

Issue #25 / The Monthly Journal of Muslim Script Kidz / April 2006



Dedicated to our Prophet Emmanuel Goldstein (Piss Be Upon Him)

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Nortel FMT-150 Bay & Shelf Descriptions

FMT-150 Bay & Shelf Description

The Nortel FMT–150 fiber multiplex terminal equipment is designed for modular growth. Each module, or circuit pack, performs a specific function, and most may be equipped only to meet particular requirements. Since the system can be customized to fill individual needs, the customer need only pay for the option desired.

All FMT–150 shelves are equipped with a cover that allows ventilation of the circuit modules and monitoring of alarm indicators without removing the cover.

The FMT–150 is designed as a single shelf system that may be equipped in various configurations (e.g., FMT–150B, FMT–150C, or FMT–150D). The shelves may be mounted on any 23 inch standard rack. Circuit modules plug into the shelf from the front to provide easy access for maintenance or other servicing. The FMT–150 shelf carries a DM–13 multiplexer and the associated electro–optic converter. A typical example of a 7 foot bay configuration for eight bidirectional optical channels is shown in *Figure 1*. A fully loaded bay is equipped with eight FMT–150 shelves, a fuse and alarm panael, and an AC outlet.

Standard Bays

A maximum of eight FMT–150 terminal shelves may be mounted in a 7 foot bay. There is also additional bay space reserved for a fuse and alarm panel, AC outlet, ground bar, optical splice/storage panel, and future enchancements such as a centralized maintenance unit (i.e., CAMMS).

Nortel does not recommend installing more than the maximum recommended system in a bay. Therefore, although bays up to 11.5 feet high are available, the region above the 7 foot bay should be left empty.

Central Access Maintenance and Monitoring System

Refer to Figure 2

The Central Access Maintenance and Monitoring System (CAMMS) device is an alarm surveillance and control system that will facilitate monitoring and maintenance of the FMT–150 transmission system. In its simplest form, the CAMMS consists of a Maintenance Display Unit (MDU) that interfaces with a single FMT–150 system. A Maintenance Processor Unit (MPU) is added to provide access to more than one FMT–150.

CAMMS is a single shelf unit measuring 14 inches wide, 5.6 inches in depth and 4.5 inches in height. It is built to mount in a standard 19 inch rack, but for FMT–150 purposes, it may be equipped with 23 inch adapter brackets.

The unit occupies two and one half vertical mounting spaces of the bay layout.

As CAMMS contains a centralized display, it is recommended that the device be installed at a height allowing for a comfortable viewing level (i.e., below the first two FMT–150 shelves).

System Shelves

Refer to Figure 3

Circuit pack modules plug into the shelf from the front providing easy access for maintenance or other servicing. The shelves require 23 inch mounting centers and should be mounted in unequal flange type bays to accomodate the 25.9 inch shelf width. All FMT–150 shelves are equipped with snap–on covers that allow ventilation of the circuit modules, and monitoring of shelf alarm indicators with the covers installed. The cover may be easily removed to access the internal equipment.

Circuit Pack Layout

Shelf Layout

The three FMT–150B shelf (or FMT–150B/C/D shelves) layouts are shown in *Figures 4, 5, & 6*. Each shelf measures 25.9 inches wide, by 8.8 inches high, by 12 inches deep. Each of the shelves provides space for four power supply units, two on each side of the shelf. All circuit modules are installed and accessed from the front of the shelf. The DM–13 multiplexer monitor and control module is mounted on hinges at the front of the shelf. All other modules slide into position in pre–assigned slots inside the shelf. On the backplane of each shelf, wire–wrap pins allow for connection of low–speed cabling, office alarms, E2A telemetry, and customer defined input and output points. At the front of each shelf, subminax connectors for DS–3 signals are mounted, as well as alarm LED indicators, order–wire operation buttons and jacks, and an electrostatic discharge jack.

Equipment Connections

Each FMT–150B shelf (or FMT–150B/C/D shelves) requires connections for power, low–speed signals, high–speed signals, alarm telemetry, optical interfaces, and optional customer input/outputs.

Note: In addition to the above connections, there are six STX connections located in the FMT–150B backplane. These STX connections are used to patch the overhead at a drop–and–insert site to provide communication between the two drop–and–insert shelves.

The FMT–150D shelf requires connections for power, high–speed signals, alarm telemetry, optical interfaces, and optional customer inputs/outputs.

With the exception of the DS–3 and optical interfaces, all connections are terminated on the customer access interface assembly located on the rear of each shelf. The optical and DS–3 signals are terminated on the front of the shelf through subminax cabling for the DS–3 signals and optical patchcords or pigtails for the optical signals.

Communication between the DM–13 monitor and control module and the rest of the shelf is accomplished through a set of three internal ribbon connectors that connect the monitor and control module to the internal backplanes of the shelf. The three ribbon cables are connectorized on one end to allow removal from the monitor and control module if a changeout is required.

Customer Access Interface Assembly

Refer to Figures 7, 8, & 9

There is one customer access interface assembly for each FMT–150 shelf. This assembly is located on the rear of the shelf and depending on the FMT–150 application, terminates some or all of the following:

- DC power cables through a four terminal barrier strip.
- DS-1/1C/2 cables via wire-wrap pins.
- Alarm and telemetry cabling via additional wire-wrap terminations.
- STX connectors.
- Optional customer inputs/outputs.

Note: A front mounted customer access interface assembly is also an available option.

Optical Termination Tray

If the optical patchcords are spliced to the outside plant cable, an optional termination tray may be ordered. This tray will provide the area needed for cable splicing. The typical location of this tray in a 7 foot bay is directly under the optional fuse and alarm panel.

The optical termination panel occupies one 1.75 inch vertical mounting space.

Note: An optical storage tray is also available providing for storage of excess fiber.

Fuse and Alarm Panel

Refer to Figure 10

An optional fuse and alarm panel may be installed at the top of a FMT–150 bay. This provides a common connection point for all power cabling and alarm telemetry. Two 5 Amp fuses are equipped for each FMT–150 shelf. Connections inside the fuse and alarm panel provide access to relay closure alarms and the E2A serial telemetry interface.

There are three lamps (LEDs) on the fuse and alarm panel faceplate:

- Major
- Minor
- Fuse Alarm

The fuse and alarm panel occupies two 1.75 inch vertical mounting spaces.

Alarm Lamps

The FMT–150 provides four levels of alarm lamps for troubleshooting:

- Bay Alarms
- Shelf Alarms
- Monitor and Control/CRT
- Individual Circuit Pack Alarms

Bay Alarms

The bay major and minor alarms are provided as red and yellow lamps on the fuse and alarm panel. Major alarms (red) include those that involve a service failure at the DS–3 level or higher. Minor alarms (yellow) include any non–service affecting alarms at any level, or a service affecting DS–1/1C/2 line alarm.

Shelf Alarms

The shelf alarm indicators are located at the top of the shelf and remain visible with the shelf cover installed. The LED indicators are as follows:

- Major, Minor, Fuse, and Remote LEDs on the B and D shelves.
- Major, Minor, and Fuse LEDs on the C shelf.

Monitor and Control

In the FMT-150B/C, the monitor and control module only has one red LED for Mon Dis/Unit Fail.

Circuit Pack Alarms

All FMT–150 circuit packs containing active components include one or more LEDs to provide alarm and/or status information about the unit. These LEDs can be hardware or software related (depending on the type of failure). A red LED indicates an alarm, green and yellow LEDs are used for status indication.

Shelf Features

Features at the front of the FMT-150B shelf are shown in *Figure 11* and described below:

FMT-150B Shelf Description

Connectors	Description
	DS-3/STX input 1, 2, and 3 to DS-3/STX translators respectively DS-3 input to DM-13 Not used for this application DS-3 output from DM-13 Not used for this application
LEDs	Description
MAJOR MINOR FUSE ALM REM	Red - Service affecting alarm Yellow - Non-service affecting alarm Red - A shelf fuse has been blown Yellow - An alarm has occurred at a remote site

Buttons	Description
LP TEST ACO LOC 1, 2, 3 EXP 1, 2, 3	Lamp Test - Lights up all the LEDs Alarm Cut-Off - Turns off existing audible alarm indicators Local Order-Wire - Rings every site common to STX signal #1, #2, #3 Express Order-Wire - Rings every site common to STX signal #1, #2, #3
Fuses	Description
Fuse 1, Fuse 2	5 Amp GMT type fuse on the BATA and BATB feeds respectively
-End-	

Features at the front of the FMT-150C shelf are shown in *Figure 12* and described below:

FMT-150C Shelf Description

Connectors	Description
MUX 1 IN MUX 2 IN MUX 1 OUT MUX 1 OUT MUX 2 OUT MUX 1, 2 CLK ESD	DS-3 input to DM-13 Not used for this application DS-3 output from DM-13 Same as DS-3 OUT 1, but not used for this application External clock 1 and 2 Used to ground personnel to prevent accidental discharge
LEDS	Description
MAJOR MINOR FUSE ALM	Red - Service affecting alarm Yellow - Non-service affecting alarm Red - A shelf fuse has been blown
Fuses	Description
	5 Amp GMT type fuse on the BATA and BATB feeds respectively

FMT-150D info missing. You know how it goes...

Environmental Specifications

The specified temperature ranges for FMT-150 equipment are given below.

Note: Short term is defined to be no more than 72 consecutive hours, no more than a total of 15 days per year.

Temperature

- Normal Operating: 32° to 104° F
- Short Term: 32° to 122° F
- Storage & Shipping: -58° to 158° F

Relative Humidity

- Operating: 20% to 95% at 4 kPa water vapor over operating temperature (no condensation)
- Storage & Shipping: 0% to 95% maximum or 5.3 kPa (no condensation)

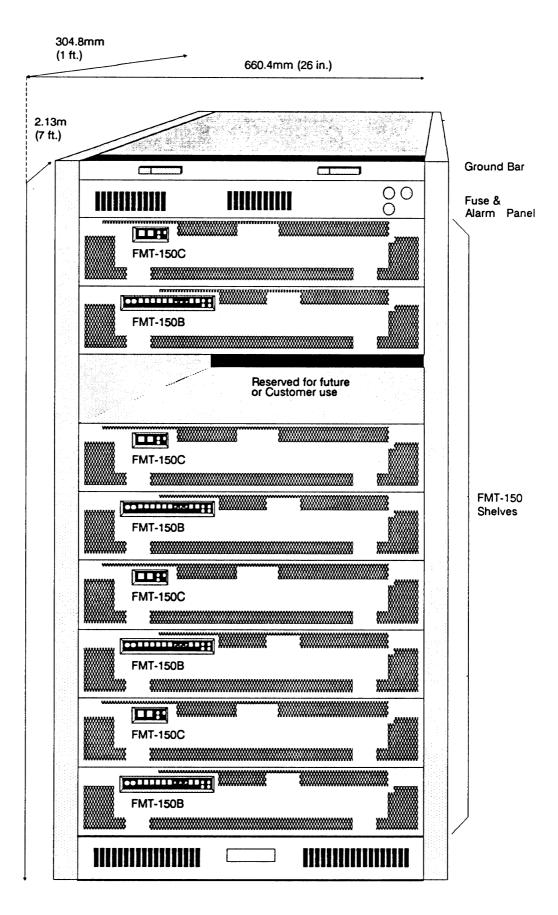
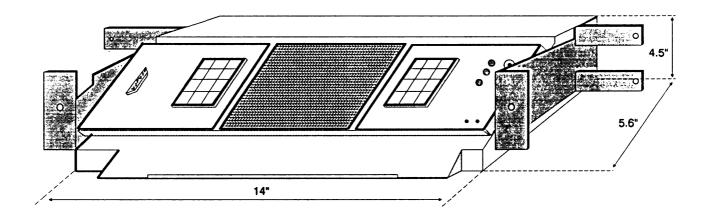


Figure 1: FMT-150 Bay and Shelf Overview



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	ESC	RTRN	F4		F8	PAGE DOWN	QUIT	0 0 +5V GND

Figure 2: CAMMS Shelf Assembly

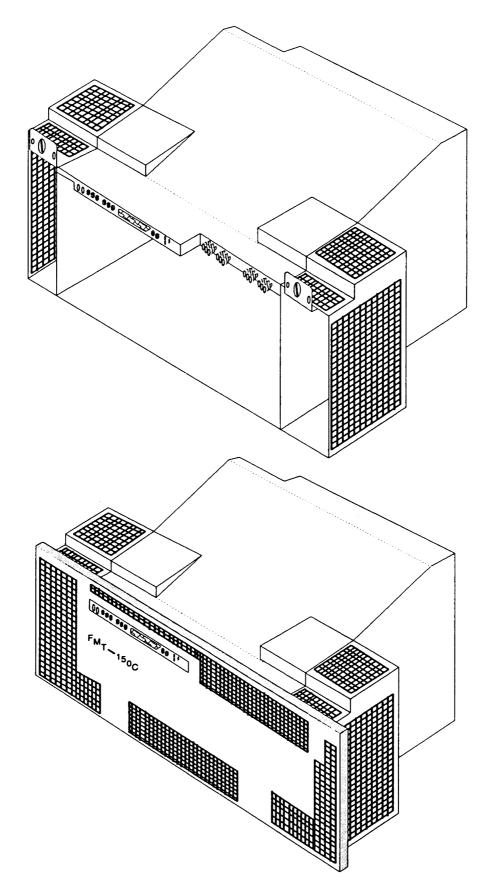
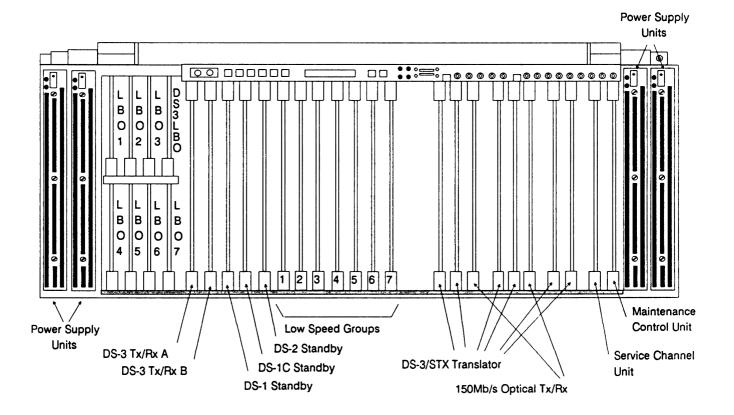


Figure 3: CAMMS Unit





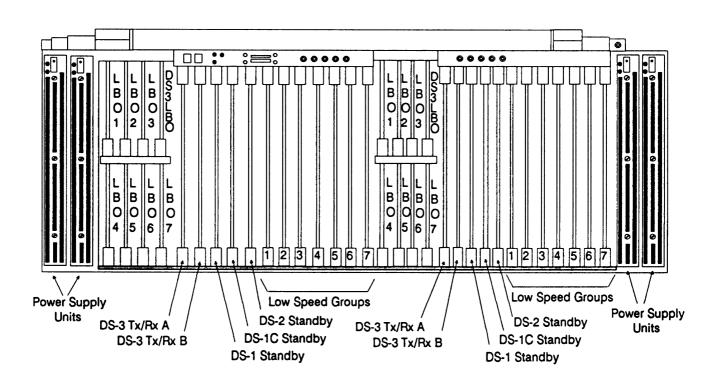
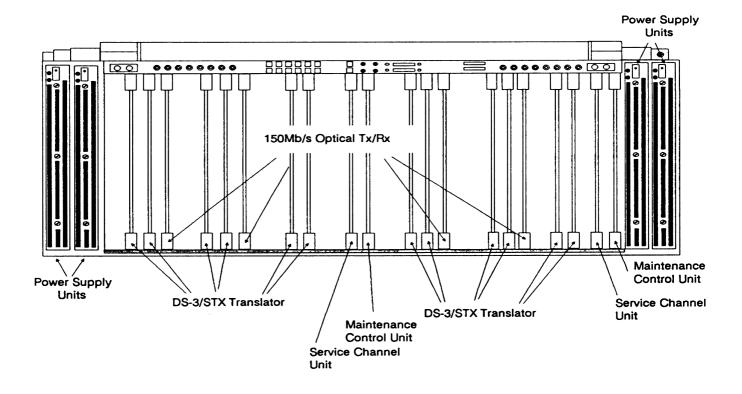


Figure 5: FMT-150C Circuit Pack Layout





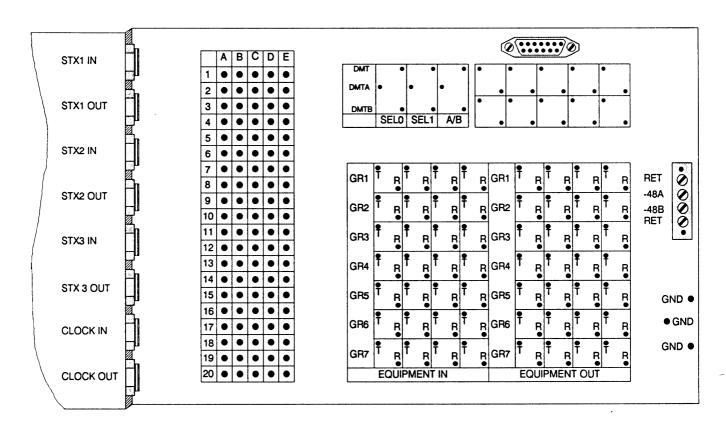


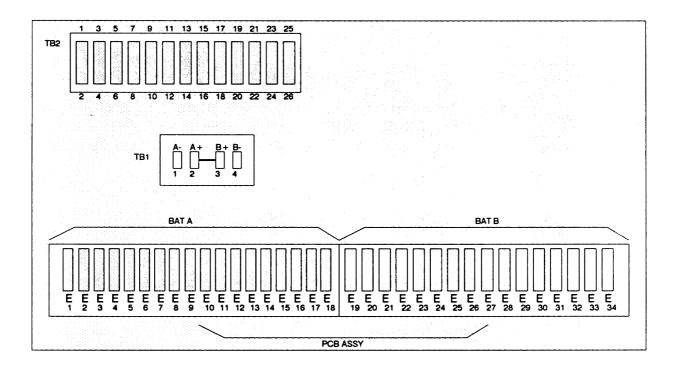
Figure 7: FMT-150D Customer Access Interface Assembly - 1

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Figure 8: FMT–150D Customer Access Interface Assembly – 2

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Figure 9: FMT–150D Customer Access Interface Assembly – 3



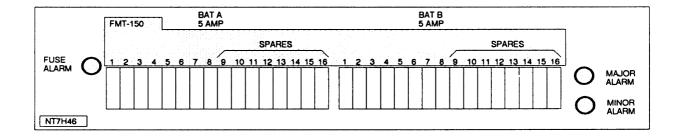
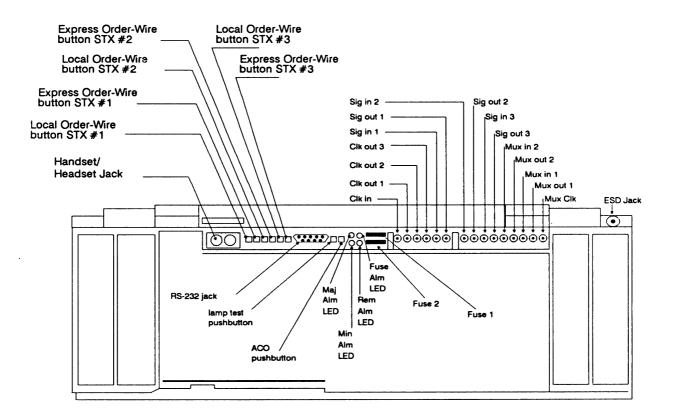


Figure 10: NT7H46AA/BA Fuse and Panel Alarm





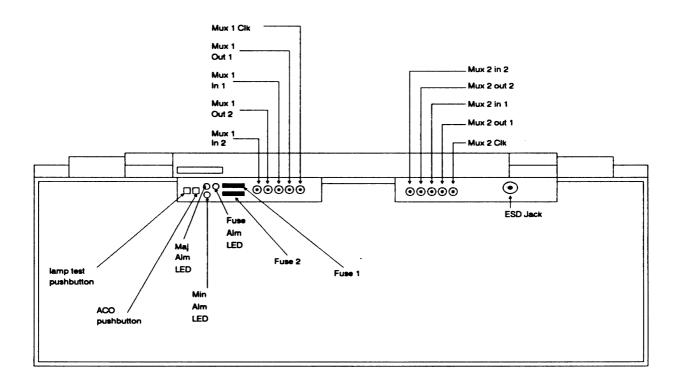


Figure 12: FMT-150C Shelf Features

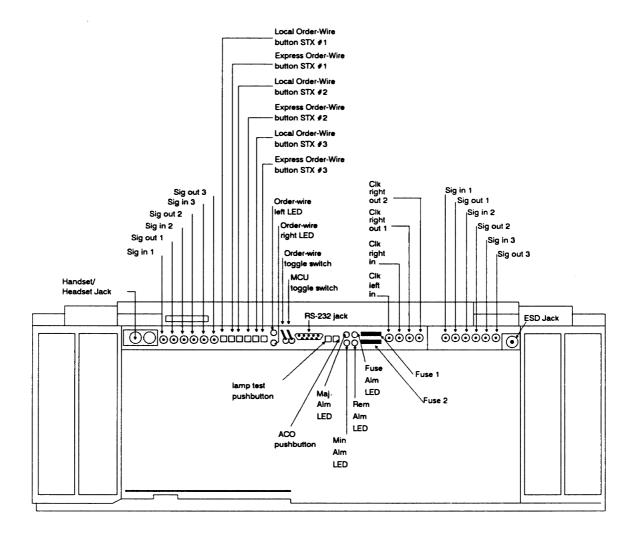


Figure 13: FMT-150D Shelf Features

BELL SYSTEM PRACTICES AT&TCo SPCS

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FEATURE DOCUMENT

CODE 104-TYPE TEST LINE FEATURE

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

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NOTICE

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INTRODUCTION

1. GENERAL INFORMATION

SCOPE

1.01 This feature document describes the code 104-type test line (104TL) feature when utilized with the No. 1 or No. 1A Electronic Switching System (ESS).

REASONS FOR REISSUE

1.02 The reasons for reissuing this section are listed below. Since this reissue is a general revision, no revision arrows have been used to denote significant changes.

- (1) Reformat contents from 23-part to 18-part format
- (2) Add coverage for HILO 4-wire switching feature
- (3) Add coverage for toll common channel interoffice signaling (CCIS) feature.

FEATURE AVAILABILITY

1.03 The 104TL feature is available in all issues of CTX-7 and later generic programs for No. 1 ESS, and all generic programs for No. 1A ESS.

1.04 The 104TL feature software is contained in generic program base for 2-wire applications.
 HILO 4-wire and toll CCIS 104TL feature applications are contained in the optional HL4W and CCISTM feature packages, respectively.

2. DEFINITION

2.01 The code 104-type test line (104TL) feature provides a test termination for 2-way transmission testing and one-way noise checking.

DESCRIPTION

3. USER OPERATION

CUSTOMER

3.01 Not applicable.

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TELEPHONE COMPANY

3.02 The functional arrangements of the 104TL feature are shown in Fig. 1. No maintenance personnel actions[except routine equipment maintenance of 104-type test line equipment] are required in a No. 1 or No. 1A ESS office containing the 104TL feature at the far end.

3.03 The 104TL feature is activated and controlled from an automatic or manual test frame at the near end. The trunk to be tested is seized and the appropriate directory number or code is dialed. Refer to Table A. The overall operation of the 104TL feature by the near end is shown in Fig. 2 and 3. Refer to the applicable Equipment Test List and Method of Operation BSP documentation for more detailed information.

3.04 On non-CCIS trunk test calls, the 60 interruptions per minute (ipm) signal is returned if no idle 104-type test line is available. The 120-ipm signal is returned if the ESS is congested, no incoming trunk test register is available, or a peripheral order buffer failure occurs.

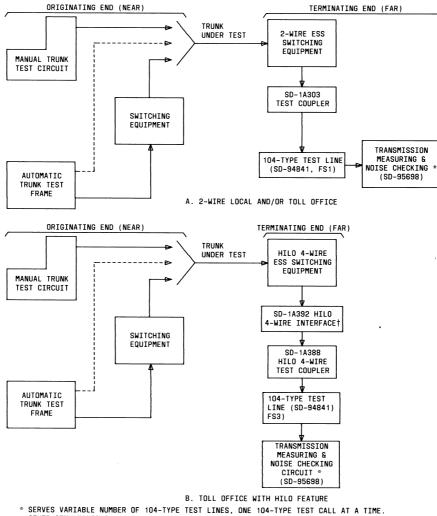
3.05 On toll CCIS trunk test calls, the ESS returns a vacant national number (VNN) message if the digits in the test initial address message (IAM) cannot be validated. If no idle 104-type test line is available, a national trunk congestion message is returned. If the network is blocked, a peripheral order buffer failure occurs, or no incoming trunk test register is available, the national switching congestion (NSC) message is returned.

4. SYSTEM OPERATION

HARDWARE

4.01 Hardware associated with the 104TL feature is shown in Table B. The function of a 2-wire test line is to provide a 104-type test termination for testing incoming 2-wire trunks. The function of a HILO 4-wire test line is to provide a 104-type test termination for testing incoming HILO 4-wire trunks. The transmission measuring and noise checking circuit provides automatic test sequence supervision. Test couplers are used to interface between the 104 test line common system and the ESS. More technical information may be found in the appropriate Circuit Description and Equipment Design Requirements BSP documentation.

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* SERVES VARIABLE NUMBER OF 104-TYPE TEST LINES, ONE 104-TYPE TEST CALL AT A TIME. OTHER SIMULTANEOUS 104-TYPE TEST CALLS REMAIN PARKED ON AVAILABLE 104-TYPE TEST LINES. † INTERFACE CIRCUIT REQUIRED FOR HILO 4-WIRE

Fig. 1—Functional Arrangements of the 104TL Feature



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TABLE A

104TL FEATURE ACCESS CODES AND APPLICABLE TRANSLATORS

ACCESS CODE	TYPE OF INCOMING TRUNK BEING TESTED	TRANSLATORS USED†
4-, 5-, or 7-digit DN	Local	DN (DN Translator gives RI)
7-digit DN	Intertoll	Toll 3/6-digit, DN—call type 28
	Toll connect*	Toll 3/6-digit or tandem, DN
	Tandem	Tandem, local 3/6-digit, DN (DN translator gives RI)
	Intertoll	Toll 3/6-digit, DN—call type 28 (DN translator gives R1), or call type 3 (CIW gives R1) without DN translator
104 code	Toll connect*	Same as intertoll or tandem—data type 5 (which gives RI)
	Tandem	Tandem data type 5 (which gives RI)
NNX code	CAMA	Local 3/6-digit, DN—call type 28 (DN translator gives RI) or call type 3 (CIW gives RI) without DN trans- lator
7-digit DN NXX-XXXX	CAMA	DN (DN translator gives RI) or toll digit-by-digit- call type 26 with TDXD, R & R pattern table—call type 3 (CIW gives RI)

* When a toll connect trunk is being tested, the trunk must be defined as either a toll or a tandem. This determines which translations are used.

† Effective with CTX-6, Issue 8, CTX-7, Issue 8, and 1E3 toll 3/6-digit translations are combined with local 3/6-digit translations. This is true for all generic programs of No. 1A ESS.

Legend:

_

DN - directory number

CAMA - centralized automatic message accounting

CIW – call identification word CTX – centrex

N = any digit 2 through 9RI = route index

- R & R =rate and route TDXD = toll digit-by-digit
- X = any digit 0.9

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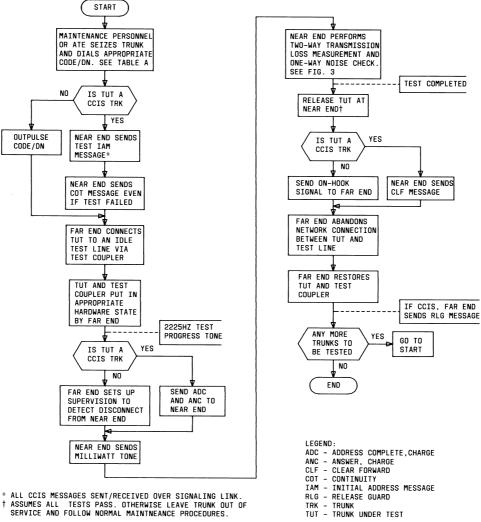


Fig. 2—User Operation of the 104TL Feature

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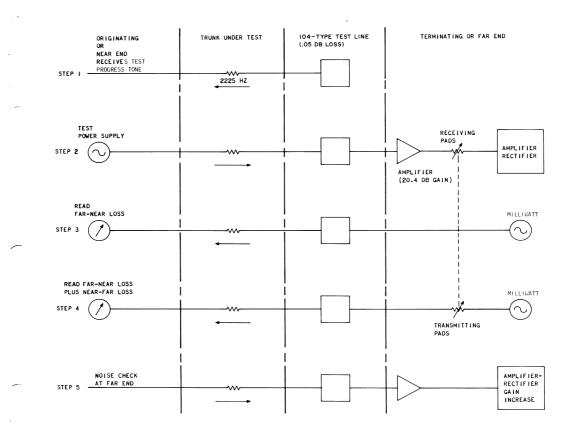


Fig. 3—Two-Way Transmission Test and Noise Check Sequence

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OFFICE DATA STRUCTURES

A. Translations

Introduction

4.02 Several translators are required for the different methods used to access the 104TL feature, depending on the type of trunk to be tested. The access codes used for different trunks with appropriate translators are listed in Table A.

Toll 3-Digit Translator

4.03 If the 104 code is received for an intertoll or toll connecting trunk, the 104 code is used along with the toll digit translation index (TLDI) derived from the trunk group number auxiliary block to select the appropriate toll 3-digit subtranslator. The subtranslator yields a rate and route pattern number, part of which is used to index a route pattern expansion table. The remainder of the pattern number is used to obtain a call identification word in the route pattern expansion table (Fig. 4). For CTX-7, Issue 8, 1E3 and later No. 1 ESS generic programs and all No. 1A ESS generic programs, toll 3/6-digit translations are combined with standard (local) 3/6-digit translations.

Standard 3-Digit Translator

4.04 If an NNX code is received for a centralized automatic message accounting (CAMA) trunk under test to access a 104-type test line, the standard 3-digit translator translates the 3-digit access code into call type 28 with a directory number (DN).

Tandem Translator

4.05 An incoming tandem or toll connecting trunk using the 104 code access employs a tandem translator which contains the address of the digit interpreter table. The route index in the data type 5 word of the tandem digit interpreter table (Fig. 5) contains the route index of the appropriate 104-type test lines. Note in Table A that toll connecting trunks may use either the toll 3/6-digit or tandem translation method.

Directory Number Translator

4.06 The 7-digit DN over intertoll trunks also utilizes a toll 3/6-digit translator which yields

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a DN. Toll connecting trunks may use the same toll 3/6-digit translator or a tandem translator to get the DN. Tandem trunks use a tandem translator which gives a local 3/6-digit translator, which in turn gives a DN.

4.07 For 3-digit access codes, both the standard 3-digit translator (for CAMA) and the toll 3-digit translator (for toll trunks) require a DN subtranslator translation before final routing can be determined. The 7-digit DN (either sent by the originating end or expanded from the 3-digit access codes) is used to index the DN translator. The DN subtranslator entry associated with the DN for testing with the incoming trunk in the tandem state (also expanded DN from the 104 code) yields a fixed route index (RI) of 177 and a program index (PI) of 1 (Fig. 6). A program index of 1 indicates a test call. For testing with the incoming trunk in the local state, the DN subtranslator entry yields a fixed route index (RI) of 176. A terminating major class of 3 (trunk group) must be specified in the associated directory number class word.

Elimination of DN Subtranslator Requirement (No. 1 ESS Only)

4.08 Simulated dialing of an interoffice DN via call type 28 results in excessive use of memory, especially in trunk-only offices. To eliminate this requirement, the call identification word in the rate and route pattern expansion table is redefined for call type 3 only for CTX-6, Issue 8 and later generic programs (Fig. 7). Item OLP (overlap operation) in word 1 type 2 of the auxiliary block is redefined as item TST (test) for call type 3 only in a type 8 word. If item TST=1, the call is a test call.

4.09 Test line access code 104 should be translated into call type 3 with item TST=1. The NXX of the 7-digit DN access codes may be translated into call type 26 with the toll digit-by-digit (TDXD) index (Fig. 8). The digit-by-digit translation of the next four or less digits yields a rate and route pattern number which is used to obtain the call identification word with call type 3 and item TST=1.

4.10 When using call type 3 and item TST=1, it is recommended that CAMA calls to 104-type test lines be marked as free calls. The final rate and route pattern should indicate a free

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TABLE B

104TL FEATURE HARDWARE DATA

		2-WIRE		HILO 4-WIRE*	WIRE*
ITEM	TEST COUPLER	104-TYPE TEST LINE	COMMON	TEST COUPLER	104-TYPE TEST LINE
Name	Test Coupler Circuit	Test Coupler Common Systems, 104 Circuit and 104-Type Trunk Transmission Test Line Circuit for Use with Electronic Switching System	Common Systems, Trans- mission Measuring and Noise Checking Circuit (TMN(C)	101/105 Test Coupler. Common Systems. 111L0 4-wire Switching Totalk Transmissi Trunk Transmissi Test Line Circuit Use with Electron Switching Switching System	Common Systems, 104 and 104-Type Trunk Transmission Test Line Circuit for Use with Electronic Switching System
SD Number	SD-1A303	SI) 94841†	SI)-95698	SD-1A388	SD-94841†
J Number	J1A033JK	J93020BT	J93020	J1A033ME	J93020BW
Frame	Miscellaneous Trunk Frame (MTF)	TMNCC Frame	TMNCC Frame	MTF	TMNCC Frame
Mounting Space	2 inches	4 inches	11'-6" Frame (23" wide)	2 inches	4 inches
Cable Length Limit	75 Feet	NN	NA	595 Feet	NA
Number of Circuits per Unit	2 or 4		-	2	-
* A HILO Interfac information purpunit.	ce Circuit is an oses: SD-1A39	integral part of HILO 4-w ⁻ 22, J1A090B11-1; Trunk Ord	* A HILO Interface Circuit is an integral part of HILO 4-wire trunk circuits for the HILO 4-wire switching feature, but is presented here for information purposes: SD-1A392; J1A090BH-1; Trunk Order Code 14200; HILO MTF or HILO Universal Trunk Frame; plug-in; two circuits per unit.	e switching feature, but niversal Trunk Frame; plı	is presented here for ug-in; two circuits per

† Provide X wiring for TP2 operation.

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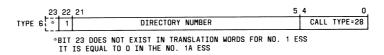


Fig. 4—Rate and Route Pattern Table Translator—Call Identification Word for Call Type 28

23, 22 20	19 17	16	15 5	4	0
TYPE 5 * DTYP	NDIG	0	ROUTE INDEX		0►

*BIT 23 DOES NOT EXIST IN TRANSLATION WORDS FOR NO. 1 ESS IT IS EQUAL TO O IN THE NO. 1A ESS DTYP – DATA TYPE NDIG – NUMBER OF INCOMING DIGITS

Fig. 5—Tandem Translator—Tandem Common Block, Tandem Digit Interpreter Table

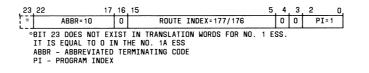
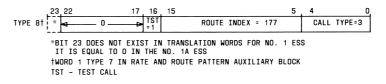


Fig. 6—DN Translator—DN Subtranslator—Type 4 Entry—(Trunk)





call. This is necessary so that no CAMA operator connection is made on 104-type test calls.

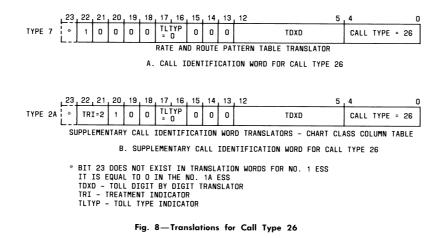
Trunk Group Number Supplementary Translator

4.11 With CTX-7 and later No. 1 ESS generic programs and all No. 1A ESS generic programs, item TGTPRP of the type 2 word in the trunk group number supplementary translator for the

incoming trunk group (Fig. 9) is checked for testing at TP0 (0 dBm) or TP2 (-2 dBm). When item TGTPRP is set to 2, TP2 is used; when item TGTPRP is set to 1, TP0 is used.

4.12 On 2-wire incoming trunks, route index 177 (test in the tandem state) or 176 (test in the local state) provides a 2-wire 104-type test line at TP0. When a TP2 test is required on the

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 TYPE 2
 23
 22
 14
 13
 12
 11
 0

 *
 TGTPRP
 TGTPRP
 *
 TGTPRP
 *

 *
 BIT 23 DDES NOT EXIST IN TRANSLATION WORDS FOR NO. 1 ESS.

 IT IS EQUAL TO 0 IN THE NO. 1A ESS.

 TGTPRP - TRUNK GROUP TEST PAD REFERENCE POINT

 0 - INVALID

 1 - TEST AT TPD

 2 - TEST AT TP2

 3 - INVALID

Fig. 9—Trunk Group Number Supplementary Translator

incoming trunk, RI 177 or 176 is expanded to the next route index which points to another trunk group containing 2-wire 104-type test lines at TP2.

Route Index Expansion Table Translator

4.13 When testing at the TP2 level is specified, the fixed RI (177 or 176) is expanded through the route index expansion table (Fig. 10) to obtain the trunk group number of the trunk group containing the 2-wire 104-type test lines equipped for testing at the TP2 level. Item RS (return supervision) in word 1 type 1 is required to be set to 1 to indicate that the trunk circuit being used returns answer supervision, but the call should be free.

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4.14 On incoming HILO 4-wire trunks RI 177 provides HILO 4-wire 104-type test lines at TP0 via pseudo route index (PRI) 008. PRI 008 contains a nonfixed RI which routes to the trunk group containing HILO 4-wire 104-type test lines at TP0 (Fig. 10). If TP2 is required, the expansion of the nonfixed RI will yield the TGN for HILO 4-wire 104-type test lines at TP2. On CAMA HILO 4-wire trunks, the NNX code(s) must always yield RI 177.

Trunk Class Code Expansion Table Translator

4.15 For 2-wire incoming trunks, the trunk class code expansion table of the 104TL feature must provide trunk usage (TU)=3 and circuit

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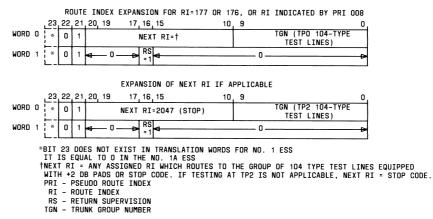


Fig. 10—Route Index Expansion Table Translator

program index (CPI) 033. For HILO 4-wire trunks, the trunk class code expansion table of the 104TL feature must provide TU=3 and CPI=138. See Fig. 11.

Trunk Network Number to Peripheral Equipment Number Translator

4.16 The trunk network number to peripheral equipment number (TNN-to-PEN) auxiliary block contains the master scan point and signal distributor information shown in Fig. 12.

Master Scanner Translator

4.17 The master scanner translator (Fig. 13) provides the trunk network number (TNN)

of the test coupler circuit and the trunk program index (TPI)=9.

Parameters/Call Store Β.

4.18 Incoming trunk test registers are required for processing trunk test calls. Refer to Fig. 14 for layout of the registers.

FEATURE OPERATION

A. 2-Wire Trunk Testing (Non-CCIS Trunks)

4.19 Incoming 104-type test calls over 2-wire trunks are initially received and analyzed by call processing. From the applicable DN subtranslator type 4 entry word or call indicator

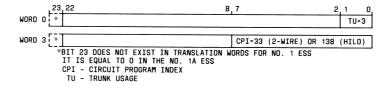


Fig. 11—Trunk Class Code Expansion Table Translator

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,2	3,22	18,17 16,	15,14,13		0	
WORD 0	WRDN=4	QUA	NT=0	CENTRAL PULSE DISTRIBUTOR NU	MBER=0	
WORD 1	QUANT=2		MISCEL	MISCELLANEOUS TRUNK DISTRIBUTOR NUMBER		
WORD 2	QUANT=2		SUPERVISORY-MSN			
WORD 3	* QUANT=O		DIRECTED-MSN=0			
* BIT 23 DOES NOT EXIST IN TRANSLATION WORDS FOR NO. 1 ESS IT IS EQUAL TO O IN THE NO. 1A ESS WRDN - NUMBER OF WORDS IN AUXILIARY BLOCK OUANT - OUANTITY						

Fig. 12—TNN-to-PEN Auxiliary Blocks

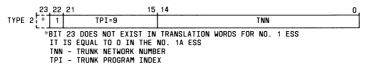


Fig. 13—Master Scanner Translator

word for call type 3, the call is identified as an incoming test call requiring route index (RI) 176 or 177. See Table C. The applicable incoming register is released, and an idle incoming trunk register is seized.

4.20 If TP2 testing is applicable to an office, the associated trunk group number supplementary translator is then used to determine if the trunk under test (TUT) is to be tested at TP0 (0 dBm) or TP2 (-2 dBm). See Table C. If TP0 is specified, RI 176 or RI 177 is used. If TP2 is specified, the next RI found in the route index expansion table is used. RI 176 or RI 177 normally uses the same next RI. RI 176 or RI 177 points to a trunk group containing 2-wire 104-type test lines at TPO, and the next RI points to a trunk group containing 2-wire 104-type test lines at TP2. The receiver connection is abandoned, and connection is made to the SD-1A303 test coupler of a 2-wire 104-type test line. The TUT and test coupler are put into the appropriate hardware state by the ESS. And finally, supervision for disconnect is set up on the TUT.

4.21 When a 104-type test line is accessed, the test line circuits provide a 2225-Hz test progress tone for signaling to the near end until the 104-type test line is cut through to the

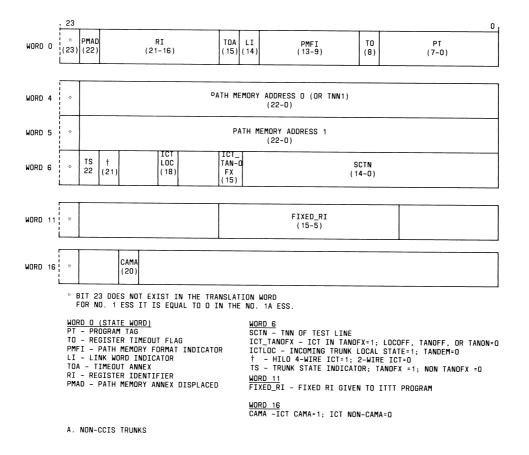
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transmission measuring and noise checking circuit. This tone is applied to the trunk under test to inform the near end of the progress of the tests (Fig. 3, Step 1).

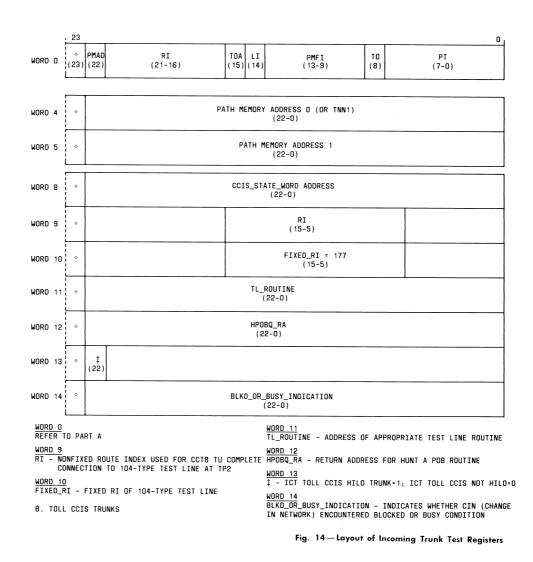
4.22 After the 104-type test line is connected to the transmission measuring and noise checking circuit, the test progress tone is removed from the trunk under test. This signals the near end to connect a one milliwatt, 1000-Hz test tone to the trunk under test (Fig. 3, Step 2). This tone is connected either automatically by an automatic test circuit or manually by maintenance personnel from a test position for a period long enough for the transmission measuring circuit to measure and store the near-to-far trunk transmission loss (not to exceed 6 seconds). This tone is also used by the far end to adjust the pads in the transmitting and receiving arms of the measuring circuit. These pads are adjusted so that the loss in the transmitting arm is equal to the measured near-to-far trunk loss when less than 10 dB, or is equal to the measured near-to-far trunk loss minus 10 dB when the trunk loss is greater than 10 dB.

4.23 After complete adjustment of the pads and the disconnection of the milliwatt test tone at the near end of the trunk, the transmission

measuring circuit proceeds to apply a one milliwatt,



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TABLE C

104TL FEATURE TRANSMISSION LEVEL POINT ASSIGNMENT AND TEST STATE

TRUNK GROUP TYPE	TRANSMISSION TEST TONE LEVEL	TRUNK TEST STATE‡ (RI 177-TANDEM† RI 176-LOCAL)
Local	TP0	Local and/or Tandem
Tandem	TP0 or TP2*	Tandem .
Toll Connect	TP0 or TP2*	 DDD Access — Tandem Toll Completing — Local and/or Tandem
Intertoll	TP2	Tandem and/or Talk
CAMA	TP0 TP0 or TP2* TP2	Local Tandem Talk

- * All trunks of the same type must be tested at the same level.
- † RI 177 may also be initially used for the talk test state used on HILO 4-wire trunks.
- [‡] Toll CCIS 2-wire trunks are tested in the tandem-talk-on-hook-with-transformeror-2-dB-pack (TANONX) state. Toll CCIS HILO 4-wire trunks are tested in the continuity-check-state-on-hook-toward-trunk-HILO-4-wire (CNTN4) state.

1000-Hz test tone directly to the far-to-near transmission path. This test tone is measured at the near end as the far-to-near end trunk transmission loss (Fig. 3, Step 3).

4.24 Following the far-to-near trunk transmission loss measurement, the near-to-far trunk transmission loss measurement is sent to the near end (Fig. 3, Step 4). This is done by applying one milliwatt, 1000-Hz tone through the transmitting arm pads to the far-to-near channel of the trunk. This measurement is actually one milliwatt minus the attenuator transmitting arm loss (measured N-F loss or N-F loss minus 10 dB) minus the far-to-near trunk loss. Therefore, the far-to-near trunk loss must be subtracted from the total measurement in Fig. 3), Step 4, to obtain the near-to-far trunk loss. When the transmitting arm loss is equal to the measured near-to-far loss minus 10 dB, an over-ten signal is transmitted to the near end before the tone is connected indicating that the transmission is being made at a level of 10 dB higher than it should be. The add 10 dB feature avoids transmitting

low levels over trunks and therefore minimizes the possibility of error due to noise.

4.25 Upon completion of the near-to-far loss measurement, a near-to-far noise test is made by the far end noise checking circuit (Fig. 3, Step 5). If the noise level exceeds 41 dBrnc at the trunk terminal, a test progress tone at 120 interruptions per minute is sent to the near end. If the noise level is satisfactory, a steady test progress tone is sent to the near end. The applicable tone remains until near end disconnect.

4.26 Upon near-end disconnect, the ESS effects the following actions: idles the TUT and SD-1A303 test coupler hardware; abandons network connections; restores the trunk and test coupler software; and releases the applicable incoming trunk test register.

B. HILO 4-Wire Trunk Testing (Non-CCIS Trunks)

4.27 The operation of the 104TL feature in a No. 1 or No. 1A ESS equipped with the HILO

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4-wire switching feature is very similar to the 2-wire trunk testing described above. However, certain exceptions must be noted.

(a) Incoming HILO 4-wire trunks are only tested in the talk state.

(b) Only RI 177 is used which correlates to pseudo route index 008 which contains a nonfixed RI for the trunk group containing HILO 4-wire 104-type test lines at TP0.

(c) If TP2 is specified by the trunk group number supplementary translator, the applicable route index expansion table contains another nonfixed RI for the trunk group containing HILO 4-wire 104-type test lines at TP2.

(d) Supervision for disconnect is set up by scanning the SD-1A388 test coupler.

(e) Certain translation word data differs.

C. Toll CCIS Trunk Testing (Intertoll Trunks Only)

4.28 In this operation description of the 104TL feature for a No. 1 or No. 1A ESS equipped with the toll CCIS feature, it should be remembered that an ESS may switch 2-wire and/or HILO 4-wire trunks, depending on how it is equipped, and that all interactive communications (except test performance) between offices is done over signaling links instead of toll trunks.

After the near-end maintenance personnel 4.29 or automatic test equipment seizes the trunk and dials the appropriate digits, a test initial address message (IAM) is formatted and sent over the signaling link to the far end. The ESS validates the digits. If invalid, a vacant national number message is returned. If valid, a continuity check circuit is connected to the TUT. A continuity test is then automatically performed by the near-end switcher. Regardless of the results, the near end sends a continuity message, and the far end proceeds with the 104-type test call. The check circuit is abandoned, the incoming register released, and an idle incoming trunk test register seized. [If none is available, ESS sends the national switching congestion (NSC) message. The near end must send the clear forward (CLF) message by releasing the TUT. The ESS then sends the release guard (RLG) message, and the test call is terminated.]

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4.30 From the digits 104 in the test IAM, the ESS determines RI 177. If the TUT is HILO 4-wire, RI 177 correlates pseudo route index 008 to obtain the nonfixed RI contained in the pseudo route index table. Since TP2 is applicable, the next RI in the applicable route index expansion table is used to point to the appropriate TP2 trunk group. The continuity check circuit is abandoned, and connection made to the test coupler of a 104-type test line. The TUT and test coupler are put into the appropriate hardware state, and an address complete, charge and answer, charge message returned to the near end.

4.31 The 104 test is then performed as described in paragraphs 4.21 through 4.25. Toll CCIS trunks are tested in different states from non-CCIS trunks. Toll CCIS 2-wire trunks are tested in the tandem-talk-on-hook-with-transformer- or-2-dB-pack (TANONX) state. Toll CCIS HILO 4-wire trunks are tested in the continuity-check-state-onhook-toward-trunk-HILO-4-wire (CNTN4) state.

4.32 Upon testing completion, maintenance personnel or automatic test equipment release the TUT which causes a CLF message to be sent to the far end. The ESS effects the following actions: idles the trunk and test coupler hardware; abandons network connections; restores trunk and test coupler software; releases the applicable incoming trunk test register; and returns a RLG message.

CHARACTERISTICS

5. FEATURE ASSIGNMENT

5.01 The 104TL feature is provided on a per office basis for testing incoming trunks from offices equipped with either the Automatic Transmission Test and Control Circuit or the Automatic Transmission Measuring System associated with automatic trunk test frames. It may also be used for manual "one person," 2-way transmission measurements from a testboard or a maintenance center.

6. LIMITATIONS

OPERATIONAL

6.01 The 104TL feature should not be used in testing trunks containing type "M" carrier channels. Any testing power at a level higher than -20 dBm at the input of the "M" channel

causes the limiting action of the terminal equipment to affect the measurement. This results in erroneous measurements on these channels.

6.02 Only one 104-type test can be served at any one time by the transmission measuring and noise checking circuit. If the transmission noise and measuring circuit is busy, test progress tone is returned to any other 104-type test calls (parked on 104-type test lines awaiting execution). If all applicable 104-type test lines within a switching office are seized, busy tone is returned to the near end.

ASSIGNMENT

6.03 Each 2-wire 104-type test line installed in an office must be assigned to one of two possible trunk groups. One trunk group is for 2-wire testing at TP0, and the other for TP2. Each HILO 4-wire 104-type test line installed in an office must also be assigned to one of two other possible trunk groups. An ESS office may or may not require all four trunk groups. The number of trunk groups will depend upon which type(s) of 104-type tests are needed, as well as their intended level(s) of testing. For example, trunk group A may be assigned to test 2-wire trunks at TP0; trunk group B to test 2-wire trunks at TP2; trunk group C to test HILO 4-wire trunks at TPO; and trunk group D to test HILO 4-wire trunks at TP2. The trunk groups assigned must not contain any other type of circuits.

6.04 All 2-wire 104-type test lines must be connected to the transmission reference network. There are no restrictions on the assignment of DNs or CAMA codes from available ones within an office. Refer to Table A. The 104 code is reserved for incoming 104-type test calls.

7. INTERACTIONS

7.01 Not applicable.

8. **RESTRICTION CAPABILITY**

8.01 Not applicable.

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INCORPORATION INTO SYSTEM

9. INSTALLATION/ADDITION/DELETION

9.01 Figure 15 illustrates the procedure to add the 104TL feature.

10. HARDWARE REQUIREMENTS

COST FACTORS

10.01 Hardware usage costs for the 104TL feature are shown in Table D.

DETERMINATION OF QUANTITIES

10.02 Hardware associated with the 104TL feature is shown in Table B.

10.03 Theoretically, any number of 104-type test lines (with associated circuits) can be connected to a transmission measuring and noise checking circuit, but in actual use, there is a limit. This limit is determined by the maximum length of time it is tolerable to delay the originating automatic test circuit or testboard access to the transmission measuring and noise checking circuit.

10.04 The length of time for completing a transmission measurement and making a noise check varies from 19 to 35 seconds depending upon whether the test is made automatically or manually. Therefore, if all 104-type test lines are being continuously seized, the delay time produced is the number of 104-type test lines times 19 to 35 seconds. For example, three transmission test lines can produce an approximate delay of from 1 to 1-1/2 minutes.

11. SOFTWARE REQUIREMENTS

COST FACTORS

A. Memory-No. 1 ESS

Fixed

- **11.01** The following memory is required whether or not the 104TL feature is used:
 - Generic (program store): Refer to Table E.

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• Translation (program store):

 (a) 1 word for pseudo route index (PRI) 008 (all offices equipped with 1E4 and later generic programs)

(b) 4 words for route index expansion table for route indexes 176 and RI 177.

Conditional

- 11.02 The following memory is required only when the 104TL feature is activated:
 - Generic Program (program store): Refer to Table E.

• Translation (program store):

 (a) 4 words for each trunk class code expansion table (4 for 2-wire and 4 for HILO 4-wire applications, as required)

(b) 1 word for tandem digit interpreter table

(c) 1 word for each call identification word in the rate and route pattern auxiliary block

 (d) If HILO, 2 words for route index expansion table for each nonfixed RI (maximum of 4 words; 2 for TP0 and 2 for TP2, as required)

(e) 1 word per incoming trunk group for trunk group number supplementary translator entry if TP2 is applicable

- (f) 2 words per 104-type test coupler circuit for master scanner translator
- (g) 4 words per 104-type test coupler circuit for TNN-to-PEN auxiliary block

 (h) 1 word for each applicable directory number subtranslator entry, that is, one for local and/or one for tandem/talk trunk test states.

- Call Store:
 - (a) 18 words for each incoming trunk test register for each 104-type test line.

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Set card NITT defines the total number of incoming trunk test registers required by an office. A minimum of four incoming trunk test registers is required for all types of test lines in an office.

(b) Peripheral order buffers are required to perform connection and disconnection between incoming trunks and the 104-type test lines. They are also used to place the trunk under test and test coupler in the appropriate state during set up and release. These additions alone should not require any additional peripheral order buffers to be engineered for an office.

Variable

11.03 Not applicable.

B. Memory-No. 1A ESS

Fixed

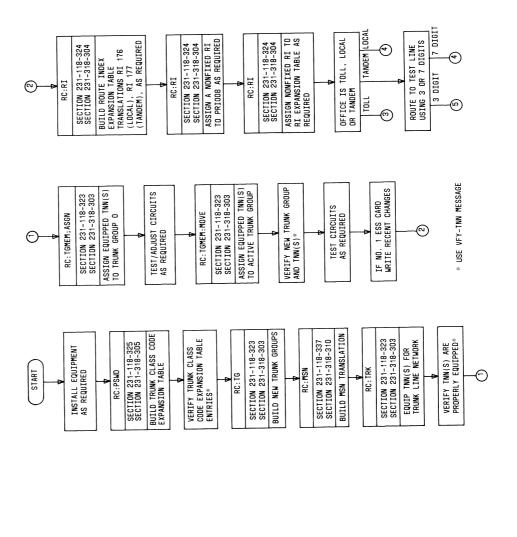
- 11.04 The following memory is required whether or not the 104TL feature is used:
 - Generic (program store, file store): Refer to Table F.
 - Translation (unduplicated call store, file store);
 - (a) 1 word for pseudo route index (PRI) 008 (all offices)
 - (b) 4 words for route index expansion table for route indexes 176 and 177.

Conditional

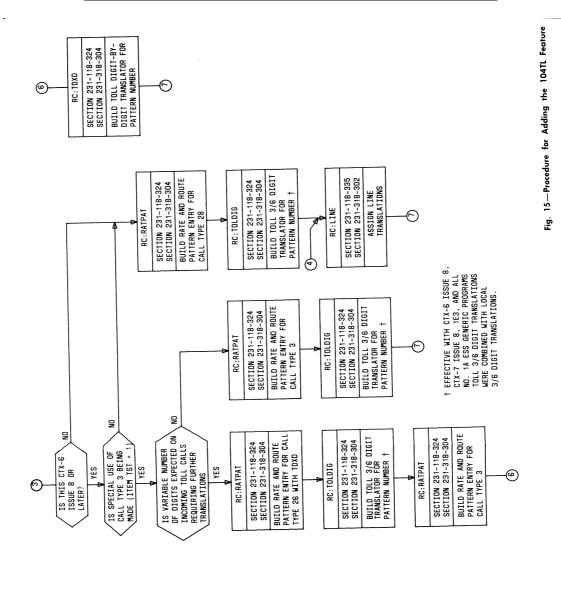
- 11.05 The following memory is required only when the 104TL feature is activated:
 - Translation (unduplicated call store, file store):
 - (a) 4 words for each trunk class code expansion table (4 for 2-wire and 4 for HILO 4-wire application, as required)
 - (b) 1 word for tandem digit interpreter table

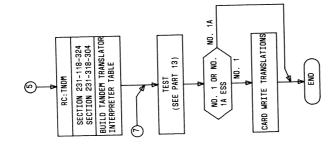
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TABLE D

(c) 1 word for each call identification word in the rate and route pattern auxiliary block

 (d) If HILO, 2 words for route index expansion table for each nonfixed RI (maximum of 4 words; 2 for TP0 and 2 for TP2, as required)

(e) 1 word per incoming trunk group for trunk group number supplementary translator entry if TP2 is applicable

- (f) 2 words per 104-type test coupler circuit for master scanner translator
- (g) 4 words per 104-type test coupler circuit for TNN-to-PEN auxiliary block

 (h) 1 word for each applicable directory number subtranslator entry, that is, one for local and/or one for tandem/talk trunk test states.

HARDWARE USAGE COSTS PER 104-TYPE TEST COUPLER

HARDWARE USAGE	SD-1A303 2-WIRE QUANTITIES	SD-1A388 HILO 4-WIRE QUANTITIES
Signal Distributor Points	2	2
Master Scan Points	2	2
Network Appearances	1*	1†
Required Trunks	1	1
Trunk Order Codes: 2 circuits per unit 4 circuits per unit	03300 03370	13800 NA

* Transmission Reference Network

† Via HILO Interface Circuit, Trunk Order Code 14200

TABLE E

NO.1 ESS GENERIC PROGRAM WORDS (104TL)

	FIXED	XED CONDITIONAL		
GENERIC PROGRAM	2-WIRE (BASE)	HILO 4-WIRE (HL4W)*	TOLL CCIS (CCISTM)*	TOTAL
Prior to 1E4	10	-		10
Effective with 1E4	10	30		40
Effective with 1E5	10	30	30	70

* Optionally loaded feature package.

• Duplicated Call Store:

 (a) 18 words for each incoming trunk test register for each 104-type test line.
 Set card NITT defines the total number of incoming trunk test registers required by an office. A minimum of four incoming trunk test registers is required for all types of test lines in an office.

(b) Peripheral order buffers are required to perform connection and disconnection

between incoming trunks and the 104-type test lines. They are also used to place the trunk under test and test coupler in the appropriate state during set up and release. These additions alone should not require any additional peripheral order buffers to be engineered for an office.

Variable

11.06 Not applicable.

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TABLE F

NO.1A ESS GENERIC PROGRAM WORDS (104TL)

	FIXED	CONDITIONAL		
GENERIC PROGRAM	2-WIRE (BASE)	HILO 4-WIRE (HL4W)*	TOLL CCIS (CCISTM) *	TOTAL
Prior to 1AE4	15	—	-	15
Effective with 1AE4	15	35	_	50
Effective with 1AE5	15	35	35	85

* Optionally loaded feature package.

DETERMINATION OF QUANTITIES

11.07 Refer to COST FACTORS above.

PROCESSOR TIME

11.08 Real time requirements for No. 1 and No. 1A ESS are shown in Table G. Cycle time for No. 1 ESS is 5.5 microseconds and for No. 1A ESS is 0.7 microsecond.

TABLE G

PROCESSOR TIME FOR 104TL FEATURE

ACCESS	NUMBER OF PROCESSOR CYCLES			
CODE	NO. 1 ESS	NO. 1A ESS		
3-digit 7-digit	3300 3650	6600 7300		

FEATURE DEFINING SET CARDS

11.09 Not applicable.

12. DATA ASSIGNMENTS AND RECORDS

TRANSLATION FORMS

12.01 ESS translation forms, found in reference C(1) in Part 18, requiring completion are as follows.

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(a) ESS 1101-Directory Number Record: This form assigns program index for directory numbers employing a route index for completion.

(b) ESS 1201-Miscellaneous Trunk Frame Record:

This form relates the equipment location on a frame basis with the trunk network number, trunk group, trunk number, trunk class code, signal distributor points, and supervisory scan points.

(c) ESS 1201-Trunk Group Record: This form is used to furnish trunk network numbers to trunk group and trunk number translations for trunks in the transmission reference network.

(d) ESS 1203-Trunk Network Number Record: This form relates trunk network number to trunk group and trunk frame location.

(e) ESS 1204-Trunk Class Code Record: This form associates the arbitrarily assigned 3-digit trunk class code with a 4-word trunk class code expansion in memory, which associates the circuit program index with trunk usage.

(f) ESS 1209A-Trunk Group Tandem Record: This form is used to enable the system to receive, interpret, and route 104 code and will convert 104 code into a regular route index for access to the 104-type test line(s).

(g) ESS 1209B—Tandem Table Record: This form builds the digit interpreter table to provide route index from three levels of digit interpretation.

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(h) ESS 1216—Trunk Group Supplementary Record: This form builds the TGN supplementary translator to mark trunk groups for testing at either the TP0 or TP2 reference level.

 (i) ESS 1217-Trunk Group Toll Record: This form enables an ESS to handle plant test code 104 via TLDI index.

(j) ESS 1218—Toll Digit by Digit Record: This form is the means by which data is recorded for performing translations on the fourth through eighth incoming toll digits, one at a time, to produce the desired route and rate pattern number.

(k) ESS 1220-Universal Trunk Frame (HILO) Record: Relates the HILO universal trunk equipment locations on a frame basis to the corresponding trunk network appearances and the HILO universal trunks assigned to these equipment locations.

 ESS 1300A-Three-Digit Translations: This form routes code 104 through a rate and route pattern number to a vacant code route index.

(m) ESS 1303A/B/C-Trunk and Service Circuit Route Index Record: These forms assign route index, next route index, and return supervision to trunk groups containing test lines.

 (n) ESS 1303D-Pseudo Route Index Record: Specifies data for pseudo route indices.

(o) ESS 1304-Rate and Route Chart: This form provides screening instructions to the ESS program for routing calls via TDXD index for call type 26 in the supplementary call identification word.

(p) ESS 1305-Rate and Route Pattern Record: This form enables simulated dialing of 7-digit directory numbers after receiving a 104-type test code via call type 28 in call identification word, provides a route index to complete the call for special use of call type 3, or points to a TDXD index for call type 26.

 (q) ESS 1311-Toll Three/Six-Digit Translations: This form establishes routings for incoming
 3- and 6-digit toll codes via rate and route pattern

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number pointing to a call identification word (ESS 1305).

RECENT CHANGES

12.02 Not applicable.

13. TESTING

13.01 Verification that the 104TL feature has been properly installed and assigned can be accomplished by the following input/output messages (abbreviated from the appropriate input/output message manual referenced in Part 188). System response should be checked against the applicable ESS translation form data.

- For No. 1 ESS T-READ and TAG-TNN input messages are used to verify trunk class code expansion table entries. System responses should be the TW02 and TR21 output messages. For No. 1A ESS use DUMP:CSS,ADR— to verify the call indicator words. The system response is the DUMP:CSS output message.
- VFY-EXP input message is used to verify route index or pseudo route index. System response should be a TR05 output message.
- VFY-MSN input message is used to verify master scan number. System response should be a TR12 output message.
- VFY-TKGN input message is used to verify one or all trunk group numbers. System response should be a TR10 output message.
- VFY-TNN input message is used to verify one or all trunk network numbers on a trunk switch frame. System response should be a TR14 output message.

13.02 Incoming 104-type test calls should be made over the various trunk groups to verify proper operation of the 104TL feature.

14. OTHER PLANNING TOPICS

14.01 Currently the transmission measuring and noise checking circuit SD-95698 used with the 104-type test line is available only on an 11 feet 6 inch-frame. This circuit, which now employs vacuum tubes, requires ±130 volts. Refer to the

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applicable SD drawing for particulars concerning power requirements.

ADMINISTRATION

- 15. MEASUREMENTS
- **15.01** Not applicable.
- 16. CHARGING
- 16.01 Not applicable.

SUPPLEMENTARY INFORMATION

- 17. GLOSSARY
- 17.01 Not applicable.

18. REFERENCES

18.01 The following documentation contains information pertaining to or affected by the 104TL feature.

A. Bell System Practices

 Section 103-235-100-Far-End Transmission Measuring and Noise Checking Circuit and Associated 104-Type Test Lines

(2) Section 103-235-501-Far-End Transmission Measuring and Noise Checking Circuit and Test Lines Employing Test Program Tone Equipment Tests

(3) Section 103-251-105-Processor Controlled Interrogator General Description

(4) Section 103-335-515-Milliwatt Distributing Systems and Test Lines, 2-Wire No. 1 Electronic Switching System Offices-Check of Transmission Test Lines

- (5) Section 231-061-210-Service Circuits, Network Design-No. 1 Electronic Switching System
- (6) Section 231-061-220-Trunk and Miscellaneous Circuits, Network Design-No. 1 Electronic Switching System
- (7) Section 231-061-450-Program Stores, Network Design-No. 1 Electronic Switching System

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- (8) Section 231-061-460-Call Stores, Network Design-No. 1 Electronic Switching System
- (9) Section 231-062-210-Service Circuits, Network Design-No. 1A Electronic Switching System
- (10) Section 231-062-220—Trunks and Miscellaneous Circuits, Network Design—No. 1A Electronic Switching System
- (11) Section 231-062-460—Processor Community Engineering, Program Stores, Network Design—No. 1A Electronic Switching System

 (12) Section 231-062-465—Processor Community Engineering, Duplicated Call Store, Network Design—No. 1A Electronic Switching System (when published)

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

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

 (15) Section 231-090-366-Feature Document-HILO 4-Wire Switching Feature, 2-Wire No. 1 and No. 1A Electronic Switching Systems

 (16) Section 231-090-416-Feature Document-Toll Common Channel Interoffice Signaling Feature, 2-Wire No. 1 and No. 1A Electronic Switching Systems

 (17) Section 231-118-321—General Recent Change Information (CTX-6 through 1E5 Generic Programs), 2-Wire No. 1 Electronic Switching System

 (18) Section 231-118-323—Trunk Translation Recent Change Procedures for TG, TGBVT, TRK, CFTRK, and TGMEM (CTX-6 through 1E5 Generic Programs), 2-Wire No. 1 Electronic Switching System

 (19) Section 231-118-324—Rate and Route Translation Recent Change Procedures for NOCNOG, DNHT, NOGRAC, RATPAT, DIGTRN, TOLDIG, CCOL, RI, CHRGX, DITABS, TNDM, IDDD, and TDXD (CTX-6 through 1E5 Generic

Programs) 2-Wire No. 1 Electronic Switching System

 (20) Section 231-118-325-RC Procedures for PSWD, GENT, PSBLK, SUBTRAN (CTX-6 through 1E5 Generic Programs), 2-Wire No. 1 Electronic Switching System

 (21) Section 231-118-337—RC Procedures for ANIDL, CAMA, CFG, CPD, MSN, NMTGC,
 PLM, ROTL, SIMFAC, and TMBCGA (CTX-6 through 1E5 Generic Programs), 2-Wire No. 1
 Electronic Switching System

(22) Section 231-130-101—Trunk Test Capabilities Description, 2-Wire No. 1 Electronic Switching System

(23) Section 231-318-301—General Recent Change Information, 2-Wire No. 1A Electronic Switching System (when published)

 (24) Section 231-318-303—Trunk Translation Recent Change Procedures for TG, TGBVT, TRK, CFTRK, and TGMEM (Through 1AE5 Generic Program), 2-Wire No. 1A Electronic Switching System

(25) Section 231-318-304—Rate and Route Translation Recent Change Procedures for NOCNOG, DNHT, NOGRAC, RATPAT, DIGTRN, TOLDIG, CCOL, RI, CHRGX, DITABS, TNDM, IDDD, and TDXD (Through 1AE5 Generic Program), 2-Wire No. 1A Electronic Switching System

 (26) Section 231-318-305-RC Procedures for PSWD, PSBLK, SUBTRAN, and GENT
 (Through 1AE5 Generic Program), 2-Wire No.
 1A Electronic Switching System

(27) Section 231-318-310—RC Procedures for ANIDL, CAMA, CPD, JUNCT, MSN, NMTGC, PLM, ROTL, SIMFAC, CFG, and

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

(28) Section 660-440-010—Codes—Test Line Circuits and Communication Trunks Nationwide Distance Dialing Plan

(29) Section 801-250-167-Transmission Measuring and Noise Checking System, Automatic Transmission Measuring System, Equipment Design Requirements, Common Systems.

B. TTY Input and Output Manuals

- (1) Input Message Manual IM-1A001, No. 1 Electronic Switching System
- (2) Input Message Manual IM-6A001, No. 1A Electronic Switching System
- (3) Output Message Manual OM-1A001, No. 1 Electronic Switching System
- (4) Output Message Manual OM-6A001, No. 1A Electronic Switching System.

C. Other Documentation

- (1) Translation Guide TG-1A, No. 1 and No. 1A Electronic Switching Systems, 2-Wire
- (2) Translation Output Configurations PA-591003, No. 1 Electronic Switching System
- (3) Translation Output Configurations PA-6A002, No. 1A Electronic Switching System
- (4) Office Parameter Specification PA-591001, No. 1 Electronic Switching System
- (5) Office Parameter Specification PA-6A001, No. 1A Electronic Switching System
- (6) Parameter Guide PG-1, No. 1 Electronic Switching System, 2-Wire.

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Using the MC145158 PLL Frequency Synthesizer

<u>Overview</u>

The Motorola MC145158 is a dual-modulus, serial-input PLL frequency synthesizer which is commonly used in older Motorola cellular phones. Refer to the MC145158's datasheet for the nitty-gritty technical details. The MC145158 is no longer manufactured, but it does pop up from time-to-time in surplus electronic stores. Digi-Key used to carry it, part number MC145158DW2-ND. The Fujitsu equivalent is the MB87001A, which is very common in old Japanese-manufactured cellular phones. The programming of the MB87001A is the same as the MC145158, but the technical specs to the MB87001A are slightly different. Also, refer to the article "850 – 870 MHz PLL RF Oscillator" in *GBPPR 'Zine*, Issue #11 for reference programming information on the MC145152 PLL frequency synthesizer. This is the "parallel input" equivalent to the MC145158.

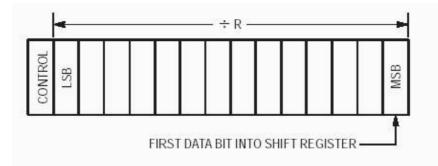
The maximum input frequency for the MC145158 is only around 20 MHz when run at +9 VDC. It drops to around 15 MHz at +5 VDC. The **R–Counter** reference frequency divider range is between 3 and 16,383. The **N–Counter** can be between 3 and 1,023. The **A–Counter** dual–modulus range is between 0 and 127. When using an external dual–modulus prescaler set to /64 (divide–by–64), such as a Motorola MC12022 or Fujitsu MB501, don't exceed a value of 63 for the **A–Counter**.

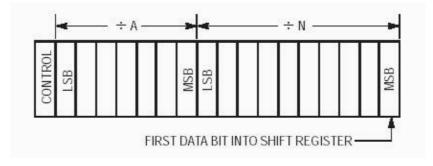
The MC145158 is designed to be programmed via a microcontroller using a standard serial-input data stream. The MC145158 has pins for the shift clock (CLK, pin 9), serial data input (DATA, pin 10), and latch enable (ENB, pin 11). These three lines control how and when the PLL is programmed. Once programmed, all the counter's values will remain programmed until power is removed from the circuit. Also, the counters must be programmed Most Significant Bit (MSB) first.

From the datasheet:

CLK, DATA Shift Clock, Serial Data Inputs (Pins 9, 10)

Each low-to-high transition of the CLK shifts one bit of data into the on-chip shift registers. The last data bit entered determines which counter storage latch is activated; a logic 1 selects the reference counter latch and a logic 0 selects the /A, /N counter latch. The data entry format is as follows:





END Latch Enable Input (Pin 11)

A logic high on this pin latches the data from the shift register into the reference divider or /N, /A latches depending on the control bit. The reference divider latches are activated if the control bit is at a logic high and the /N, /A latches are activated if the control bit is at a logic low on this pin allows the user to change the data in the shift registers without affecting the counters. ENB is normally low and is pulsed high to transfer data to the latches.

What this means, in English, is that to program the counter data into the MC145158, you need to set the voltage on the **DATA** pin to +5 volts for a logic 1, and 0 volts (ground) for a logic 0. You'd then raise the **CLK** pin to +5 volts, from it's initial value of 0, then quickly bring it back to 0 volts. Do this 15 times to load the **R–Counter** value (14 bits, plus one control bit). When finished, raise the **ENB** pin to +5 volts, from it's initial value of 0, then quickly bring it back to 0 volts. The data is permanently latched into the counters. To load the /N and /A counters, do the same again, but you'll need to load 18 bits (17 bits, plus one control bit).

MC145158-to-PIC16F84 pin connections for the example MC145158 loader code which will be used:

MC145158-to-PIC16F84 Connections			
MC145158 Line	MC145158 Pin #	16F84 Port	16F84 Pin #
DATA	10	B0	6
CLK	9	B1	7
ENB	11	B2	8

The following is an easy-to-follow example using PICBasic and a PIC16F84. The **R-Counter** will be programmed with a value of 2600, the **N-Counter** with a value of 133, and the **N-Counter** with a value of 7:

Cocub	zero	 Load /R counter with a value of 2600, MSB first 8192
	zero	4096
Gosub		2048
Gosub		1024
Gosub		512
Gosub		256
Gosub		' 128
Gosub		 ' 64
Gosub		' 32
Gosub		' 16
Gosub		' 8
Gosub	zero	' 4
Gosub	zero	' 2
Gosub	zero	' 1
Gosub	one	' CONTROL, R = 1
Gosub	enable	' ENABLE
		' Load /N counter with a value of 133, MSB first
Gosub		512
	zero	256
Gosub		128
Gosub		64
Gosub		32
Gosub		' 16 ' 8
Gosub Gosub		· 8 · 4
Gosub Gosub		' 2
Gosub Gosub		' 1
Gosub	one	' Load /A counter with a value of 7, MSB first
Gosub	zero	' 64
Gosub	zero	' 32
Gosub	zero	' 16
Gosub	zero	' 8
Gosub	one	' 4
Gosub		' 2
Gosub		' 1
Gosub	zero	' CONTROL, N & A = 0
Gosub End	enable	' ENABLE
zero:		
	Low 0	' Load 0 on pin 6 (Port B0 - DATA)
	High 1	' Bring pin 7 high (Port B1 - CLK)
	Low 1	' Then back low
	Return	
one:		
	High O	' Load 1 on pin 6 (Port B0 - DATA)
	High 1	' Bring pin 7 high (Port B1 - CLK)
	Low 1	' Then back low
	Return	
enable	e:	
	High 2	' Bring pin 8 high (Port B2 - ENB)
	Low 2	' Then back low
	Return	

Here is an example of PICBasic code which uses the SHIFTOUT command. It's operation will be much faster, and will not use as much memory in the PIC16F84. The **R**-Counter will be programmed with a value of 2600, the **N**-Counter with a value of 133, and the **N**-Counter with a value of 7:

```
RVAL
             VAR
                         WORD
NVAL
             VAR
                         WORD
AVAL
             VAR
                        BYTE
RVAL = 2600
NVAL = 133
AVAL = 7
                             ' SHIFTOUT data, clock, mode, [var\bits]
SHIFTOUT 0,1,1,[RVAL\14] ' Load /R counter with a value of RVAL (14 bits), MSB first
                            ' CONTROL, R = 1
SHIFTOUT 0,1,1,[1\1]
High 2
                             ' Bring pin 8 high (Port B2 - ENB)
Low 2
                             ' Then back low
SHIFTOUT 0,1,1,[NVAL\10] ' Load /N counter with a value of NVAL (10 bits), MSB first
SHIFTOUT 0,1,1,[AVAL\7] ' Load /A councer ...
SHIFTOUT 0,1,1,[AVAL\7] ' Load /A councer ...
' CONTROL, N & A = 0
                             ' Load /A counter with a value of AVAL (7 bits), MSB first
High 2
                             ' ENB
Low 2
End
```

Here is some example PICBasic code which will continuously increment the /N and /A counters on a MC145158. It was originally designed to be a synthesized cellular phone jammer, but the combination of PICBasic and the PIC16F84 proved to be much too slow. The reference oscillator for this code was 15.36 MHz, with a **R-Counter** of 512. This gives a reference frequency of 30 kHz, standard for cellular phone applications. The MC145158 used an external MC12022B dual-modulus prescaler, set at /64. The rest of the PLL math looks like:

```
Reference Oscillator : 15.36 MHz

Reference Frequency : 30,000 Hz

/R Counter Value : 512

/N Counter Value : 452 to 465

/A Counter Value : 0 to 63

Target Frequencies : 867.84 MHz to 894.69 MHz

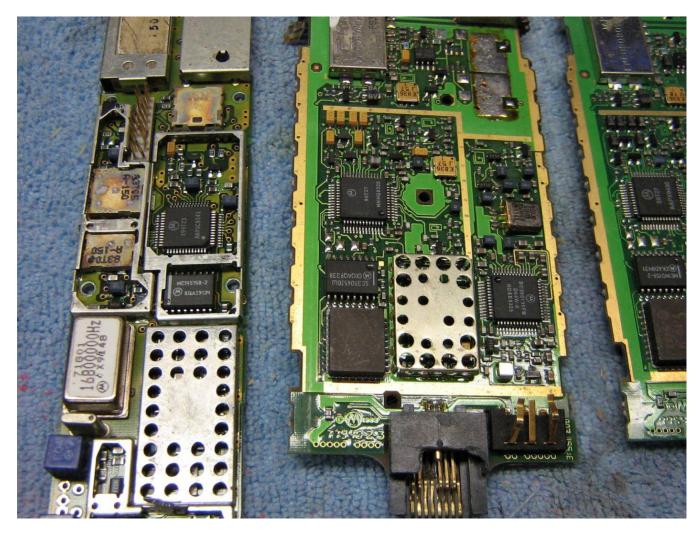
Example
```

```
(452 * 64) + 0 = 28,928
28,928 * 30,000 = 867.84 MHz
...
(465 * 64) + 63 = 29,823
29,823 + 30,000 = 894.69 MHz
```

```
DEFINE SHIFT_PAUSEUS 1
NVAL
           VAR
                      WORD
AVAL
           VAR
                      BYTE
IVAL
           VAR
                     BYTE
SHIFTOUT 0,1,1,[512\14] ' Load /R counter with a value of 512 (14 bits), MSB first
SHIFTOUT 0,1,1,[1\1] ' CONTROL, R = 1
                         ' ENB
High 2
Low 2
' Load /N counter with a value of NVAL (10 bits), MSB first
' Load /A counter with a value of AVAL (7 bits), MSB first
' CONTROL, N & A = 0
' Loop 50 times
For IVAL = 0 to 50
 For NVAL = 452 to 465
   For AVAL = 0 to 63
     SHIFTOUT 0,1,1,[NVAL\10] '/N Counter
     Shiftout 0,1,1, [AVAL\7]' /A CounterShiftout 0,1,1, [0\1]' CONTROL
     Shiftout 0,1,1,[0\1]
                                ' ENB
     High 2
     Low 2
   Next AVAL
 Next NVAL
Next IVAL
End
```



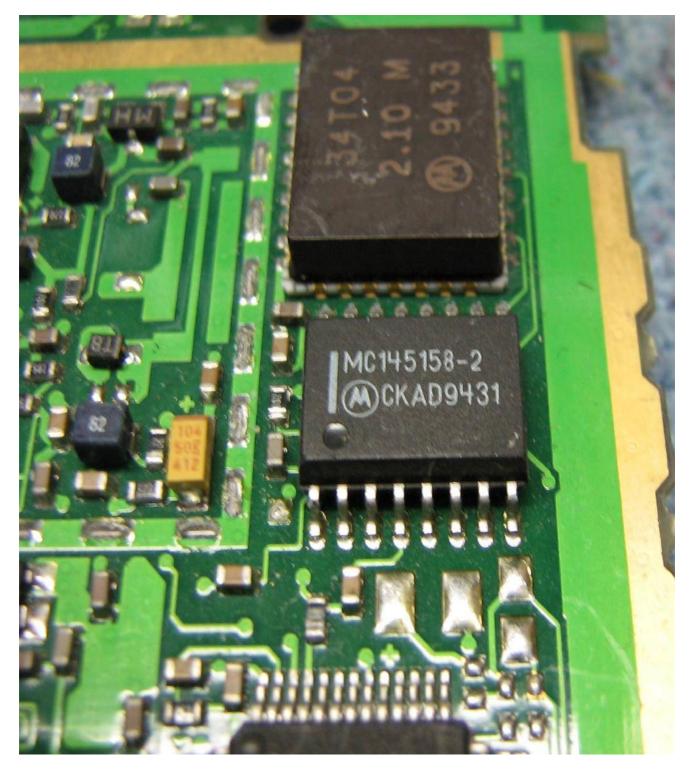
Example of the old Motorola cellular phones which use a MC145158 PLL frequency synthesizer. The "brick" phone on the left is probably the most famous. Its PC board containing the MC145158 is shown next to it. The other PC boards on the right are from old Motorola TeleTacs.



Close up picture of the PC boards.



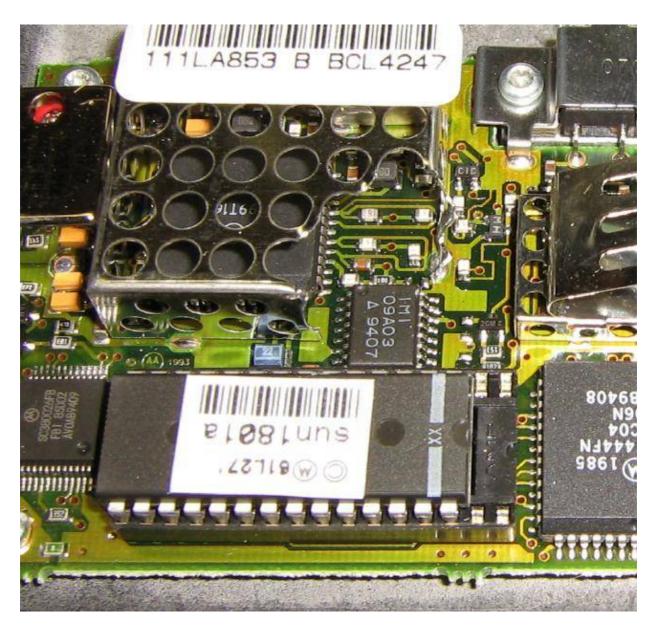
The 16-pin IC on the left is the MC145158 with Motorola "in-house" numbers printed on it.



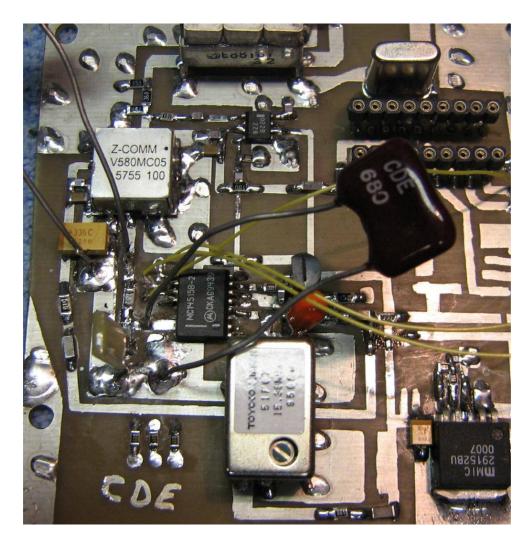
Close up picture of a properly labeled MC145158.



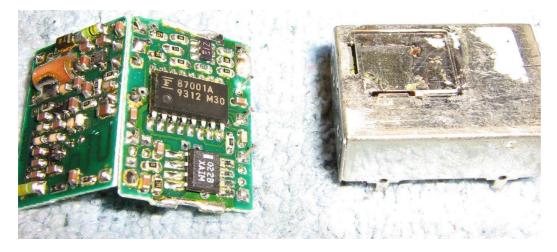
I'm pretty sure that old Motorola bag phones used the MC145158.



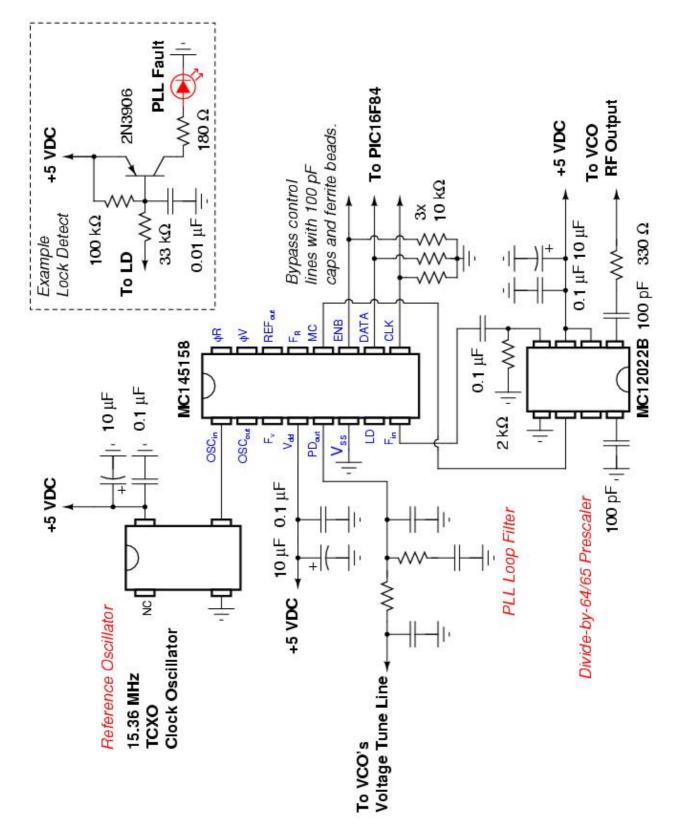
It's underneath a RF shield. IMI was a company that often sold an equivalent to the Motorola PLL ICs. This could make turning old bag phones into 900 MHz amateur radio transceivers a possibility...



Experimental VCO/PLL board which was used for this article. The PIC16F84 went in the open socket on top. The silver box along the bottom is the 15.36 MHz reference clock oscillator. The VCO is a Z–Communications V580MC05.



Example of a Fujitsu MB87001A synthesizer and Motorola MC12022B prescaler as used in the PLL/VCO modules which are found in old Uniden cellular phones. Scarf these up!





Overview

The *GBPPR Celluar Extender* is an experimental hardware device to extend the coverage area for any cellular phone operating in the 800 MHz band. It is useful for providing cellular phone service to shielded or isolated locations, such as a prison interrogation room or even a certain hacker magazine's "little boys" room. Cellular extenders work by capturing and amplifying the radio signals as they travel in both directions. The operation is very similar to a regular ham radio or C.B. linear amplifier, except there is no need for any transmit/receive switching. Since cellular phones operating the in 800 MHz band are offset by 45 MHz (825–850 MHz handset *transmit*, 870–895 MHz handset *receive*), the high isolation needed for the separate transmit and receive amplifier paths can be accomplished using salvaged duplex antenna filters from old cellular phones. These duplex filters are designed to highly isolate the transmit and receive ports using a series of high–pass & low–pass tuned filters, and also provide a common 50–ohm port for the antenna.

When two of these duplex filters are used, and amplifiers are placed between the two ports, one can easily amplify each of the separate transmit and receive frequencies. Commercial devices utilize lots of gain, up to 50 dB, and with transmit output powers hitting +30 to +33 dBm (1 to 2 Watts). This particular device will have a much lower output RF power because it's still an experimental device. Lower RF output power devices are much easier to operate and construct, and technically, you'd need some sort of automatic power level control circuit to make the Failed Clown College boys happy. That ain't gonna happen. Also, this device, as constructed, will *not* function with Motorola iDEN, Nextel, or other conventional 800 MHz radio systems.

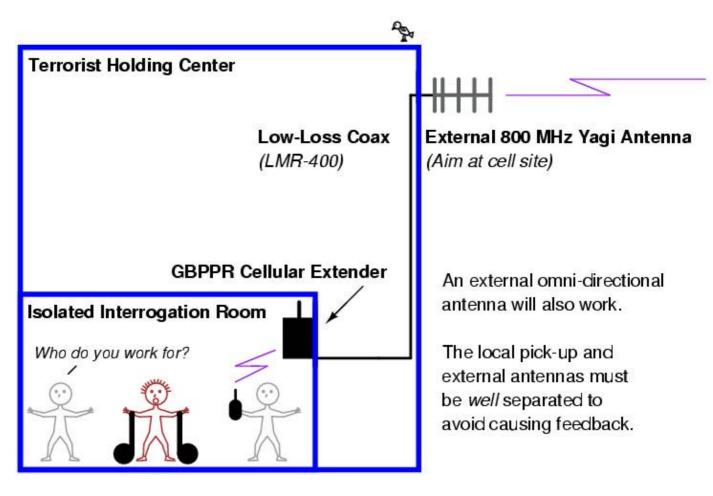
How it Works & Operation

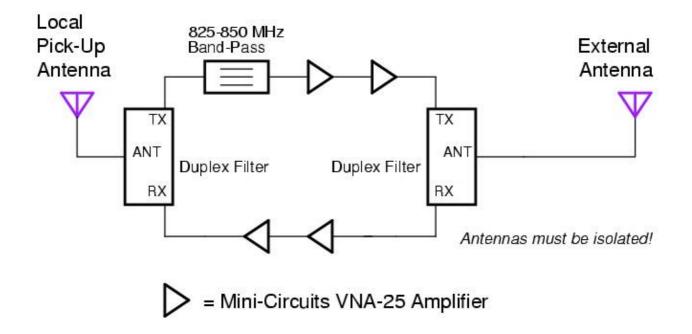
Excerpt from: Wireless Extenders Model YX500-PCS Cell Phone Signal Booster

Theory of Operation

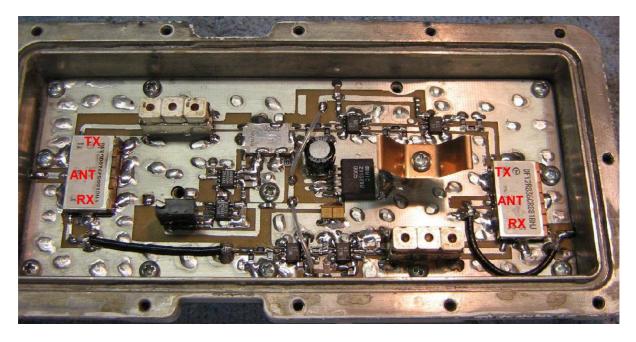
Note: This covers a PCS version operating in the 1.9 GHz cellular band.

As a bi-directional amplifier, the YX500–PCS amplifies both the downlink (tower to phone, 1930–1990 MHz) and the uplink (phone to tower, 1850–1910 MHz). The outdoor network signal (downlink) is captured by the Signal Antenna, transferred through the coaxial cable, and arrives at the Base Unit. Inside the Base Unit, a duplexer diverts the downlink signal, amplifies the full band, isolates it from the uplink, and detects the power level. The downlink band is then recombined with another duplexer where the Base Unit Antenna sends the signal inside the home or office. Similarly, the cell phone signal (uplink) is captured by the Base Unit Antenna and, inside the Base Unit, a duplexer diverts the uplink signal, amplifies the full band, isolates it from the downlink, and detects the power level. The uplink band is then recombined with another duplexer where the Unit, signal, amplifies the full band, isolates it from the downlink, and detects the uplink signal, amplifies the full band, isolates it from the downlink, and detects the uplink band is then recombined with another duplexer where it exits the Base Unit, is transferred through the coaxial cable to the Signal Antenna which sends the signal to the outdoor network. The detected power levels are monitored by a microcontroller. The microcontroller limits the maximum output power to keep the amplifiers linear without interfering with the network power control. It also detects low–level self–oscillation and either corrects it or alerts the user with LED outputs.





Pictures



Overview of the *GBPPR Celluar Extender*. There is a reason it looks like it was built over a weekend... Local pick–up antenna input is on the left. It then passes onto a salvaged Murata DFY2R836CR881BHJ duplex filter. The **Transmit Path** (825–850 MHz) is on the top left. It then passes through a salvaged Toko 6DFB–836E–10 (or equiv.) 3–pole band–pass filter and onto a Anaren 10 dB directional coupler. The directional coupler samples the input RF and passes it onto an Analog Devices AD8307 logarithmic detector and LM393 comparator. This should light an LED when receiving any RF input. After the directional coupler, the signal is amplified by two Mini–Circuits VNA–25 MMIC amplifiers and then finally onto the output duplex filter. The external antenna input is on the right.

The **Receive Path** (870–895 MHz) is along the bottom. The signal comes in the external antenna input on the right, passes through a salvaged Toko 6DFB–881E–10 (or equiv.) 3–pole band–pass filter (which is optional, as the duplex filter acts as a band–pass filter on the receive port), and is also amplified by two Mini–Circuits VNA–25 MMIC amplifiers. Its finally output to the local pick–up antenna on the left.

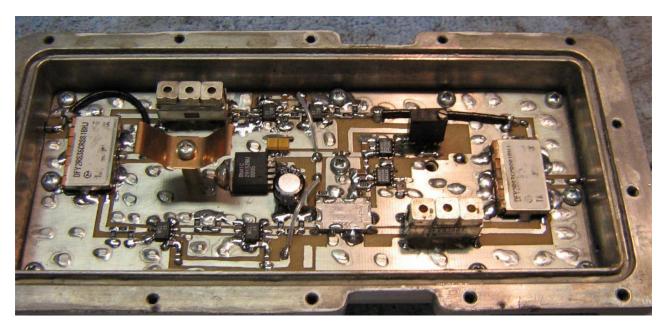
The particular amplifier shown in these photos has 3 dB resistive attenuator pads on all the VNA–25's inputs and outputs. This was done to prevent the amplifiers from breaking into oscillation. You'd need access to good RF test equipment to detect and cure this. The attenuator pads can be eliminated if all the RF paths maintain a perfect 50 ohms impedance.

Also, placing a VNA–25 (or two) amplifier ahead of the AD8307 will help to increase the signal detect range for lighting the LED.

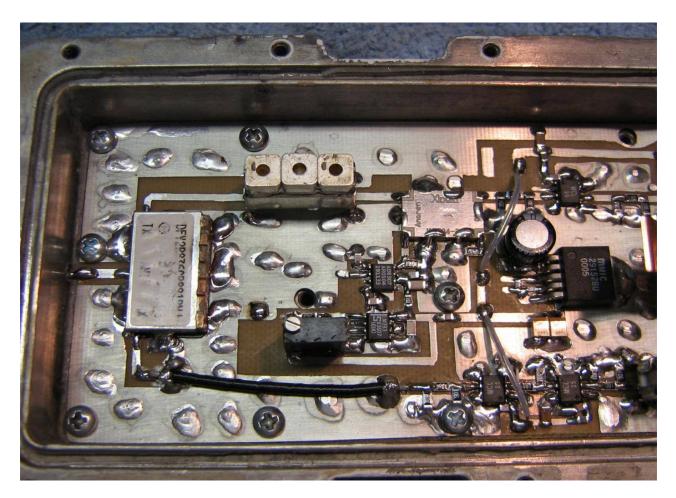
Digi–Key sells a *AMPS Duplexer Surface Mount Ceramic Filter,* if you can't find some in old cell phones. Part number 410–1022–1–ND for \$28.

Commerical cellular extenders often use a RF Micro Devices RF3108 triple–band amplifier module for the final power amplifier on both the 800 MHz and 1.9 GHz bands. Mini–Circuits MNA–5s are used as the gain stages.

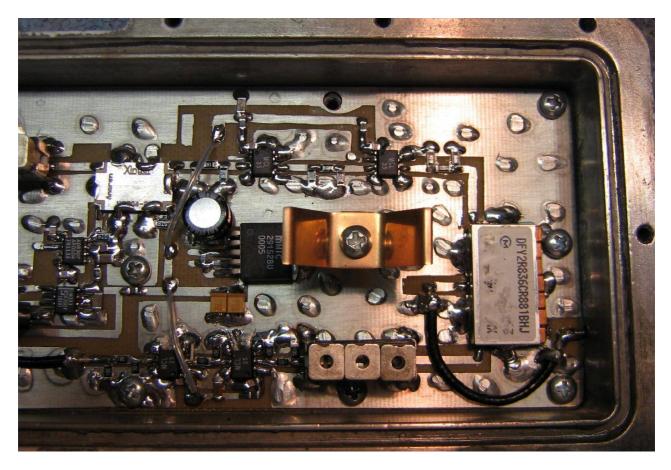
Also, two back-to-back directional (Yagi) UHF TV antennas will work as a "passive repeater." Point one towards the cellular site and one towards the "problem" area. Connect them with a short piece of RG-6 coax.



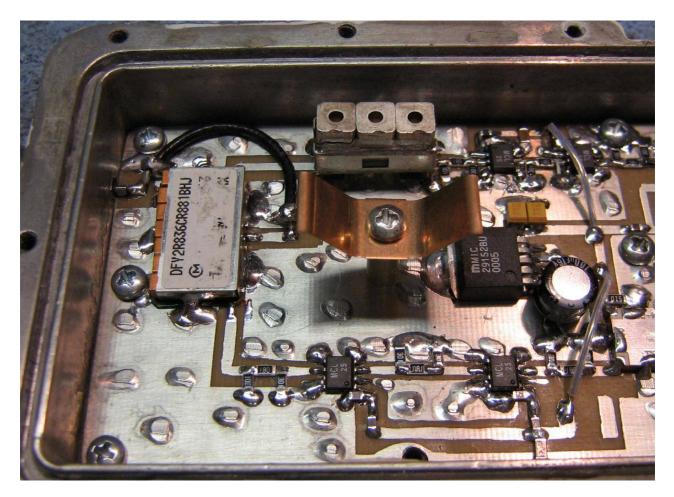
Rotated view. A Micrel MIC29152 (center) provides the +5 VDC voltage regulation for the entire circuit. The black multiturn potentiometer sets the reference voltage for the LM393 comparator. When the AD8307 logarithmic detector receives a strong enough RF input signal, its voltage output will exceed the reference voltage. A red LED is then lit as a "RF Detect" indicator.



Close up of the local pick-up antenna side.



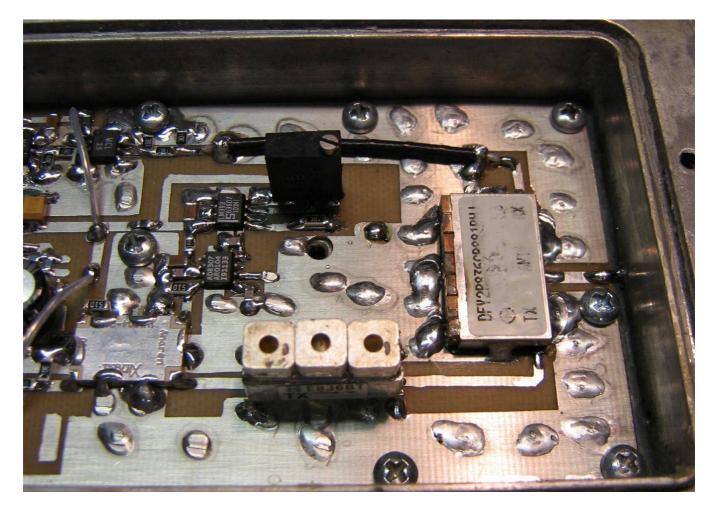
Close up of the external antenna side. The external antenna needs a large amount of free-space isolation to avoid feeding back into the local pick-up antenna. You might have to experiment a bit to get everything working. One commerical cellular extender recommends separating the antennas by at least 16 feet, with 8 feet of vertical separation. This corresponds to over 50 dB of free-space isolation.



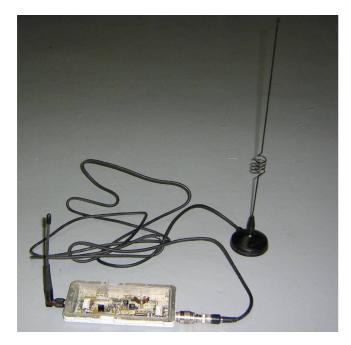
Alternate view. External antenna side.



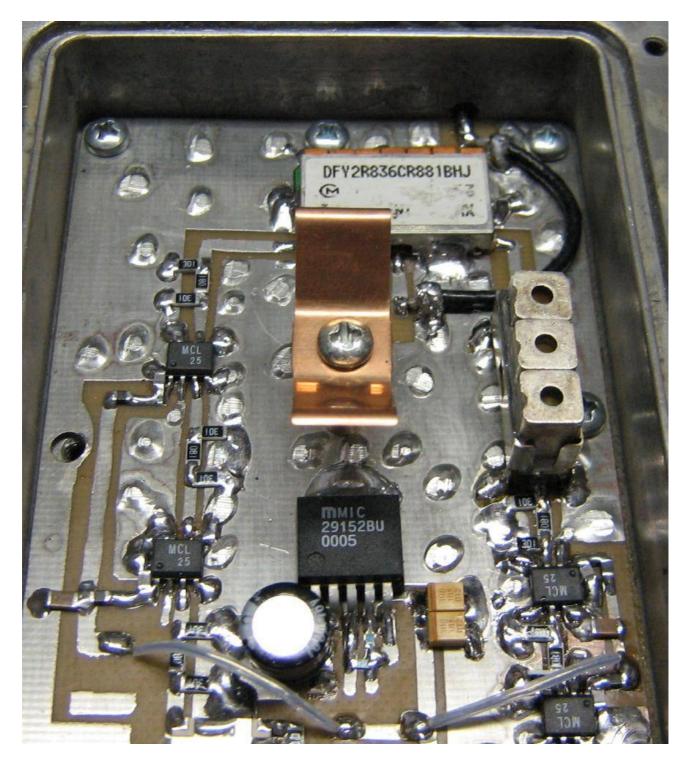
Picture of a Murata duplex filter installed in an old cellular phone (don't remember the model).



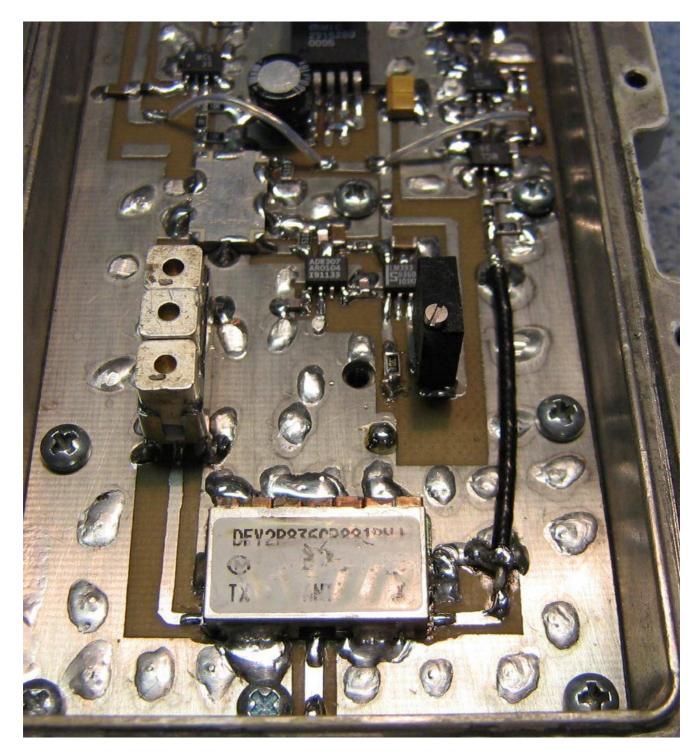
Alternate view. Local pick-up antenna side.



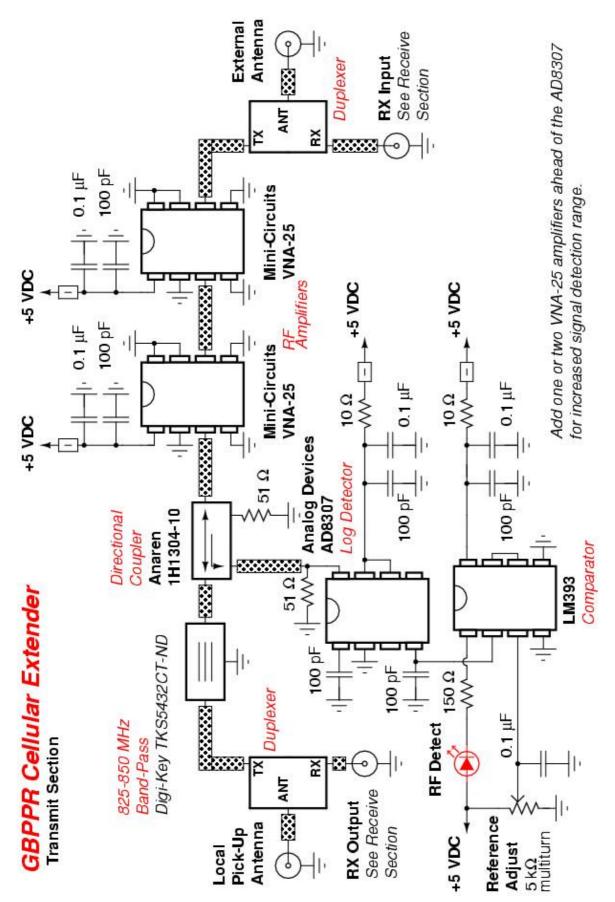
Example of the *GBPPR Celluar Extender* using a rubber duck local pick–up antenna and a mag–mount cellular antenna.



Another view. Transmit side is on the left, receive side is on the right. "Real world" models should have a bit of copper shielding to further isolate the two sides.

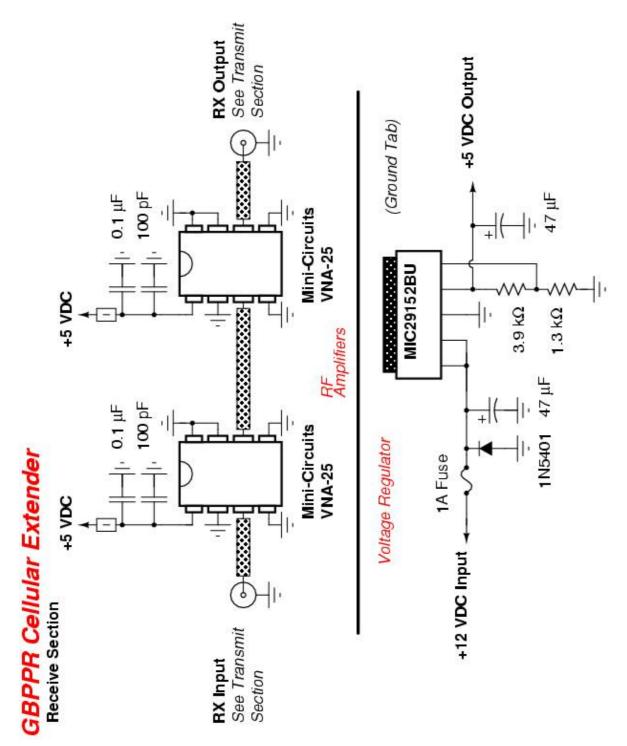


Another view. Local pick-up antenna port on the bottom, transmit on the left, receive on the right.



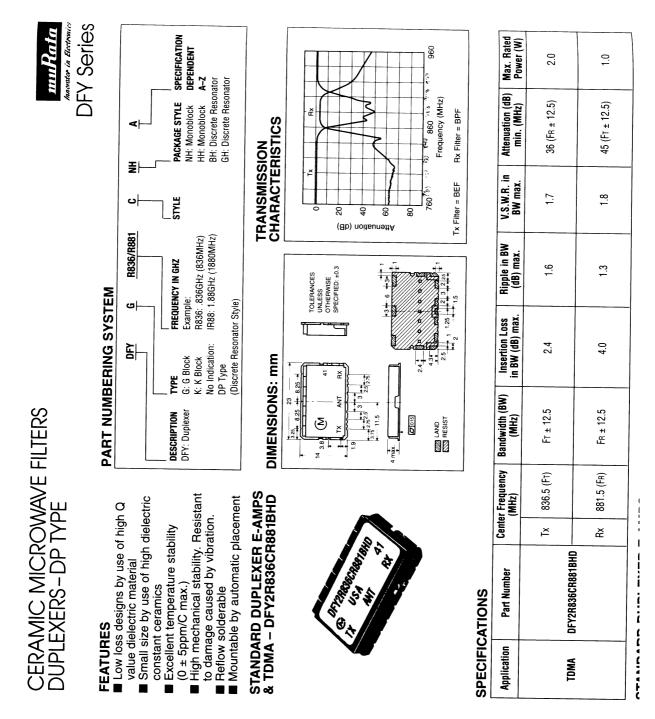
Schematic #1





Murata cellular duplexer information.

Notes



Nortel DMS-100 Intertoll Trunk Group Type

Intertoll Trunk Group Type

In a DMS toll or end office, two-way, incoming, or outgoing trunk group type intertoll (IT) interfaces with another toll or end office to carry toll connecting traffic including toll access, toll completing, and toll tandem.

In offices without software package NTX052AB Remote Office Test Line (ROTL) that do not have trunk group type T105, the 105 test line can be datafilled as an IT trunk group type.

If overlap outpulsing is required on incoming or two–way Dial Pulse (DP) trunk groups, field OVLP in table TRKSGRP (Trunk Subgroups) must be set to "Y" (yes).

Overlap outpulsing can only apply between incoming and two–way intertoll trunk groups and outgoing and two–way intertoll, local, and Integrated Business Network (IBN) trunk groups.

The standard digit manipulation defined for selector "S" in the route reference subtables is applicable to outgoing and two–way intertoll trunk groups, except when a call is routed from table STDPRTCT (List of Standard Pretranslation Tables).

If no outpulsing is required, fields OPULSTYP and OSTARTSG in table TRKSGRP have the values of "DP" (Dial Pulse) and "IM" (Immediate Dial) respectively. The route reference index for this trunk group is required to use the non-standard format (N) and delete all digits.

If the trunk group has Common Channel Interoffice Signaling (CCIS) supplementary information for the trunk, members are assigned in table C6TRKMEM (CCIS6 Trunk Member Table).

Option BCNAME is only valid for incoming and two-way trunk group types.

Option CELL is not compatible with option E911.

Equal Access for DMS-100 Wireless

When datafilling Equal Access (EA) on the DMS–100 Wireless switch, the wireless portion of an ISUP Integrated Service Link (ISL) trunk must be datafilled as a DID trunk group type with refinement RTEVIAAT set to "Y".

The wireline portion of the ISUP ISL trunk must be datafilled as an IT trunk type. Option CELL must be set to "2A" to support North American EA ISL terminations. A distinct billable number must be designated for option BILLNO for the downstream processor to distinguish the AMA records generated by the wireless DID ISL and non–ISL trunks.

E911 ISUP Trunking

Option E911 provides the ability to route Enhanced 911 Emergency Service (E911) calls directly over Integrated Services Digital Network User Part (ISUP) trunks. Incoming trunks with this option can process E911 calls by selecting the appropriate route to the Public Safety Answering Point (PSAP) using the normal E911 Selective Routing Database (SRDB) or an Off–Board Selective Routing Database (OFBSR).

End Office and Outgoing Trunk Datafill of E911 Option

Offices that are not E911 tandems should not datafill option E911 on any IT trunks. All incoming calls on an IT trunk with option E911 perform a SRDB lookup to determine the caller's Emergency Service Number (ESN). Since there are no valid ESNs in an office that is not an E911 tandem, these calls are routed to treatment. If a 'dummy' PSAP and ESN is datafilled, this allows the calls to complete, but does add an unnecessary step to all incoming calls (the SRDB lookup).

Datafilling option E911 has no effect on outgoing calls.

Datafill of E911 Option on Non–Dedicated Trunks

The following should be considered when data is entered for the E911 option on non-dedicated trunks.

- Datafilling option E911 on IT trunks in an E911 tandem office is *not recommended* if the trunk is not dedicated to E911 traffic for the following reasons:
 - ♦ All incoming calls on this trunk perform a SRDB lookup to determine the caller's ESN. This step is not necessary on non-E911 calls and increases the time it takes to process these calls.
 - Additional logs are generated, such as E911201 (Abnormal Called Digits) and E911203 (Calling Party Has No ESN) reports for all calls that do not have an entry for the calling DN in table E911SRDB (Enhanced 911 Selective Routing Database), or when the called digits are not 911, 11, or 1.
 - If no valid ESN is found for the calling DN, calls that normally would complete are routed to treatment.
- In NA015, the Off–Board Selective Routing Database (OFBSR) suboption and the Tandem Prefix Value (TDMPRFX) suboption were added to the E911 option for IT TRKGRP types.
- In NA013 this feature supports interactions with all other E911 features. Before NA013 E911 calls through ISUP IT trunks did not support Originator Hold (ORIGHOLD), Enhanced Party Hold (ECPH), and RINGBACK.
- The E911 option is allowed only when the SGRPVAR field in table TRKSGRP for the trunk is C7UP.
- Option CELL is not compatible with option E911.
- E911 ISUP trunking is also under SOC control.

Datafill Sequence and Implications

Table TRIGGRP must be datafilled before table TRKGRP, type IT.

Calls using the default Emergency Service Number (ESN) do not complete if the ESN is not datafilled in table E911ESN (Enhanced 911 Emergency Service Number).

Standard table control error messages are produced as well as the following warning messages:

DANGER – The following warning message is generated if an ESN is datafilled for an E911 trunk group and is not datafilled in table E911ESN, and if office parameter E911_CHECK_DEFAULT_ESN is set to "N": ESN NOT PRESENT IN TABLE E911ESN. THIS ESN MUST BE DATAFILLED IN TABLE E911ESN FOR 911 CALLS TO COMPLETE. With the following message, no tuple is added to table TRKGRP:

DANGER – The following error message is generated if an attempt is made to datafill an ESN for an E911 trunk group and it is not datafilled in table E911ESN, and if office parameter E911_CHECK_DEFAULT_ESN is set to "Y": ESN MUST BE IN TABLE E911ESN.

For additional datafill dependencies, refer to section "Datafill Sequence" in the general section of table TRKGRP.

Datafill (Incoming Intertoll)

The following table lists datafill for table TRKGRP, type IT.

Field Descriptions		Incoming	Intertoll	
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Field	Subfield	Entry	Explanation and Action
GRPKEY		See subfield	Group Key This field consists of subfield CLLI.
	CLLI	Alphanumeric (1 to 16 characters)	<i>Common Language Location Identifier</i> Enter the Common Language Location Identifier (CLLI) name assigned to the trunk group in table CLLI.
GRPINFO		See subfields	Variable Group Information This field consists of subfields GRPTYP, TRAFSNO, PADGRP, NCCLS, DIRDATA, TRAFCLS, SELSEQ, CONNGNPA, PRTNM, SCRNCL, SNPA, TERMTC, TOLLCOMP, CCWKVLD, and OPTIONS. Refer to section "General Field Information" in table TRKGRP for information on an alternate structure for this field that results from the datafill of table CUSTFLDS.
	GRPTYP	IT	<i>Group Type</i> Enter "IT" for the intertoll trunk group type.
	TRAFSNO	Numeric (0 to 127)	Traffic Separation Number Enter the incoming traffic separation number assigned to the trunk group. If it is not required, enter "0" (zero).
			If switching unit has feature package NTX085AA (Traffic Separation Peg Count), enter a number between 1 and the value of office parameter TFAN_IN_MAX_NUMBER in table OFCENG.
			For switching units without feature package NTX085AA, enter 0 to 15.
			Incoming and outgoing traffic separation numbers 1 to 9 should be reserved for generic traffic separation numbers. Refer to the description of table TFANINT (Traffic Separation Intersection) for additional information.

PADGRP	Alphanumeric (1 to 5 characters)	Pad Group Enter the name of the pad group assigned to the trunk group in table PADDATA.
		Refer to the description of table PADDATA (Pad Data) for additional information.
NCCLS	NCRT	Operational Measurements No-Circuit Class This field is not required for incoming trunk groups; enter "NCRT" (no circuit).
DIRDATA	See subfield	<i>Direction Data</i> This field consists of subfield DIR.
DIR	IC	<i>Direction</i> Enter "IC" to specify that the direction of traffic flow is incoming.
		If office parameter TRK_OOS_CHK_ON in table OFCVAR is set to "Y" (yes), all trunks in the group must be busy before changing the value of this field by Data Modification Order (DMO).
TRAFCLS	Alphabetic	<i>Traffic Usage Class</i> Enter the traffic usage class assigned to the trunk group.
		Refer to the description of table TRKGRP for information.
SELSEQ	MIDL	Select Sequence Enter "MIDL" to specify the most idle trunk group selection method.
		Entries other than MIDL are not valid (sequential selection does not apply to incoming trunk groups).
CONNGNPA	000	<i>Connecting Numbering Plan Area</i> This field is not required for incoming trunk groups. Enter "000".
PRTNM	Alphanumeric (1 to 4 characters) or NPRT	Standard Pretranslator Name If standard pretranslation is required, enter the name of the standard pretranslator to which digit translation routes after the receipt of one digit.
		If pretranslation is not required, enter "NPRT".
		If office parameter TRK_OOS_CHK_ON in table OFCVAR is set to "Y", all trunks in the group must be busy before changing the value of this field by DMO.
SCRNCL	Alphanumeric (1 to 32 characters) or NSCR	Class-of-Service Screening Name If screening by class-of-service is required, enter the name of the class-of-service screening to which digit translation routes.
		If class-of-service screening is not required, enter "NSCR".

SNPA	Numeric (3-digits)	Serving Numbering Plan Area Enter the Serving Numbering Plan Area (SNPA) code to which the trunk group belongs.
		If office parameter TRK_OOS_CHK_ON in table OFCVAR is set to "Y", all trunks in the group must be busy before changing the value of this field by DMO.
TERMTC	000	<i>Terminating Toll Center</i> Terminating toll center is not applicable to incoming trunk groups. Enter "000".
TOLLCOMP	Y or N	<i>Toll Completing</i> If toll completing is required, enter "Y" (yes); otherwise, enter "N" (no).
CCMKATD	Y or N	Carrier Connect Wink Valid Enter "Y" if carrier connect winks in equal access international calls are regenerated. Otherwise, enter "N".
		Since most non-DMS Equal Access End Offices (EAEO) and Access Tandems (AT) cannot handle this wink, the value "N" should be datafilled in these cases.
OPTIONS	See subfield	Options Datafill up to three multiples of subfield OPTION and the corresponding refinements for the desired trunk option. Enter "\$" (dollar sign) to indicate the end of the options vector.
OPTION	AIN, BCNAME, BILLNO, BLOCKNB, CELL, DEDICATED, E911, CHGNUM, LNP	<pre>Option The following options can be datafilled: * AIN - Advanced Intelligent Network This option allows specifying an AIN group identification. Datafill refinement AINGRP. * BCNAME - Bearer Capability Name Datafill refinement BCNAME. * BILLNO - This option allows specifying the billing number. Datafill refinement BILLNO. * BLOCKNB * CELL - This option allows specifying the configuration of the intertoll trunk type. Datafill refinement CELL_SS7_TYPE. This option is valid only for North America. Note: Option CELL is not compatible with option E911.</pre>
DEDICATD	Y or N	* DEDICATED - This field determines whether or not the IT trunk is dedicated to E911 traffic only. Default is "Y" (yes).

		 * E911 - This option consists of refinements ESCO, ESN, E911SIG, OFBSR, and TDMPRFX. To specify the default ESCO for this trunk, type "ESCO". To enter the default ESN for this trunk, type "ESN". To enter the type of signalling to be used by this trunk, type "E911SIG". This option is valid only for North America. To indicate that OFBSR is used, type "Y". To enter the default TDMPRFX, type "0". * CHGNUM - Charge Number Delivery This option, sends a charge number and Originating Line Information (OLI) parameter with the Initial Address Message (IAM). No refinements are required. * LNP - Local Number Portability This option allows datafilling a default Location Routing Number (LRN) against the trunk group. Datafill refinement LRN. Note: If no options apply, leave this field
		blank.
AINGRP		Advanced Intelligent Network Identifier If field OPTION = AIN, datafill an AIN group identifier.
BCNAME	Alphanumeric (1 to 16 characters)	Bearer Capability Name If field OPTION = BCNAME, enter the bearer capability to be used by this trunk group. Refer to table BCDEF (Bearer Capability Definition) for the current list of available bearer capabilities.
		If field OPTION and refinement BCNAME are left blank, the default bearer capability of the central office is used.
BILLNO	Up to a 11-digit billing number	Billing Number If field OPTION = BILLNO, enter the billing number that is used to populate the originating number field in the Cellular Mobile Carrier (CMC) AMA record and the associated equal access AMA record. This option is valid only for North America.
CELL_SS7_TYPE	2A, 2B, or NILCELL	Cell If field OPTION = CELL, enter the configuration of the intertoll trunk type. Datafilling this option as 2A indicates that the intertoll trunk is configured as a CELL type 2A SS7 trunk. Datafilling this option as 2B indicates that the intertoll trunk is configured as a CELL type 2B SS7 trunk. This option is valid only for North America.
ESCO	0000 to 9999	Emergency Service Central Office If the entry in subfield OPTION is E911, enter the default ESCO number representing the end office at which the E911 trunk originated. This option is valid only for North America.

ESN	0 to 15,999	Emergency Service Number If the entry in subfield OPTION is E911, enter the default ESN associated with the emergency service zone that is used to obtain the DN of the primary PSAP to which this call is to be default routed. This option is valid only for North America.
E911SIG	E911_STD, E911_CHG, WRLS_STD, WRLS_CLD	Enhanced 911 Signaling This entry determines whether the DMS switch uses the calling party number or the charge number to obtain the callback or routing number or both.
		The first attempt to enter E911_STD uses the calling party number. The second attempt uses the charge number.
		The first attempt to enter E911_CHG uses the charge number. The second attempt uses the calling party number.
		The first attempt to enter WRLS_STD uses the calling party number. There is no second attempt.
		Note: The WRLS_STD entry applies to incoming trunks that handle only wireless emergency calls.
		The first attempt to enter WRLS_CLD uses the calling party number. There is no second attempt.
		Note 1: The WRLS_CLD entry applies to incoming trunks that handle only wireless emergency calls directly from a mobile switching center. The mobile switching center sends the Pseudo Automatic Number Identifier (PANI) and callback number in a non-standard format.
		Note 2: The E911SIG option is valid only for North America.
OFBSR	Y or N	Off-Board Selective Routing Database This subfield indicates that the facility uses the OFBSR or dual OFBSR for selective routing. The default is "N".
TDMPRFX	0 to 15	Tandem Prefix Value If datafilled with a non-zero value, this suboption indicates the originating E911 tandem in a dual super tandem-tandem network. A new Generic Digits Parameter (GDP) is built in the IAM to transport the TDMPRFX to table E911TDRT.
		The delivery of the TDMPRFX value in the new GDP behaves as follows:
		* If a non-zero TDMPRFX is datafilled against an ISUP IT trunk with the E911 option, then a GDP is built containing the TDMPRFX and sent on outgoing 911 calls.
		* If the TDMPRFX datafill against an ISUP IT trunk has the default value of "0", and if no TDMPRFX is received via a GDP, then

outgoing 911 calls do not build the GDP containing the TDMPRFX. * If a GDP containing the TDMPRFX is received at an E911 tandem, the value is stored. It takes precedence over any datafilled TDMPRFX values if the TDMPRFX datafilled in table TRKGRP is non-zero. If datafilled value is "0", the TDMPRFX from GDP is dropped and not used for further processing. * If the TDMPRFX datafill against an ISUP IT trunk has a default value of "O" and no GDP is received, the TDMPRFX is ignored. * On an ONP, if a non-zero TDMPRFX is not datafilled, a default value of "0" is transferred. The TDMPRFX field should be datafilled in the Super E911 tandems for incoming ISUP IT trunks with the E911 option. The TDMPRFX field in other E911 tandems should not be datafilled, rather the value should be left at the default of zero. T.RN 10-digit Location Routing Number directory If field OPTION = LNP, datafill the default 10number digit LRN. This field indicates the originating service provider, used for billing purposes, if one is not signalled on the incoming trunk. _____

-End-

Datafill Example

An example of datafill for table TRKGRP and incoming trunk group type IT is shown below. This example was datafilled in accordance with the following datafill requirements:

- The code in table CLLI for the trunk group is OTWAON0202T0. The trunk group type is: IT
- The incoming traffic separation number 20 is assigned to the trunk group. TLD is the pad group assigned to the trunk group.
- The no-circuit class is: NCRT
- \bullet The direction is incoming: ${\tt IC}$
- The traffic class is intertoll: IT
- The select sequence is not required; set to MIDL.
- The connecting NPA is not required; set to 000.
- No pretranslation (NPRT) or class-of-service screening (NSCR) is required. The trunk group is assigned to serving NPA 613.
- The terminating toll center code is not required, set to 000.
- Toll completing is not required.
- Option BCNAME with 56KDATA and option CHGNUM are assigned.
- The carrier connect wink in equal access international calls is not regenerated.

The following example MAP display shows sample datafill for table TRKGRP, type IT:

GRPKEY GRPINFO

OTWAO11MG00 IT 20 TLD NCRT IC IT MIDL 000 NPRT NSCR 613 613 000 N N BCNAME 56KDATA CHGNUM \$

An example of datafill for table TRKGRP with an incoming trunk group type of IT is shown below. This example is valid only for North America, and is datafilled in accordance with the following datafill requirements:

- The code in table CLLI for the trunk group is SUP2WITEA. The trunk group type is: IT
- The incoming traffic separation number 0 is assigned to the trunk group. ELO is the pad group assigned to the trunk group.
- The no-circuit class is: NCRT
- \bullet The traffic flow is incoming: ${\tt IC}$
- \bullet The traffic class is intertoll: ${\tt IT}$
- The select sequence is not required; set to MIDL.
- The connecting NPA is: 519
- The pretranslator name is PEA. No class-of-service screening (NSCR) is required. The trunk group is assigned to serving NPA 919.
- The terminating toll center code is not required, set to 000.
- Toll completing is not required.
- The carrier connect wink in equal access international calls is not regenerated.
- The billing number is: (919) 848-0833
- The intertoll trunk is configured as a CELL TWO_A SS7 trunk.

GRPKEY GRPINFO

SUP2WITEA IT 0 ELO NCRT IC NIL MIDL 519 PEA NSCR 919 000 N N (BILLNO 9198480833) (CELL TWO_A) \$

An example of datafill for table TRKGRP with an incoming trunk group type of IT is shown in the following figure. This example is valid only for North America, and is datafilled in accordance with the following datafill requirements:

- The code in table CLLI for the trunk group is E911ICS7. The trunk group type is: IT
- The incoming traffic separation number 0 is assigned to the trunk group. ELO is the pad group assigned to the trunk group.
- The no-circuit class is: NCRT
- \bullet The traffic flow is incoming: ${\tt IC}$
- The traffic class is: NIL
- The select sequence is not required; set to MIDL.
- The connecting NPA is: 613
- The pretranslator name is AT1. No class-of-service screening (NSCR) is required. The trunk group is assigned to serving NPA 613.
- The terminating toll center code is not required; set to 000.
- Toll completing is not required.
- The carrier connect wink in equal access international calls is not regenerated.
- The intertoll trunk option is: E911
- The default ESCO number for this trunk is: 0747
- The default ESN for this trunk is: 113
- The type of signalling to be used by this trunk is: E911_STD
- The OFBSR is used.
- The TDMPRFX is: 0

TABLE: TRKGRP >POS E911ICS7

GRPKEY GRPINFO

E911ICS7 IT 0 ELO NCRT IC NIL MIDL 613 613 AT1 NSCR 613 000 N N (E911 0747 113 E911_STD Y N 0 0) \$

An example of datafill for table TRKGRP and incoming trunk group type IT is shown in the following figure. This example is valid only for North America, and is datafilled in accordance with the following datafill requirements:

- The code in table CLLI for the trunk group is E911ICS7. The trunk group type is: IT
- The incoming traffic separation number 0 is assigned to the trunk group. ELO is the pad group assigned to the trunk group.
- The no-circuit class is: NCRT
- \bullet The traffic flow is incoming: ${\tt IC}$
- \bullet The traffic class is: <code>NIL</code>
- The select sequence is not required; set to MIDL.
- The connecting NPA is: 613
- The pretranslator name is AT1. No class-of-service screening (NSCR) is required. The trunk group is assigned to serving NPA 613.
- The terminating toll center code is not required; set to 000.
- Toll completing is not required.
- The carrier connect wink in equal access international calls is not regenerated.
- The intertoll trunk option is: E911
- The default ESCO number for this trunk is: 0747
- The default ESN for this trunk is: 113
- The type of signalling to be used by this trunk is: E911_STD
- The OFBSR is used.
- The TDMPRFX is: 15

>TABLE TRKGRP >POS E911ICS7

```
>ADD
GRPTYP: IT
TRAFSNO: 0
OPTION: E911
ESCO: 0747
ESN: 113
E911SIG: E911_STD
ORIGHOLD: N
ECPHTIME: 0
OFBSR:
>Y
TDMPRFX:
>15
OPTION:
>$
WARNING: THE E911 OPTION SHOULD BE ASSIGNED ONLY TO TRUNKS
       WHICH ARE DEDICATED TO EMERGENCY TRAFFIC.
TUPLE TO BE CHANGED:
E911ICS7 IT 0 ELO NCRT IC NIL MIDL 613 613 AT1 NSCR 613 000 N N
      (E911 0747 113 E911_STD N N 0 15) $
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

Datafill (Outgoing Intertoll)

The following table lists datafill for table TRKGRP, type IT.

Field Descriptions - Outgoing Intertoll

Field	Subfield	Entry	Explanation and Action
GRPKEY		See subfield	Group Key This field consists of subfield CLLI.
	CLLI	Alphanumeric (1 to 16 characters)	Common Language Location Identifier Enter the Common Language Location Identifier (CLLI) name assigned to the trunk group in table CLLI.
GRPINFO		See subfields	Variable Group Information This field consists of subfields GRPTYP, TRAFSNO, PADGRP, NCCLS, DIRDATA, TRAFCLS, SELSEQ, CONNGNPA, PRTNM, SCRNCL, SNPA, TERMTC, TOLLCOMP, CCWKVLD, and OPTIONS. Refer to section "General Field Information" in table TRKGRP for information on an alternate structure for this field that results from the datafill of table CUSTFLDS.
	GRPTYP	IT	<i>Group Type</i> Enter "IT" for the intertoll trunk group type.
	TRAFSNO	Numeric (0 to 127)	Traffic Separation Number Enter the outgoing traffic separation number assigned to the trunk group. If it is not required, enter "0" (zero).
			If switching unit has feature package NTX085AA (Traffic Separation Peg Count), enter a number between 1 and the value of office parameter TFAN_IN_MAX_NUMBER in table OFCENG.
			For switching units without feature package NTX085AA, enter 0 to 15.
			Incoming and outgoing traffic separation numbers 1 to 9 should be reserved for generic traffic separation numbers.
			Refer to the description of table TFANINT for additional information.
	PADGRP	Alphanumeric (1 to 5 characters)	<i>Pad Group</i> Enter the name of the pad group assigned to the trunk group in table PADDATA.
			Refer to the description of table PADDATA for additional information.
	NCCLS	NCBN, NCID, NCIM, NCIT, NCLT, NCOF, NCON, NCRT, NCTC, or NOSC	Operational Measurements No-Circuit Class Enter the Operational Measurements (OM) no-circuit class to indicate which OM register is incremented if treatment Generalized No-Circuit (GNCT) occurs.

DIRDATA	See subfield	<i>Direction Data</i> This field consists of subfield DIR.
DIR	OG	<i>Direction</i> Enter "OG" to specify that the direction of traffic flow is outgoing.
		If office parameter TRK_OOS_CHK_ON in table OFCVAR is set to "Y" (yes), all trunks in the group must be busy before changing the value of this field by Data Modification Order (DMO).
TRAFCLS	Alphabetic	<i>Traffic Usage Class</i> Enter the traffic usage class assigned to the trunk group. Refer to the description of table TRKGRP for information.
SELSEQ	ASEQ, CWCTH, CCWCTH, DSEQ, LIDL, MIDL, or WIDEBAND	Select Sequence If the trunk group is outgoing (field DIR has value OG) and feature package NTX244AB (Enhanced Sequential Trunk Hunting) is present, then sequential selection applies; enter
		* CWCTH for clockwise or CCWCTH for counterclockwise circular trunk hunting from the most recently released trunk in the trunk group, based on the order of trunk members in table TRKMEM.
		* ASEQ for ascending or DSEQ descending sequential selection, based on the order of trunk members in table TRKMEM.
		* WIDEBAND and datafill refinements WBSELSEQ, WEGRPING, and WBSEARCH to specify DS-0's selection sequence, timelist arrangement types, and time slot search method.
		If the trunk group is outgoing and sequential selection does not apply, enter "MIDL" for most idle trunk group selection.
		Note: Refer to the description of table TRKGRP for information on field SELSEQ.
		Note: The selection sequence for an existing trunk group can be changed from ASEQ to DSEQ, or from DSEQ to ASEQ, if all the members are made Installation Busy (INB) or Unequipped (UNEQ). The selection method for an existing trunk group cannot be changed. To change the selection method for an existing trunk group from ASEQ or DSEQ to CWCTH or CCWCTH, or to MIDL or LIDL, define a new trunk group, as follows: create a new trunk group with the required trunk selection method, delete the individual trunks from the old trunk group, and add the trunks to the new trunk group.
WBSELSEQ	ASEQ or DSEQ	Wideband Selection Sequence Datafill this field if the entry in field SELSEQ is WIDEBAND. Enter "ASEQ" to specify that the

wideband trunks are selected in ascending order from the first idle trunk on the search list, or enter "DSEQ" to specify that they are selected in descending order from the last idle trunk on the search list. The order of trunks in the search list is determined by the order in which the trunk groups are datafilled in table TRKMEM. WBGRPING FIXED or Wideband Boundary Preference Datafill this field if the entry in field SELSEQ FLOATING is WIDEBAND. Enter the wideband boundary preference. The value FIXED specifies that only the idle trunks within a specific time slot frame are selected. This value is only valid for Local Exchange Carriers (LEC). The value FLOATING specifies that any number of consecutive idle trunks in a trunk group are selected. BESTFIT or Wideband Search WBSEARCH FIRSTFIT Datafill this field if the entry in field SELSEQ is WIDEBAND. Enter the wideband search algorithm. The value BESTFIT finds the smallest segment of idle channels (DS-0s) among trunks (DS-1s) within a trunk group to accommodate a wideband call, a ccording to the boundary preference (FIXED or FLOATING) specified. FIRSTFIT finds the first segment of idle DS-0s that can accommodate a wideband call, according to the boundary preference specified. CONNGNPA Numeric Connecting Numbering Plan Area (3-digits) Enter the Numbering Plan Area (NPA) code of the switching unit where the outpulsed digits are translated. PRTNM Standard Pretranslator Name NPRT If standard pretranslation is not required on outgoing trunk groups, enter "NPRT". If office parameter TRK_OOS_CHK_ON in table OFCVAR is set to "Y", all trunks in the group must be busy before changing the value of this field by DMO. SCRNCL NSCR Class-of-Service Screening Table Name If class-of-service screening is not required on outgoing trunk groups, enter "NSCR". SNPA Numeric Serving Numbering Plan Area (3-digits) Enter the serving NPA code to which the trunk group belongs. If office parameter TRK_OOS_CHK_ON in table OFCVAR is set to "Y", all trunks in the group must be busy before changing the value of this field by DMO. TERMTC Numeric Terminating Toll Center (3-digits) If the switching unit where the outpulsed digits are translated is assigned a terminating toll center code, enter the terminating toll center code. If there is no terminating toll center code, enter "000". TOLLCOMP Y or N Toll Completing Enter "Y" if the trunk group is toll completing;

otherwise, enter "N".

CCMKATD	Y or N	Carrier Connect Wink Valid Enter "Y" if carrier connect winks in equal access international calls are regenerated. Otherwise, enter "N". Since most non-DMS Equal Access End Offices (EAEO) and Access Tandems (AT) cannot handle this wink, the value "N" should be datafilled in these cases.
OPTIONS	See subfield	Options Datafill up to three multiples of subfield OPTION and the corresponding refinements for the desired trunk option. Enter a "\$" (dollar sign) to indicate the end of the options vector.
OPTION	BCNAME or CHGNUM	Option To specify the bearer capability name option, enter "BCNAME" and datafill refinement BCNAME. To specify the charge number delivery option, which sends a Charge Number (CN) and Originating Line Information (OLI) parameter with the Initial Address Message (IAM), enter option "CHGNUM". Subfield CHGNO_TRAFTYPE has the values PBX or ALL. The default is "PBX".
		If no options apply, leave this field blank.
		Note: The Operator Services Signaling 7 (OSS7) option Operator Services Network Capability (OSNC) assigned through table TRKOPTS requires the CHGNUM ALL option.
BCNAME	Alphanumeric (1 to 16 characters)	Bearer Capability Name If the entry in field OPTION is BCNAME, enter the bearer capability to be used by this trunk group. Refer to table BCDEF for the current list of available bearer capabilities. If field OPTION and refinement BCNAME are left
		blank, the default bearer capability of the central office is used.
CHGNO_TRAFTYPE	PBX or ALL	Charge Number Traffic Type If the entry in field OPTION is CHGNUM, select refinement PBX to provide the CN and OLI parameters for calls originating on Private Branch Exchange (PBX) trunks. Select "ALL" to provide the CN and OLI parameters for outgoing calls on the following originating agents: POTS, RES, IBN, or Basic Rate Interface (BRI) lines; Primary Rate Interface (PRI) and ISUP trunks; IBNT2, IBNTI, and PBX trunks; attendant consoles, or a supported agent routed through a Virtual Facility Group (VFG).
		Select "ALL" to provide OSS7 option OSNC assigned through table TRKOPTS.
OPTION	BILLNO or CELL	Options This subfield consists of refinements BILLNO and CELL. To specify the billing number, enter "BILLNO". To enter the configuration of the intertoll trunk type, enter "CELL". This option is valid only for North America.

BILLNO	Up to an 11-digit billing number	Billing Number If the entry in subfield OPTION is BILLNO, enter the billing number that is used to populate the originating number field in the Cellular Mobile Carrier (CMC) AMA record and the associated equal access AMA record. This option is valid only for North America.
CELL	2A, 2B, or NILCELL	Cell If the entry in subfield OPTION is CELL, enter the configuration of the intertoll trunk type. Datafilling this option as 2A indicates that the intertoll trunk is configured as a CELL type 2A SS7 trunk. Datafilling this option as 2B indicates that the intertoll trunk is configured as a CELL type 2B SS7 trunk. This option is valid only for North America.
OPTION	E911	Option This subfield consists of refinements ESCO, ESN, E911SIG, ORIGHOLD, and ECPHTIME. To specify the default ESCO for this trunk, enter "ESCO". To enter the default ESN for this trunk, enter "ESN". To enter the type of signalling to be used by this trunk, enter "E911SIG". This option is valid only for North America.
ESCO	0000 to 9999	Emergency Service Central Office If the entry in subfield OPTION is E911, enter the default ESCO number representing the end office at which the E911 trunk originated. This option is valid only for North America.
ESN	0 to 15,999	Emergency Service Number If the entry in subfield OPTION is E911, enter the default ESN associated with the emergency service zone that is used to obtain the DN of the primary PSAP to which this call is to be default routed. This option is valid only for North America.
E911SIG	E911_STD, E911_CHG, WRLS_STD, WRLS_CLD	Enhanced 911 Signaling This entry determines whether the DMS switch uses the calling party number or the charge number to obtain the callback or routing number or both.
		If you enter "E911_STD", the first attempt uses the calling party number. The second attempt uses the charge number.
		If you enter "E911_CHG", the first attempt uses the charge number. The second attempt uses the calling party number.
		If you enter "WRLS_STD", the first attempt uses the calling party number. There is no second attempt.
		Note: The WRLS_STD entry applies only to incoming trunks that handle only wireless emergency calls
		If you enter "WRLS_CLD", the first attempt uses the calling party number. There is no second attempt.

Note 1: The WRLS_CLD entry applies only to incoming trunks that handle only wireless emergency calls directly from a mobile switching center. The mobile switching center sends the PANI and callback number in a non-standard format. TDMPRFX 0 to 15 Tandem Prefix Value If datafilled with a non-zero value, this suboption indicates the originating E911 tandem in a dual super tandem-tandem network. A new Generic Digits Parameter (GDP) is built in the IAM to transport the TDMPRFX to table E911TDRT. The delivery of the TDMPRFX value in the new GDP behaves as follows: * If a non-zero TDMPRFX is datafilled against an ISUP IT trunk with the E911 option, then a GDP is built containing the TDMPRFX and sent on outgoing 911 calls. * If the TDMPRFX datafill against an ISUP IT trunk has the default value of "0", and if no $\ensuremath{\mathtt{TDMPRFX}}$ is received via a GDP, then outgoing 911 calls do not build the GDP containing the TDMPRFX. * If a GDP containing the TDMPRFX is received at an E911 tandem, the value is stored. It takes precedence over any datafilled TDMPRFX values if the TDMPRFX datafilled in table TRKGRP is non-zero. If datafilled value is "0", the TDMPRFX from GDP is dropped and not used for further processing. * If the TDMPRFX datafill against an ISUP IT trunk has a default value of "0" and no GDP is received, the TDMPRFX is ignored. * On an ONP, if a non-zero TDMPRFX is not datafilled, a default value of "0" is transferred. The TDMPRFX field be datafilled in the Super E911 tandems for incoming ISUP IT trunks with the E911 option. The TDMPRFX field in other E911 tandems should not be datafilled, rather the value should be left at the default of zero. ORIGHOLD Y or N Originator Hold Enter "Y" (yes) if the end office at which this trunk originated supports the operator hold function. When ORIGHOLD is active, the originator of an E911 call cannot disconnect the call. Enter "N" to make ORIGHOLD inactive. ECPHTIME 0 to 255 Enhanced Call Party Hold This subfield indicates the number of seconds that ECPH remains active. ECPHTIME prevents a caller from disconnecting a call before the call is answered and before the timer expires. Zero (0) deactivates ECPH.

-End-

Datafill Example

An example of datafill for table TRKGRP and outgoing trunk group type IT is shown below. This example was datafilled in accordance with the following datafill requirements:

- The code in the CLLI table for the trunk group is: OTWAON11MG00
- The trunk group type is: ${\tt IT}$
- The outgoing traffic separation number 21 is assigned to the trunk group.
- TLD is the pad group assigned to the trunk group.
- The no-circuit class is: NCTC
- The direction is outgoing: OG
- \bullet The traffic class is toll completing: ${\tt TC}$
- The select sequence is set to: MIDL
- The connecting NPA is: 613
- Pretranslation and class-of-service screening are not required for outgoing trunk groups; set to NPRT and NSCR respectively.
- The trunk group is assigned to serving NPA: 613
- The terminating toll center code is: 000
- Trunk group is toll completing.
- The charge number delivery option (CHGNUM) is ALL.
- The carrier connect wink in equal access international calls is not regenerated.

The following example MAP display shows sample datafill for table TRKGRP, type IT:

GRPKEY	GRPINFO
OTWAO11MG00	IT 21 TLD NCTC OG TC MIDL 613 NPRT NSCR 613 000 Y N CHGNUM ALL \$

Datafill (Two-Way Intertoll)

The following table lists datafill for table TRKGRP, type IT.

Field Descriptions - Two-Way Intertoll

Field	Subfield	Entry	Explanation and Action
GRPKEY		See subfield	
	CLLI	Alphanumeric (1 to 16 characters)	
	GRPINFO	See subfields	Variable Group Information This field consists of subfields GRPTYP, TRAFSNO, PADGRP, NCCLS, DIRDATA, TRAFCLS, SELSEQ, CONNGNPA, PRTNM, SCRNCL, SNPA, TERMTC, TOLLCOMP, CCWKVLD, and OPTIONS. Refer to section "General Field Information" in table TRKGRP for information on an alternate structure for this field that results from the datafill of table CUSTFLDS.
	GRPTYP	IT	<i>Group Type</i> Enter "IT" for the intertoll trunk group type.

TRAFSNO	Numeric (0 to 127)	Traffic Separation Number Enter the outgoing traffic separation number assigned to the trunk group. If it is not required, enter "0" (zero).
		If switching unit has feature package NTX085AA (Traffic Separation Peg Count), enter a number between 1 and the lower value of office parameters TFAN_IN_MAX_NUMBER and TFAN_OUT_MAX_NUMBER in table OFCENG.
		For switching units without feature package NTX085AA, enter 1 to 15.
		Incoming and outgoing traffic separation numbers 1 to 9 should be reserved for generic traffic separation numbers.
		Refer to the description of table TFANINT for information.
PADGRP	Alphanumeric (1 to 5 characters)	Pad Group Enter the name of the pad group assigned to the trunk group in table PADDATA. Refer to the description of table PADDATA for information.
NCCLS	NCBN, NCID, NCIM, NCIT, NCLT, NCOF, NCON, NCOT, NCRT, NCTC, or NOSC	Operational Measurements No-Circuit Class Enter the Operational Measurements (OM) no-circuit class to indicate which OM register is to be incremented when treatment Generalized No-Circuit (GNCT) occurs. Refer to table TRKGRP and the Operational Measurements Reference Manual, for information.
DIRDATA	See subfield	<i>Direction Data</i> This field consists of subfield DIR.
DIR	2₩	<i>Direction</i> Enter "2W' to specify that the direction of traffic flow is two-way.
		If office parameter TRK_OOS_CHK_ON in table OFCVAR is set to "Y" (yes), all trunks in the group must be busy before changing the value of this field by Data Modification Order (DMO).
TRAFCLS	Alphabetic	<i>Traffic Usage Class</i> Enter the traffic usage class assigned to the trunk group. Refer to the general section of table TRKGRP for additional information.
SELSEQ	ASEQ, CCWCTH, CWCTH, DSEQ, LIDL, MIDL, or WIDEBAND	Select Sequence If the far-end is a link list switcher with most idle (MIDL) or least idle (LIDL) trunk selection, enter "LIDL" or "MIDL" respectively. If the far- end is not a link list switcher and sequential selection does not apply, enter "MIDL".
		If the far-end is not a link list switcher and sequential selection applies (feature package NTX244AB [Enhanced Sequential Trunk Hunting] must be present), enter:

- * CWCTH for clockwise or CCWCTH for counterclockwise circular trunk hunting from the most recently released trunk in the trunk group, based on the order of trunk members in table TRKMEM, when the far-end is CCWCTH or CWCTH respectively.
- * ASEQ for ascending or DSEQ for descending sequential selection, based on the order of trunk members in table TRKMEM, when far-end is DSEQ or ASEQ respectively.
- * WIDEBAND and datafill refinements WBSELSEQ, WBGRPING, and WBSEARCH to specify DS-0's selection sequence, time slot arrangement types, and time slot search method.

Note: Refer to the description of table TRKGRP for information on field SELSEQ.

Note: The selection sequence for an existing trunk group can be changed from ASEQ to DSEQ, or from DSEQ to ASEQ, if all the members are made Installation Busy (INB) or Unequipped (UNEQ). The selection method for an existing trunk group cannot be changed. To change the selection method for an existing trunk group from ASEQ or DSEQ to CWCTH or CCWCTH, or to MIDL or LIDL, define a new trunk group, as follows: create a new trunk group with the required trunk selection method, delete the individual trunks from the old trunk group, and add the trunks to the new trunk group.

- WBSELSEQ ASEQ or DSEQ Wideband Selection Sequence Datafill this field if the entry in field SELSEQ is WIDEBAND. Enter "ASEQ" to specify that the wideband trunks are selected in ascending order from the first idle trunk on the search list, or enter "DSEQ" to specify that they are selected in descending order from the last idle trunk on the search list. The order of trunks in the search list is determined by the order in which the trunk groups are datafilled in table TRKMEM.
 - WBGRPING FIXED or FLOATING Wideband Boundary Preference Datafill this field if the entry in field SELSEQ is WIDEBAND. Enter the wideband boundary preference. The value FIXED specifies that only the idle trunks within a specific time slot frame are selected. This value is only valid for Local Exchange Carriers (LEC). The value FLOATING specifies that any number of consecutive idle trunks in a trunk group are selected. WBSEARCH BESTFIT Wideband Search or FIRSTFIT

Datafill this field if the entry in field SELSEQ is WIDEBAND. Enter the wideband search algorithm. The value BESTFIT finds the smallest segment of idle channels (DS-0s) among trunks (DS-1s) within a trunk group to accommodate a wideband call, according to the boundary preference

		(FIXED or FLOATING) specified. FIRSTFIT finds the first segment of idle DS-0s that can accommodate a wideband call, according to the boundary preference specified.
CONNGNPA	Numeric (3-digits)	Connecting Numbering Plan Area Enter the numbering plan area code of the switching unit at which the outpulsed digits are translated.
PRTNM	Alphanumeric (1 to 4 characters) or NPRT	Standard Pretranslator Name If standard pretranslation is required on the incoming side of the trunk group, enter the name of the standard pretranslator to which digit translation routes after the receipt of one digit.
		If standard pretranslation is not required, enter "NPRT".
		If office parameter TRK_OOS_CHK_ON in table OFCVAR is set to "Y", all trunks in the group must be busy before changing the value of this field by DMO.
SCRNCL	Alphanumeric (1 to 32 characters) or NSCR	Class-of-Service Screening Name If class-of-service screening is required on the incoming side of the trunk group, enter the name of the class-of-service screening to which digit translation is routed. If class-of-service screening is not required, enter "NSCR".
SNPA	Numeric (3-digits)	Serving Numbering Plan Area Enter the serving NPA code to which the trunk group belongs. If office parameter TRK_OOS_CHK_ON in table OFCVAR is set to "Y", all trunks in the group must be busy before changing the value of this field by DMO.
TERMTC	Numeric (3-digits)	Terminating Toll Center If the switching unit where the outpulsed digits are translated is assigned a terminating toll center code, enter the terminating toll center code. If there is no terminating toll center code, enter "000".
TOLLCOMP	Y or N	<i>Toll Completing</i> Enter "Y" if the trunk group is toll completing; otherwise, enter "N".
CCWKVLD	Y or N	Carrier Connect Wink Valid Enter "Y" if carrier connect winks in equal access international calls are regenerated. Otherwise, enter "N". Since most non-DMS Equal Access End Offices (EAEO) and Access Tandems (AT) cannot handle this wink, the value "N" should be datafilled in these cases.
OPTIONS	See subfield	Options Datafill subfield OPTION and the corresponding refinements for the desired trunk option. Enter a "\$" (dollar sign) to indicate the end of the options vector.

AIN, BCNAME, BILLNO, BLOCKNB, CELL, E911, CHGNUM, LNP Option The following options can be datafilled:

- * AIN Advanced Intelligent Network This option appears on the MAP display but is not supported. This functionality is moved to table TRKAIN.
- * BCNAME Bearer Capability Name Datafill refinement BCNAME.
- * BILLNO Billing Number This option allows datafilling a billing number for the trunk group. Datafill refinement BILLNO.
- * BLOCKNB This option specifies whether narrow band calls are blocked on the trunk group. This option can only be set when field SELSEQ = WIDEBAND. No refinements require datafill.
- * CELL This option allows specifying the configuration of the intertoll trunk type. Datafill refinement CELL_SS7_TYPE. This option is valid only for North America.
- Note: Option CELL is not compatible with option E911.
- * E911 This subfield consists of refinements ESCO, ESN, E911SIG, ORIGHOLD, ECPHTIME, OFBSR, and TDMPRFX. To specify the default ESCO for this trunk, enter "ESCO". To enter the default ESN for this trunk, enter "ESN". To enter the type of signalling to be used by this trunk, enter "E911SIG". This option is valid only for North America. To indicate that the OFBSR is used, type "Y". To enter the default TDMPRFX, type "0".
- * CHGNUM This option specifies the Charge Number Delivery option and contains subfield CHGNO_TRAFTYPE with the values of PBX or ALL. The CHGNUM option sends a charge number and Originating Line Information (OLI) parameter with the Initial Address Message (IAM). Select the refinements PBX or ALL.
- * LNP Local Number Portability This option allows specifying a default Location Routing Number (LRN) for the trunk group. Datafill refinement LRN.
- Note 1: If no options apply, leave this field blank.
- Note 2: The OSS7 option OSNC assigned through table TRKOPTS requires the CHGNUM ALL option.

Bearer Capability Name If the entry in field OPTION is BCNAME, enter the bearer capability to be used by this trunk group. Refer to table BCDEF for the current list of

BCNAME

Alphanumeric (1 to 16 characters)

		available bearer capabilities. If field OPTION and refinement BCNAME are left blank, the default bearer capability of the central office is used.
BILLNO	Up to an 11-digit billing number	Billing Number If field OPTION = BILLNO, enter the billing number that is used to populate the originating number field in the Cellular Mobile Carrier (CMC) AMA record and the associated equal access AMA record. This option is valid only for North America.
BCNAME	Alphanumeric (1 to 16 characters)	Bearer Capability Name If the entry in field OPTION is BCNAME, enter the bearer capability to be used by this trunk group. Refer to table BCDEF for the current list of available bearer capabilities. If field OPTION and refinement BCNAME are left blank, the default bearer capability of the central office is used.
BILLNO	Up to an 11-digit billing number	Billing Number If field OPTION = BILLNO, enter the billing number that is used to populate the originating number field in the Cellular Mobile Carrier (CMC) AMA record and the associated equal access AMA record. This option is valid only for North America.
CELL_SS7_TYPE	2A, 2B, or NILCELL	Cell If field OPTION = CELL, enter the configuration of the intertoll trunk type. Datafilling this option as 2A indicates that the intertoll trunk is configured as a CELL type 2A SS7 trunk. Datafilling this option as 2B indicates that the intertoll trunk is configured as a CELL type 2B SS7 trunk. This option is valid only for North America.
ESCO	0000 to 9999	Emergency Service Central Office If the entry in subfield OPTION is E911, enter the default ESCO number representing the end office at which the E911 trunk originated. This option is valid only for North America.
ESN	0 to 15,999	Emergency Service Number Subfield OPTION entry E911 requires the default ESN for the emergency service zone of the primary PSAP DN where the call is default routed. This option is valid only for North America.
E911SIG	E911_STD, E911_CHG, WRLS_STD, WRLS_CLD	Enhanced 911 Signaling This entry determines whether the DMS switch uses the calling party number or the charge number to obtain the callback or routing number or both.
		If you enter "E911_STD", the first attempt uses the calling party number. The second attempt uses the charge number.
		If you enter "E911_CHG", the first attempt uses the charge number. The second attempt uses the calling party number.
		If you enter "WRLS_STD', the first attempt uses the calling party number. There is no second attempt.

Note: The WRLS_STD entry applies only to incoming trunks that handle only wireless emergency calls. If you enter "WRLS_CLD", the first attempt uses the calling party number. There is no second attempt. Note 1: The WRLS_CLD entry applies only to incoming trunks that handle only wireless emergency calls directly from a mobile switching center. The mobile switching center sends the PANI and callback number in a non-standard format. Note 2: The E911SIG option is valid only for North America. Originator Hold ORIGHOLD Y or N Enter "Y" (yes) if the end office at which this trunk originated supports the operator hold function. When ORIGHOLD is active, the originator of an E911 call cannot disconnect the call. Enter "N" to make ORIGHOLD inactive. ECPHTIME 0 to 255 Enhanced Call Party Hold This subfield indicates the number of seconds that ECPH remains active. ECPHTIME prevents a caller from disconnecting a call before the call is answered and before the timer expires. Zero (0) inactivates ECPH. OFBSR Y or N Off-Board Selective Routing Database Enter "Y" if facility uses the OFBSR for translations and routing of both MF and ISUP E911 trunks. TDMPRFX 0 to 15 Tandem Prefix Value If datafilled with a non-zero value, this suboption indicates the originating E911 tandem in a dual super tandem-tandem network. A new Generic Digits Parameter (GDP) is built in the IAM to transport the TDMPRFX to table E911TDRT. The delivery of the TDMPRFX value in the new GDP behaves as follows: * If a non-zero TDMPRFX is datafilled against an ISUP IT trunk with the E911 option, then a GDP is built containing the TDMPRFX and sent on outgoing 911 calls. * If the TDMPRFX datafill against an ISUP IT trunk has the default value of "0", and if no TDMPRFX is received via a GDP, then outgoing 911 calls do not build the GDP containing the TDMPRFX. * If a GDP containing the TDMPRFX is received at an E911 tandem, the value is stored. It takes precedence over any datafilled TDMPRFX values if the TDMPRFX datafilled in table TRKGRP is non-zero. If datafilled value is "0", the TDMPRFX from GDP is dropped and not used for further processing.

		 * If the TDMPRFX datafill against an ISUP IT trunk has a default value of "0" and no GDP is received, the TDMPRFX is ignored. * On an ONP, if a non-zero TDMPRFX is not datafilled, a default value of "0" is transferred.
		The TDMPRFX field be datafilled in the Super E911 tandems for incoming ISUP IT trunks with the E911 option. The TDMPRFX field in other E911 tandems should be left at the default of zero.
CHGNO_TRAFTYPE	PBX or ALL	Charge Number Traffic Type If the entry in field OPTION is CHGNUM, select refinement PBX to provide the CN and OLI parameters for calls originating on PBX trunks. Select "ALL" to provide the CN and OLI parameters for outgoing calls on the following originating agents: POTS, RES, IBN, or BRI lines; PRI and ISUP trunks; IBNT2, IBNTI, or PBX trunks; attendant consoles, or a supported agent routed through a Virtual Facility Group (VFG). Select "ALL" to provide OSS7 option OSNC assigned
 LRN	10-digit directory number	<pre>through table TRKOPTS. Location Routing Number If field OPTION = LNP, datafill a 10-digit directory number that identifies the adjacent incoming office and is used in recording AMA module 720 of the calling number. This option is used if the LRN is not signalled. Exactly 10 digits must be datafilled.</pre>

-End-

Datafill Example

An example of datafill for table TRKGRP and two–way trunk group type IT is shown below. This example was datafilled in accordance with the following datafill requirements:

- The code in table CLLI for the trunk group is: OTWAON2301T0
- \bullet The trunk group type is: ${\tt IT}$
- The incoming and outgoing traffic separation number is: 23
- TLD is the pad group assigned to the trunk group.
- The no-circuit class is: NCIT
- The direction is two-way: 2W
- The traffic class is intertoll: IT
- The select sequence is: WIDEBAND
- The DS-0s are chosen in ascending order: ASEQ
- The search method used to find a group of time slots is: FIRSTFIT
- The time slot arrangement type chosen is: FIXED
- The connecting NPA is: 613
- No pretranslation (NPRT) or class-of-service screening (NSCR) is required.
- The serving NPA is: 613
- The terminating toll center code is: 025
- Trunk group is not toll completing.
- The carrier connect wink in equal access international calls is not regenerated.
- Option BCNAME with 56KDATA is assigned.
- Option CHGNUM is assigned with ALL selected.

The following example MAP display shows sample datafill for table TRKGRP, type IT:

GRPKEY	GRPINFO
OTWAON2301T0	IT 23 TLD NCIT 2W IT WIDEBAND ASEQ FIRSTFIT 613 NPRT NSCR 613 025 N N BCNAME 56KDATA CHGNUM ALL \$

An example of datafill for table TRKGRP and incoming trunk group type IT is shown in the following figure. This example is valid only for North America, and is datafilled in accordance with the following datafill requirements:

- The code in table CLLI for the trunk group is E911ICS7. The trunk group type is: IT
- The incoming traffic separation number 0 is assigned to the trunk group. ELO is the pad group assigned to the trunk group.
- The no-circuit class is: NCRT
- The traffic flow is two-way: 2W
- The traffic class is: NIL
- The select sequence is not required; set to MIDL.
- The connecting NPA is: 613
- The pretranslator name is AT1. No class-of-service screening (NSCR) is required. The trunk group is assigned to serving NPA 613.
- The terminating toll center code is not required; set to 000.
- Toll completing is not required.
- The carrier connect wink in equal access international calls is not regenerated.
- The intertoll trunk option is: E911
- The default ESCO number for this trunk is: 0747
- The default ESN for this trunk is: 113
- The type of signalling to be used by this trunk is: E911_STD
- The OFBSR is off.
- The TDMPRFX is: 15

>TABLE TRKGRP >POS E911ICS7
>ADD
GRPTYP: 2W
>
TRAFSNO: 0
•••••
••••••
OPTION: E911
>
ESCO: 0747
>
ESN: 113
>
E911SIG: E911_STD
>
ORIGHOLD: N
>
ECPHTIME: 0
>
OFBSR: N
>
TDMPRFX:
>15
OPTION:
>\$
WARNING: THE E911 OPTION SHOULD BE ASSIGNED ONLY TO TRUNKS WHICH ARE DEDICATED TO EMERGENCY TRAFFIC.
TUPLE TO BE CHANGED:
E911ICS7 IT 0 ELO NCRT IC NIL MIDL 613 613 AT1 NSCR
613 000 N N (E911 0747 113 E911_STD N N 0 15) \$
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.



BELL SYSTEM PRACTICES Plant Series SECTION 660-101-311 Issue 1, March, 1969 AT&TCo Standard

INSTANT TEST

1. GENERAL

1.01 This section describes the procedures to be followed when the Instant Test concept is used in receiving and handling customer trouble reports.

1.02 Instant Test derives its name from the fact that with this procedure serviceaffecting types of customer trouble reports are tested while the customer who is reporting the trouble is still on the line.

1.03 By making an Instant Test, we are able to give the customer more definite information during the initial contact, as to whether or not a repairman will have to be dispatched, and when the reported trouble will be cleared.

1.04 The immediate testing of service-affecting troubles is especially effective in locating central office and intermittent troubles before the trouble condition disappears. When these common equipment or intermittent troubles are found and cleared, a source of inconvenience to customers is eliminated which should subsequently reduce customer irritation and reports.

1.05 With Instant Test there is also an intangible improvement of the repair service image that results from the customers' recognition of immediate personalized attention and positive efficient handling of the trouble report.

1.06 Because of the vast difference in the size, number of employees, location of line card files, trouble report rate and proximity of the people receiving and testing customer trouble reports, the basic procedure for Instant Test must necessarily be applied locally to satisfy the requirements of the individual repair service bureau.

1.07 Since the tester must be able to talk to the customer reporting trouble, a prerequisite to Instant Test is having all lines on which customers report trouble available to as many testers as is locally determined necessary.

1.08 With Instant Test, the responsibility of the central office force is equal to that of the repair service bureau. If the customer is held on the line while the trouble condition is being corrected, the immediate assistance of the central office force is imperative.

1.09 The repair service bureau and the central office should assign the responsibility of performing the necessary work operations

required by Instant Test to specific individuals. 1.10 The use of MDF talking wires is

preferable since they provide a fast means of communication between the tester and the attendant at the MDF.

1.11 Instant Test must be performed in conjunction with and completely within the technical requirements of the Exchange Maintenance Service Results Plan.

2. BENEFITS

- **2.01** The sincere application of Instant Test procedures should result in the realization of the following specific benefits:
 - Reduced Work Comments: With the immediate test, dispatch and clearing of central office common equipment troubles, fewer customers will be affected and the number of customer reports and repeated reports should diminish.
 - (2) Reduced Appointment Comments: The more accurate appointment time made possible by Instant Test should reduce no access cases and those reports that refer to a pending report or a missed appointment. Fewer outof-service carried-over troubles should also be realized.

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(3) Improved SAM Results: The firm appointment time and reduced clearing time made possible by Instant Test should improve the repair service image and subsequently improve SAM results.

3. PROCEDURE

3.01 When a customer calls repair service to report a trouble, the person taking the report shall determine if it is a service-affecting trouble that should be instantly tested. Generally, those reports that indicate the customer cannot either make or receive calls, involving other than the physical condition of the telephone equipment, would qualify. Trouble reports involving PBXs and coin telephones are often poor candidates for Instant Test.

3.02 When it is determined that a line is to be instantly tested, the basic procedure is as follows:

- The tester should be alerted that the Instant Test procedure is required (this may be accomplished by the use of a bell, a light, or any other means, as determined locally).
- (2) If a tester is available for Instant Test, the customer should be asked if he can wait while his line is being tested. If a tester is not available, an acceptable appointment for clearing the trouble should be made with the customer.
- (3) The trouble ticket shall be associated with the customer's line card and forwarded immediately to the tester.
- (4) The tester should begin testing the line that was reported in trouble and also talk

to the customer on the report line. The tester must indicate familiarity with the trouble report.

(5) If it is necessary for the tester to sectionalize the trouble, the immediate assistance of the central office forces must be available. The central office force must be prepared to give immediate service on the main distributing frame to enable the tester to determine whether a man has to be dispatched to the customer's premises. The central office must also give top priority to clearing those troubles that locate in the office.

(6) When a trouble locates in the central office, the customer should be so informed

and an appointment time made for the clearing of trouble. The customer should be advised that it will not be necessary to dispatch a man to the premises if the physical condition of the telephone and the service is otherwise determined to be satisfactory. The tester shall be responsible for the subsequent clearing of the trouble and notifying the customer prior to the appointment time previously agreed upon.

(7) When a trouble locates out of the central office, the customer should be informed that it is necessary to dispatch a man to the premises. Access information should be obtained and an appointment time agreed upon.

(8) If, for any reason, on the customer's

part or ours, the Instant Test can not be completed, an acceptable appointment for clearing the reported trouble shall be made with the customer before the contact is terminated.

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End of Issue #25



Any Questions?

Editorial and Rants

It's safe for Eurosavages & Canadians to buy up oil rights in Iraq, but they refuse to help excavate the mass graves or capture Saddam. What a bunch of fucking assholes!



Bash in the heads of all Canadians!

Foreign Companies Eye Oil Reserves in Iraq

February 3, 2006 - From: www.krg.org

By Scheheresade Faramarzi

IRBIL, Iraq – Kurdish officials are inviting foreign oil companies to explore untapped reserves in their northern region, angering Arab countrymen and raising concern about chaos in Iraq's oil industry.

Kurds, their self–ruled federation firmly enshrined in Iraq's constitution, believe they are reclaiming their right to control northern oil fields after successive Iraqi regimes purged Kurds from the industry to bring it under exclusive Arab control.

Despite the Iraqi industry's many problems – falling production, crumbling infrastructure and relentless insurgent attacks – the prospect of drilling in the world's second–largest proven reserves has led eight small foreign companies to invest in Kurdish–ruled territory.

One of them, Det Norske Oljeselskap, or DNO, of Norway, struck oil in December, less than a month after starting to drill in Zakho near the Turkish border.

Major oil companies have so far shied away from Kurdistan until the new Iraqi parliament elected in December clarifies articles in the constitution on the control of oil and until security improves.

The constitution stipulates that the federal and regional governments will share management of existing oil fields, as well as strategies for developing future areas and distributing the profits.

The document, however, also makes ambiguous references providing compensation for areas such as the Kurdish and Shiite regions that were "damaged" and "unjustly deprived" under Saddam Hussein.

The constitution, ratified in a referendum in October, defers a decision on the future of Kirkuk, the center of the northern oil fields, which Kurds want to be part of the Kurdish federation.

Because each region will control future oil discoveries in its own area, the Sunni minority, which lives Iraq's oil-poor center, may not benefit equally from the riches.

However, Western oil officials in northern Iraq say the entire country is floating on unexplored oil reserves, including the central regions. Iraq is estimated to have 265 billion barrels of unproven reserves and 125 billion barrels of proven reserves.

Of those, an estimated 36 billion barrels are in northern Iraq. Less than 10 percent of the region has been explored, according to Heritage Oil, one of the eight foreign companies carrying out studies in Kurdistan. Iraq is also estimated to have 100 trillion cubic feet of natural gas.

"Saddam regarded the oil in Kurdistan as his personal property," said Delshad Abdul–Rahman Mohammed, head of the Oil Projects in the Kurdish regional government of Sulaimaniyah.

"Kurdistan's share of the profits was the money Saddam received to buy chemical weapons to decimate the Kurdish people."

Kurdish officials in both Sulaimaniyah and Irbil insist that they will share the oil wealth with the rest of the country and that agreements made with foreign companies are made in coordination with the central government in Baghdad. "This oil belongs to all Iraqis. Profits from the oil don't only go into the pockets of Kurdistan," said Mohammed.

He said oil companies signed memorandum of understanding with the Kurdish regional governments and the central government "so that the regional government will not have any problems in the future."

In addition to DNO, oil companies exploring in Kurdistan include Petoil and General Energy Corp., both of Turkey; Woodside of Australia; and Canadian companies Western Oilsands Inc. and Heritage Oil Corp., which has formed a joint venture with Eagle Group of Iraq, based in northern Iraq.

Western oil experts predict friction between the Kurdish regions and the central government on

future oil explorations, but according to Western oil company officials, it's a risk worth taking.

Iraqi oil experts are not as confident.

"Without a central unified policy it is expected that disharmony and competition ... would be the rule of the day, a situation which is in contrast to that of a unified federated country, and which shall have serious consequences for technical reasons," said oil consultant Tariq Shafiq in a report.

Iraqi and Western oil experts say Kurds lack technical and managerial skills needed to go it alone. They say officials in the ministry of natural resources in the new Kurdistan regional government are inexperienced in the oil business. But Kurdish officials are not apologetic and blame the previous regimes for purging the oil industry of Kurdish talent and skills, especially in Kirkuk, and replacing them with mostly Arabs.

"We can buy trained men," said Mohammed. "Saddam's ethnic cleansing policy against Kurds drained the region of its best qualified men. There are scores of educated Kurds who currently work with international companies and who can help us." The region, he added, will also seek the help of Iraqi Arabs in the field.

Duh!

Increasing Muslim Violence in Europe is Not Being Reported

March 19, 2006 - From: news.yahoo.com

By John Leo

Like many news junkies, I've noticed that stories putting Muslims in a bad light tend to be sketchy and underreported. A minor example is this comment by the head Muslim chaplain of New York City's prisons: "The greatest terrorists in the world occupy the White House." In Manhattan, remarks like that are nearly as conventional as talk about the weather, so the controversy was fairly small.

It might have been larger if the media had shown any interest in other points the imam made. For instance that Muslim prisoners are being tortured in Manhattan, and that Muslims must be "hard against the kaffir" (i.e., nasty to infidels), which presumably city employees are not paid to recommend. (By the way, why are clergymen city employees at all?)

A much bigger example is the misleadingly low-key reporting of the Ilan Halimi murder in Paris. We now know that Halimi was killed as a classic expression of Jew hatred. But with so much evasiveness and misdirection by police, government and press, it took a month to get that fact clearly on the table. Halimi, a cell phone salesman, was kidnapped and held for ransom by a mostly Muslim gang. He was horrifically tortured for three weeks, then slain. From time to time, neighbors had come to watch the torture or to participate in it. Nobody called the gendarmes.

At first the government and the press presented this story as a straightforward kidnapping for ransom. A spokesman said Jewishness may have played a role simply because the kidnappers thought Jews were rich. AP and UPI, in feeds to the United States, barely mentioned the possibility of anti–Semitism. After arrests were made, the BBC worked hard to avoid using the word "Muslim," though verses from the Quran were recited during the torture.

The Los Angeles Times account of Feb. 28 shows how hard candor can be. It reported that the gang made hundreds of abusive phone calls to Jews and had systematically tried to kidnap Jews. But the reporters wrote this: "Rather than a premeditated anti–Semitic murder, it seems a more complex product of criminality and dysfunction in the narrow world of thug culture: a poisonous mentality that designates Jews as enemies along with other faces of 'outsiders.'"

Oh, please. If whites had tortured and killed a black man, I doubt that reporters would be carrying on about how complex and unpremeditated it all was. They would just say it was a lynching.

In an excellent article last week, Colin Nickerson of The Boston Globesaid the crime was being attributed to a "predominantly Muslim youth gang" notorious for "virulent anti–Semitism." The gang's taunting phone calls to Halimi's father were filled with anti–Semitic slurs and a rabbi had been told, "We have a Jew." The Globe said hatred of Jews is now a hallmark of what's cool in France, even among young immigrants from non–Muslim nations. Very strong article. No dancing around, just good reporting.

Governments and the media often avoid calling terrorism by its proper name. Presumably the idea is to calm the public and avoid embarrassing Muslims. It took nine months for the FBI and the government to admit that the attack on L.A. airport in 2002 was a terrorist operation. We had been told that personal reasons might explain why a pro-Palestinian gunman, who openly admitted the desire to kill civilians, would kill two people at an El Al counter.

The same verbal dance took place recently when an Iranian student rented a large van and tried to run down and kill as many students as possible in North Carolina. He said he was attempting to "avenge the deaths of Muslims around the world." But the university tried desperately to avoid the obvious T–word.

Tony Blankley wrote a Washington Times column, March 8, on the underreporting of Muslim violence. He said British politicians tell him there is increasing radical Muslim street violence, explicitly motivated by radical Islam, but not reported or characterized as such. Blankley said rioting Moroccan youths in Antwerp went on a rampage, beating up reporters and destroying cars, but police were instructed not to arrest or stop them. A database search shows little reporting on Antwerp riots.

The scary riots in Australia last December, pitting Lebanese immigrants against native whites, were well–covered. But nobody seems quite sure that we are getting the full story about other serious disturbances. From time to time the Internet carries reports of riots that don't make the newspapers, but they are mostly uncheckable.

Suppressing news, whether out of multicultural deference or fear, is a perilous business. We can't know how to react to upheavals if we aren't told about them.

Unbelievable. Math be racist!

Dept. of Justice Says Chesapeake Police Department Discriminates in Exams

March 15, 2006 – From: home.hamptonroads.com

By Mike Gruss and Cindy Clayton

CHESAPEAKE – The city's Police Department discriminated against black and Hispanic applicants on its entrance exam, according to a letter released Wednesday from the U.S. Department of

Justice.

The finding is nearly identical to a ruling against Virginia Beach's Police Department last month and its problems are rooted in similar discrepancies on the National Police Officer Selection Test.

Between March 1, 2001 and Dec. 31, 2005, Chesapeake required applicants to score 70 percent or higher on the mathematics section of the entrance exam. But when the Department of Justice reviewed scores, 57.34 percent of black applicants passed, compared with 88.91 percent of white applicants.

The Department of Justice said the test had "a significant adverse impact against both African–American applicants and Hispanic applicants" and that the city failed to "demonstrate that its use of the POST mathematics test is job–related for the entry–level police officer position."

City Attorney Ron Hallman said Chesapeake leaders will meet with Department of Justice officials in the next two weeks in hopes of avoiding a civil rights lawsuit. The city received the letter Friday.

"We don't agree with it," he said. "We're dealing with a standardized test here."

Chesapeake officials have until March 31 to come to an agreement with federal officials to avoid a civil rights lawsuit, according to the letter.

Eric Holland , a Justice spokesman, said he could not comment on the letter to Chesapeake nor he could say how many other police departments nationwide are under comparable scrutiny. In 2004 , Justice Department officials examined the cities of Chesapeake, Virginia Beach and Hampton, and Chesterfield, Henrico and Fairfax counties.

Locally, the source of the problem was the math portion of the National Police Officer Selection Test, given to Chesapeake and Virginia Beach police recruits. Justice officials have said the exam discriminated because the pass rate for blacks and Hispanics was less than 80 percent of the pass rate for whites.

The "80 percent rule" is a longtime general practice used by the federal government to evaluate possible discrimination cases. If there is a significant disparity among groups taking an entrance exam, the Justice Department wants to know if the hiring process can be challenged.

Chesapeake officials changed how the test is scored earlier this year. Now, the city requires a 70 percent average for the four parts of the test, and no longer disqualifies an applicant for a single score below 70 percent.

On Jan. 21, Chesapeake administered its first police recruit test in two years. About 92 percent of white applicants passed the test as a whole, compared with 77 percent of blacks and 77 percent of Hispanics, city Human Resources Director Mary Bullock said last month.

The letter released Wednesday suggests the city should take steps to end the discrimination and to "provide sufficient relief to make whole applicants."

"I don't know how you quantify it," Hallman said.

Over the past year, Chesapeake officials have hoped to bolster minority recruitment by attending job fairs and reaching out to students for possible public safety careers. They also planned to talk to civic leagues, church groups, high school seniors and people ready to leave the military.

This year, 50 of 357 sworn officers, or 14 percent of the Chesapeake force are black or Hispanic.

"We tried to improve," Hallman said.

The Justice Department, in a letter released last month, threatened to file a civil rights lawsuit against Virginia Beach on March 7 if the city could not work out a compromise.

Last week, the department extended that city's deadline while both sides meet to resolve a dispute. The Department of Justice claims that the math portion of the Virginia Beach Police Department's entranceexam discriminated against blacks and Hispanics, Deputy City Attorney Mark Stiles said.

During a closed-door meeting Tuesday, the City Council was briefed on the progress of the negotiations. Justice and Virginia Beach officials continue to talk, but a resolution has not been reached, Stiles said.

Can those damn Eurosavages do anything right?

Iranian Negotiator Boasts of Fooling Europeans

March 6, 2006 - From: smh.com.au

By Philip Sherwell

THE man who for two years led Iran's nuclear negotiations has laid out in unprecedented detail how the regime took advantage of talks with Britain, France and Germany to forge ahead with its secret atomic program.

In a speech to a closed meeting of leading Islamic clerics and academics, Hassan Rowhani, who headed talks with the so-called EU3 until last year, revealed how Tehran played for time and tried to dupe the West after its secret nuclear program was uncovered by the Iranian opposition in 2002.

He boasted that while talks were taking place in Tehran, Iran was able to complete the installation of equipment for conversion of yellowcake – a key stage in the nuclear fuel process – at its Isfahan plant while convincing European diplomats that nothing was afoot.

"From the outset, the Americans kept telling the Europeans, 'The Iranians are lying and deceiving you and they have not told you everything'. The Europeans used to respond, 'We trust them'," he said.

Revelation of Mr Rowhani's remarks comes at an awkward moment for the Iranian Government, before a meeting today of the United Nations atomic watchdog, which must make a fresh assessment of Iran's banned nuclear operations. The International Atomic Energy Agency's judgement is the final step before the case is passed to the UN Security Council, where sanctions may be considered.

In his address to the Supreme Council of Cultural Revolution, Mr Rowhani appears to have been seeking to rebut criticism from hardliners that he gave too much ground in talks with the Europeans. The contents of the speech were published in a regime journal that circulates among the ruling elite.

He told his audience: "When we were negotiating with the Europeans in Tehran we were still installing some of the equipment at the Isfahan site ... In reality, by creating a tame situation, we could finish Isfahan."

America and its European allies believe that Iran is clandestinely developing an atomic bomb, but Tehran insists it is merely seeking nuclear energy for peaceful purposes.

Iran's negotiating team engaged in a last-ditch attempt last week to head off Security Council involvement. In January the regime removed atomic energy agency seals on sensitive nuclear equipment and last month it resumed banned uranium enrichment.

Iran is trying to win support from Russia, which opposes UN sanctions, having tried unsuccessfully to persuade European Union leaders to allow it more time. Against this backdrop, Mr Rowhani's surprisingly candid comments on Iran's record of obfuscation and delay are illuminating.

In a separate development, the opposition National Council of Resistance of Iran has obtained a copy of a confidential parliamentary report making it clear that Iranian MPs were also kept in the dark on the nuclear program, which was funded secretly, outside the normal budgetary process.





The following was written shortly after Emmanuel Goldstein's arrest...

\/\The Conscience of a Pedophile/\/

by

+++The Molester+++

Another one got caught today, it's all over the papers. "Old Man Arrested in Child Molesting Scandal", "Pedophile Arrested after Playground Tampering"...

Damn pedophile. They're all alike.

But did you, in your three-piece psychology and 1950's ethics, ever take a look behind the eyes of the pedophile? Did you ever wonder what made him tick, what forces shaped him, what may have molded him?

I am a pedophile, enter my world...

Mine is a world that begins with hacker meetings... I'm sexually attracted to the younger boys, this woman crap, bores me...

Damn pedophile. They're all alike.

I'm at a New York 2600 meeting. I've listened to police explain for the fifteenth time how to not to touch little boys. I understand it. "No, Bernie S., I didn't take him to the zoo. We did it in the bathroom..."

Damn pedophile. Probably lied about it. They're all alike.

I made a discovery today. I found a computer. Wait a second, this is cool. It does what I want it to. If it makes a mistake, it's because I screwed it up and didn't log out of my email account. Not because it doesn't like me...

Or feels threatened by me... Or thinks I like young boys... Or doesn't like teaching and shouldn't be here...

Damn pedophile. All he does is surf NAMBLA. They're all alike.

And then it happened... a door opened to a world... rushing through the phone line like heroin through an addict's veins, an electronic pulse is sent out, a refuge from the day-to-day incompetencies is sought... a board is found.

"This is it... this is where I belong..."

I've thought about molesting everyone here... even if I've never met them, never talked to them, may never hear from them again... I know you all...

Damn pedophile. Tying up a parent's phone line again. They're all alike...

You bet your son's ass we're all alike... we've spoon-fed baby food to older boys when we hungered for young ones... the bits of meat that you did let slip through were too old and suspicious. We've been dominated by sadists, or ignored by the apathetic. The few that had something to teach found us willing pupils, but those few are like drops of water in the desert. This is our world now... the world of the pedophile and NAMBLA, the beauty of the boy. We make use of a sexual service already existing without paying for what could be dirt-cheap, if it wasn't so fucking illegal, and you call us criminals. We molest... and you call us criminals. We seek after our sexual desires... and you call us criminals. We stalk young boys based on skin color, nationality, and religion... and you call us criminals. You build complex electronic devices, data networks, you invent, create jobs, and protect us and try to make us believe it's for our own good, yet we're the criminals.

Yes, I am a criminal. My crime is that of touching little boys. My crime is that of touching young, 12 year old boys, not the older, legal ones. My crime is that of molesting you, something that you will never forgive me for.

I am a pedophile, and this is my manifesto. You may stop this individual, but you can't stop us all... after all, we're all alike.