

# GBPPR 'Zine



Issue #84 / The Monthly Journal of the American Hacker / April 2011

*"I bring reason to your ears, and, in language as plain as ABC, hold up truth to your eyes."*

--- Quote from Thomas Paine in *Paine: Political Writings*, 1776.

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# Tandem Tie Trunk Service Feature / #1A ESS (Part 1)

BELL SYSTEM PRACTICES  
AT&T Co SPCS

SECTION 231-090-254  
Issue 1, February 1981

## FEATURE DOCUMENT

### TANDEM TIE TRUNK SERVICE (NONSENDERIZED) FEATURE

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

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## INTRODUCTION

### 1. GENERAL INFORMATION

#### SCOPE

1.01 This document describes the Tandem Tie Trunk Service feature in a No. 1 or No. 1A Electronic Switching System (ESS). Tandem tie trunks are nonsenderized (or "cut-through") in their outpulsing operation. For information concerning senderized outpulsing operation of tie and foreign exchange (FX) trunks, see reference A(21) in Part 18. Only nonsenderized outpulsing operation of tie and FX trunks is documented herein. (The terms tie trunk and tie line as used in this feature document are to be considered synonymous.)

#### REASON FOR REISSUE

1.02 When this document is reissued, the reason for reissue will be stated in this paragraph.

#### FEATURE AVAILABILITY

1.03 Ordinary tandem tie line service, commonly called IXX, is available in the generic program base in all active No. 1/1A ESS generic programs. Improved tandem tie line service (I1XX) is available beginning with the 1E6 No. 1 ESS generic program and the 1AE6 No. 1A ESS generic program, but requires optional feature groups and special dial repeating trunk circuits. Private network access line service (PNAL) is also available

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with the 1E6/1AE6 and later generic programs. PNAL requires optional feature groups and a special dial repeating trunk circuit. Any mixture of IXX, IIXX, and/or PNAL can be provided in a No. 1/1A ESS office equipped with the 1E6/1AE6 and later generic programs.

## 2. DEFINITION/BACKGROUND

### DEFINITION

**2.01** The Tandem Tie Trunk Service feature provides nonsenderized private line service for large business customers.

### BACKGROUND

#### A. Nonsenderized Private Line Service

**2.02** Nonsenderized private line service allows a large business customer to directly determine call routing at each switching point within its network. Customer-dialed access codes are used to connect to an outgoing trunk group of a network. Digits dialed after an access code go out over the outgoing trunk as though the outgoing office were not interposed. Digits dialed after an access code go out as soon as possible after each is dialed. These digits are not translated. Neither are any digits deleted or prefixed. A Centrex/ESSX-1 customer telephone set is effectively (sometimes literally) cut through directly to each of a series of offices, determined by previously dialed digits, until a terminating station number is dialed. (See Fig. 1.)

**2.03** The uses of the Tandem Tie Trunk Service feature in a No. 1/1A ESS are of two types, on-network calling and off-network calling. On-network calls remain within a private line network in which the call was first originated. Off-network calls eventually reach the message telecommunication service network or a separate senderized private line network, such as an enhanced private switched communications service (EPSCS) network. For this reason, the off-network type of the Tandem Tie Trunk Service feature is often called access line service at the final switch of the original (nonsenderized) network.

#### B. Feature Perspective

**2.04** Large business customers with multiple geographical locations often prefer to have

their locations linked by an economical private telephone network. The Tandem Tie Trunk Service feature often provides the most economical private line service to accommodate Centrex/ESSX-1 customers, but at the cost of a certain amount of inconvenience for the users on those calls which require a complicated tandem route. (A complicated tandem route is one which a user must determine by consulting a network map and then translating a route into a sequence of access codes to be dialed.)

**2.05** The Tandem Tie Trunk Service feature offers an economical private line service. It also offers access line service as an accessory to the tie trunk network or independently. The Tandem Tie Trunk Service feature is also used to provide faster call completion for calls to dial pulse trunk groups from Centrex/ESSX-1 customer lines than a senderized group would provide.

**2.06** In No. 1/1A ESS offices with generic programs prior to the 1E6/1AE6, the Tandem Tie Trunk Service feature is implemented by use of a simulated cut-through mechanism. No true cut-through service exists. A service circuit is used to collect digits and retransmit them—hence the term dial repeating. A consequence of simulated cut-through operation is that a loud click occurs when simulated cut-through dialing is terminated at end-of-dialing time-out ( $n$  seconds after the last received digit is outpulsed, where  $n$  is derived from the route index translation for that particular route— $4 \leq n \leq 12$ ). This click is caused by the removal of the service circuit from the call path when the network path is reconfigured. With the advent of the 1E6/1AE6 generic program, special dial repeating trunks can be used to eliminate the loud click. These special dial repeating trunks also provide private network access line service which features calling number outpulsing prior to cut-through. The Centrex/ESSX-1 customer incurs higher termination charges for these special dial repeating trunks than for trunks which do not have dial repeating capability built in.

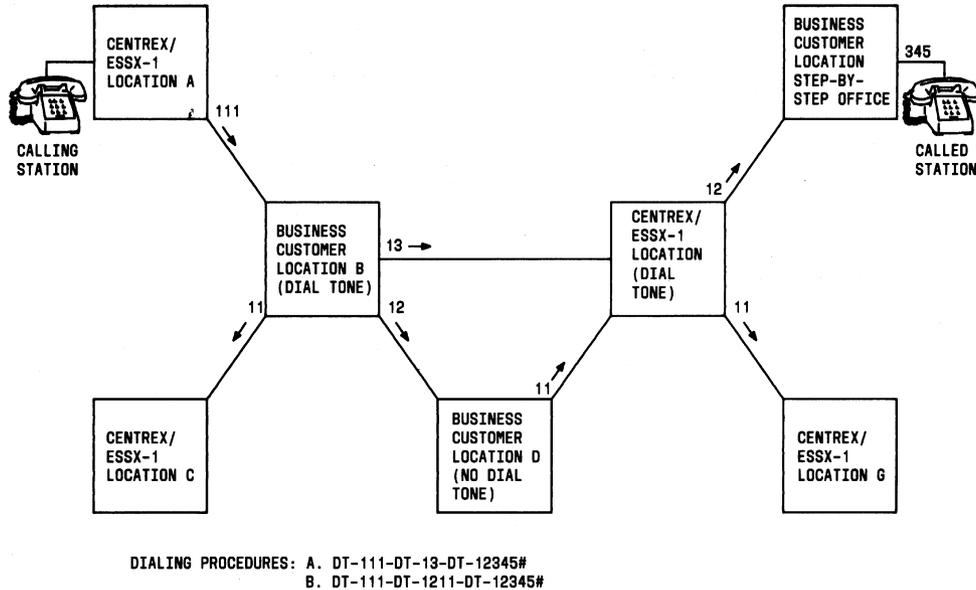
#### C. Feature Purpose

**2.07** The purpose of the Tandem Tie Trunk Service feature is to provide nonsenderized outgoing dial pulse service to large business (i.e., Centrex/ESSX-1) customers who are served by No. 1/1A ESS offices. The same trunks used for this nonsenderized dial pulse outgoing service can also be used for incoming

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**LEGEND:**

DT -- DIAL TONE  
# -- TOUCH-TONE DIGIT REQUIRED FOR I1XX

**Fig. 1—Tandem Tie Trunk Service**

service. Any trunk circuit allowed for the Tandem Tie Trunk Service feature has 2-way capability and can be used for such or can, if desired, be restricted to 1-way outgoing service.

**2.08** The Tandem Tie Trunk Service feature is not available to calls which originate outside a Centrex/ESSX-1 customer group.

**2.09** For purposes of documentation, three versions of the Tandem Tie Trunk Service feature are distinguished:

- (1) Ordinary tandem tie line service (1XX)
- (2) Improved tandem tie line service (I1XX)
- (3) Private network access line service (PNAL).

1XX and I1XX may be used for nonsenderized on-network and/or off-network calling. PNAL pertains only to access line service where the calling number is multifrequency (MF) outpulsed before the nonsenderized operation begins. 1XX and I1XX may be used for access line service, but only PNAL provides calling number outpulsing. PNAL was designed specifically for access line service to an EPSCS network. I1XX and PNAL are tariffed as an advanced private line termination (APLT), and 1XX is tariffed as tandem tie trunk service.

**D. Tandem Tie Trunk Networks**

**2.10** The tandem tie trunk network (TTTN) is the most commonly switched private line arrangement in the Bell System today. TTTNs are networks of trunks and switching machines that

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interconnect the different locations of the large business customers they serve. TTTNs are capable of furnishing both voice and data service to intrastate and interstate traffic. (See Fig. 2.)

**2.11** TTTNs range in size from those serving as few as three customer locations to networks interconnecting more than a hundred locations throughout the United States and Canada. Individual locations may be served by key telephone systems, private branch exchanges, or Centrex/ESSX-1. This document addresses the use of the No. 1/1A ESS Centrex/ESSX-1 in a TTTN as a large business customer service location or tandem switch.

**2.12** Tie trunks are voice-grade private "lines" used to connect or tie two business customer service locations. Tandem switching—connecting two trunks in order to switch calls through a business customer location—is done by switching systems that also serve the individual large business customer service locations. Each tandem switch can serve several large business customer service locations, as well as being connected to other tandem switches. (See Fig. 3.)

**2.13** The main purpose of a TTTN is to carry voice traffic among large business customer locations. Some TTTNs also carry low- or medium-speed data, and some are connected to the toll network for users to make calls to telephones which are not part of the TTTN (off-network service). Off-network traffic is carried between locations using the TTTN trunk groups and can also be connected to the message telecommunication service network using PBX central office trunks, foreign exchange trunks, "dial 9", and/or wide area telecommunications service (WATS) lines.

## DESCRIPTION

### 3. USER OPERATION

#### CUSTOMER

**3.01** The Tandem Tie Trunk Service feature users are Centrex/ESSX-1 stations, including attendants. Stations may be equipped for either dial pulse or TOUCH-TONE® dialing, but TOUCH-TONE stations for I1XX must have 12-button dials.

**3.02** To place a call using 1XX or I1XX, the user first dials an access code. This code does not have to be of the form 1XX and does not have

to be a 3-digit code; in fact, it may be any unused access code in the customer group dialing pattern. The term "1XX" is a carry-over from the older systems which used that form of access code. After the access code, another dial tone is returned. The user then dials the next (perhaps the only) leg of the call. If the office reached with the original access code allows through switching, another access code may be dialed, etc., or a station number may be dialed and the call terminated without through switching to another office. Another possibility is that the access code for message telecommunication service (usually 9) may be dialed, and after another dial tone, any allowable 7- or 10-digit telephone number may be dialed. (See Fig. 4.)

**3.03** With PNAL, an access code is dialed (usually one digit, but no more than two digits). Another dial tone is returned, and the user dials the private network called number. If an authorization code is required by the private network, a special dial tone is returned to prompt for the authorization code (usually a 3- to 6-digit code). The PNAL call can be a direct access from a subtending business customer location or the terminating leg of a 1XX or I1XX call. (See Fig. 5.)

**3.04** For 1E6/1AE6 and later generic programs, the customer has the option of I1XX service rather than 1XX. I1XX is available only on a network-wide basis so that all No. 1/1A switches in the network must have at least a 1E6/1AE6 generic program. Using I1XX, the troublesome click which can occur after answer with 1XX is eliminated in most cases. The user of TOUCH-TONE station equipment on an I1XX call is expected to dial the # digit immediately following the last dialed digit of the call. Otherwise, the troublesome click can occur even with I1XX. Dial pulse stations using I1XX simply dial the normal digits and do not get the click. TOUCH-TONE I1XX users must dial the # digit because the TOUCH-TONE signals are converted to dial pulses by using a service circuit. The click occurs when this service circuit is released. Dialing the # digit releases the service circuit immediately, rather than after an end-of-dialing time-out. Consequently, the click occurs well before answer and is not troublesome.

**3.05** Centrex/ESSX-1 stations with call transfer can transfer calls to tandem tie lines and to private network access lines. Similarly, the related threeway conference and consultation hold

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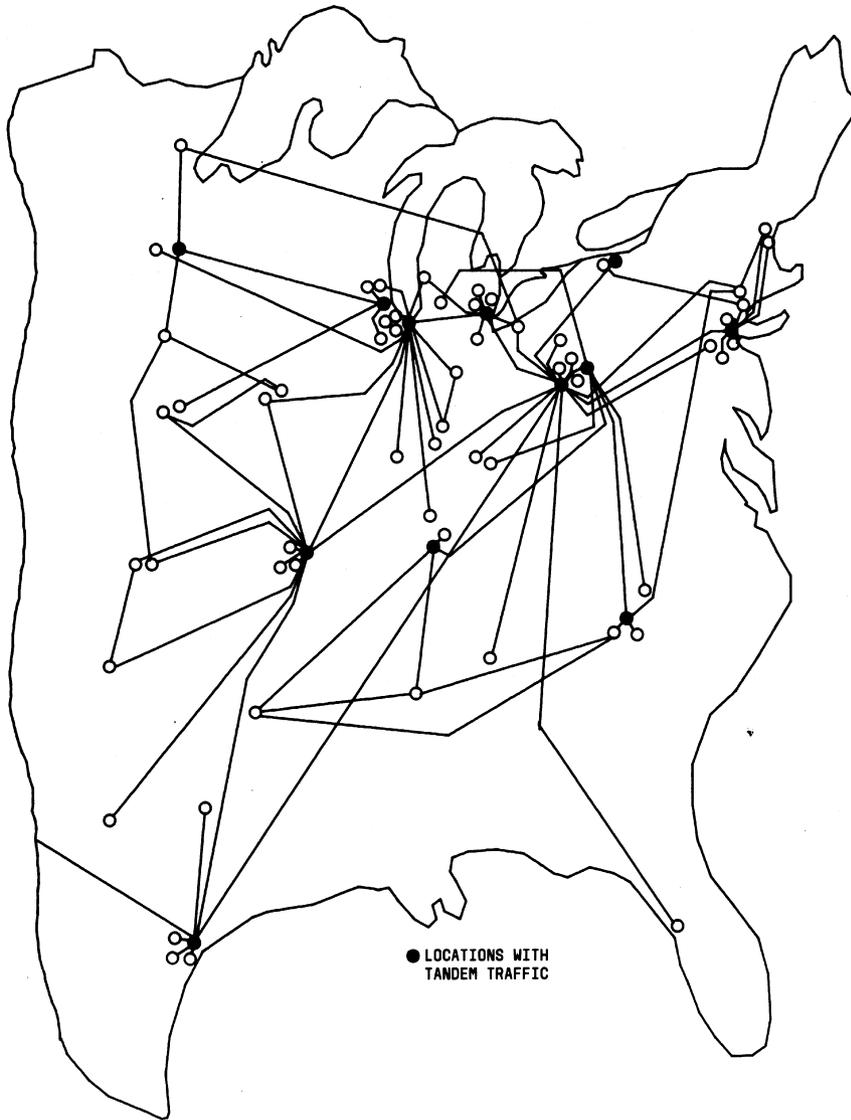
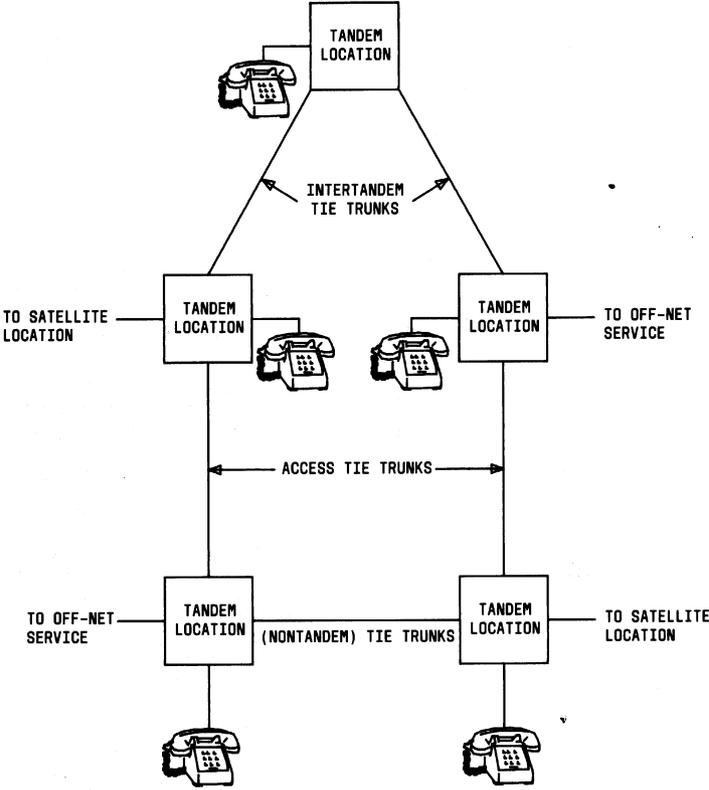


Fig. 2—Typical Tandem Tie Trunk Network

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**Fig. 3—TTTN Functional Segment Example**

calls can be made. The user must not flash to connect the original party or hang up to allow the remaining two parties to finish the call until ringing of the new party is confirmed. Otherwise, a disconnect may result. Call transfer, threeway conference, and consultation hold calls are made in the normal manner when the new party is reached via a 1XX or I1XX tandem tie line or private

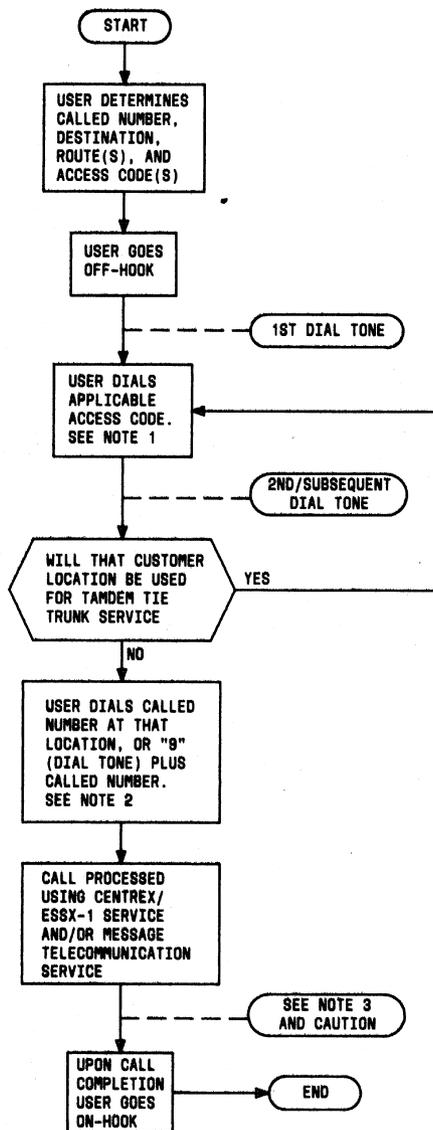
network access line. See reference A(19) in Part 18.

**TELEPHONE COMPANY**

**3.06** Not applicable.

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**NOTES:**

1. DIGIT TIMING SCHEME:
  - A. FIRST DIGIT AFTER ACCESS CODE MUST BE DIALED WITHIN TEN SECONDS AFTER SECOND/SUBSEQUENT DIAL TONE STARTS.
  - B. SUBSEQUENT DIGITS MUST BE DIALED WITHIN N SECONDS AFTER ALL DIGITS COLLECTED SO FAR HAVE BEEN OUTPULSED. N IS EQUAL TO THE DROP BACK TIMING VALUE PROVIDED BY THE ROUTE INDEX EXPANSION TABLE.  $4 \leq N \leq 12$
2. WHEN THE CALL IS TOUCH-TONE INTO THE ESS, I1XX USES THE STANDARD 1XX METHOD WHICH EMPLOYS A CONNECTION THROUGH WHAT IS ESSENTIALLY A TOUCH-TONE-TO-DIAL-PULSE CONVERTER. AT THE END OF DIALING, THIS CONNECTION IS REPLACED BY A DIRECT CONNECTION TO THE OUTGOING TRUNK. END OF DIALING IS RECOGNIZED EITHER BY THE RECEIPT OF A # DIGIT OR BY A TIME-OUT. FOR I1XX, ALL TOUCH-TONE PHONES SHOULD BE 12 BUTTON, WITH THE DIALER BEING INSTRUCTED TO DIAL A # DIGIT AS THE VERY LAST DIGIT DIALED. THIS WILL FORCE THE SWITCHING TO OCCUR BEFORE ANSWER. ANY OTHER ESS OFFICES IN THE CALL WILL RECEIVE DIAL PULSES AND WILL NOT DO ANY SWITCHING AT THE END OF DIALING.
3. A "CLICK" IS PROBABLY HEARD 4-12 SECONDS AFTER END OF DIALING UNLESS I1XX (WITH I1XX SOFTWARE, SERVICE CIRCUITS, AND TRUNKS) IS UTILIZED.

<p><b>CAUTION</b></p> <p>IF THIS CALL IS FOR DATA TRANSMISSION PURPOSES AND I1XX IS NOT USED, USER MUST AWAIT TIME-OUT, RECOGNIZED BY CLICK, BEFORE BEGINNING DATA TRANSMISSION</p>
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Fig. 4—User Operation—1XX or 11XX

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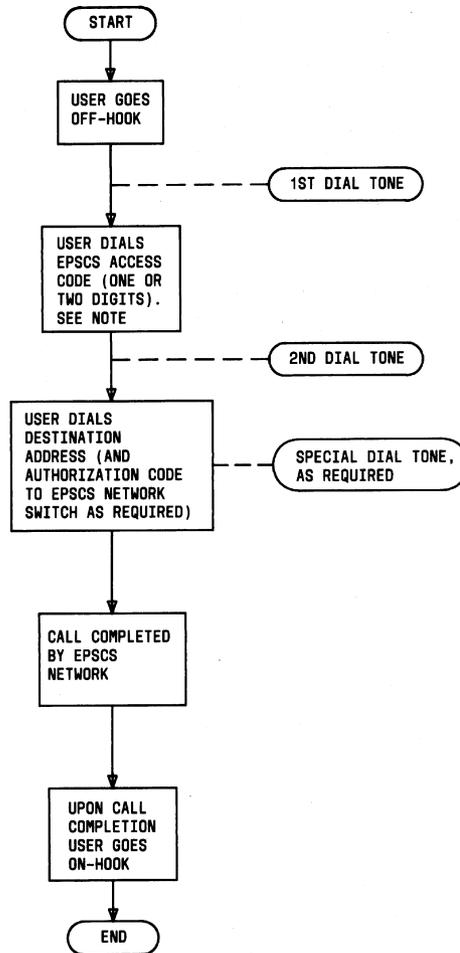


Fig. 5—User Operation—PNAL

## 4. SYSTEM OPERATION

### HARDWARE

4.01 Hardware associated with the Tandem Tie Trunk Service feature is shown in Table A and Table B.

## OFFICE DATA STRUCTURES

### A. Translations

#### Introduction

4.02 Translation data for the Tandem Tie Trunk Service feature is discussed below. For detailed information on these translation words, as well as common translation data used to process a call, refer to references C(1), C(2), and/or C(3) in Part 18.

#### Centrex Translator

4.03 For the Tandem Tie Trunk Service feature, if the Message Detail Recording on Tie Trunks (TAMA) feature is provided, if the route index increment is greater than 63, or if special dial repeating trunks (SD-1A473, SD-1A474, SD-1A475, and SD-1A476) are specified, a digit interpreter auxiliary block is required for the data type 5, subtype 17 access code final data (Fig. 6). Specifying dial repeating trunks is required to provide I1XX treatment for the call, but has no effect if the I1XX feature is not loaded.

#### Route Index Expansion Table Translator

4.04 Access to a trunk group can be gained only through a route index. For the Tandem Tie Trunk Service feature, route indexes are required for outgoing tie trunk groups and for tandem tie line cut-through service circuits. All route index expansions require two words. For 1XX and I1XX, outgoing trunk groups require a word 0 and word 1 type 4. Cut-through service circuits require a word 0 and word 1 type 0. PNAL outgoing trunk groups require a word 0 and word 1 type 3. Refer to Fig. 7 for the layouts of the route index expansion table words required for the Tandem Tie Trunk Service feature. The transmitter type in word 1 type 3 must be marked for multifrequency for private network access line service. The ordinary wink bit must not be marked, and the second wink bit must be marked for PNAL.

#### Trunk Network Number to Peripheral Equipment Number (TNN-to-PEN) Translator

4.05 The Tandem Tie Trunk Service feature requires TNN-to-PEN auxiliary blocks. A 4-word auxiliary block, shown in Fig. 8, is used for tandem tie trunks. Two 7-word auxiliary blocks

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are used for each tandem tie line cut-through service circuit. (See Fig. 9.) One 7-word auxiliary block is used for the receiver port (port 0), and another is used for the transmitter port.

### Trunk Class Code Expansion Table Translator

**4.06** The trunk class code expansion table translation words shown in Fig. 10 are required for the Tandem Tie Trunk Service feature.

### Master Scanner Translator

**4.07** The Tandem Tie Trunk Service feature requires the use of the master scanner translator to provide applicable trunk program indexes. The master scanner uses a primary translation word type 2. (See Fig. 11.)

## B. Parameters/Call Store

**4.08** Tandem tie line cut-through service circuits require 18-word (19-word for 1E6/1AE6 and later generic programs) outpulsing registers. They also require 9-word transmitter outpulsing annexes, 32-word digit receiver junior registers, 7-word trunk dial pulse transmitter junior registers, etc. These registers/annexes are engineered on a per office basis concerning all applicable features within a given No. 1/1A ESS office. The parameter set cards involved are listed in paragraph 9.02.

**4.09** Another type of junior register, called an I1XX junior register, is needed for I1XX calls that involve local second dial tone and/or the TAMA feature. If the TAMA feature is not applicable within a given No. 1/1A ESS office and that office does not supply second dial tone, no I1XX junior registers are required. Parameter set card IXXJR defines the quantity of I1XX junior registers in a No. 1/1A ESS office. (See Fig. 12 and 13.)

**4.10** Also, for I1XX calls, one hopper entry is provided for each I1XX junior register (excluding dummy registers). The quantity automatically provided is set equal to the IXXJR set card quantity supplied. (See Fig. 14.)

**4.11** For I1XX calls originating locally from dial pulse stations, I1XX senior registers are required. When a locally originated I1XX call is initiated, an I1XX senior register is seized and held throughout dialing. This register is held until

answer, abandon, or end-of-dial time-out. If the TAMA feature is applicable within the originating No. 1/1A ESS office, the I1XX senior register is timed out 12 seconds after the last dialed digit. Senior registers, which were formerly used only for step-by-step and foreign exchange trunk calls, now include I1XX senior registers as well. Set card IXXOR is used to indicate the additional number of senior call registers required for I1XX. (See Fig. 15.) Set card IXXOR affects only the SOR call store table.

**4.12** I1XX can be loaded without any parameter set cards (except, of course, feature defining set cards). If I1XX is to be used before the next update of office parameters, IXXOR should be specified. If the TAMA feature and/or second dial tone is to be provided with I1XX, IXXJR should also be specified.

**4.13** For more detailed information concerning parameter set cards, refer to references C(4) through C(7) in Part 18.

### Call Store

**4.14** The Tandem Tie Trunk Service feature requires the use of dial pulse outpulsing registers. Word 17 is modified for use by this feature. (See Fig. 16.)

## FEATURE OPERATION

### A. Station Call—Local Office Origination

**4.15** A Centrex/ESS-1 station tandem tie trunk call begins like any other customer originating call up to the time the initial 1XX or I1XX access code is dialed. The line seizure is detected, normal dialing connection is established to the proper type customer digit receiver on the trunk link network, and dial tone is returned to the originating station. Digit collection is then initiated. (See Fig. 17A.)

**4.16** Upon receipt of a valid access code, identified by a centrex data type 5 subtype 17 translation, the existing receiver connection is abandoned. The calling station is then connected to the receiver port of an idle tandem tie line cut-through service circuit for local origination. Fixed route index 148 is used for connection to the receiver port. An idle outgoing tandem tie trunk is seized and connected to the transmitter port (using TNN-to-PEN translator). In addition, a switching path is reserved to directly

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USE	SD- NO.	PULSING										SUPR	J- NO.	TRK FR.	NO. OF CKTS PER UNIT	MTG PIT SPACE PER UNIT	REMARKS
		INPUTSING					OUTPUTSING										
		MF	DP	RP	TT/DP	NONE	MF	DP	RP	TT/DP	NONE						
The Trunk 2-Way DP	1A163	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	E&M 1A033CA 1A088CA	MT CMT	1 1	4" Plug-in	
The Trunk 2-Way DP	1A237	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	E&M 1A033CC 1A088CC	MT CMT	1 1	6" Plug-in	
Long Haul FX 4-Wire	1A240						✓				✓		GS 1A033CK	MT	1	6"	
Short Haul FX	1A241						✓				✓		GS 1A033CF	MT	1	2"	
The Trunk 2-Way Loop	1A264	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	Hilo out, Rev Bat in 1A033CG	MT	1	2"	Cannot be used with IXXX
Long Haul FX 4-Wire	1A415						✓				✓		GS 1A088CK	CMT	1	Plug-in	●
Short Haul FX	1A416						✓				✓		GS 1A088CF	CMT	1	Plug-in	
The Trunk 2-Way DP 1-Wire	1A473	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	E&M 1A033CR	MT	1	6"	Similar to SD-1A237. Designed for IXXX & PNAL
The Trunk 2-Way DP	1A474	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	E&M 1A033CS	MT	1	4"	Similar to SD-1A163. Designed for IXXX
Long Haul FX 1-Wire	1A475						✓				✓		GS 1A033CT	MT	1	6"	Similar to SD-1A415. Designed for IXXX
Short Haul FX	1A476						✓				✓		GS 1A033CTU	MT	1	4"	Similar to SD-1A416. Designed for IXXX

LEGEND:

Bat	—	Battery	MTG	—	Mounting
CMT	—	Combined miscellaneous trunk	PLT	—	Plate
DP	—	Dial pulse	PNAL	—	Private network access lines
FX	—	Foreign exchange	Rev	—	Reverse
GS	—	Ground start	RP	—	Revertive pulsing
IXXX	—	Improved cut-through feature	Supr	—	Supervision
MF	—	Multifrequency	Trk	—	Trunk
MT	—	Miscellaneous trunk	TT	—	TOUCH-TONE

# Tandem Tie Trunk Service Feature / #1A ESS (Part 1)

ISS 1, SECTION 231-090-254

**TABLE B**

**SERVICE CIRCUITS USED FOR TANDEM TIE TRUNK SERVICE**

USE	SD- NO. (See Note)	J- NO.	FRAME	CABLE LENGTH LIMIT	MTG PLT SPACE PER UNIT	NO. CKTS PER UNIT
Tandem Tie Line	1A172	1A033DC	MT	1190'	6"	1
Cut-Through Service	1A173	1A033DD	MT	355'	6"	1
Circuit—Local Office	1A179	1A033DL	MT	595'	6"	1
Originating	1A300	1A033JJ	MT	—	4"	1
Tandem Tie Line	1A178	1A033DH	MT	1190'	6"	1
Cut-Through Service	1A173	1A033DD	MT	355'	6"	1
Circuit—Distant Office	1A179	1A033DL	MT	595'	6"	1
Originations	1A300	1A033JJ	MT	—	4"	1

**Note:**

- 1A172 — Customer dial pulse receiver
- 1A173 — TOUCH-TONE call detector
- 1A178 — Trunk dial pulse receiver
- 1A179 — Trunk dial pulse transmitter
- 1A300 — Cut-through circuit

connect the station to the tandem tie trunk. (See Fig. 17B.)

**4.17** Second dial tone is received either from the next office (if available) or from the originating office, but not from both. This is specified as an access code option and establishes the restriction that route advances are only allowed between trunk groups arranged for similar second dial tone operation. For 1XX and TOUCH-TONE I1XX, local second dial tone is provided before hunting the outgoing trunk. The outgoing trunk is hunted after this dial tone is removed in response to a dialed digit. If no idle trunk is available, overflow signal is returned at this point.

**4.18** The calling party continues dialing the remaining access codes and/or called party number. Every dialed digit is repeated over the outgoing tandem tie trunk by the tandem tie line cut-through service circuit for 1XX and TOUCH-TONE I1XX. For dial pulse I1XX, the trunk repeats the dialed digits. Except for dial pulse I1XX, the service circuit is abandoned, and the final talking path is established after a 4- to 12-second time-out from the last dialed digit or, if available and used, upon receipt of a # digit from a TOUCH-TONE station. For dial pulse I1XX, the service circuit

is removed as soon as a start-dial signal is received, or if the outgoing trunk must be yielded due to glare. See Fig. 17C.

**4.19** If no idle tandem tie line cut-through service circuit for local origination and/or if no idle outgoing tandem tie trunk is available, the originating call is routed to a reorder signal. A reorder signal may also be returned from other offices in the tandem tie trunk network for lack of an idle tandem tie line cut-through service circuit for distant office origination and/or outgoing tandem tie trunk.

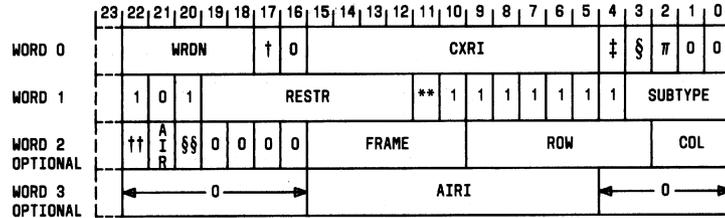
**B. Attendant Call—Local Office Origination**

**4.20** If the attendant loop appears on the line link network (50A CPS interface), the originating tandem tie trunk call is processed as described in paragraphs 4.15 through 4.19. The following discussion addresses attendants with loops appearing on the trunk link network (51A CPS interface).

**4.21** An attendant originating a tandem tie trunk call originates the call as any attendant call. Normal dialing connection is established to the proper type customer digit receiver on the trunk link network, and dial tone is returned. Digit

# Tandem Tie Trunk Service Feature / #1A ESS (Part 1)

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NOTE: BIT 23 EXISTS IN NO. 1A ESS ONLY.

- WORD 0**  
 WRDN -- NUMBER OF WORDS IN AUXILIARY BLOCK  
 † -- ATTENDANT CONTROL OF FACILITIES; YES = 1, NO = 0  
 CXRI -- ROUTE INDEX INCREMENT. EQUALS DIFFERENCE BETWEEN SPECIFIED ROUTE INDEX AND BASE ROUTE INDEX  
 ‡ -- SAVE ACCESS CODE  
 § -- AUTOMATIC MESSAGE ACCOUNTING MESSAGE  
 ¶ -- DETAIL RECORDING; YES = 1, NO = 0  
 π -- DIAL PULSE REPEATING TRUNK INDICATOR; YES = 1, NO = 0
- WORD 1**  
 RESTR -- TREATMENT CODE = 1  
 \*\* -- SECOND DIAL TONE TIE TRUNK = 1 IF PROVIDED BY THIS OFFICE, OTHERWISE 0  
 SUB -- SUBTYPE BINARY CONVERSION (17)  
 TYPE
- WORD 2 OPTIONAL**  
 †† -- ATTENDANT CONTROL NIGHT RESTRICTION. EQUALS 1 IF ACOF USED, OTHERWISE 0  
 AIR -- ATTENDANT CONTROL INTERCEPT ROUTING.  
 §§ -- ANNOUNCEMENT FOR CALL FORWARDING OVER PRIVATE FACILITIES  
 FRAME -- MASTER SCANNER NUMBER FRAME  
 ROW -- MASTER SCANNER NUMBER ROW  
 COL -- MASTER SCANNER NUMBER COLUMN
- WORD 3 OPTIONAL**  
 AIRI -- ATTENDANT CONTROL INTERCEPT ROUTE INDEX

**Fig. 6—Centrex Translator—Digit Interpreter Auxiliary Block**

collection is then initiated. (See Fig. 18A.) Attendant access is through a screening LEN.

**4.22** From this point, an attendant call is processed essentially in the same manner as a station originated call (paragraphs 4.16 through 4.19). See Fig. 18.

**C. Incoming Call—Distant Office Origination**

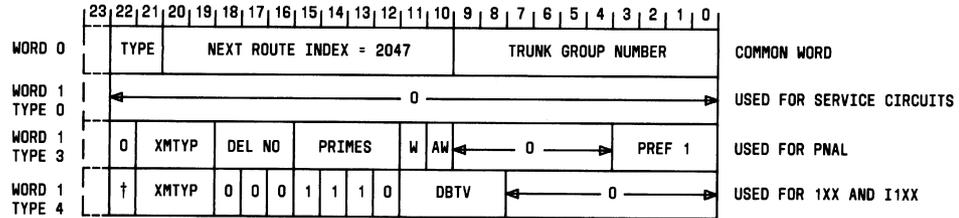
**4.23** An incoming call on a tandem tie trunk is recognized by the supervisory scans. Via

the appropriate fixed route index, a connection is established between the incoming tandem tie trunk and a trunk dial pulse receiver (with TOUCH-TONE applique). See Fig. 19A. (Refer to paragraph 4.17 for second dial tone operation.)

**4.24** Upon receipt of a valid access code, identified through centrex data type 5 subtype 17 translations, the trunk digit receiver circuit is released. The incoming tandem tie trunk is then connected to the trunk receiver port of an idle tandem tie line cut-through service circuit for

# Tandem Tie Trunk Service Feature / #1A ESS (Part 1)

ISS 1, SECTION 231-090-254



NOTE: BIT 23 EXISTS IN NO. 1A ESS ONLY.

- |   |  |
|---|--|
| <p><b>WORD 0</b><br/>TYPE -- TYPE OF ROUTE INDEX EXPANSION TABLE:<br/>CUT-THROUGH SERVICE CIRCUIT = 01<br/>CUT-THROUGH TYPE TRUNKS = 10</p> <p><b>WORD 1 TYPE 4</b><br/>† -- TRANSFER OKAY; YES = 1, NO = 0<br/>XMTYP -- TRANSMITTER TYPE:<br/>MULTIFREQUENCY = 001 (FOR PNAL ONLY)<br/>DIAL PULSE = 010<br/>DBTV -- DROP BACK TIMING VALUE = 4 TO 12 SECONDS.<br/>SHOULD BE 6 SECONDS NOT USED FOR I1XX<br/>6 SECONDS. NOT USED FOR I1XX WITH DIAL<br/>PULSE USERS</p> | <p><b>WORD 1 TYPE 3</b><br/>XMTYP -- TRANSMITTER TYPE:<br/>MULTIFREQUENCY = 001<br/>DIAL PULSE = 010<br/>DEL NO -- DIGITS DELETED = 000<br/>PRIMES -- NUMBER OF PRIMES<br/>W -- WINK = 0<br/>AW -- APPLICATION OF WINK = 1<br/>PREF 1 -- PREFIX DIGIT 1 = 0000</p> |
|---|--|

**Fig. 7—Route Index Expansion Table Translator—Route Index Expansion Tables**

distant originations. Route index 149 is used for connection to the receiver port. An idle outgoing tandem tie trunk is seized and connected to the transmitter port (using TNN-to-PEN translator). A switching path is reserved to directly connect the incoming tandem tie trunk to the outgoing tandem tie trunk. (See Fig. 19B.)

**4.25** The calling party continues dialing the remaining access codes and/or called party number. Every digit dialed on the incoming tandem tie trunk is repeated over the outgoing tandem tie trunk by either the tandem tie line cut-through service circuit for distant originations for 1XX and TOUCH-TONE I1XX, or by the trunk itself for dial pulse I1XX. Except for dial pulse I1XX, the service circuit is abandoned, and the final talking path established after a 4- to 12-second time-out from the last dialed digit, or if available and used, upon receipt of a # digit from a TOUCH-TONE caller. For dial pulse I1XX, the service circuit is removed as soon as a start-dial signal is received, or if the outgoing trunk must be yielded due to glare. (See Fig. 19C.)

**4.26** If no idle tandem tie line cut-through service circuit for distant originations and/or no idle outgoing tandem tie trunk is available, reorder signal is returned over the incoming tandem tie trunk.

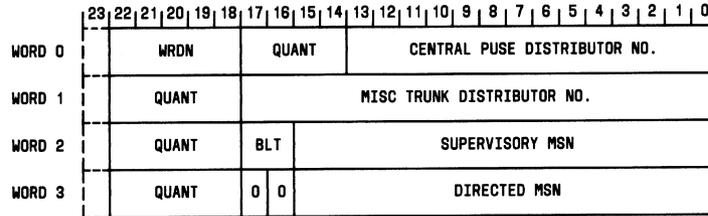
**D. Station Access to a Private Network**

**4.27** When the Automatic Calling Station Identification (ACSI) feature is applicable, private network access line service must be used to access a private network such as EPSCS. (Otherwise, 1XX or I1XX can be used as described above.) For EPSCS access, an SD-1A473 trunk circuit must be used for a Centrex/ESS-1 station with the ACSI feature applicable at the EPSCS. If the ACSI is not applicable, SD-1A473 trunk circuits are not required, though they still may be used.

**4.28** When the ACSI feature applies, the following sequence of actions occur for an originating call. The calling party goes off-hook and is connected to an idle customer digit receiver (Fig. 20A). The calling party dials the EPSCS network code. An SD-1A473 outgoing trunk circuit is seized, wink

# Tandem Tie Trunk Service Feature / #1A ESS (Part 1)

**SECTION 231-090-254**



NOTE: BIT 23 EXISTS IN NO. 1A ESS ONLY

- |  |   |
|--|---|
| <p><b>WORD 0</b><br/>         WRDN -- NUMBER OF WORDS IN AUXILIARY BLOCK = 4<br/>         QUANT -- QUANTITY OF CENTRAL PULSE DISTRIBUTOR POINTS FOR THE MISCELLANEOUS TRUNK ASSOCIATED WITH THE TRUNK NETWORK NUMBER</p> <p><b>WORD 1</b><br/>         QUANT -- QUANTITY OF SIGNAL DISTRIBUTOR POINTS</p> <p><b>WORD 2</b><br/>         QUANT -- QUANTITY OF SUPERVISORY MASTER SCANNER LEADS<br/>         BLT -- BY-LINK TRUNK ITEM. SET TO EITHER 00 OR 01</p> <p><b>WORD 3</b><br/>         QUANT -- QUANTITY OF DIRECTED MASTER SCANNER POINTS</p> | <p><b>LEGEND:</b><br/>         BLT -- BY-LINK TRUNK<br/>         MISC -- MISCELLANEOUS<br/>         MSN -- MASTER SCANNER NUMBER<br/>         NO. -- NUMBER<br/>         QUANT -- QUANTITY<br/>         WRDN -- WORD NUMBER</p> |
|--|---|

**Fig. 8—TNN-to-PEN Translator—TNN-to-PEN Auxiliary Blocks Used for Outgoing Tie Trunks**

signal returned from the far-end office, and automatic number identification sent forward via multifrequency (MF) signals (Fig. 20B). After MF outpulsing is completed, the MF transmitter is released, along with the customer digit receiver. The station is then connected to the outgoing SD-1A473 tie trunk (Fig. 20C). Note that in this case, no tandem tie line cut-through service circuit is used. Glare resolution is accomplished via the MF transmitter.

**4.29** Subsequent user dialing in response to second dial tone (from EPSCS network) proceeds directly over the tie trunk. Second dial tone is delayed approximately 1 second due to MF signaling. The user then dials the private network number of the called party. If an authorization code is required, the EPSCS network prompts with recall dial tone after the called number has been received. The authorization code consists of three to six digits.

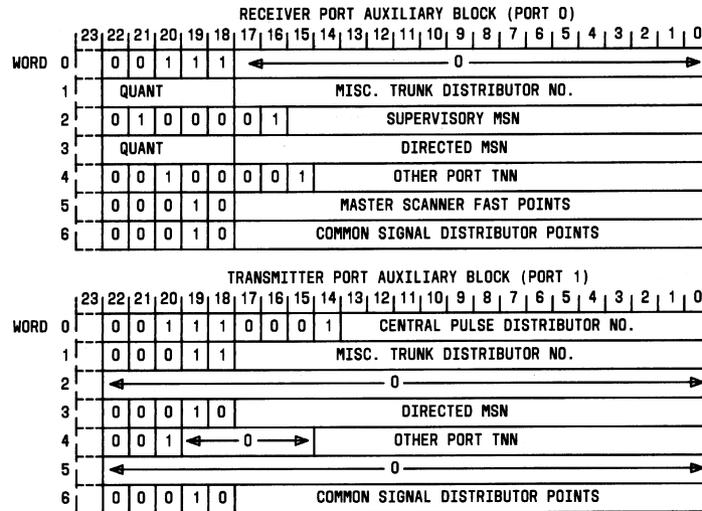
**E. Dial Pulse Station Extending an Incoming Call to EPSCS Network With Automatic Calling Station Identification Feature**

**4.30** Figure 21 shows the various network connections that occur for the case of a dial pulse station extending an incoming call to an EPSCS network with the Automatic Calling Station Identification feature. A 3-port conference circuit is used as an intermediary circuit between an incoming trunk and an SD-1A473 outgoing tie trunk. Since dial pulses cannot be repeated through a 3-port conference circuit, a tandem tie line cut-through service circuit for local origination is used during the dialing period.

**4.31** The incoming trunk is initially connected to a called (dial pulse) station (Fig. 21A). The called station flashes to begin the processes of extending the incoming trunk call onto the EPSCS network. This action results in the connection of

# Tandem Tie Trunk Service Feature / #1A ESS (Part 1)

ISS 1, SECTION 231-090-254



NOTE: BIT 23 EXISTS IN NO. 1A ESS ONLY.

PORT 0  
WORD 1  
QUANT - QUANTITY OF SIGNAL DISTRIBUTOR POINTS:  
LOCAL ORIGINATION = 5 (00101)  
DISTANT ORIGINATION = 3 (00011)

WORD 3  
QUANT - QUANTITY OF DIRECTED MASTER SCANNER POINTS:  
LOCAL ORIGINATION = 00001  
DISTANT ORIGINATION = 00000

LEGEND:  
MISC. - MISCELLANEOUS  
MSN - MASTER SCANNER NUMBER  
NO. - NUMBER  
QUANT - QUANTITY  
TNN - TRUNK NETWORK NUMBER

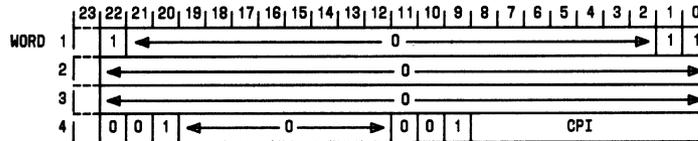
**Fig. 9—TNN-to-PEN Translator—TNN-to-PEN Auxiliary Blocks Used for Tandem Tie Line Cut-Through Service Circuits**

the incoming trunk call to an idle 3-port conference circuit and also of the called station to an idle line receiver. A path between the called station and the 3-port conference circuit is also reserved (Fig. 21B). Upon dial tone, the called station dials the EPSCS network access code. An SD-1A473 outgoing tie trunk circuit is seized, a wink is

returned, and automatic number identification is sent forward via MF signaling. After MF outpulsing, the MF transmitter and line receiver are released. The called station is then connected to the receiver port of an idle tandem tie line cut-through service circuit for local origination, and the transmitter port is connected to the SD-1A473 outgoing tie

# Tandem Tie Trunk Service Feature / #1A ESS (Part 1)

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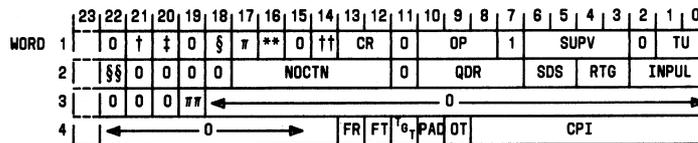


NOTE: BIT 23 EXISTS IN NO. 1A ESS ONLY.

**WORD 4:**

CPI - CIRCUIT PROGRAM INDEX: TANDEM TIE LINE CUT-THROUGH SERVICE CIRCUIT - LOCAL ORIGINATION = 027  
 TANDEM TIE LINE CUT-THROUGH SERVICE CIRCUIT - DISTANT ORIGINATION = 028

**A. FOR CUT-THROUGH SERVICE CIRCUIT**



NOTE: BIT 23 EXISTS IN NO. 1A ESS ONLY.

**WORD 1:**

- † - CONFERENCE RESTRICTED; YES = 1, NO = 0
- ‡ - START DIAL SIGNAL TIMING; YES = 1, NO = 0
- § - START DIAL SIGNAL ON DGT; YES = 1, NO = 0
- ¶ - WINK START DIAL = 1; DELAY DIAL = 0
- \*\* - FLASH EXPECTED; YES = 1, NO = 0
- †† - STOP-GO FINAL HEAVY POSITIVE PULSE; YES = 1, NO = 0
- CR - COMPENSATING RESISTANCE: 00 - NONE OR NO DIAL PULSE  
 01 - 300 OHM  
 10 - 800 OHM OR DIAL PULSE  
 11 - 900 OHM
- OP - OUTPULSING: 001 - MULTIFREQUENCY (SD-1A473 I1XX AND PNAL ONLY)  
 010 - DIAL PULSE
- SUPV - SUPERVISION: 0011 - ESM  
 0100 - HILO REV BAT  
 1011 - GROUND START
- TU - TRUNK USAGE: 00 - OUTGOING  
 01 - INCOMING  
 10 - TWO-WAY (RECOMMENDED)  
 11 - MISCELLANEOUS

**WORD 2**

- §§ - CHARGE ON FREE NUMBER; YES = 1, NO = 0
- NOCTN - NORMALIZED OFFICE CODE NUMBER OR TABLE
- QDR - QUANTITY OF DIGITS RECEIVED:  
 0000 - NONE, 2, OR 3  
 0100 - 4  
 0101 - 5  
 0111 - 7

**B. FOR TIE & FOREIGN EXCHANGE TRUNK**

**WORD 2 (CONTINUED)**

- SDS - START DIAL SIGNAL: 00 - NONE  
 01 - DELAY DIAL  
 10 - WINK  
 11 - DIAL TONE
- RTG - ROUTING; NONE = 00, LOCAL = 01
- INPUT - INPULSING: 001 - MULTIFREQUENCY  
 010 - DIAL PULSE  
 101 - TOUCH-TONE/DIAL PULSE

**WORD 3**

- ¶¶ - CIRCUIT MODIFIED FOR TANDEM TIE LINE; YES = 1, NO = 0

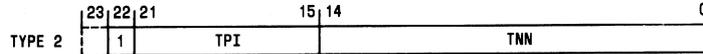
**WORD 4**

- FR - FLASH REPEATING; YES = 1, NO = 0
- FT - FLASH TIMING; YES = 1, NO = 0
- TGT - TRUNK GUARD TIMING; LONG = 1, REGULAR = 0
- PAD/OT - 000 - SERVICE, TONE & ANNOUNCEMENT  
 001 - NOT USED  
 100 - MESSAGE TRUNK  
 110 - SWITCHABLE 20B PAD
- CPI - CIRCUIT PROGRAM INDEX:  
 SD-1A183-02 - 049 SD-415-05 - 182  
 SD-1A183-05 - 049 SD-416-05 - 183  
 SD-1A237-02 - 022 SD-473-01 - 173  
 SD-1A237-05 - 022 SD-474-01 - 174  
 SD-1A240-01 - 030 SD-475-01 - 175  
 SD-1A241-01 - 031 SD-476-01 - 176  
 SD-1A264-01 - 024

Fig. 10—Trunk Class Code Expansion Table Translator—Trunk Class Code Expansion Tables

# Tandem Tie Trunk Service Feature / #1A ESS (Part 1)

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NOTE: BIT 23 EXISTS IN NO. 1A ESS ONLY.

LEGEND:  
 TPI - TRUNK PROGRAM INDEX. SEE TABLE BELOW  
 TNN - TRUNK NETWORK NUMBER

TPI TABLE

SD NO.	2-WAY TRUNK		OUTGOING TRUNK	
	SC 0	SC 1	SC 0	SC 1
1A163	26	25	26	15
1A237	26	25	26	15
1A240	22	21	22	60
1A241	22	21	22	60
1A264	26	25	22	60
1A415	22	21	22	60
1A416	22	21	22	60
1A473	26	25	26	15
1A474	26	25	26	15
1A475	22	21	22	60
1A476	22	21	22	60

Fig. 11—Master Scanner Translator—Type 2 Primary Translation Word

trunk. The called station now dials into the EPSCS network via the tandem tie line cut-through service circuit and the SD-1A473 outgoing tie trunk. Connection of the called station to the 3-port conference circuit occurs upon time-out from the last dialed digit or flash, whichever occurs first. The flash should not occur before ringing is heard in order to avoid the possibility of a disconnect. At that time, the tandem tie line cut-through service circuit connections are released, and the SD-1A473 outgoing tie trunk is connected to the 3-port conference circuit (Fig. 21C).

**4.32** TOUCH-TONE called stations can dial through a 3-port conference circuit. Therefore, no tandem tie line cut-through service circuit is used for extending an incoming trunk call to an EPSCS network with the Automatic Calling Station Identification feature by a TOUCH-TONE equipped calling station. The operation is similar to that described above. (See Fig. 22.)

**4.33** A line-to-line call may similarly be extended to an EPSCS network with the Automatic Calling Station Identification feature.

#### F. Access to EPSCS Network Without Automatic Calling Station Identification Feature

**4.34** SD-1A473 outgoing tie trunks accessed as manual outgoing trunks can be used for EPSCS access when the Automatic Calling Station Identification feature is not used. However, a call cannot be extended to EPSCS by a dial pulse station in this arrangement. In order to allow extended calls from dial pulse stations in this arrangement, the access code must be translated as 1XX or 11XX, using the SD-1A237 or SD-1A473 trunks, respectively.

### CHARACTERISTICS

#### 5. FEATURE ASSIGNMENT

**5.01** The Tandem Tie Trunk Service feature is assigned on a per access code basis in each large business customer (Centrex/ESSX-1) group.

# Tandem Tie Trunk Service Feature / #1A ESS (Part 1)

## SECTION 231-090-254

### 6. LIMITATIONS

#### OPERATIONAL

**6.01** Trunk dial transfer to a tandem tie line or private network access line is not available. That is, a tie trunk is not allowed to flash and initiate a transfer, threeway conference, or consultation hold call to 1XX, I1XX or PNAL routes. Only attendants and stations can do this. Also, for these calls, flashing to recall the held party or hanging up after initiating a transfer must not be done before ringing is heard.

#### ASSIGNMENT

**6.02** PNAL access codes are limited to one or two digits.

**6.03** The Tandem Tie Trunk Service feature requires precise dial tone at all locations which send dial tone back to the caller. Otherwise, callers may receive wrong numbers when the TOUCH-TONE receiver in the tandem tie line cut-through service circuit receives spurious digits from imprecise dial tone frequencies which appear to be valid TOUCH-TONE digits.

**6.04** Route advance is seldom done for 1XX and I1XX routes. If route advance is done, the alternate route(s) should have the same second dial tone arrangement as the primary route.

**6.05** All TOUCH-TONE stations which can reach I1XX routes should be equipped with 12-button TOUCH-TONE dials so that the caller can dial the # (end-of-dial) digit as the very last digit to avoid the click problem.

**6.06** I1XX must be provided on a total network basis if the customer is to have "click-free" tandem tie trunk service. This means that all No. 1/1A ESS switches in the network must have a 1E6/1AE6 or later generic program, the necessary feature package groups, special dial repeating trunk circuits, and the improved tandem tie line cut-through service circuits. All No. 2 ESS switches in the network must be arranged for E&M supervision on those trunks which are part of an I1XX network. Crossbar, step-by-step, and panel offices should need no changes to provide I1XX rather than 1XX.

**6.07** The Tandem Tie Trunk Service feature cannot be provided to telephones which are not part of a Centrex/ESSX-1 customer group.

**6.08** Prefixing and/or deleting of digits is not permissible, regardless of any information stored in translation data. A 1- or 2-digit speed calling list cannot be used for any dialing of Tandem Tie Trunk Service feature calls.

### 7. INTERACTIONS

**7.01** Not applicable.

### 8. RESTRICTION CAPABILITY

**8.01** The Attendant Control of Trunk Group Access feature, also referred to as the Attendant Control of Facilities (ACOF) feature, allows the attendant to restrict dial access of all stations to certain centrex trunk groups, simulated facilities, and special services by operating specific keys. When ACOF is activated, calls to these facilities may be routed to the attendant for subsequent completion, to a record announcement, or to an intercept tone trunk. See reference A(18) in Part 18.

## INCORPORATION INTO SYSTEM

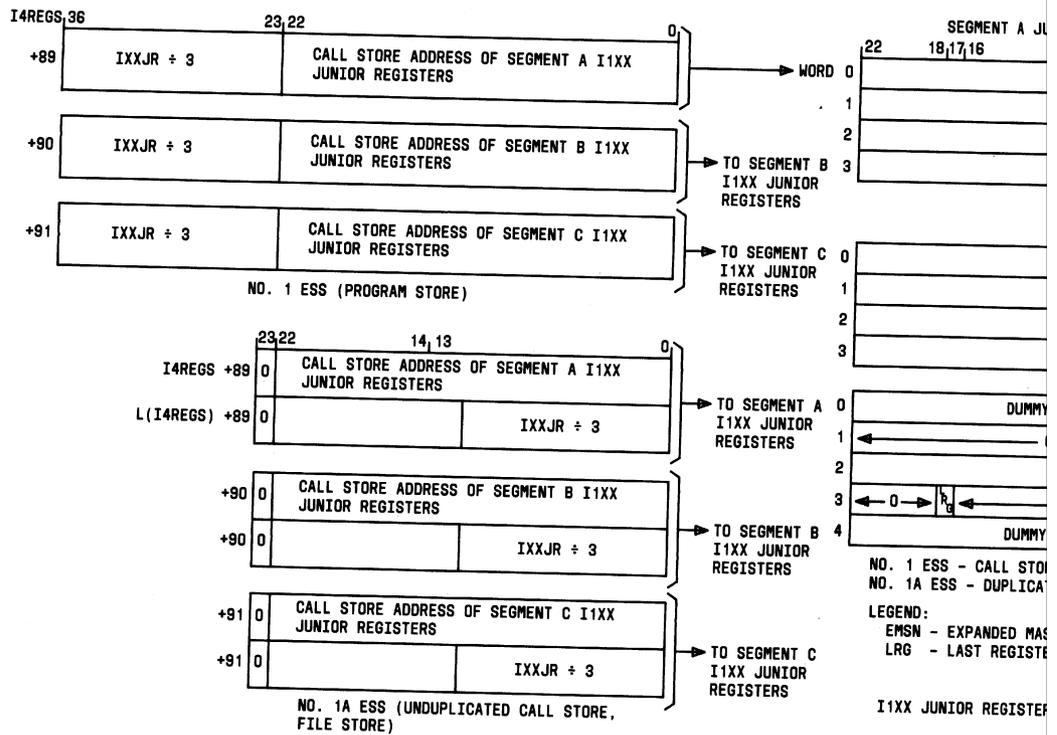
### 9. INSTALLATION/ADDITION/DELETION

**9.01** Applicable hardware such as trunk circuits, service circuits, plug-ins, and network cross-connections are normally installed by an installation force per telephone company order. In conjunction with hardware installation, telephone company personnel input software data supplied by Western Electric on Growth Recent Change forms. Refer to reference C(8) in Part 18, and applicable recent change BSP documentation Section 231-048-XXX, Section 231-118-XXX, and Section 231-318-XXX referenced in Part 18A. (See Fig. 23.)

**9.02** The following parameter set cards are applicable to the Tandem Tie Trunk Service feature:

9FCX1X	Centrex Tandem Tie Line Service
9SI1XX	Improved Tandem Tie Line Service
9FI1XX	Same as above

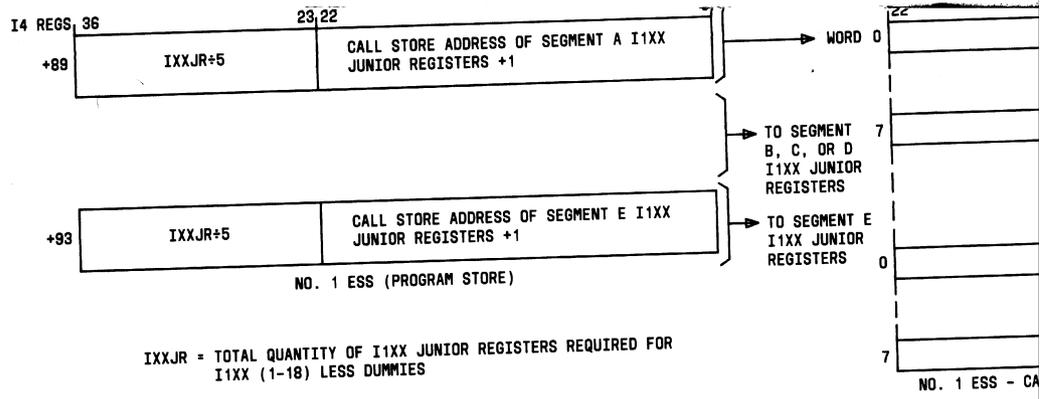
# Tandem Tie Trunk Service Feature / #1A ESS (Part 1)



IXXJR = TOTAL QUANTITY OF I1XX JUNIOR REGISTERS REQUIRED FOR I1XX (1-18) LESS DUMMIES

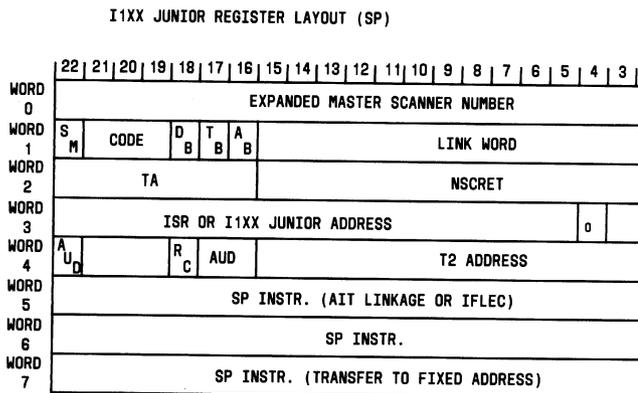
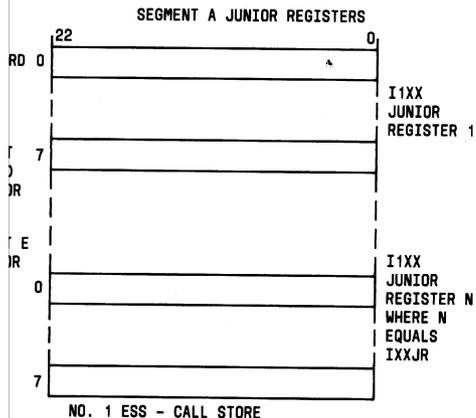


# Tandem Tie Trunk Service Feature / #1A ESS (Part 1)



# Tandem Tie Trunk Service Feature / #1A ESS (Part 1)

ISS 1, SECTION 23



- WORD 1:**  
 SM - SCANNER MATCH BIT  
 CODE - TASK CODE  
 DB - DECISION BIT  
 TB - DECISION BIT  
 AB - DECISION BIT
- WORD 2:**  
 TA - SIGNAL PROCESSOR (SP) INSTRUCTION  
 NSCRET - SP INSTRUCTION
- WORD 3:**  
 AUD - SALK AUDIT BIT  
 RC - REORDER CONNECTED

**Fig. 13—Parameter Word IXXJR—Quantity Junior Registers Required for I1XX, Control With Signal Processor**

# General Electric GEMLINK Information

## Overview

This is an initial overview of a General Electric GEMLINK video/data transmitter unit. It may change as I receive more information.

The transmitter section consists of a 23 GHz Gunn diode oscillator, with a standard WR-42 K-band waveguide flange, feeding a ferrite isolator and a WR-42 diode mixer. The video/data input passes through a simple resistive 10 dB attenuator and 15 MHz low-pass filter before being applied to the mixer diode. The video/data comes into the unit via standard 50 ohm coax. The unit runs off +12 VDC and includes a voltage regulator for the Gunn diode.

The output of the mixer then goes through a WR-42 feed arm/antenna mounted at the focal point of the unit's integrated parabolic dish. The dish is approximately 11.25 inches in diameter and the focal point is at around 2 inches. This all works out to be approximately 35 dBi of gain at 24 GHz, depending on the efficiency factor used.

FCC documentation for this device lists the authorized frequency range between 21.2 – 23.6 GHz with a maximum RF power output (antenna input power) of +20 dBm (100 mW) and a maximum EIRP of +55 dBm (316 Watts). The listed emission designator is "16000A9" – which doesn't seem to follow the normal emission designator rules. This transmitter is usually paired with another operating at 21.925 GHz. Other listed frequency pairs on the FCC's website are 21.825/23.025 GHz, 21.875/23.075 GHz, and 21.975/23.175 GHz.

## **Rear Label Information**

**FCC ID:** B2T8QWGEMLINKII  
**Transmit Freq:** 23.125 GHz  
**Model:** LSD-122A

## **Terminal Block 1**

### Pin    Description

1	No Connect
2	No Connect
3	Video (Coax Center)
4	Ground (Coax Shield)

## **Terminal Block 1**

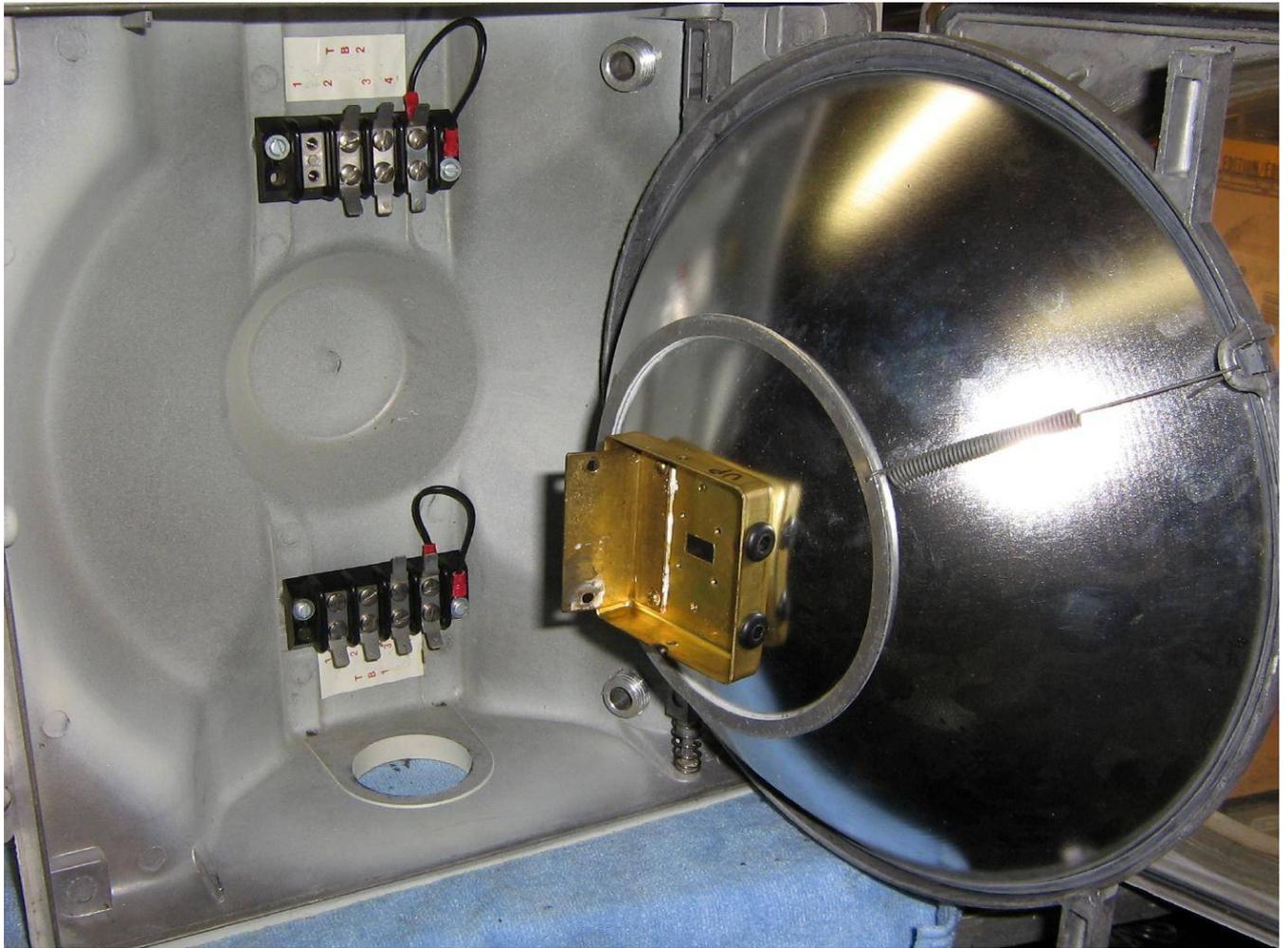
### Pin    Description

1	No Connect
2	No Connect
3	+12 Volts (Black Wire)
4	Ground (White Wire)

## Pictures & Construction Notes



Overview of the General Electric GEMLINK video/data transmitter unit showing the integrated parabolic dish and radome.



Internal view with the control board/feed assembly removed.

The parabolic dish swings out to easily work on the unit.

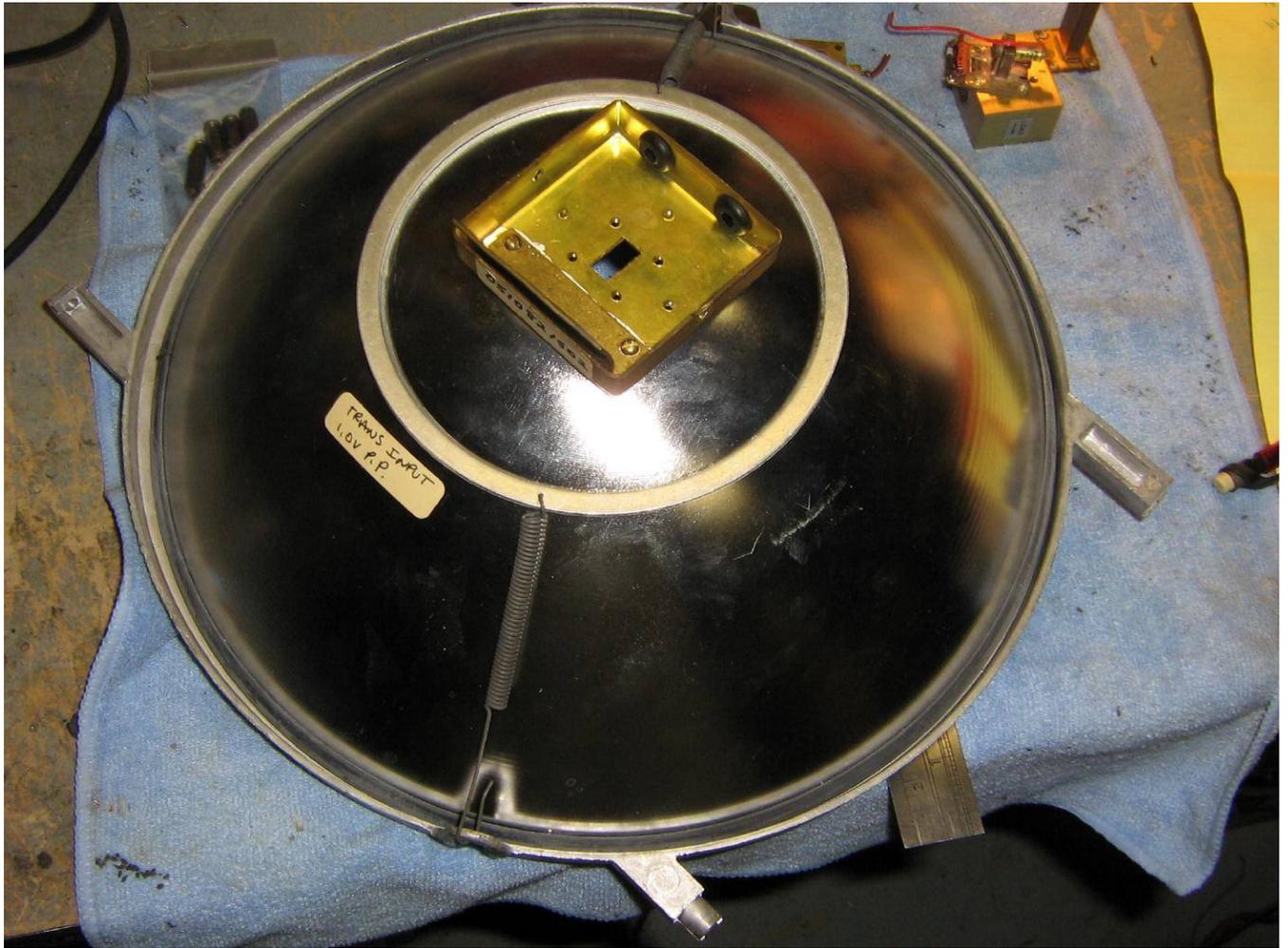
Note the spring on the lower-left frame mount point. You can remove the parabolic dish by pressing down on the dish's frame and pulling it out.

The two terminal blocks are where the incoming video/data and power lines are tapped off of.

The top terminal block is labeled "TB2" and the one below it is "TB1".



Overview of the parabolic dish showing the location of the feed arm.



Rear view of the parabolic dish showing where the control board and feed assembly are mounted.

That white label read "TRANS INPUT 1.0V P.P."



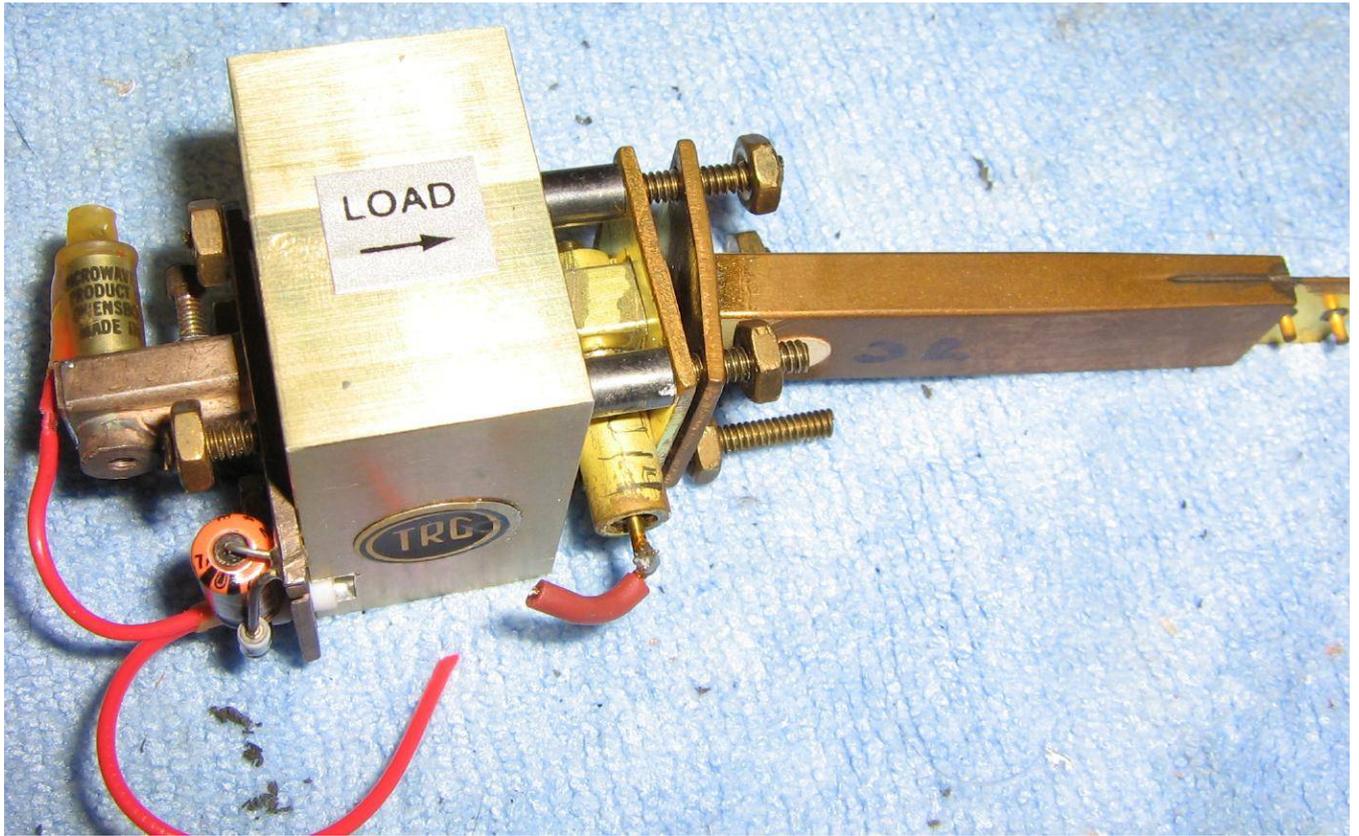
Overview of the feed assembly and the Gunn diode mount.

The Gunn diode mount is on the right. It's powered via the +5.8 VDC output from the control board mounted behind the dish via the smaller red wire.

The large cube-shaped object is the ferrite isolator. This isolates the Gunn diode from any impedance mismatches with the mixer and antenna feed downline.

Between the feed arm and the isolator is a diode mixer with two WR-42 flanges. This mixes the incoming video or data signal (larger red wire) with the 23.125 GHz RF output from the Gunn diode.

This then passes onto the WR-42 integrated feed arm and antenna assembly. The antenna is positioned so it's at the focal point of the parabolic reflector.



Alternate view.

The entire stack is held together and mounted to the parabolic dish via four #4-40 pieces of brass all-thread and some #4 brass nuts.

The output frequency of the Gunn oscillator can be slightly altered by adjusting the tuning screw in front of the Gunn diode holder.



Overview of the Gunn diode mount.

It's labeled C-2138K and is made by General Electric.

It requires a bias voltage of +5.8 VDC.

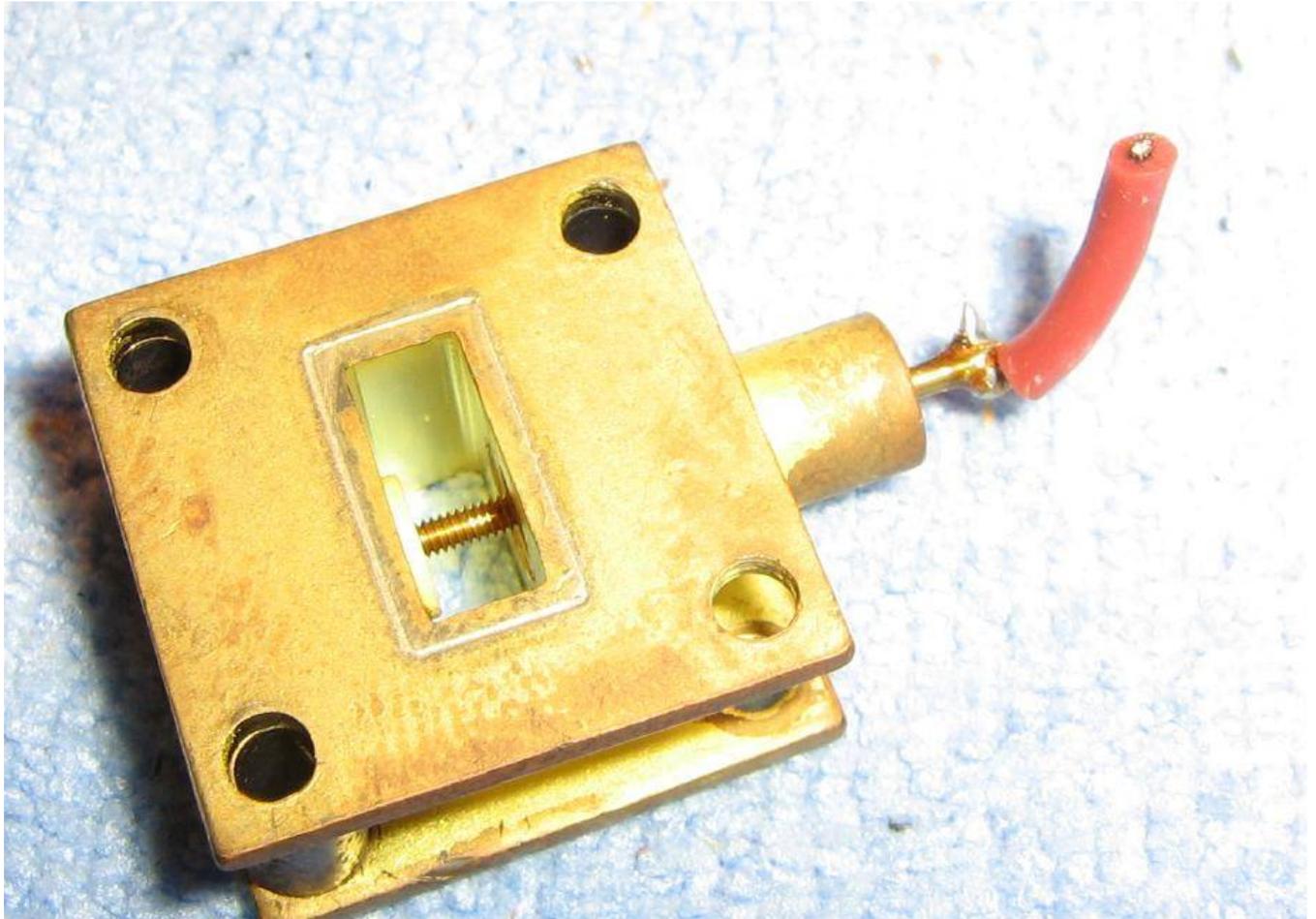
A 1N4737 Zener diode and 47  $\mu$ F capacitor help smooth and clamp any voltage spikes on the Gunn diode's bias voltage.

I don't have an accurate way to measure the RF output power (or frequency), but we can assume it's around +7 dBm (5 mW) and 23.125 GHz based on past experience and available FCC data.



Overview of the K-band feed arm assembly.

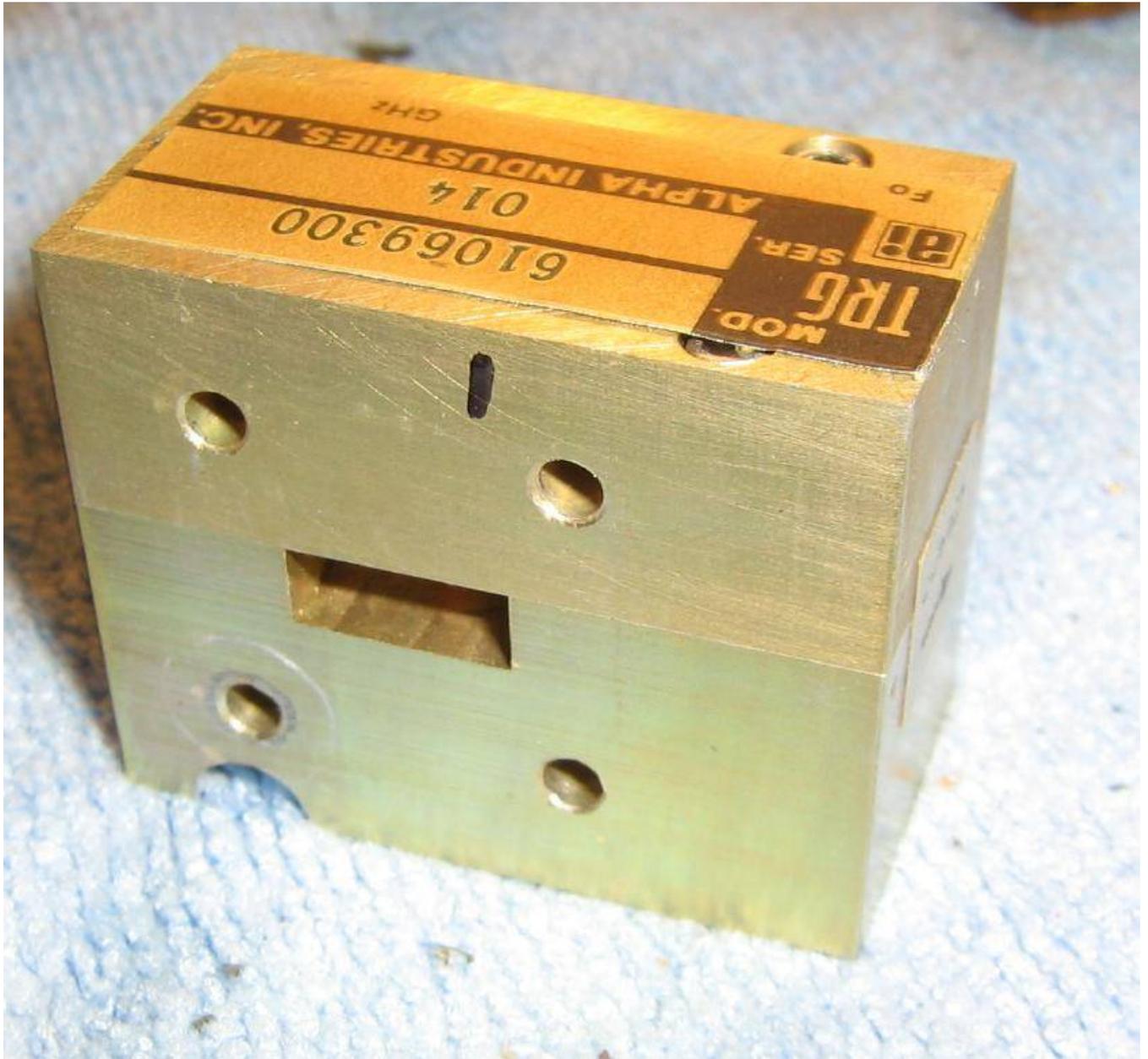
This antenna feed is just like the dipole feed and reflector from a Yagi antenna – only much smaller!



Diode mixer mount with WR-42 flanges.

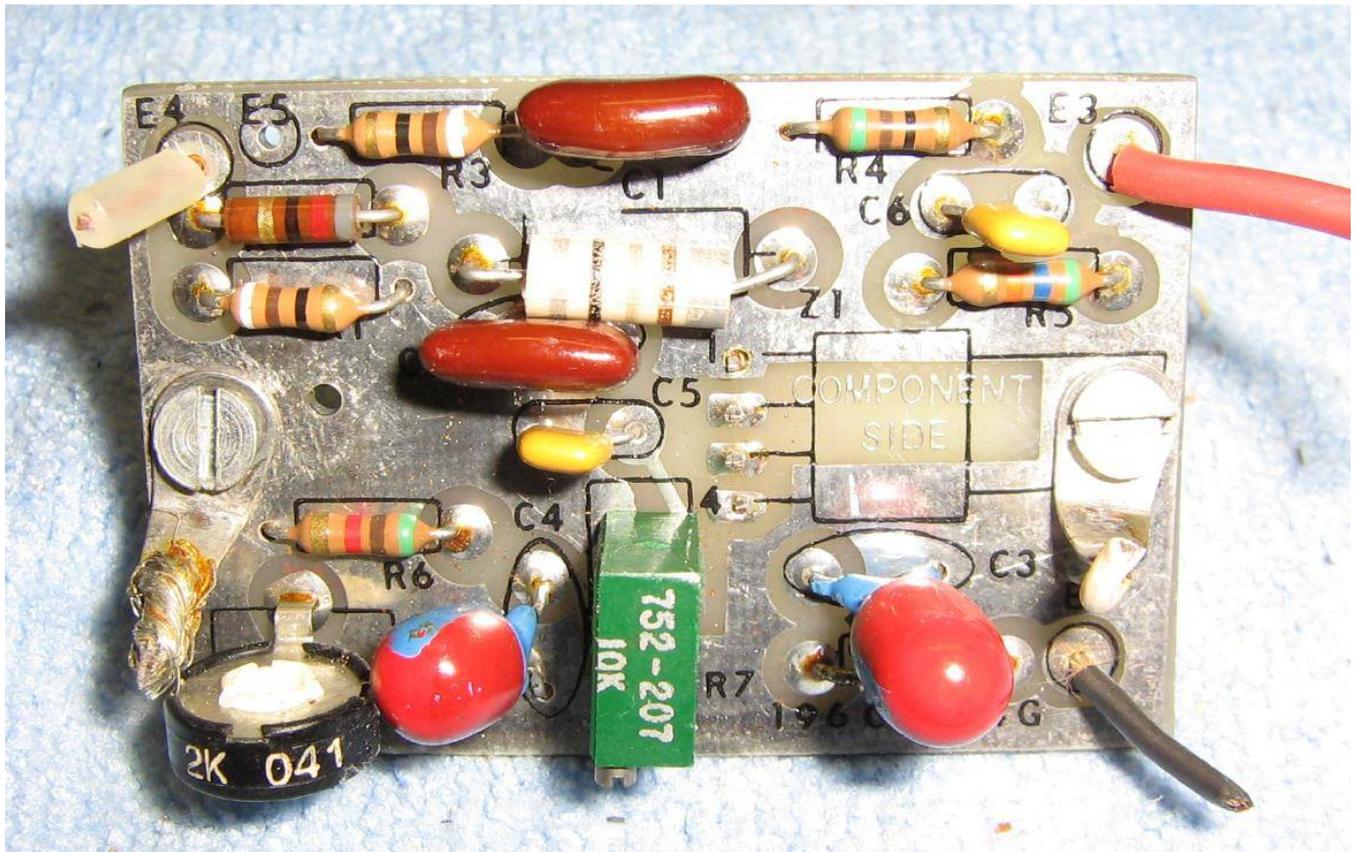
The red wire is the mixer diode feed where the video or data is applied.

There is also a small bias voltage on the mixer diode which is supplied via the control board.



Overview of the WR-42 K-band ferrite isolator.

It's made by Alpha Industries and is model number 61069300.



Overview of the control board mounted inside the unit.

It provides a regulated +5.8 VDC bias for the Gunn diode and lower-voltage bias for the mixer diode.

It also attenuates and low-pass filters the incoming video/data signal before applying it to the mixer diode.

The  $\mu$ A78GU1C voltage regulator is mounted on the bottom of the PC board.

The multiturn 10k ohm potentiometer is for fine tuning the mixer diode bias.

The standard 2k ohm potentiometer is for fine tuning the +5.8 VDC Gunn diode bias.

The video/data input, from regular 50 ohm coax, is on the upper-left.

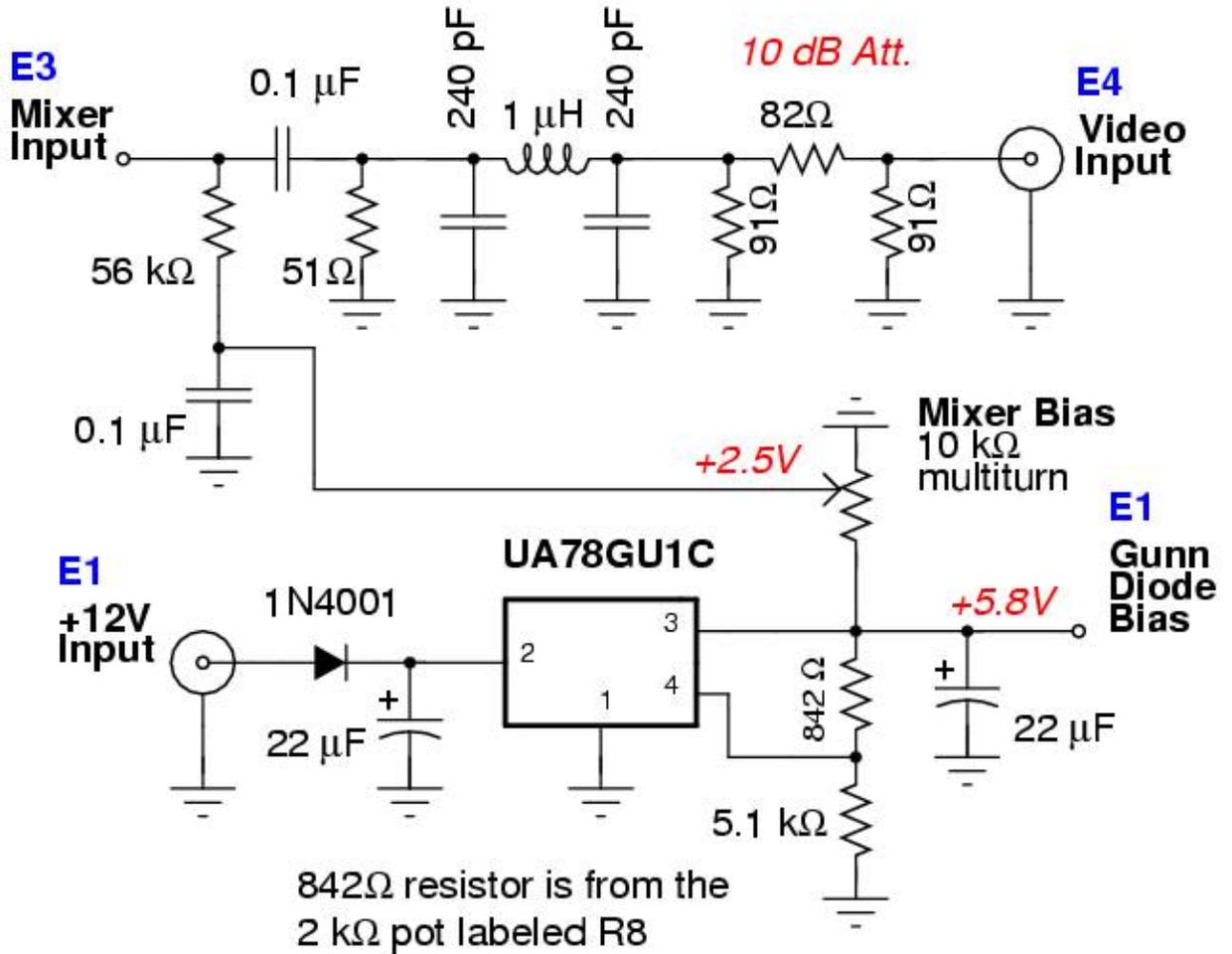
The main +12V input is on the lower-right via the black wire.

## Transmitter Control Board Schematic

Labeled "196C4514G" on the top side and "UL94V-1" on the bottom side.

# General Electric GEMLINK Video Transmitter

## Control Board Schematic



## **Table Name**

Enhanced 911 (E911) Numbering Plan Digit (NPD) Table

## **Functional Description of Table E911NPD**

Table E911NPD associates a NPD with the Serving Numbering Plan Area (SNPA) of the E911 tandem previously datafilled in table HNPACONT (List of Home NPA Code Subtables).

A SNPA cannot be datafilled against two NPDs. That is, no two tuples in table E911NPD can have the same SNPA.

The NPD is used for single information digit Automatic Number Identification (ANI) format if ANI is forwarded to the Public Safety Answering Point (PSAP).

**Note:** Table E911NPD is not used if there are no PSAPs served by the E911 tandem that use single information digit ANI format. This format applies when office parameter E911\_PSAPS\_USING\_1\_INFO\_DIGIT has value "N".

## **Regenerated ANI Format**

The E911 feature requires ANI information from an end office. The E911 tandem uses ANI information to facilitate selective routing which is regenerated to the PSAP. The sequence for transmitting ANI information is as follows:

1. The end office transmits ANI information to the E911 tandem.
2. The E911 tandem regenerates ANI data and outputs the data, along with information digits to the PSAP. The E911 tandem transmits the data by standard multifrequency (MF) pulses.

ANI information is outputted to the PSAP in the form of *Key Pulse (KP) + Information Digit + NXX-XXXX + Start (ST)*, where *NXX-XXXX* is the ANI Directory Number (DN) of the calling station.

E911 offers single-digit and three-digit information digit formats for transmitting ANI data, as well as substitute ANI codes that can be used in the event of ANI failure or in cases where an end office is not equipped for ANI operation. The choice of ANI format is left to the operating company and is determined on a per-office basis.

## **Single-Digit Information Digit**

In the single-digit information digit format, the single digit is encoded so that it represents both the calling party's NPD and a flash control signal. The E911 tandem outputs the ANI information to the PSAP in the form of standard MF pulses. These pulses are sent in the following order:

1. Key Pulse (KP) digit.
2. Encoded single-digit information digit representing the calling party's NPD and a flash control signal.
3. ANI DN (normally the billing DN of the originating station).
4. Start (ST) signal.

A single information digit is encoded according to a combination of the following values:

- The value of the flash control field setting: "0" for no flash, "1" for flash. This flash control value is assigned for each ESN and is operative only on ANI consoles equipped with flash display.
- The value of the NPD that represents the calling party's Numbering Plan Area (NPA): 0, 1, 2, or 3. Because there are four NPDs to represent NPAs, four NPAs are supported with the single-digit information digit format.

The value of the flash control field combined with the value of the NPD constitute the encoded information digit. For example, an E911 tandem serves four NPAs, the PSAPs are equipped with flashing ANI display units, and the telephone operating company has assigned one PSAP as the primary PSAP for all Foreign Exchange (FX) lines terminated outside the E911 service area. FX lines are used in this example because additional call handling by the PSAP attendant may be required.

If the flash control field for the FX caller's ESN is datafilled as "ON" (1), the information digit shown in the ANI format causes a flashing display of the calling party's DN, complete with an encoded digit representing the caller's NPA.

The following example table gives the determination of the single-digit information digit:

-----  
*Single-Digit Information Digit Determination*

NPA	NPD	Flash Control	Information Digit
919	0	0	0
518	1	0	1
201	2	0	2
312	3	0	3
919	0	1	4
518	1	1	5
201	2	1	6
312	3	1	7
			8 (Test Call)
			9 (Not Used)

-----

The information digit from the above example used at each PSAP:

NPD	Display Information	Flashing?
0	0 + ANI DN	No
1	1 + ANI DN	No
2	2 + ANI DN	No
3	3 + ANI DN	No
0	4 + ANI DN	Yes
1	5 + ANI DN	Yes
2	6 + ANI DN	Yes
3	7 + ANI DN	Yes
All	8	Maintenance Test Call

-----

The following conditions apply to the use of the single-digit information digit:

- An E911 tandem must serve an area with four or fewer NPAs.
- The PSAPs connected to the E911 tandem must be equipped with appropriate ANI consoles to display flash.

## Three-Digit Information Digit

For the three-digit information digit format, the digits are not encoded and no flash signal is provided. Instead, the three digits correlate directly to the calling party NPA.

The format for sending ANI data is the same for three-digit and one-digit information digits: ANI information outputted to the PSAP in the form KP + Information Digit + NXX-XXXX + ST, where NXX-XXXX is the ANI DN of the calling station. With the three-digit format, however, the information digits are normally the calling station's NPA. Because the three digits bear a one-to-one correlation to the calling party's NPA, no encoding is required, and no flash is provided.

## Substitute ANI Formats

An end office can still be part of the E911 system, even if it is not equipped for ANI operation or cannot output the digits 911. In this case, an emergency call is recognized by being routed over a dedicated E911 trunk group.

If a 911 call without ANI information is received or if an ANI failure has occurred, the E911 tandem generates a substitute ANI DN code. This substitute code can take one of the following two forms:

- Substitute NPD-911-0TTT format (ANI Failure). This format is sent in the case of ANI Failure (ANIF). The code TTT indicates the office from which the telephone call originates.
- Substitute 0-911-0000 format (Anonymous Call). This format is sent when an anonymous call is made to a PSAP. An anonymous call is a seven-digit call (non-911) to the directory number of PSAP. However, this substitute code is unnecessary if subscribers are denied directory number access to PSAPs. PSAP attendants and toll operators may be granted directory number access to PSAPs.

When incoming calls to the E911 tandem are in either the Bellcore standard ANI format or the North Electric AMR 4/5 format, the tandem deletes the existing information digits and replaces them with an encoded information digit (NPD).

## Datafill Sequence & Size

Table HNPACONT must be datafilled before table E911NPD. Table size is 0 to 4 tuples.

## Datafill

The following table describes datafill for table E911NPD:

*Table E911NPD Field Descriptions*

Field	Subfield	Entry	Explanation and Action
NPD		0 to 3 (1 digit)	<i>Numbering Plan Digit</i> Enter a digit representing single information digit ANI.
SNPA		0 to 9 (1 to digits)	<i>Serving Numbering Plan Area</i> Enter the SNPA, already datafilled in table HNPACONT, of the E911 trunk group incoming from the end office to the E911 office assigned to that NPD.

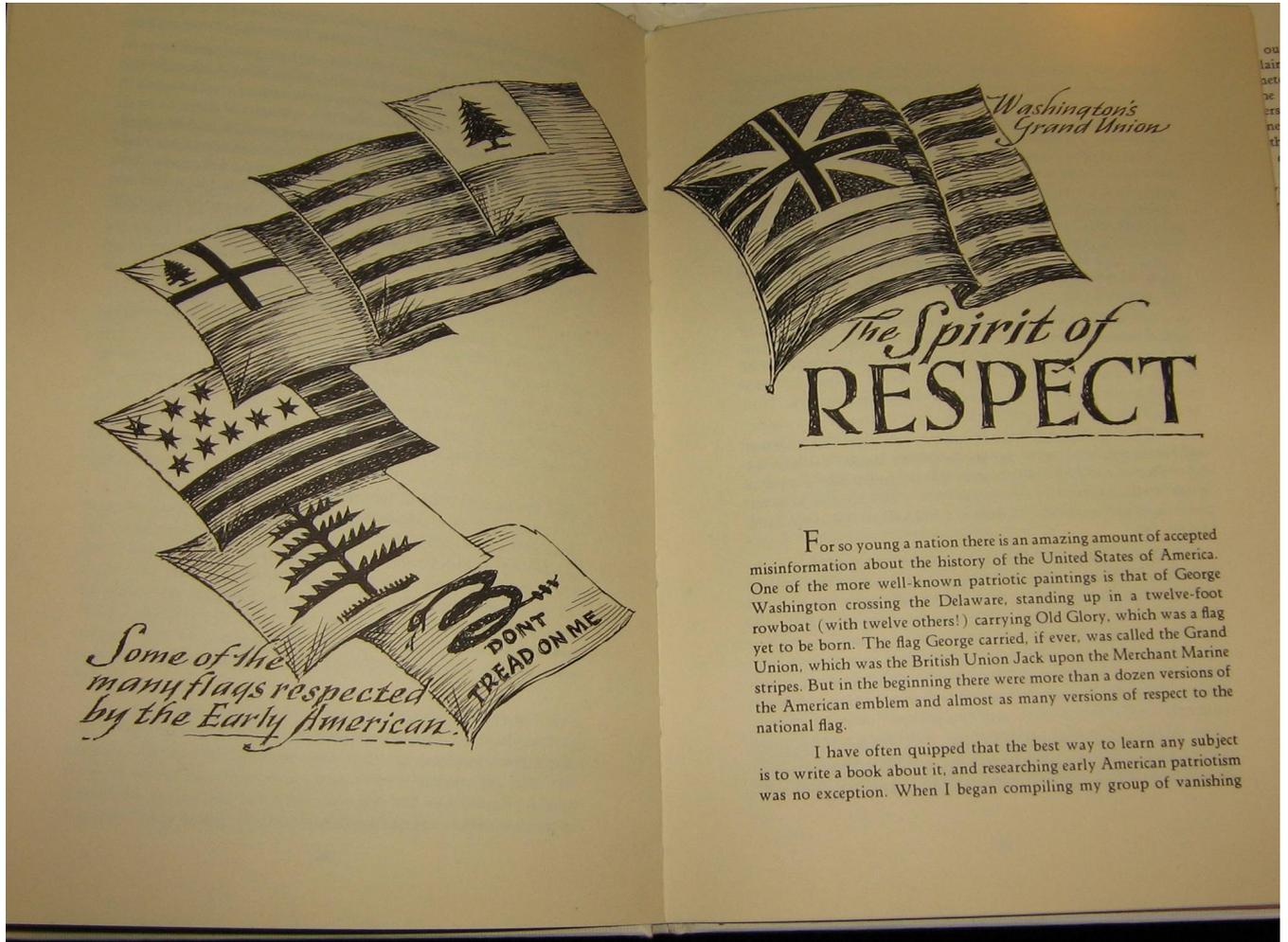
-End-

## **Datafill Example**

The following example MAP display shows sample datafill for table E911NPD.

<b>NPD</b>	<b>SNPA</b>
<b>0</b>	<b>919</b>
<b>1</b>	<b>704</b>

## Bonus



This is page from the book *The Spirits of '76* by Eric Sloane.

This book came out in 1973 and is mainly aimed at teaching schoolchildren the concepts of American sense, spirit, and philosophy.

Don't count on this book being used in our public schools today!

Obongo's Department of Homeland Security now lists anyone flying those old flags as an "extremist."

Change :(

## End of Issue #84



Any Questions?

### Editorial and Rants

*Funny how having sane, rational, conservative views on the budget and politics now makes you an 'extremist.'*

*See the Jew...*

### On a Senate Call, a Glimpse of Marching Orders

March 29, 2011 – From: [thecaucus.blogs.nytimes.com](http://thecaucus.blogs.nytimes.com)

By Jennifer Steinhauer

Um, senators, ever heard of the mute button?

Moments before a conference call with reporters was scheduled to get underway on Tuesday morning, Charles E. Schumer of New York, the No. 3 Democrat in the Senate, apparently unaware that many of the reporters were already on the line, began to instruct his fellow senators on how to talk to reporters about the contentious budget process.

After thanking his colleagues — Barbara Boxer of California, Benjamin L. Cardin of Maryland, Thomas R. Carper of Delaware and Richard Blumenthal of Connecticut — for doing the budget bidding for the Senate Democrats, who are facing off against the House Republicans over how to cut spending for the rest of the fiscal year, **Mr. Schumer told them to portray John A. Boehner of Ohio, the speaker of the House, as painted into a box by the Tea Party, and to decry the spending cuts that he wants as extreme. "I always use the word extreme," Mr. Schumer said. "That is what the caucus instructed me to use this week."**

A minute or two into the talking–points tutorial, though, someone apparently figured out that reporters were listening, and silence fell.

Then the conference call began in earnest, with the Democrats right on message.

"We are urging Mr. Boehner to abandon the extreme right wing," said Ms. Boxer, urging the House to compromise on the scale of spending cuts and to drop proposed amendments that would deny federal financing for Planned Parenthood and for government agencies like the Environmental Protection Agency.

Mr. Carper continued with the theme, referring to some House Republicans' "right-wing extremist friends." Mr. Cardin decried Mr. Boehner's giving into "extremes of his party." Mr. Blumenthal closed by speaking of the "relatively small extreme group of ideologues" who are "an anchor" dragging down the budget negotiation process.

---

*Can you imagine the screaming, feet stomping, and froth in \$2600 Magazine or on "Off The Hook" if Bush or Cheney had done this?*

*Instead, we get nothing but silence... Change!*

### **Waiting for Joe and Bill**

March 23, 2011 – From: [blogs.orlandosentinel.com](http://blogs.orlandosentinel.com)

Not looking for sympathy here, but the life of a political reporter isn't all champagne and canapes. Consider our man Scott Powers, who was sent over to the Winter Park home of Alan Ginsburg this morning as the designated "pool reporter" -- aka scribe -- for the fundraiser where Vice President Joe Biden is appearing on behalf of U.S. Sen. Bill Nelson, D-Fla.

Turns out the veep hadn't arrived, but about 150 guests (minimum donation \$500) were already in the house. **So to prevent Scott from mingling with the crowd, a member of Biden's advance team consigned him to a storage closet -- and then stood outside the door to make sure he didn't walk out without permission.**

Scott e-mailed us this photo from his temporary prison. "Sounds like a nice party," he wrote.



*We should take this time to also remember the billions of filthy kikes killed during the Holocaust™*

*Oh, wait...*

### **Official: Exhumations of Nazi-Era Graveyard Yield No Initial Indications of Nazi Atrocities**

March 30, 2011 – From: [ca.news.yahoo.com](http://ca.news.yahoo.com)

By The Associated Press / The Canadian Press

VIENNA -- Officials say exhumed remains from a disused hospital cemetery have not so far backed up suspicions that it contains victims killed by the Nazis because of physical or mental disabilities.

The Austria Press Agency cited anthropologist George McGlynn as saying initial examinations show that the remains are those of people with major physical or mental disabilities. But he says 10 graves dug up so far contain no nail or hair tissues that could yield signs of starvation deaths.

The cemetery in the western Austrian town of Hall in Tirol contains the remains of 220 people.

Hospital officials have said that some were likely victims of a Nazi euthanasia campaign.

Across Europe, 75,000 people were killed for real or imagined mental, physical or social disabilities that did not fit Nazi pseudo-Aryan ideals.



**Das Jahre ist zu Ende. Der Kampf geht weiter!**

## Nothing Like a Little Conflict of Interest...

Right now in Wisconsin, there is a fight going on for the "right" of the government to further steal from the taxpayer. Criminal organizations – like Jewish labor unions and the Democrat Party – are attacking *anyone* who dares stand up for freedom, liberty, or the law of the land. They are also circumventing the will of the Wisconsin voters by having Judge Maryann Sumi (Jew) legislate from her court bench.

From: [www.jewishmadison.org/page.aspx?id=140758](http://www.jewishmadison.org/page.aspx?id=140758)

*"Judge Maryann Sumi is a Dane County Circuit Judge, having been appointed in 1998, elected in 1999 and re-elected in 2005. She currently presides over civil cases, but has also served as a criminal court judge and as presiding judge of juvenile court from 2000–2004. In September 2003 Judge Sumi taught principles of American civil law to judges in Shanghai, China, through the University of Wisconsin Law School. **In 2006, she was selected to represent the Dane County judiciary at the Simon Weisenthal Center's National Institutes Against Hate Crimes and Terrorism.***

*Judge Sumi is a 1976 graduate of the University of Wisconsin Law School. Prior to her judicial appointment she served as an Assistant Attorney General at the Wisconsin Department of Justice. **She, her husband Carl Sinderbrand, and children Molly and Jacob are members of Temple Beth El.***

There is already cause for Judge Maryann Sumi to recuse herself from the public union "collective bargaining" lawsuit since her son, Jacob Sinderbrand is a former employee of the AFL–CIO and SEIU. More potential conflict of interests have since been discovered.

Judge Sumi's husband, Carl Sinderbrand, donated to the political campaigns of three (Dave Hansen, Jim Holperin, and Robert Wirch) of the "Badger 14" – you know, those Democrat Senators who committed treason by running away from their sworn duties. Additionally, Carl Sinderbrand donated to the campaign of Milwaukee Mayor Tom Barrett in his race against Scott Walker for the Wisconsin governorship.

*The following information was gathered from various Internet blog postings.*

Jacob "Jake" Sinderbrand, son of Judge Maryann Sumi, poses a bit of a problem for his mother.



He touts his work for the AFL-CIO and SEIU, with that Jew Andy Stern. Remember all that whining about Cheney and Halliburton?

From: [www.leftfieldstrategies.com/p/who-we-are.html](http://www.leftfieldstrategies.com/p/who-we-are.html)

*"A lifelong political activist, Jake Sinderbrand got his start as a volunteer doorknocker, and has years of experience training both volunteers and canvassing staff. Jake graduated from Macalester College cum laude with a degree in political science, specializing in American political structures. **He has developed his professional political experience serving as a lead field manager with the AFL-CIO and as data manager for the SEIU State Council through the 2008 election cycle.** Jake's expertise in canvass planning and turf strategy helped these organizations to have among the most successful field operations in Minnesota."*

And some of his Facebook "Wall" postings:

facebook

Search

**Jake Sinderbrand** [+1 Add as Friend](#)

Worked at Left Field Strategies (Campaign Consultant/Field Strategist) Studied Political Science at Macalester College Engaged to Sarah Podenski

**Wall**

**Jake Sinderbrand**  
So 19,000 emails of support constitute a "majority" while 40,000 Wisconsinites at his doorstep are irrelevant?  
Forget the Marquette transcripts--I wonder how this guy passed kindergarten math

**Wis. governor releases e-mails about union rights**  
[www.msnbc.msn.com](http://www.msnbc.msn.com)  
Wisconsin Gov. Scott Walker released to The Associated Press on Friday tens of thousands of e-mails he received in the days after introducing his plan to strip public workers of nearly all their collective bargaining rights.

Friday at 1:31pm · Share

**Jake Sinderbrand via Why hasn't the GOP / Tea Party fixed the economy yet? (by FoxEwes.com)**  
**Republicans Vote To Cut Funding From PBS and NPR, As Well As Many Other Quality Programs**  
[www.addictinginfo.org](http://www.addictinginfo.org)  
This bill has one purpose, to punish NPR.

Friday at 11:56am · Share

**Wall**

Info

Friends

Engaged to

**Sarah Podenski**

Friends (74)

**Claire Marshall**  
Northeastern

Here's a nice comment from Judge Maryann Sumi's son about Governor Scott Walker:

*"So 19,000 emails of support constitute a 'majority' while 40,000 Wisconsinites at his doorstep are irrelevant?  
Forget the Marquette transcripts--I wonder how this guy passed kindergarten math"*

And another. Note that it's the liberals and their Jew buddies who are out to destroy the middle class. Note that you can no longer walk through (or take the bus) without getting attacked in Milwaukee thanks to these assholes and their "multiculturalism and diversity."



**Jake Sinderbrand**

RIP middle class--Wisconsin has officially become the Tea Party's laboratory for plutocracy. This is the beginning of the end unless we can get these fuckers out of office. 299 days to recall; please do what you can to fight this travesty.



**Wisconsin Senate passes union limits despite Democratic walkout**

[www.cnn.com](http://www.cnn.com)

Wisconsin's Republican-led state Senate passed Gov. Scott Walker's proposed restrictions on collective bargaining for public employees Wednesday, getting around a Democratic walkout by stripping financial provisions from the bill.

March 9 at 8:28pm · Share

*"RIP middle class--Wisconsin has officially become the Tea Party's laboratory for plutocracy. This is the beginning of the end unless we can get these fuckers out of office. 299 days to recall; please do what you can to fight this travesty."*

Jake Sinderbrand even calls Governor Walker "McCarthy Jr." as he counts down the days to a recall election. Note that Joe McCarthy was proven *right* after the release of the VENONA intercepts by the NSA in 1995. Don't you just love the irony of a Jew whining about McCarthy chasing after Jewish Communist spies in the U.S.? LOL!



**Jake Sinderbrand**

Even Republican pollsters are showing that Wisconsin opposes union-busting (and Republican papers are reporting it). 363 days and counting until McCarthy Jr. is recalled.



**Poll: Majority want Walker to negotiate**

[host.madison.com](http://host.madison.com)

news, local, national, regional, wisconsin

March 6 at 8:40pm · Share

*"Even Republican pollsters are showing that Wisconsin opposes union-busting (and Republican papers are reporting it). 363 days and counting until McCarthy Jr. is recalled."*

The son of Judge Maryann Sumi, a former AFL-CIO and SEIU employee, clearly has strong opinions on Wisconsin Governor Walker and the budget repair bill. He has a clear agenda. Does the apple fall far from the tree?

These Facebook postings and that "Left Field Strategies" website have since been deleted. Change!

**Don't expect to be hearing any of this in the mainstream media!**

# Left Field Strategies

Giving you the tools to reach all your voters

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## About Us



**Josh Wise** has really tough knuckles from all the doorknocking he's done. Working at various professional canvasses, including Working America and Eugene Peaceworks, Josh's turf strategies and doorknock scripts have consistently had excellent results. Josh also ran the predictive dialer at the SEIU MN State Council, working with large call lists and writing scripts to maximize the effectiveness of voter and member contact. Josh's philosophy is that a simple, direct message, targeted to the people who need to hear it, can fundamentally change the world (and win your election...or both!). While he's not out taking on the system, Josh is an avid bowler, choir director and washtub bassist!



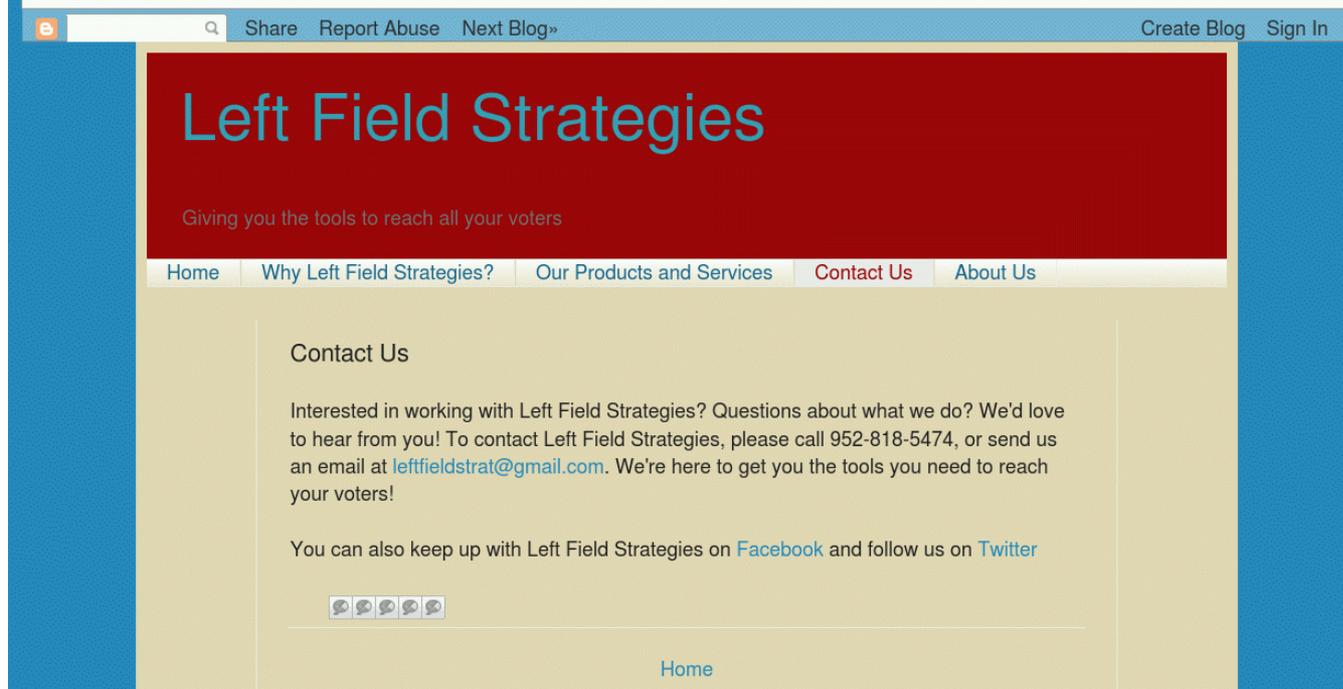
A lifelong political activist, **Jake Sinderbrand** got his start as a volunteer doorknocker, and has years of experience training both volunteers and canvassing staff. Jake graduated from Macalester College cum laude with a degree in political science, specializing in American political structures. He has developed his professional political experience serving as a lead field manager with the AFL-CIO and as data manager for the SEIU State Council through the 2008 election cycle. Jake's expertise in canvass planning and turf strategy helped these organizations to have among the most successful field operations in Minnesota.



This is Google's cache of <http://www.leftfieldstrategies.com/p/contact-us.html>. It is a snapshot of the page as it appeared on Jan 17, 2011 04:24:47 GMT. The [current page](#) could have changed in the meantime. [Learn more](#)

These terms only appear in links pointing to this page: [http www leftfieldstrategies com p who we are html](http://www.leftfieldstrategies.com/p/who-we-are.html)

[Text-only version](#)



The screenshot shows the top portion of a website. At the top, there is a navigation bar with links for "Share", "Report Abuse", and "Next Blog". On the right side of the navigation bar are "Create Blog" and "Sign In" links. Below the navigation bar is a large red header with the text "Left Field Strategies" in white. Underneath the header is a tagline: "Giving you the tools to reach all your voters". A horizontal menu contains links for "Home", "Why Left Field Strategies?", "Our Products and Services", "Contact Us", and "About Us". The main content area has a light beige background and is titled "Contact Us". The text in this section reads: "Interested in working with Left Field Strategies? Questions about what we do? We'd love to hear from you! To contact Left Field Strategies, please call 952-818-5474, or send us an email at [leftfieldstrat@gmail.com](mailto:leftfieldstrat@gmail.com). We're here to get you the tools you need to reach your voters!" Below this text, it says: "You can also keep up with Left Field Strategies on [Facebook](#) and follow us on [Twitter](#)". There are four small social media icons (Facebook, Twitter, LinkedIn, and YouTube) arranged horizontally. At the bottom of the content area is a "Home" link.

"Interested in working with Left Field Strategies? Questions about what we do? We'd love to hear from you! To contact Left Field Strategies, please call 952-818-5474, or send us an email at [leftfieldstrat@gmail.com](mailto:leftfieldstrat@gmail.com). We're here to get you the tools you need to reach your voters!

You can also keep up with Left Field Strategies on [Facebook](#) ([www.facebook.com/pages/Left-Field-Strategies/144286308933905](http://www.facebook.com/pages/Left-Field-Strategies/144286308933905)) and follow us on [Twitter](#) ([twitter.com/LeftFieldStrat](http://twitter.com/LeftFieldStrat))."



### **Katherine Windels: Your Typical Schoolteacher and Democrat in Wisconsin**

She looks like a nice lady and you'd probably have no problems with her being your kid's pre-school or kindergarten teacher.

Nope! Here's what Katherine Windels was recently arrested for.

Note that when finally reporting on this story, the mainstream media outlets (except FOX News) left out the little fact she is a school teacher!

From: XXXX  
Sent: Wed 3/9/2011 9:18 PM  
To: Sen.Kapanke; Sen.Darling; Sen.Cowles; Sen.Ellis; Sen.Fitzgerald; Sen.Galloway;  
Sen.Grothman; Sen.Harsdorf; Sen.Hopper; Sen.Kedzie; Sen.Lasee; Sen.Lazich;  
Sen.Leibham; Sen.Moulton; Sen.Olsen  
Subject: Atten: Death threat!!!! Bomb!!!!

Please put your things in order because you will be killed and your families will also be killed due to your actions in the last 8 weeks. Please explain to them that this is because if we get rid of you and your families then it will save the rights of 300,000 people and also be able to close the deficit that you have created. I hope you have a good time in hell. Read below for more information on possible scenarios in which you will die.

WE want to make this perfectly clear. Because of your actions today and in the past couple of weeks I and the group of people that are working with me have decided that we've had enough. We feel that you and the people that support the dictator have to die. We have tried many other ways of dealing with your corruption but you have taken things too far and we will not stand for it any longer. So, this is how it's going to happen: I as well as many others know where you and your family live, it's a matter of public records.

We have all planned to assault you by arriving at your house and putting a nice little bullet in your head. However, we decided that we wouldn't leave it there. We also have decided that this may not be enough to send the message to you since you are so "high" on Koch and have decided that you are now going to single handedly make this a dictatorship instead of a democratic process. So we have also built several bombs that we have placed in various locations around the areas in which we know that you frequent.

This includes, your house, your car, the state capitol, and well I won't tell you all of them because that's just no fun. Since we know that you are not smart enough to figure out why this is happening to you we have decided to make it perfectly clear to you. If you and your goonies feel that it's necessary to strip the rights of 300,000 people and ruin their lives, making them unable to feed, clothe, and provide the necessities to their families and themselves then We Will "get rid of" (in which I mean kill) you.

Please understand that this does not include the heroic Rep. Senator that risked everything to go against what you and your goonies wanted him to do. We feel that it's worth our lives to do this, because we would be saving the lives of 300,000 people. Please make your peace with God as soon as possible and say goodbye to your loved ones we will not wait any longer. YOU WILL DIE!!!!

But remember, it's the Tea Party members who are violent extremists! LOL!

Here's Katherine Windels' LinkedIn profile, which was deleted (change!) shortly after her arrest:

## Katherine Windels

Independent Education Management Professional  
Madison, Wisconsin Area

**Current** • **Child Care Worker at Self Employed**

**Past**

- Animal Care Worker at Personal
- Student Teacher at Practicum Experiences
- After School Program Teacher at St. Martin's Lutheran Church

**Education** • Madison Area Technical College

**Connections** 2 connections

Public profile powered by **LinkedIn**

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**View Katherine Windels's full profile**

See who you and Katherine Windels know in your network

- Get introduced to Katherine Windels
- Contact Katherine Windels directly

View Full Profile

**Others named Katherine Windels:**

**Kathy Windels**  
Greater Minneapolis-St. Paul Area

**Kathy Windels**, Account Executive at Thomson Reuters  
Greater Minneapolis-St. Paul Area

[More professionals named Katherine Windels](#)

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### Katherine Windels's Summary

Practicum experiences at Orchard Ridge Nursery School, Meeting House Nursery School, Wexford Head Start, and Red Caboose Nursery School. Worked with children ages 1-6 in preschool and kindergarten classrooms. Applied child development theory to practice. Observed, recorded, and assessed children's growth and development. Implemented developmentally appropriate guidance strategies. Integrated my knowledge of health, safety and nutrition practices into the classroom setting according to local, state, and national standards. Developed and used interpersonal skills to develop respectful relationships with children and adults. Advocated for children, families, and the profession.

After-School Teacher providing care for children Kindergarten through 5th grade. Planned activities for children to participate in as they chose to. Initiated and implemented a new positive behavior program to be used at the center. Taught from the center's philosophy of caring for ourselves, our environment, and our community.

Child-Care worker that provided care for three families of children age's birth through age six. Provided common household/child care duties, including cooking, diapering and light cleaning. Gave children individualized attention by playing, teaching and observing their skills so as to provide Developmentally Appropriate activities for the children to choose from.

Animal Care Worker provided basic care for a variety of different pets in my own or owners' homes. Performed bathing, physical exercise, and other activities as needed.

**Katherine Windels's Specialties:**  
 Wisconsin Early Childhood Association Member,  
 Member of The National Association for the Education of Young Children.  
 Collector of Developmentally Appropriate children's literature, games, toys, and materials.

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### Katherine Windels's Experience

**Child Care Worker**  
**Self Employed**  
 (Individual & Family Services industry)  
 January 2001 — Present (10 years )

Provide care for three families of children age's birth through six. Provide common household/childcare duties, including cooking, diapering and light cleaning. Give children individualized attention by playing, teaching, and observing their skills so as to provide Developmentally Appropriate activities for children to choose from.

**Animal Care Worker**  
**Personal**  
 (Individual & Family Services industry)  
 January 2006 — October 2010 (4 years 10 months)

Provide basic care for a variety of different pets in my own or owners' homes. Performed bathing, physical exercise, and other activities as needed.

**Student Teacher**  
**Practicum Experiences**  
 (Education Management industry)  
 January 2008 — May 2010 (2 years 5 months)

Worked with children ages 1-6 in preschool and kindergarten classrooms  
 Applied child development theory to practice  
 Observed, recorded, and assessed children's growth and development.  
 Implemented developmentally appropriate guidance strategies.  
 Integrated my knowledge of health safety and nutrition practices into the classroom setting according to local, state, and national standards.

**After School Program Teacher**  
**St. Martin's Lutheran Church**  
 (Education Management industry)  
 January 2007 — January 2009 (2 years 1 month)

Provide care for children ages kindergarten through 5th grade age. Plan activities for children to participate in during their time at the program.  
 Initiate and implemented a new positive behavior program to be used at the center.  
 Teach from the center's philosophy of caring for ourselves, our environment, and our community.

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### Katherine Windels's Education

**Madison Area Technical College**  
 Associated in Applied Science Degree , Early Childhood Education , 2008 — 2010

The Early Childhood Education Program prepares student to work as teacher-caregivers in early childood settings. It combines hands-on fieldwork in area centers with realted academic work at ther college. Graduates become responsible for the care and education of children in the birth-to-six age range. They create and maintain safe and healthy play environment, guide behavior, plan and implement learning activities, and work cooperatively with staff and parents. It is based on a holistic compassion, and a connection that to be effective, caregivers and teachers must have respect and empathy for parents. Although the program is eclectic and exposes students to diverse approaches to guidance and curriculum, it is firmly committe to promotion of Developmentally Appropriate teaching practices.

**Activities and Societies:** Recognition of valuable contributions to MATC ECE Student Club Believing in Kids, Member of National Honor Society-Phi Theta Kappa, Member of Wisconsin Early Childhood Association, Member of National Association for the Education of Young Children.

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### Additional Information

**Katherine Windels's Groups:**

- National Association for the Education of Young Children
- Wisconsin Early Childhood Association
- Phi Theta Kappa

Early Childhood Today

Early Childhood Education, Child Care, and CCR&R Professionals Forum

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### Katherine Windels's Contact Settings

Interested In:

- career opportunities
- consulting offers
- new ventures
- job inquiries
- expertise requests
- business deals
- reference requests
- getting back in touch

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