to interface the calling party to the appropriate termination during call waiting.

**10.05** The music on queue circuit SD-1A432-01, has no master scan point, signal distributor point, network appearance or order code. If used, J1A033GR is required for the first group of 22 trunks; J1A033GU is required for the second and third group of 22 trunks for a maximum of 66 trunks.

## 11. SOFTWARE REQUIREMENTS

*Note:* This part contains cost factors and determination of quantities. Central Office Equipment Engineering System (COEES) Planning and Mechanized Ordering Modules are the recommended procedures for developing these requirements. However, for planning purposes or if COEES is not available, the following guidelines may be used.

## MEMORY

### A. No. 1 ESS

### Fixed

**11.01** The following memory is required whether or not the DCW feature and STAR option are used:

● *Base generic program (program store):*

    (a) 1E4 and earlier—approximately 1020 words

    (b) 1E(B4)5/1E5 and later—approximately 1270 words.

*Note:* Only approximately 20 words are unique to the DCW feature. The remainder are shared with the CWT and CWO features.

● *Fixed parameters (program store):* 2 words (shared with other features).

### Conditional

**11.02** The following memory is required only when the feature is activated:

● *Call Store:*

    (a) A 34-word 3-port conference register is required on a one-to-one basis with a 3-port conference circuit. The quantity of 3-port conference registers in the office is defined by set card NCF.

    (b) A 6-word conference assistance register is required during the period of time a call is waiting to be acknowledged by the called station. The quantity of conference assistance registers in the office is defined by set card NAC.

See references C(2) and C(4) in Part 18 for set card engineering.

**Variable**

**11.03** The following memory is required when the DCW feature and the STAR option are applied:

- *Translations (Program store):*

   (a) One word is required in the existing centrex digit interpreter tables. This word is required for final data type word 05B.

   (b) One item (DCW) is required in LENCL3 word of the centrex multiline hunt group auxiliary block or centrex line auxiliary block.

   (c) For the STAR option, one word (option O), is required in the centrex supplementary data auxiliary block. Two words are required if this translator does not exist for this customer. Option O may be shared with the CWT and CWO features.

   (d) When the recorded Centrex/ESSX-1 requires music, announcement, or special tone with the STAR option, a 2-word route index expansion table is required.

**B. No. 1A ESS**

**Fixed**

**11.04** The following memory is required whether or not the DCW feature and STAR option are used:

- *Base generic program (program store, file store):*

   (a) 1AE4 and earlier—approximately 1275 words

   (b) 1AE(C4,B4)3/1AE5 and later—approximately 1625 words.

   *Note:* Only approximately 25 words are unique to the DCW feature. The remainder are shared with the CWT and CWO features.

- *Fixed parameters (unduplicated call store, file store):* 4 words (shared with other features).

**Conditional**

**11.05** The following memory is required only when the feature is activated:

- *Duplicated call store:* Same as No. 1 ESS call store in paragraph 11.02 above. See references C(3) and C(5) in Part 18 for set card engineering.

**Variable**

**11.06** Variable costs are identical to paragraph 11.03 above; translations are in unduplicated call store/file store.

**REAL TIME IMPACT**

**11.07** The processor time required for a DCW call is approximately 100 cycles (No. 1 ESS) and 200 cycles (No. 1A ESS) in addition to the real time required to establish a call waiting call.

**11.08** The cycle time for No. 1 ESS is 5.5 $\mu$sec and for No. 1A ESS is 0.7 $\mu$sec.

**12. DATA ASSIGNMENTS AND RECORDS**

**TRANSLATION FORMS**

**12.01** ESS translation forms referenced in C(1), in Part 18, requiring completion are as follows:

   (a) ESS 1101—Directory Number Record: This form provides the DCW indicator on a per line basis.

   (b) ESS 1107—Centrex Group Supplementary Information Record: This form is used for recording the translation data for the STAR option.

   (c) ESS 1109—Centrex Group Record: This form contains data defining the service requirements of the centrex group.

   (d) ESS 1303—Trunk and Service Circuit Route Index Record: This form is used to record the RI information when either the CWNT or CWAT choices are selected.

## RECENT CHANGES

**12.02** Recent change (RC) message formats required to implement the DCW feature and STAR option are as outlined below:

| RC MESSAGE | FUNCTION |
|---|---|
| RC:LINE | Builds LEN translation entries for the DCW feature by utilizing keyword CWC. See A(1), A(3), or A(5) in Part 18 for details. |
| RC:CTXCB | Adds STAR option to a centrex group by utilizing keywords CWNT or CWAT. See A(2), A(4), or A(6) in Part 18 for details. |

## 13. TESTING

**13.01** The DCW feature and STAR option can be tested by first verifying the translations and then by making test calls. The translations are verified using the input and output (I/O) messages shown below. For a detailed description of I/O messages, refer to teletypewriter I/O manuals in Part 18B.

**13.02** Use VFY-XDGNT input message to verify the centrex digit interpreter table entry for DCW. The system response is a TR18 output message.

**13.03** Use VFY-LEN input message to verify the DCW item assignment in the LENCL3 translation word. The system response is a TR03 output message.

**13.04** When the STAR option is applied, verification can be accomplished by using VFY-CSTG-35 input message. The system response is a TR17 output message followed by a TR46 output message.

**13.05** Perform test calls from various stations within the centrex group to verify that the DCW feature and STAR option (if applied) are properly assigned and functioning properly.

## 14. OTHER PLANNING TOPICS

**14.01** Not applicable.

## ADMINISTRATION

## 15. MEASUREMENTS

**15.01** The following total office counts—traffic measurement code (TMC) 05 are available on the H-, C-, DA-15, and S-traffic measurement schedules. The S-schedules are available only with 1E5/1AE5 and later generic programs. The equipment group or office count numbers (EGO) are as follows:

| EGO | DESCRIPTION |
|---|---|
| 111 | *Conference Assistance Register Usage*—Measures conference assistance register usage. |
| 332 | *Conference Assistance Registers (6-Word Path Memory Annex) Peg Count*—A count of the number of attempts to seize an idle conference register (1E4/1AE4 and later). |
| 333 | *Conference Assistance Registers (6-Word Path Memory Annex) Overflow*—Counts the number of failures to find an idle conference register (1E5/1AE5 and later). |
| 334 | *3-Port Conference Register Overflow*—Counts the number of failures to find an idle conference register (1E5/1AE5 and later). |
| 387 | *Call Waiting Centrex Peg Count*—Counts the number of times the call waiting feature is activated on a centrex line, i.e., a centrex line with call waiting in a talking state received a second call and was given call waiting tone (1E4/1AE4 and later). |

**15.02** The following measurements (TMC 111) define a set of peg and usage counts for the use of 3-port conference circuits by the Dial Call Waiting feature. These counts are available with 1E5/1AE5 and later generic programs on the H-, C-, DA-15, and S-traffic schedules.

| EGO | DESCRIPTION |
|-----|-------------|

**UNIFORM SERVICE ORDER CODES**

010      *Centrex-Call Waiting Peg Count*—Counts the number of times a 3-port conference circuit is seized to give a centrex line dial call waiting.

**16.02**   Uniform service order codes (USOCs) applicable to the Dial Call Waiting feature and STAR option are as shown in Table A.

011      *Centrex-Call Waiting Usage*—Measures usage on conference registers in use for call waiting. Provided on a 100-second scan basis.

*SUPPLEMENTARY INFORMATION*

**17. GLOSSARY**

**17.01**   Not applicable.

170      *Selected Centrex-Call Waiting Peg Count*—Counts the number of times a 3-port conference circuit is seized to give a centrex line dial call waiting on selected centrex group(s) only.

**18. REFERENCES**

**18.01**   The following documentation contains information pertaining to or affected by the DCW feature and STAR option.

171      *Selected Centrex-Call Waiting Usage*—Measures usage on conference registers in use for call waiting on selected centrex group(s) only. Provided on a 100-second scan basis.

**A. Bell System Practices**

(1) Section 231-118-335—Line RC Procedures for LINE, TWOPTY, MPTY, SCLIST, MLHG, ACT and CFV (CTX-7 through 1E5 Generic Programs)—2-Wire No. 1 Electronic Switching System

(2) Section 231-118-331—Centrex-CO RC Procedures for CTXCB, CTXEXR, CXDICH, DITABS, DLG, FLXDG, FLXRD, and FLXRS (CTX-6 through 1E5 Generic Programs)—2-Wire No. 1 Electronic Switching System

**16. CHARGING**

**AUTOMATIC MESSAGE ACCOUNTING**

**16.01**   Not applicable.

(3) Section 231-318-302—Line RC Procedures for LINE, TWOPTY, MPTY, SCLIST, and

**TABLE A**

**UNIFORM SERVICE ORDER CODES**

| USOC | APPLICABILITY |
|------|---------------|
| E6C | Dial Call Waiting |
| RA2 | Recorded Announcement Option — Per Group of 22 R.A. Ports |
| RPC | Recorded Announcement Option — Per Each Port Connecting Circuit |
| MUS | Music Option — Per Group of 22 Music Ports |
| MUP | Music Option — Per Each Port Connecting Circuit |
| (U) | Channel Connecting Serving Central Office and Music Source on Customer Premises. |

CFV (Through 1AE5 Generic Program)—2-Wire No. 1A Electronic Switching System

(4) Section 231-318-309—Centrex-CO RC Procedures CTXCB, CTXDI, CTXEXR, CXDICH, DITABS, DLG, FLXDG, FLXRD, and FLXRS (Through 1AE5 Generic Program)—2-Wire No. 1A Electronic Switching System

(5) Section 231-048-312—Line RC Formats for LINE, TWOPTY, MPTY, SCLIST, MLHG, ACT, CFV, and VSS (1E6 and 1AE6 Generic Programs)—2-Wire No. 1 and No. 1A Electronic Switching Systems

(6) Section 231-048-309—Centrex-CO and ESSX-1 RC Formats for CTXCB, CTXDI, CTXEXR, CXDICH, DITABS, DLG, FLXDG, FLXRD and FLXRS (1E6 and 1AE6 Generic Programs)

(7) Section 231-060-210—Service Circuits—Network Switching Engineering—No. 1 and No. 1A Electronic Switching Systems

(8) Section 231-061-450—Program Stores— Network Switching Engineering—No. 1 Electronic Switching System

(9) Section 231-061-460—Call Stores—Network Switching Engineering—No. 1 Electronic Switching System

(10) Section 231-062-460—Processor Community Engineering—Program Stores—Network Switching Engineering—No. 1A Electronic Switching System

(11) Section 231-062-465—Processor Community Engineering—Duplicated Call Store—Network Switching Engineering—No. 1A Electronic Switching System

(12) Section 231-062-470—Processor Community Engineering—Unduplicated Call Store— Network Switching Engineering—No. 1A Electronic Switching System

(13) Section 231-062-475—Processor Community Engineering—File Stores—Network Switching Engineering—No. 1A Electronic Switching System

(14) Section 231-090-158—Feature Document— Distinctive Ringing/Distinctive Call Waiting Tone Feature—2-Wire No. 1 and No. 1A Electronic Switching Systems

(15) Section 231-090-151—Feature Document— Interface With Voice Storage System Feature—2-Wire No. 1 and No. 1A Electronic Switching Systems.

B. Teletypewriter Input and Output Manuals

(1) Input Message Manual IM-1A001—2-Wire No. 1 Electronic Switching System

(2) Output Message Manual OM-1A001—2-Wire No. 1 Electronic Switching System

(3) Input Message Manual IM-6A001—2-Wire No. 1A Electronic Switching System

(4) Output Message Manual OM-6A001—2-Wire No. 1A Electronic Switching System.

C. Other References

(1) Translation Guide TG-1A—No. 1 and No. 1A Electronic Switching Systems—2-Wire

(2) Office Parameter Specification PA-591001—No. 1 Electronic Switching System—2-Wire

(3) Office Parameter Specification PA-6A001—No. 1A Electronic Switching System—2-Wire

(4) Parameter Guide PG-1—No. 1 Electronic Switching System—2-Wire

(5) Parameter Guide PG-1A—No. 1A Electronic Switching System—2-Wire

(6) Translation Output Configuration PA-591003— No. 1 Electronic Switching System—2-Wire

(7) Translation Output Configuration PA-6A002—No. 1A Electronic Switching System—2-Wire.