TECHNICAL MANUAL

ORGANIZATIONAL MAINTENANCE MANUAL
VOICE COMMUNICATIONS EQUIPMENT MAINTENANCE

EXPANDED TROUBLESHOOTING
(LOGIC DIAGRAM THEORY)

GUIDED MISSILE AIR DEFENSE SYSTEM
AN/TSQ-73

HEADQUARTERS, DEPARTMENT OF THE ARMY
4 AUGUST 1981

CHANGE }
No.1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., *30 November 1983*

Organizational Maintenance Manual: Voice Communications Equipment Maintenance

GUIDED MISSILE AIR DEFENSE SYSTEM AN/TSQ-73

Current as of 17 March 1983

TM 9-1430-655-20-74, 4 August 1981, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by the applicable change number, i.e., Change 1, at the bottom of the page adjacent to the page number. Revised text will have a vertical bar in the margin next to the changed area. Revised illustrations will have a suffix change letter added to the identification number.

Remove Pages	Insert Pages
A and B	A and B
i and ii	i and ii
6-19 and 6-20	6-19 and 6-20
6-39 and 640	6-39 and 640
6-55 and 6-56	6-55 thru 6-56.1/(6-56.2 blank)

2. File this change sheet in front of the publication for reference.

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To be distributed in accordance with DA Form 12-32, Section III, Organizational Maintenance requirements for AN/TSQ-73 Missile System.

WARNING

DANGEROUS VOLTAGE

is used in the operation of this equipment

DEATH ON CONTACT

may result if personnel fail to observe safety precautions

Never work on electronic equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and who is competent in administering first aid. When the technician is aided by operators, he must warn them about dangerous areas.

Whenever possible, the power supply to the equipment must be shut off before beginning work on the equipment. Take particular care to ground every capacitor likely to hold a dangerous potential. When working inside the equipment, after the power has been turned off, always ground every part before touching it.

Be careful not to contact high-voltage connections when installing or operating this equipment.

Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body.

WARNING

Do not be misled by the term "low voltage." Potentials as low as 50 volts may cause death under adverse conditions.

For Artificial Respiration, refer to FM 21-11.

EXTREMELY DANGEROUS POTENTIALS

greater than 500 volts exist in the following units:

Display console high voltage power supply

Display console CRT

WARNING

For emergencies requiring immediate shutdown of system power, press SYSTEM POWER OFF switch located on power cabinet power transfer unit. Observe that SYSTEM POWER ON indicator light goes off.

LIST OF EFFECTIVE PAGES

Total number of pages in this manual is 234 consisting of the following:

Page No.	*Change No.	Page No.	*Change No.	Page No.	*Change No.
a	0	6-107	0	6-147	0
b Blank	0	6-108 Blank	0	6-148 Blank	0
A -B	1	6-109	0	6-149	0
i	1	6-110 Blank	0	6-150 Blank	0
ii - v	0	6-111	0	6-151	0
vi Blank	0	6-112 Blank	0	6-152 Blank	0
6-1-6-3	0	6-113	0	6-153	0
6-4 Blank	0	6-114 Blank	0	6-154 Blank	0
6-5 - 6 -9	0	6-115	0	6-155	0
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6-13 - 6-19	0	6-119	0	6-159	0
6-20	0	6-120 Blank	0	6-160 Blank	0
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6-39 - 640	0	6-122	0	6-162	0
6-41 - 6-55 0	0	6-124 Blank	0	6-164 Blank	0
6-56 - 6-56.1	1	6-1251	0	6-165	0
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6-57 - 6-75	0	6-127	0	6-167	0
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6-92 Blank 0	0	6-132 Blank	0	6-172 Blank	0
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6104 Blank	0	6-144 Blank	0	6-184 Blank	0
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6-06 Blank	0	6-146 Blank	0	6-168 Blank	0
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6-106 Blank 0	0	6-142Blank	0	6-182 Blank	0

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LIST OF EFFECTIVE PAGES-CONTINUED

Page No.	*Change No.
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6-190 Blank	0
6-191	0
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6-215	0
6-216 Blank	0
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6-218	0
6-219 - 6-222	0

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HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 4 August 1981

ORGANIZATIONAL MAINTENANCE MANUAL: VOICE COMMUNICATIONS EQUIPMENT MAINTENANCE

GUIDED MISSILE AIR DEFENSE SYSTEM AN/TSQ-73

Current as of 1 7 March 1983

TABLE OF CONTENTS

TABLE OF CONTENTS - Continued

Chapter Page

LIST OF ILLUSTRATIONS

LIST OF ILLUSTRATIONS - Continued

LIST OF TABLES

CHAPTER 6
VOICE COMMUNICATIONS EXPANDED TROUBLESHOOTING

Section I. INTRODUCTION

6-1. Scope. This manual is part three TM 9-1430-655-20-7 communications organizational maintenance for Guided Missile Air Defense System AN/TSQ-73 provides supplemental expanded troubleshooting information. This manual is published for the use and guidance of advanced personnel responsible for repair of voice communications beyond the scope of organizational maintenance covered in the basic TM 9-1430-655-20 series technical manuals.

6-2. Expanded Troubleshooting Concept. Expanded troubleshooting is required when existing fault isolation procedures in the basic manuals fail to isolate and correct a malfunction. The troubleshooting covered in this manual is based on use of existing on-site equipment (tapes, tools, test equipment, spare parts, and publications). Isolation of malfunctions is based on fault analysis of normal system operating conditions and using built-in M&D software programs.

6-3. Troubleshooting Aids. This manual contains functional logic diagrams to enhance troubleshooting and fault isolation capabilities. The functional logic diagrams and the associated circuit descriptions are intended to be self-contained and minimize requirements of additional troubleshooting aids. Also, power distribution diagrams, cabling diagrams, and front- panel schematic diagrams are supplied.

a. *Input/Output Tables*. Input and output tables are provided as applicable for each figure and sheet to enable easy access to signals referenced to other diagrams.

b. *Input and Output Symbology*. Symbols used on diagrams to indicate input and output signals include the following:

▲ Indicates input from another figure.
△ Indicates input from same figure.
■ Indicates output to another figure.
□ Indicates output to same figure.
◪ Indicates output to same and another figure.

c. Equipment Interface. The troubleshooting diagrams may reference inputs and outputs interfacing between other equipments. When a notation that an external equipment is involved, it is assumed that the user will refer to the applicable troubleshooting information provided for that equipment.

d. Logic Symbology. Logic symbology depends on card types. For discrete circuit cards containing conventional integrated circuits, conventional logic symbols are used. These symbols are used independently with card locations and card pin numbers notated with the symbol. For analog circuits, circuit card details are provided only to a functional level.

6-4. Physical Description (fig. 6-1). The voice communications equipment consists of a voice communications central (VCC) unit lA3A41, which includes a VCC control panel 1A3A41A1 and a VCC wired card cage 1A3A41A2, Voice communications also consists of two voice communications station (VCS) units 1A9 and lA10. Voice communications interface to external subscribers is accomplished through communications patching panel 1A3A40 and the communications demarkation panel which are also common to data communications. Table 6-1 provides a cross-reference list of part and drawing numbers for the AN/TSQ-73 system in reference designator order; this cross-reference is for identification of assembly and electrical drawings only. Refer to TM 9-1430-655-20-1 for a listing of wiring harnesses and cables and associated wire list or cable wiring diagrams.

a. Voice Communications Central. The VCC is located in the voice communications central cabinet assembly 1A3 on the left-hand side of the shelter above the power cabinet. The VCC is a solid state unit which occupies a five shelf card cage including three self contained power supplies. All controls and indicators on the VCC control panel assembly, with the exception of the power switches, are oriented toward fault isolation and maintenance.

b. Voice Communications Station. The total number of VCS's utilized in a shelter is four, with one VCS located in the right-hand assembly of each display console and two which are wall mounted on the left-hand side of the shelter above the maintenance bench and near the keyboard printer. The VCS consists of an electronic enclosure and a front panel assembly. The enclosure assembly houses four circuit cards and the front panel assembly houses the controls and indicators required to provide rapid access to the voice network.

(1) The primary communications end-instrument for the VCS in the wall mount configuration is a handset with a push-to-talk switch. A jack is also available for the option of using a headset in conjunction with, or instead of, a headset. In the headset configuration, a push-to-talk switch is not provided and requires a continuous hot microphone operation under control of a voice operated squelch. In the handset configuration,

the operator can select the option of continuous hot microphone operation or push-to-talk under switch control.

(2) The primary communication end-instrument for the console mounted configuration is a headset with a separate push-to-talk footswitch. A second headset jack provides the option of using two headsets per terminal. The operator can select the option of continuous hot microphone or push-to-talk under switch control.

c. Communications Patching Panel. The communications patching panel is located on the right side of the voice communications central unit and is hinged on the right for easy access. The panel provides for 4-wire data and voice duplex line connections through comm cables to remote stations. Operational control, command administration, and maintenance test voice nets are interfaced through address 01 thru 32. Local comm to remote stations (switchboards, etc.) are interfaced over 4-wire duplex lines through addresses 34 and 35. Intercom to site stations (guard posts and generators) are interfaced over 2 wire lines through address 36.

d. Communications Demarkation Panel. The communications demarkation panel is located at the back of the voice communications central unit and extends through the electrical equipment shelter wall. The panel contains 39 RFI filters to limit lighting induced transients up to 10 kv/microsecond.

Table 6-1. ANITSQ- 73 Major Equipment Cross-Reference

Ref des	Equipment	Part no.	Drawing
--	External Cable Set	10281356	10284717
1	Shelter	Multiple	--
	Intra-Shelter Cable Set	10282262	10284718
1A1	Equipment Rack	10284818	--
	Equipment Rack Cable Set	10284715	10284716
1A1A1	Rack 1	--	--
1A1A1A1	RIE II Panel	10282235	WL10282235
1AlA1A2	Radar Simulator Panel	10281406	WL10281406
1A1A1A3	Video Simulator Unit (VSU)	10281390	--
	VSU Wired Card Cage	10281348	WL10281348
1A1AlA4	Radar Integration Unit (RIU)	10281380	--
	RIU Bay 1 Wired Card Cage	10281387	WL10281387
	RIU Bay 2 Wired Card Cage	10281436	WL10281436
lAlAlA5	Video Processor Unit (VPU)	10281383	--
	VPU Bay 1 Wired Card Cage	10281388	WL10281388
	VPU Bay 2 Wired Card Cage	10281422	WL10281422
1A1A1A6	Radar/Simulator Unit (R/S)	10281614	--
	R/S Unit Wired Card Cage	10281615	WL10281615
1A1A1A7	1-Port 8K Core Memory	10281385	--
1A1A1A8	Wired Core Memory Assembly	10281386	WL10281386
1A1A2	Rack 2	--	--
11A2A1	ADP Status and Control Panel	10284664	WL10284664
1A1A2A2	Data Comm Control Panel	10281439	WL10281439
1A1A2A3	4-Port 8K Core Memory	10281342	--
1A1A2A4	Wired Core Memory Assembly	10281397	WL10281397
1A1A2A5	Upper Modem (16/16)	10281616	--
	Upper Modem (10/16)	10284971	--
	Upper Modem Wired Card Cage	10281617	WL10281617
1A1A2A6	Data Comm Card Cage	1028169	--
	Data Comm Wired Card Cage	10281620	WL10281620
1A1A2A7	Lower Modem (4/16)	10281618	--
	Lower Modem (2/16)	10284830	--
	Lower Modem Wired Card Cage	10281650	WL10281650
1A1A2A8	4-Port 8K Core Memory	10281342	--
1A1A2A9	Wired Core Memory Assembly	10281397	WL10281397
1A1A3	Rack 3		

Table 6-1. AN/TSQ- 73 Major Equipment Cross-Reference--Continued

Ref des	Equipment	Part no.	Drawing
1A1A3A1	Input/Output Unit (IOU)	10281344	--
	IOU Wired Card Cage	10281394	WL10281394
1A1A3A2	Buffer Unit	10281437	--
	Buffer Unit Wired Card Cage	10281431	WL10281431
1A1A3A3	Central Processing Unit (CPU)	10281340	--
1A1A3A4	CPU Bay 1 Wired Card Cage	10281396	WL10281396
	CPU Bay 2 Wired Card Cage	10281430	WL10281430
1A1A3A5 thru	4-Port 8K Core Memory	10281342	--
1A1A3	Wired Core Memory Assembly	10281397	WL10281397
1A1A4	RIE I Panel	10281406	WL10281409
1AIA6	ADP Interface Panel	10285182	WL10284551
1A1A6	Radar Interface Panel	10284817	WL10281445
1A2	Power Cabinet	10284821	WL10284821 10284916
1A3	Voice Communications Central (VCC)	10284822	--
1A3A1 thru 1A3A39	RFI Filter Assembly	MIS-19560	
1A3A36 thru 1A3A39	RFI Filter Assembly	MIS-19561	
1A3A40	Communications Patching Panel	10281341	WL10281331
1A3A41	VCC Unit	10281355	WL10282276
1A3A41A1	VCC Control Panel	10281623	WL10281889
1A3A41A2	VCC Wired Card Cage	10281334	WL10281334
1A4	Maintenance Bench	10284823	--
1A5, 1A6	Display Console	10284960	1028130
1A7, 1A17	Data Display Group	10281361	10282122
1A8, 1A13	Magnetic Tape Unit	10281510	--
	Tape Transport Cartridge	10281579	--
	Wired MTU Assembly	10281580	WL10281580
1A9, 1A10	Voice Communications Station (VCS)	10281399	--
	Wired VCS Unit	10281625	WL10282287
	VCS Front Panel	10281630	WL10281630
	VCS Wired Card Cage	10282277	WL10282277
1A11	MCPE (when supplied)	10284806	--

Table 6-1. ANITSQ- 73 Major Equipment Cross-Reference--Continued

Ref des	Equipment	Part no.	Drawing
1A12	Keyboard Printer Unit	10281464	--
1A14	Module Test Set (MTS)	10281395	--
	Wired MTS Assembly	10281449	WL10281449
	Test Set Probe Assembly	10285061	WL10281447
1A15	Environmental Control Panel	10281477	WL10281477 10281665
2	Radar Junction Box	10285092	WL10285092
3	Display Junction Box	10284920	WL10284920
4	Motor Generator Set	10285058	--
5	Diesel Engine Generator	--	--

Section II. OVERALL THEORY

6-5. Overall Functional Description (fig. 6-2). The voice communications station (VCS) provides operator access to the voice comm system. The voice communications control (VCC) provides the required switching, common control signaling and interfacing capability to establish voice communications between station operators and personnel external to the system. The VCC generates and detects the ring frequencies of 1600 and 20 Hz, and provides the appropriate electrical interface to accommodate four- and two-wire signals. The VCC also multiplexes the audio of groups of four batteries such that an operator may ring individual batteries but talk to the batteries as a group. In addition, the VCC generates the time frames necessary for all the VCS's to operate over a single control line, reducing the number of cables between the VCC and VCS.

a. The VCS (fig. 6-3) is functionally divided into a digital communications section and an analog or voice communications section. The digital communications section enables the station to transmit and receive commands and indications over the common data multiplex lines from the VCC. The analog section contains the amplifiers and the controls required by the station to interface a headset and/or handset with the voice communication network. The digital portion of the VCS is broken down to three circuits: the multiplexer, the switch encoder, and the keyset control. The digital section of the VCS sends and receives control signals to and from the digital portion in the VCC. The control signals are time-division-multiplexed in each circuit.

b. All control signals are time-division-multiplexed onto a single shielded twisted pair with a second pair carrying timing and frame synchronization. Further, since the control signals are the result of relatively slow switch actions, all stations are multiplexed onto the same pair. This is accomplished by assigning each station a different fixed time slot in which to transmit its control signals which are demultiplexed at the central.

c. The VCC primary functional circuits are illustrated in figure 6-4. The VCS interface provides for transmission and reception of audio and control data in addition to frame sync and timing sync for up to 10 VCS's. Communications capabilities for each station are as follows.

(1) Three nets to external subscribers that can be configured as desired by each operation. These nets are the operational-control (OC), maintenance test (MN) and command-administration (CA) nets. The command-administration net also provides for two special nets (A and B) utilized for private conversations.

(2) Five local comm lines to the local are a switchboard.

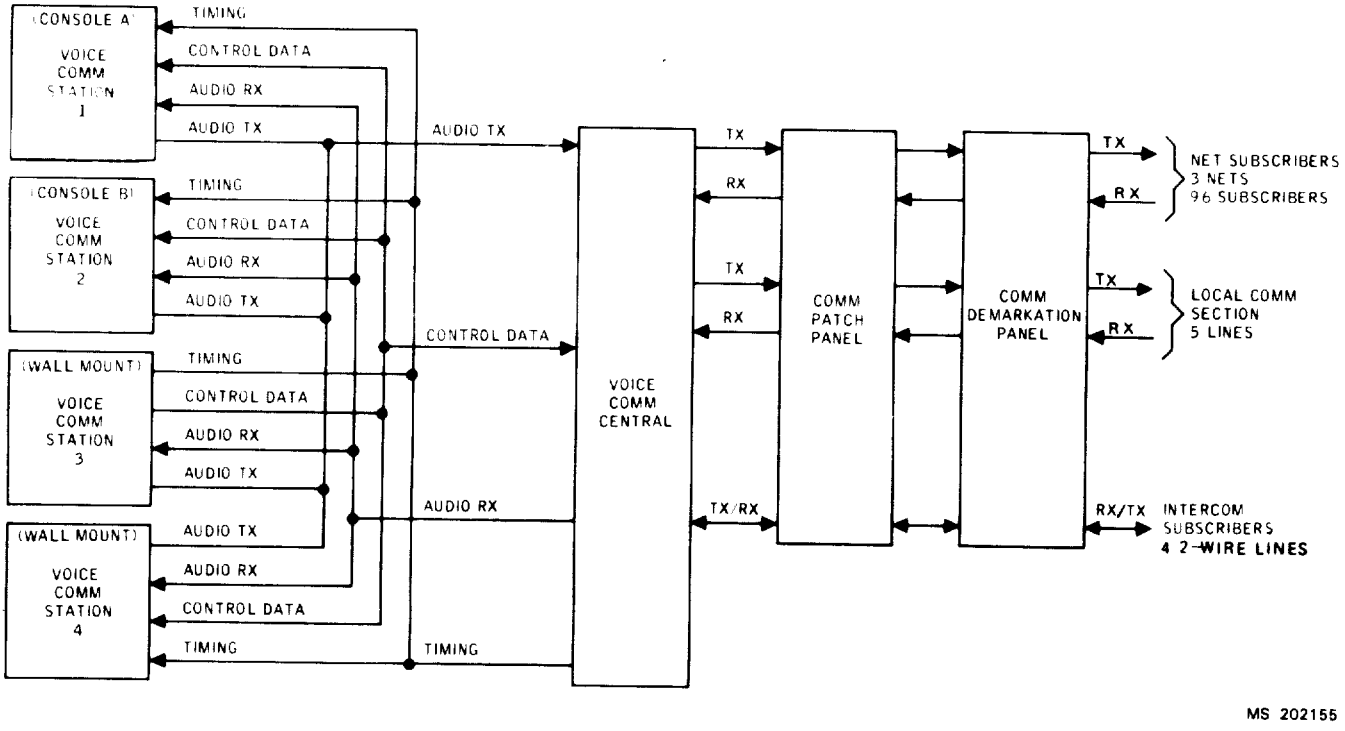


Figure 6-2. Voice Communications Overall Block Diagram

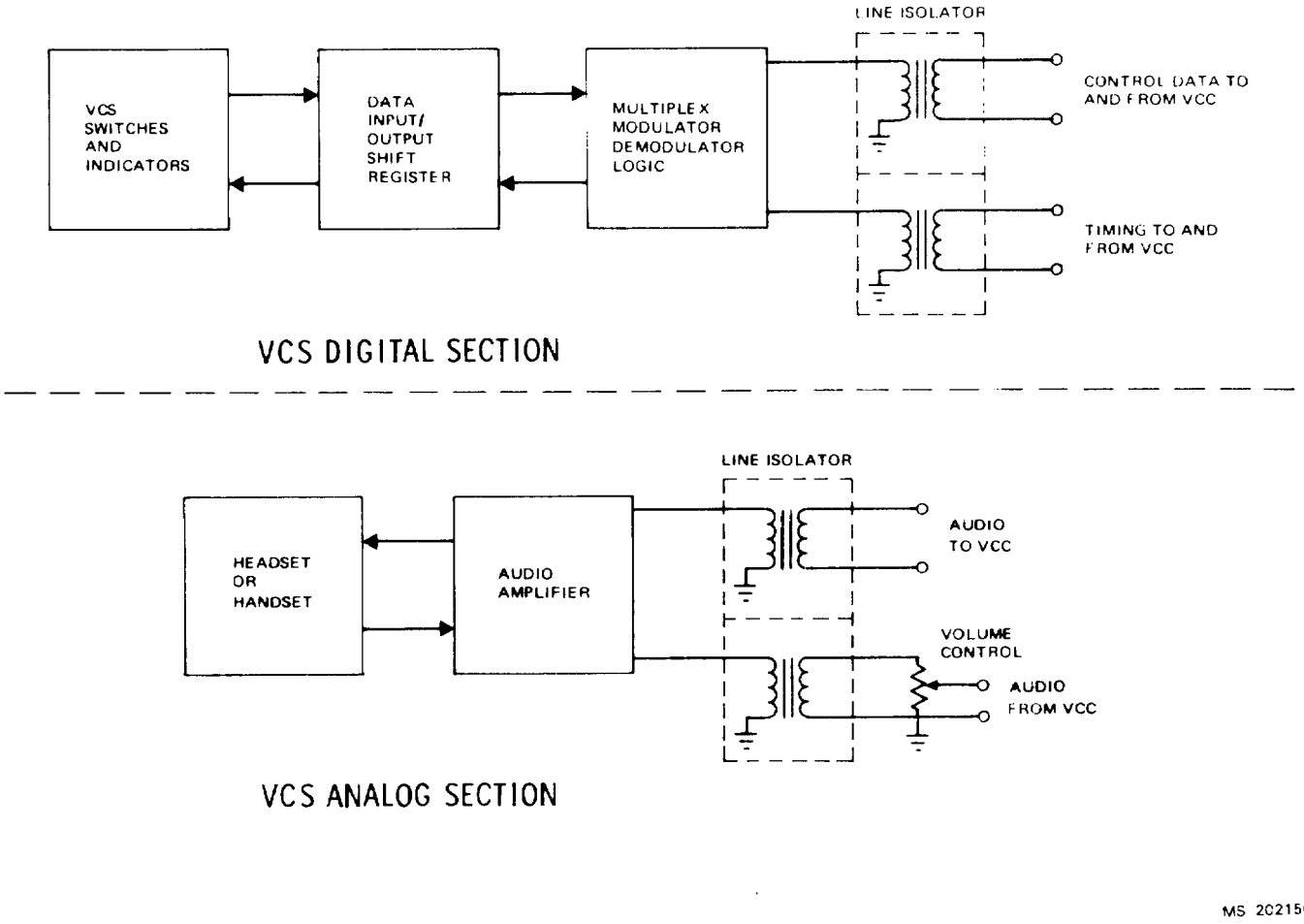


Figure 6-3. Voice Comm Station Functional Block Diagram

(3) Six intercomm lines for each station. Intercomms 1 and 2 are used exclusively for conversations between stations. Intercomms 3 through 6 can be connected to field phones on the communications demonstration panel. These four lines will permit communications with two field telephones each. The VCC switches the net audio, local comm audio and intercomm audio to the communications patching panel, which provides for testing and monitoring of individual lines. The communications patching panel is connected directly to the communications demarkation panel where external connections are provided.

6-6. Logic Theory Presentation. The following describes the philosophy and techniques utilized to illustrate and support the logic theory. The primary illustrative material is the detailed logic diagrams located in Volume 2. These are supplemented by functional block diagrams, timing diagrams and tabular data which are integrated into the logic theory.

a. The VCS and the VCC can be divided into analog and digital portions. In the detailed theory each analog element is initially described. For purposes of convenient logic analysis, the analog and digital portions are broken down into discrete logic groups to which can be assigned unique logical identities. Each of these final levels of logic groups is represented by a logic diagram which may comprise one or several sheets. Each primary functional assembly is described under a prime heading and is supported by a functional block diagram. For those circuits that perform a sequential and predictable logic function (timing and control), detailed timing diagrams are provided. For those circuits whose functions significantly vary with the context of input data or control signals (instruction decoding), tabular information is included.

b. The intent of the functional block diagrams is to provide simplified illustrative support for the theoretical prose, emphasizing functional flow and descriptive signal connotation as opposed to the logic diagrams which necessarily portray individual signal flow and unique mnemonic connotation. The block diagrams are therefore a tool for understanding the operation of the device and will facilitate application of the logic diagrams when isolating a fault.

c. The block diagrams collect various related functional elements (gates, flip-flops, multiplexers, etc.) into functional blocks. These functional blocks are directly related to the broken-line enclosed areas reflected on the associated logic diagrams. In addition, the block diagrams contain the primary input and output mnemonics for each functional block. For the purpose of simplicity, both outputs (flip-flop J and K) are only shown when logically critical and bused lines are used where practical to illustrate the flow of related signals.

d. The descriptive signal names are usually a direct translation of the particular mnemonic: however, the mnemonics often have no obvious relationship with the descriptive connotation. The mnemonic can, however, facilitate evaluation of the nature of the signal. For the VCS logic, the first two letters are usually indicative of the primary assembly from which the particular signal emanated, as follows.

MX Multiplexer control
FP Front panel
KD Keyset control
SE Switch encoder

e. For the VCC, the first letter (N) is associated with the VCC. The middle alphanumerics connotate the signal function and line or channel (e.g., NTSYN20V refers to transmit sync 2). The final two letters usually indicate the output element which then is indicative of the signal's logic significance, as follows:

Final mnemonic letter	Source element	Logic significance
J or JQ	Flip-flop J output	High when set
K or KQ	Flip-flop K output	High when reset
A	AND gate output	Low when enabled
O	OR gate output	High when enabled
OV	Inverted AND gate output	High when active
AV	Inverted K gate output	Low when active
OT-9T	Decoder outputs output	Low for active
1V-5V	Binary Counter outputs	High when active
OE-3E	Shift Register outputs	High when active
S	Latch set output	High when set
R	Latch reset output	High when reset
1Y-4Y	Multiplexer output	High when active

6-7. Circuit Card and Key Signal Lookup Tables. Circuit card and key signal lookup tables provide figure references to functional logic diagrams. These lookup tables permit rapid access for locating circuit areas corresponding to circuit card locations or when signal mnemonics are known.

a. Circuit Card Lookup. Tables 6-2 and 6-3 are circuit card locations for the VCC and VCS card cages, respectively. The circuit card lookup table provides figure and sheet references to logic diagrams when a circuit card at a particular location is suspect. Since a

circuit card may be used for different functional applications, multiple references may be provided for a single circuit card. The circuit card lookup table also provides information on whether a circuit card is testable by the module test set.

b. Key Signal Lookup. Table 6-4 is a key signal lookup listing for the VCC. Key signals are derived by interconnecting signals going between either a physical assembly or a functional circuit area covered by a troubleshooting diagram. Key signals are listed in alphabetical/numerical order (letters precede numbers). The destination lists the following:

Connector	Pin number	Test point	Figure and sheet
*J1214	54	25A	61400

The * symbol indicates the source of the signal. The figure and sheet number are in code form with the first digit (6) representing the chapter, the second two digits (14) representing the figure and the last two digits (00) representing the sheet. When a figure contains no sheets the last two digits are 00. The connector designation is represented by a J.

Table 6-2. VCC Card Location Index

Card slot	Fig.	Sh	Module test set testable	Card slot	Fig.	Sh	Module test set Testable
A1101	F06-9	2	YES	A1104	F06-19	2	
	F06-9	3			F06-28	3	
	F06-10	2		A1105	F06-9	2	YES
	F06-17	1			F06-10	2	
	F06-20	1			F06-18		
	F06-22				F06-28	3	
A1102	F06-9	2	YES	A1106	F06-9	2	YES
	F06-10	1			F06-11	2	
	F06-10	2			F06-17	1	
	F06-11	2			F06-18		
	F06-16	1			F06-19		
	F06-17	1			F06-20	3	
	F06-18				F06-22		
	F06-21	1			F06-28	2	
	F06-22			A1107	F06-8		YES
	F06-23	1			F06-9	2	
	F06-28	3			F06-10	2	
A1103	F06-9	2	YES	F06-11	2		
	F06-10	1			F06-17	1	
	F06-10	2			F06-17	2	
	F06-17	2			F06-18		
A1104	F06-9	2			F06-19		
	F06-9	3			F06-26	1	
	F06-10	1			F06-27	1	
	F06-11	2			F06-28	2	
	F06-17	2			F06-28	3	

Table 6-2. VCC Card Location Index-- Continued

Card slot	Fig.	Sh	Module test set testable	Card slot	Fig.	Sh	Module test set Testable
A1108	F06-9	2	YES	A1117	F06-20	1	
	F06-17	2			F06-20	3	
	F06-22				F06-20	4	
A1109	F06-9	2	YES		F06-26	3	
	F06-17	1		A1118	F06-8		YES
	F06-17	2			F06-11	2	
	F06-19				F06-12	1	
	F06-28	3			F06-20	1	
A1110	F06-17	1	YES		F06-20	3	
	F06-17	2			F06-20	4	
	F06-19				F06-26	3	
	F06-28	3		A1119	F06-8		YES
A1111	F06-17	1	YES		F06-11	2	
A1112	F06-17	1	YES		F06-12	1	
A1113	F06-10	1	YES		F06-13		
	F06-11	1			F06-20	1	
	F06-18				F06-26	3	
	F06-27	1		A1120	F06-8		YES
A1114	F06-10	1	YES		F06-11	1	
	F06-18				F06-11	2	
	F06-27	1			F06-12	1	
A1115	F06-14	1	YES		F06-13		
	F06-19				F06-20	1	
	F06-20	1			F06-20	3	
	F06-20	3			F06-26	3	
	F06-20	4		A1121	F06-8		YES
	F06-22				F06-22		
A1116	F06-14	1	YES		F06-28	2	
	F06-20	1		A1122	F06-8		YES
	F06-20	3			F06-10	1	
	F06-20	4			F06-10	2	
	F06-22				F06-12	1	
A1117	F06-8		YES		F06-19		
	F06-11	2			F06-20	1	
	F06-18				F06-26	2	

Table 6-2. VCC Card Location Index-Continued

Card slot	Fig.	Sh	Module test set testable	Card slot	Fig.	Sh	Module test set Testable
A1122	F06-28	3		A1134	F06-14	2	
A1123	F06-16	2	YES	A1135	F06-11	2	YES
	F06-22				F06-14	1	
	F06-27	2			F06-21	1	
	F06-28	2			F06-28	3	
	F06-28	3		A1136	F06-13		YES
A1124	F06-26	1	NO		F06-14	1	
	F06-27	1			F06-15		
	F06-27	2			F06-17	2	
	F06-28	1			F06-21	1	
A1126	F06-16	2	YES	A1137	F06-14	2	YES
A1127	F06-14	1	YES		F06-14	3	
	F06-16	2			F06-16	1	
A1128	F06-8		YES	A1138	F06-11	2	YES
	F06-16	2			F06-14	1	
	F06-21	1			F06-14	3	
	F06-21	3		A1139	F06-11	2	YES
	F06-21	4			F06-14	1	
	F06-24	1			F06-14	2	
	F06-25	1			F06-21	3	
	F06-26	1		A1140	F06-20	3	YES
A1129	F06-8		YES	A1141	F06-13		YES
	F06-16	2			F06-14	1	
	F06-21	4			F06-14	3	
	F06-23	1		A1141	F06-21	1	
A1130	F06-13		YES		F06-21	3	
	F06-15				F06-25	1	
	F06-16	2		A1142	F06-14	2	YES
A1131	F06-21	2	YES		F06-20	3	
	F06-25	1		A1143	F06-16	1	YES
A1132	F06-21	2	YES		F06-20	3	
	F06-25	1		A1144	F06-21	3	YES
A1133	F06-8		YES		F06-21	4	
	F06-14	2		A1145	F06-21	3	YES
A1134	F06-8		YES		F06-21	4	

Table 6-2. VCC Card Location Index-- Continued

Card slot	Fig.	Sh	Module test set testable	Card slot	Fig.	Sh	Module test set Testable
A1146	F06-17	1	YES	A1156	F06-28	2	
	F06-21	3		A1157	F06-24	2	YES
A1147	F06-21	2	YES		F06-25	2	
	F06-21	3		A1158	F06-24	2	YES
A1148	F06-14	4	YES		F06-25	2	
	F06-18			A1159	F06-28	1	YES
	F06-21	3			F06-28	2	
	F06-28	2		A1160	F06-28	1	NO
A1149	F06-21	1	YES		F06-28	3	
	F06-21	2		A1201	F06-23	2	YES
	F06-25	1			F06-23	3	
A1150	F06-20	3	YES	A1202	F06-23	2	YES
	F06-24	3			F06-23	3	
	F06-25	3		A1203	F06-19		YES
A1151	F06-20	3	YES		F06-20	1	
	F06-24	3			F06-23	2	
	F06-25	3			F06-23	3	
A1152	F06-9	2	YES	A1204	F06-9	3	YES
	F06-14	1			F06-23	2	
	F06-14	3			F06-23	3	
	F06-21	1		A1205	F06-23	2	YES
	F06-21	2			F06-23	3	
A1153	F06-24	2	YES	A1206	F06-23	2	YES
	F06-25	2			F06-23	3	
A1154	F06-14	3	YES	A1207	F06-10	2	YES
	F06-24	2			F06-17	1	
	F06-25	2			F06-23	1	
A1155	F06-14	3	YES	A1208	F06-17	1	YES
	F06-24	2			F06-23	1	
	F06-25	2		A1209	F06-19		YES
A1156	F06-16	2	YES		F06-23	1	
	F06-18				F06-27	2	
	F06-22			A1210	F06-9	2	YES
	F06-26	1			F06-10	2	
A1156	F06-28	1			F06-16	1	

Table 6-2. VCC Card Location Index- Continued

Card slot	Fig.	Sh	Module test set testable	Card slot	Fig.	Sh	Module test set Testable
A1210	F06-17	1		A1218	F06-27	1	
	F06-20	1			F06-27	2	
	F06-23	2			F06-28	2	
	F06-23	3		A1219	F06-8		YES
A1211	F06-9	1	YES		F06-18		
	F06-9	2			F06-20	3	
	F06-9	3			F06-20	4	
	F06-10	1		A1220	F06-9	1	YES
	F06-10	2			F06-14	2	
	F06-19				F06-18		
A1212	F06-9	2	YES		F06-19		
	F06-9	3			F06-20	1	
	F06-10	1			F06-20	3	
	F06-10	2			F06-20	4	
	F06-18				F06-26	2	
	F06-19				F06-26	3	
A1213	F06-9	3	YES	A1221	F06-19		YES
	F06-17	3			F06-20	2	
A1214	F06-9	1	YES		F06-26	1	
	F06-28	2			F06-26	2	
A1215	F06-18		YES	A1222	F06-20	2	YES
	F06-19				F06-26	1	
	F06-20	1			F06-26	2	
	F06-20	4		A1223	F06-18		YES
A1216	F06-11	2	YES		F06-26	2	
	F06-18				F06-26	3	
	F06-19			A1224	F06-20	2	YES
	F06-20	1			F06-26	2	
	F06-20	4			F06-26	3	
A1217	F06-11	2	YES	A1225	F06-20	2	YES
	F06-19				F06-26	3	
A1218	F06-18		YES		F06-27	1	
	F06-22			A1226	F06-12	2	YES
	F06-26	1			F06-19		
	F06-26	3			F06-26	2	

Table 6-2. VCC Card Location Index- Continued

Card slot	Fig.	Sh	Module test set testable	Card slot	Fig.	Sh	Module test set Testable
A1226	F06-27	1		A1234	F06-12	2	
A1227	F06-12	2	YES	A1236	F06-14	4	YES
	F06-26	3			F06-20	3	
	F06-27	1			F06-26	2	
A1228	F06-12	2	YES		F06-28	2	
	F06-26	1		A1235	F06-18		YES
	F06-26	3		A1236	F06-11	1	YES
A1229	F06-11	1	YES		F06-11	2	
	F06-13				F06-11	3	
	F06-17	1			F06-26	1	
	F06-19				F06-27	1	
	F06-26	1			F06-27	2	
A1230	F06-11	2	YES	A1237	F06-12	1	YES
	F06-11	3			F06-12	3	
	F06-13			A1238	F06-12	1	YES
	F06-26	1			F06-12	3	
	F06-26	2			F06-27	1	
	F06-26	3		A1239	F06-12	1	YES
	F06-27	1			F06-12	3	
	F06-27	2			F06-15		
A1231	F06-8		YES	A1240	F06-12	3	YES
	F06-11	1			F06-15		
	F06-11	2			F06-21	1	
	F06-17	1		A1241	F06-12	3	YES
	F06-26	1			F06-15		
	F06-27	1			F06-24	1	
A1232	F06-11	2	YES	A1242	F06-12	3	YES
	F06-11	3			F06-15		
	F06-12	2			F06-24	1	
A1233	F06-11	2	YES	A1243	F06-12	2	YES
	F06-11	3			F06-15		
	F06-12	2			F06-24	1	
A1234	F06-11	2	YES	A1244	F06-12	3	YES
	F06-11	3			F06-24	1	
	F06-12	1			F06-26	3	

Table 6-2. VCC Card Location Index-Continued

Card slot	Fig.	Sh	Module test set testable	Card slot	Fig.	Sh	Module test set Testable
A1245	F06-10	1	YES	A1250	F06-28	2	
	F06-12	1		A1251	F06-13		YES
	F06-13				F06-11	2	
	F06-14	1			F06-25	2	
	F06-14	3		A1252	F06-16	1	YES
A1245	F06-21	1			F06-24	2	
	F06-26	1			F06-25	2	
	F06-26	3		A1253	F06-11	2	YES
	F06-27	2			F06-16	1	
A1246	F06-8		YES		F06-26	1	
	F06-11	2			F06-27	1	
	F06-12	1		A1254	F06-16	1	YES
	F06-14	1			F06-22		
	F06-15				F06-24	2	
	F06-21	1			F06-25	2	
	F06-22			A1255	F06-11	2	YES
	F06-26	1			F06-24	2	
	F06-26	3		A1256	F06-16	1	YES
A1247	F06-12	1	YES		F06-21	1	
	F06-13				F06-21	3	
	F06-14	1			F06-21	4	
	F06-15				F06-22		
	F06-21	2			F06-24	1	
	F06-22				F06-26	2	
A1248	F06-14	2	YES	A1257	F06-16	1	
	F06-16	2			F06-21	1	
	F06-21	2			F06-21	3	
A1249	F06-14	2	YES		F06-21	4	
	F06-14	3			F06-22		
	F06-28	1			F06-25	2	
A1250	F06-14	3	YES	A1258	F06-21	4	YES
	F06-16	1			F06-22		
	F06-21	1			F06-24	3	
	F06-22				F06-26	3	
	F06-25	2		A1269	F06-22		YES
	F06-27	1					

Table 6-2. VCC Card Location Index- Continued

Card slot	Fig.	Sh	Module test set testable	Card slot	Fig.	Sh	Module test set Testable
A1259	F06-24	3		A1321	F06-21	3	
	F06-25	3			F06-21	4	
A1260	F06-21	4	YES		F06-26	1	
	F06-24	3			F06-26	3	
	F06-25	3		A1322	F06-9	1	NO
A1301	F06-1	3	NO		F06-18		
	F06-1	4			F06-20	3	
A1302	F06-5		NO		F06-26	1	
A1303	FO6-5		NO		FO6-27	1	
A1304	F06-5		NO		F06-28	2	
A1305	F06-5		NO		F06-28	4	
A1313	F06-7	1	NO	A1323	F06-10	1	YES
	F06-27	3			F06-10	2	
A1314	F06-7	2	NO		F06-11	2	
A1320	F06-8		YES	A1323	F06-16	1	
A1320	F06-8				F06-18		
	F06-9	1			F06-20	1	
	F06-11	1			F06-20	3	
	F06-11	2			F06-23	1	
	F06-14	1			F06-24	1	
	F06-16	1			F06-25	1	
	F06-17	1			F06-26	1	
	F06-19				F06-26	3	
	F06-20	1			F06-27	1	
	F06-22				F06-28	1	
	F06-26	1		A1324	F06-10	1	YES
A1320	F06-27	1			F06-10	2	
	F06-28	2			F06-16	1	
A1321	F06-9	1	YES		F06-19		
	F06-11	2			F06-20	1	
	F06-16	1			F06-22		
	F06-17	1			F06-23	1	
	F06-19				F06-24	1	
	F06-20	1			F06-25	1	
	F06-20	3		A1325	F06-10	1	YES

Table 6-2. VCC Card Location Index-Continued

Card slot	Fig.	Sh	Module test set testable	Card slot	Fig.	Sh	Module test set Testable
A1325	F06-10	2		A1404	F06-1	3	NO
	F06-18				F06-1	4	
	F06-26	1		A1405	F06-1	1	NO
	F06-28	2		A1406	F06-1	2	NO
A1327	FO6-4	1	NO	A1411	F06-7	3	NO
	FO6-4	2		A1412	F06-7	3	NO
A1328	F06-4	1	NO	A1414	F06-6		NO
	F06-4	2		A1416	F06-6		NO
A1329	F06-4	1	NO	A1422	F06-2	2	NO
	F06-4	2		A1423	F06-2	3	NO
A1330	F06-4	1	NO		F06-2	4	
	F06-4	2		A1424	F06-2	2	NO
A1331	F06-2	3	NO	A1426	F06-2	1	NO
	F06-2	4		A1427	F06-2	3	NO
A1332	F06-3	1	NO		F06-2	4	
A1333	F06-3	1	NO	A1428	F06-2	1	NO
A1334	F06-3	3	NO	A1429	F06-2	1	NO
	F06-3	4		A1434	F06-3	3	NO
A1336	F06-3	3	NO		F06-3	4	
	F06-3	4		A1436	F06-3	2	NO
A1337	F06-3	1	NO	A1501	F06-1	2	NO
A1339	F06-3	2	NO	A1501	F06-1	2	NO
A1401	F06-1	1	NO	A1503	F06-1	3	NO
A1402	F06-1	1	NO		F06-1	4	

Table 6-3. VCS Location Index

Card slot	Fig.	Sh	Module test set testable	Card slot	Fig.	Sh	Module test set Testable
A1101	F06-29		NO	A1104	F06-29		NO
	F06-31				F06-30	1	
A1102	F06-30	1	NO		F06-30	2	
	F06-30	2			F06-31		
A1103	F06-30	2	NO				

Table 6-4. Voice Communications Central Key Signal Lookup

Signal	Distribution								
NABA1A	*J1247 69	35A	61300	J1130 42	20A	61500	J1245 17	09B	61300
NABA10V	*J1245 14	08B	61300	J1130 40	19A	61500	J1136 30	15A	61401
	J1139 04	04A	61401	J1139 08	06A	61401	J1239 77	36B	61500
	J1240 77	36B	61500	J1241 77	36B	61500	J1242 77	36B	61500
	J1243 77	36B	61500						
NABBLA	*J1247 80	39A	61300	J1130 30	15A	61500	J1245 21	1lB	61300
NABB10V	*J1245 19	10B	61300	J1130 34	16A	61500	J1152 77	38B	61401
	J1239 75	35B	61500	J1240 75	35B	61500	J1241 75	35B	61500
	J1242 75	35B	61500	J1243 75	35B	61500	J1247 17	08B	61401
	J1247 48	22A	61401						
NABC11U	*J1239 70	34A	61500	J1302 54		60500	J1302 60		60500
NABC12U	*J1239 72	35A	61500	J1302 51		60500	J1302 65		60500
NABC13U	*J1239 74	36A	61500	J1303 54		60500	J1303 60		60500
NABC14U	*J1239 76	37A	61500	J1303 51		60500	J1303 65		60500
NABC21U	*J1240 70	34A	61500	J1304 54		60500	J1304 60		60500
NABC22U	*J1240 72	35A	61500	J1304 51		60500	J1304 65		60500
NABC23U	*J1240 74	36A	61500	J1305 54		60500	J1305 60		60500
NABC24U	*J1240 76	37A	61500	J1305 51		60500	J1305 65		60500
NABC31U	*J1241 70	34A	61500	J1307 54		60500	J1307 60		60500
NABC32U	*J1241 72	35A	61500	J1307 51		60500	J1307 65		60500
NABC33U	*J1241 74	36A	61500	J1308 54		60500	J1308 60		60500
NABC34U	*J1241 76	37A	61500	J1308 51		60500	J1308 65		60500
NABC41U	*J1242 70	34A	61500	J1310 54		60500	J1310 60		60500
NABC42U	*J1242 72	35A	61500	J1310 51		60500	J1310 65		60500
NABC43U	*J1242 74	36A	61500	J1311 54		60500	J1311 60		60500
NABC44U	*J1242 76	37A	61500	J1311 51		60500	J1311 65		60500
NABC51U	*J1243 70	34A	61500	J1409 54		60500	J1409 60		60500
NABC52U	*J1243 72	35A	61500	J1409 51		60500	J1409 65		60500
NABC53U	*J1243 74	36A	61500	J1410 54		60500	J1410 60		60500
NABC54U	*J1243 76	37A	61500	J1410 51		60500	J1410 65		60500
NABI6AV	*J1245 40	19A	61300	J1112 31	14B	61701	J1120 04	04A	61300
	J1229 10	05A	61701	J1236 51	27B	61103			
NABSA0	*J1119 63	33B	61300	J1133 03	03B	60800			
NABSB0	*J1119 80	39A	61300	J1134 06	03A	60800			
NAB0FJ	*J1231 07	03A	60800	J1136 05	03B	61300	J1136 10	07A	61300
	J1136 22	12A	61300	J1247 53	28B	61300	J1251 72	34A	61300
	J1251 78	38A	61300						
NAB0FK	*J1231 09	04B	60800	J1136 13	06B	61300	J1136 18	10A	61300
	J1136 23	11B	61300	J1247 62	29A	61300			
NACLAA	*J1251 74	35B	61300	J1320 25	12B	61401			
NACLBA	*J1251 80	39A	61300	J1321 42	20A	61401			
NAM010V	*J1246 63	30A	01500	J1247 05	03B	61500	J1247 07	03A	61500
	J1247 10	07A	61500	J1247 13	06B	61500	J1247 18	10A	61500
	J1247 26	14A	61500	J1247 55	29B	61300	J1247 64	30A	61300
NANCP0V	*J1245 42	18B	61401	J1133 49	26B	61402	J1133 63	32B	61401
	J1133 77	38B	61402	J1134 37	18B	61402	J1134 49	26B	61402
	J1134 63	32B	61402	J1134 77	38B	61402	J1137 77	38B	61402
	J1138 63	32B	61402						
NANPR0E	*J1138 61	31B	61401	J1133 43	23B	61402	J1133 55	29B	61402
	J1133 71	35B	61402	J1134 31	15B	61402	J1134 43	23B	61402
	J1134 55	29B	61402	J1134 71	35B	61402	J1137 71	35B	61402

Table 6-4. Voice Communications Central Key Signal Lookup--Continued

Signal	Distribution								
NANPR1E	*J1138 65	33B	61401	J1133 41	33B	61402	J1133 53	28B	61402
	J1133 69	34B	61402	J1134 29	14B	61402	J1134 41	22B	61402
	J1134 53	28B	61402	J1134 69	34B	61402	J1137 69	34B	61402
NANPR2E	*J1138 68	33A	61401	J1133 46	21A	61402	J113357	28A	61402
	J1133 70	34A	61402	J1134 30	15A	61402	J1134 46	21A	61402
	J1134 57	28A	61402	J1134 70	34A	61402	J1137 70	34A	61402
NANPR3E	*J1138 64	31A	61401	J1133 48	22A	61402	J1133 60	29A	61402
	J1133 72	35A	61402	J1134 34	16A	61402	J1134 48	22A	61402
	J1134 60	29A	61402	J1134 72	35A	61402	J1137 72	35A	61402
NANS10E	*J1134 35	17B	61402	J1139 23	11lB	61402	J1235 22	14A	61404
NANS11E	*J1134 39	19B	61402	J1139 17	08B	61402	J1235 09	05B	61404
NANS12E	*J1134 42	20A	61402	J1139 18	10A	61402	J1235 04	02A	61404
NANS13E	*J1134 38	18A	61402	J1139 24	13A	61402	J1235 11	07A	61404
NANS21E	*J1133 51	27B	61402	J1139 29	14B	61402	J1235 38	20A	61404
NANS22E	*J1133 56	26A	61402	J1139 34	16A	61402	J1235 21	11B	61404
NANS23E	*J1133 52	24A	61402	J1134 33	16B	61402	J1139 40	19A	61402
	J1235 20	10A	61404						
NANS7AV	*J1220 77	38A	61402	J1143 14	09A	61601	J1420 08		60204
NAN010V	*J1248 13	06A	61402	J1327 05		60401			
NAN020V	*J1248 08	04A	61402	J1327 13		60401			
NAN030V	*J124803	03A	61402	J1327 12		60401			
NAN040V	*J1248 01	02B	61402	J1327 06		60401			
NAN050V	*J1248 07	04B	61402	J1327 24		60401			
NAN060V	*J1248 10	06B	61402	J1327 30		60401			
NAN070V	*J1248 24	13A	61402	J1327 31		60401			
NAN080V	*J1248 25	11A	61402	J1302 61		60500	J1303 61		60500
	J1304 61		60500	J1305 61		60500	J1307 61		60500
	J1308 61		60500	J1310 61		60500	J1311 61		60500
	J1409 61		60500	J1410 61		60500			
NAN09A	*J1139 52	24A	61402	J1248 20	10A	61402	J1253 06	05A	61601
	J1427 08		60204						
NAN090V	*J1248 18	09A	61402	J1327 45		60401			
NAN10A	*J1139 46	21A	61402	J1248 17	09B	61402	J1253 01	02B	61601
	J1427 40		60204						
NAN100V	*J1248 14	08B	61402	J1327 52		60401			
NAN11A	*J1139 45	24B	61402	J1248 21	11B	61402	J1253 09	04B	61601
	J1427 47		60204						
NAN110V	*J1248 19	10B	61402	J1327 53		60401			
NAN12A	J1139 51	27B	61402	J1248 27	13B	61402	J1253 22	12A	61601
	J1427 67		60204						
NAN120V	*J1248 26	12B	61402	J1327 47		60401			
NAN13A	*J1139 66	31A	61402	J1248 38	20A	61402	J125314	09A	61601
	J1427 14		60204						
NAN130V	*J1248 40	19A	61402	J1327 65		60401			
NAN14A	*J1139 60	28A	61402	J1248 35	18A	61402	J1253 21	10B	61601
	J1427 23		60204						
NAN140V	*J1248 37	17A	61402	J1327 72		60401			
NAN15A	*J1139 57	30B	61402	J1248 36	16A	61402	J1253 38	18A	61601
	J1427 37		60204						
NAN150V	*J1248 34	15A	61402	J1327 71		60401			
NAN16A	*J1139 63	33B	61402	J1248 29	15B	61402	J1253 29	14B	61601
	J1427 64		60204						

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NAN160V	*J1248 30	14B	61402	J1327 64		60401			
NAN17A	*J1139 75	37B	61402	J1248 33	17B	61402	J125333	16B	61601
	J1423 08		60204						
NAN170V	*J1248 31	16B	61402	J1328 05		60401			
NAN18A	*J1139 72	34A	61402	J1248 39	19B	61402	J1253 52	24A	61601
	J1423 40		60204						
NAN180V	*J1248 42	18B	61402	J1328 13		60401			
NAN19A	*J1139 69	35A	61402	J1248 52	26A	61402	J125341	22B	61601
	J1423 47		60204						
NAN190V	*J1248 54	25A	61402	J1328 12		60401			
NAN20A	*J1139 80	39A	61402	J1248 47	24A	61402	J1253 45	24B	61601
	J1423 67		60204						
NAN200V	*J1248 49	23A	61402	J1328 06		60401			
NAN21A	*J1142 06	05A	61402	J1143 06	05A	61601	J1249 11	07A	61402
	J1423 14		60204						
NAN210V	*J1249 13	06A	61402	J1328 24		60401			
NAN22A	*J1142 01	02B	61402	J1143 01	02B	61601	J1249 06	05A	61402
	J1423 23		60204						
NAN220V	*J1249 08	04A	61402	J1328 30		60401			
NAN23A	*J1142 09	04B	61402	J1143 09	04B	61601	J1249 04	02A	61402
	J1423 37		60204						
NAN230V	*J1249 03	03A	61402	J1328 31		60401			
NAN24A	*J114215	07B	61402	J1143 23	12A	61601	J124905	03B	61402
	J1423 64		60204						
NAN240V	*J1249 01	02B	61402	J1328 25		60401			
NAN250V	*J1249 07	04B	61402	J1328 45		60401			
NAN26A	*J1142 14	09A	61402	J1143 21	10B	61601	J124915	07B	61402
	J1420 40		60204						
NAN260V	*J1249 10	06B	61402	J1328 52		60401			
NAN27A	*J1142 21	01B	61402	J1143 38	18A	61601	J1249 22	14A	61402
	J1420 47		60204						
NAN270V	*J1249 24	13A	61402	J1328 53		60401			
NAN28A	*J1142 27	13B	61402	J1143 29	14B	61601	J1249 23	12A	61402
	J1420 67		60204						
NAN280V	*J1249 25	11A	61402	J1328 47		60401			
NAN29A	*J1142 38	18A	61402	J1249 20	10A	61402	J1420 14		60204
NAN29AV	*J1319 14	08B	61402	J1143 33	16B	61601			
NAN290V	*J1249 18	09A	61402	J1328 65		60401			
NAN30A	*J1142 30	15A	61402	J1249 17	09B	61402	J1420 23		60204
NAN30AV	*J1319 19	01B	61402	J1143 52	24A	61601			
NAN300V	*J1249 14	08B	61402	J1328 72		60401			
NAN31A	*J1142 33	16B	61402	J1143 41	22B	61601	J124921	11lB	61402
	J1420 37		60204						
NAN310V	*J1249 19	10B	61402	J1328 71		60401			
NAN32A	*J1142 39	19B	61402	J1143 45	24B	61601	J1249 27	13B	61402
	J1420 64		60204						
NAN320V	*J1249 26	12B	61402	J1328 64		60401			
NAN350V	*J1245 43	24B	61401	J1119 24	13A	60800	J1135 14	09A	61401
	J1136 33	16B	61401	J1138 59	30B	61401			
NAN37A	*J1136 39	19B	61401	J1319 75	39A	61401	J1327 43		60401
	J1328 43		60401						
NAN370V	*J1319 77	38A	61401	J1255 76	37A	61402			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NBNCP0V	*J1245 66	32A	61401	J1127 77	38B	61401	J1137 09	06B	61403
	J1137 23	12B	61403	J1137 37	18B	61403	J1137 49	26B	61403
	J1138 09	06B	61403	J1138 23	12B	61403	J1138 37	18B	61403
	J1138 49	26B	61403						
NBNPR0E	*J1127 75	37B	61401	J1137 03	03B	61403	J1137 17	09B	61403
	J1137 31	15B	61403	J1137 43	23B	61403	J1138 03	03B	61403
	J1138 17	09B	61403	J1138 31	15B	61403	J1138 43	23B	61403
NBNPR1E	*J1127 79	39B	61401	J1137 01	02B	61403	J1137 15	08B	61403
	J1137 29	14B	61403	J1137 41	22B	61403	J1138 01	02B	61403
	J1l38 15	08B	61403	J1138 29	14B	61403	J1138 41	22B	61403
NBNPR2E	*J1127 80	39A	61401	J1137 04	02A	61403	J1137 18	09A	61403
	J1137 30	15A	61403	J1137 46	21A	61403	J1138 04	02A	61403
	J1138 18	09A	61403	J1138 30	15A	61403	J1138 46	21A	61403
NBNPR3E	*J1127 76	37A	61401	J1137 06	03A	61403	J1137 20	10A	61403
	J1137 34	16A	61403	J1137 48	22A	61403	J1138 06	03A	61403
	J1138 20	10A	61403	J1138 34	16A	61403	J1138 48	22A	61403
NBNS10E	*J1137 07	05B	61403	J1141 11	05B	61403	J1235 23	12A	61404
NBNS11E	*J1137 11	07B	61403	J1141 03	02A	61403	J1235 15	07B	61404
NBNS12E	*J1137 13	07A	61403	J1141 04	04A	61403	J1235 05	03B	61404
NBNS13E	*J1137 10	05A	61403	J1141 08	06A	61403	J1235 06	05A	61404
NBNS21E	*J1138 11	07B	61403	J1141 17	08B	61403	J1235 35	18A	61404
NBNS22E	*J1138 13	07A	61403	J1141 18	10A	61403	J1235 27	13B	61404
NBNS23E	*J1138 10	05A	61403	J1137 05	04B	61403	J1141 24	13A	61403
	J1235 17	09B	61404						
NBNS7AV	*J1245 72	34A	61403	J1143 17	08B	61601	J1420 09		60204
NBN010V	*J1250 13	06A	61403	J1330 05		60401			
NBN020V	*J1250 08	04A	61403	J1330 13		60401			
NBN030V	*J1250 03	03A	61403	J1330 12		60401			
NBN040V	*J1250 01	02B	61403	J1330 06		60401			
NBN050V	*J1250 07	04B	61403	J1330 24		60401			
NBN060V	*J1250 10	06B	61403	J1330 30		60401			
NBN070V	*J1250 24	13A	61403	J1330 31		60401			
NBN080V	*J1250 25	11A	61403	J1302 59		60500	J1303 59		60500
	J1304 59		60500	J1305 59		60500	J1307 59		60500
	J1308 59		60500	J1310 59		60500	J1311 59		60500
	J1409 59		60500	J1410 59		60500			
NBN09A	*J1141 38	18A	61403	J1250 20	10A	61403	J1253 08	06A	61601
	J1427 09		60204						
NBN090V	*J1250 18	09A	61403	J1330 45		60401			
NBN10A	*J1141 30	15A	61403	J1250 17	09B	61403	J1253 03	02A	61601
	J1427 39		60204						
NBN100V	*J1250 14	08B	61403	J1330 52		60401			
NBN11A	*J1141 33	16B	61403	J1250 21	11B	61403	J1253 11	05B	61601
	J1427 49		60204						
NBN110V	*J1250 19	10B	61403	J1330 53		60401			
NBN12A	*J1141 39	19B	61403	J1250 27	13B	61403	J1253 24	13A	61601
	J1427 68		60204						
NBN120V	*J1250 26	12B	61403	J1330 47		60401			
NBN13A	*J1141 52	24A	61403	J1250 38	20A	61403	J1253 17	08B	61601
	J1427 11		60204						
NBN130V	*J1250 40	19A	61403	J1330 65		60401			
NBN14A	*J1141 46	21A	61403	J1250 35	18A	61403	J1253 23	11B	61601
	J1427 19		60204						

Table 6-4. Voice Communications Central Key Signal Lookup-Continued

Signal	Distribution								
NBN140V	*J1250 37	17A	61403	J1330 72		60401			
NBN15A	*J1141 45	24B	61403	J1250 36	16A	61403	J1253 40	19A	61601
	J1427 01		60204						
NBN150V	*J1250 34	15A	61403	J1330 71		60401			
NBN16A	*J1141 51	27B	61403	J1250 29	15B	61403	J1253 30	15A	61601
	J1427 63		60204						
NBN160V	*J1250 30	14B	61403	J1330 64		60401			
NBN17A	*J1141 66	31A	61403	J1250 33	17B	61403	J1253 35	17B	61601
	J1423 09		60204						
NBN170V	*J1250 31	16B	61403	J1329 05		60401			
NBN18A	*J1141 60	28A	61403	J1250 39	19B	61403	J1253 54	25A	61601
	J1423 39		60204						
NBN180V	*J1250 42	18B	61403	J1329 13		60401			
NBN19A	*J1141 57	30B	61403	J1250 52	26A	61403	J1253 46	21A	61601
	J1423 49		60204						
NBN190V	*J1250 54	25A	61403	J1329 12		60401			
NBN20A	*J1141 63	33B	61403	J1250 47	24A	61403	J1253 47	25B	61601
	J1423 68		60204						
NBN200V	*J1250 49	23A	61403	J1329 06		60401			
NBN21A	*J1155 57	30B	61403	J1143 08	06A	61601	J1249 52	26A	61403
	J1423 11		60204						
NBN210V	*J1249 54	25A	61403	J1329 24		60401			
NBN22A	*J1155 63	33B	61403	J1143 03	02A	61601	J124947	24A	61403
	J1423 19		60204						
NBN220V	*J1249 49	23A	61403	J1329 30		60401			
NBN23A	*J1155 75	37B	61403	J1143 11	05B	61601	J1249 50	22A	61403
	J1423 01		60204						
NBN230V	*J1249 48	21A	61403	J1329 31		60401			
NBN24A	*J1155 72	34A	61403	J1143 24	13A	60601	J1249 41	23B	61403
	J1423 63		60204						
NBN240V	*J1249 46	22B	61403	J1329 25		60401			
NBN250V	*J1249 43	24B	61403	J1329 45		60401			
NBN26A	*J1155 80	39A	61403	J1143 23	11B	61601	J1249 51	27B	61403
	J1420 39		60204						
NBN260V	*J1249 53	26B	61403	J1329 52		60401			
NBN27A	*J1154 57	30B	61403	J1143 40	19A	61601	J1249 64	33A	61403
	J1420 49		60204						
NBN270V	*J1249 66	32A	61403	J1329 53		60401			
NBN28A	*J1154 63	33B	61403	J1143 30	15A	61601	J1249 61	31A	61403
	J1420 68		60204						
NBN280V	*J1249 63	30A	61403	J1329 47		60401			
NBN29A	*J1154 75	37B	61403	J1249 62	29A	61403	J1420 11		60204
NBN29AV	*J1319 26	12B	61403	J1143 35	17B	61601			
NBN290V	*J1249 60	28A	61403	J1329 65		60401			
NBN30A	*J1154 72	34A	61403	J1249 55	29B	61403	J1420 19		60204
NBN30AV	*J1319 40	19A	61403	J1143 54	25A	61601			
NBN300V	*J1249 56	28B	61403	J1329 72		60401			
NBN31A	*J1154 69	35A	61403	J1143 46	21A	61601	J1249 59	31B	61403
	J1420 01		60204						
NBN310V	*J1249 57	30B	61403	J1329 71		60401			
NBN32A	*J1154 80	39A	61403	J1143 47	25B	61601	J1249 65	33B	61403
	J1420 63		60204						
NBN320V	*J1249 68	32B	61403	J1329 64		60401			

Table 6-4. Voice Communications Central Key Signal Lookup--Continued

Signal	Distribution								
NBN350V	*J1245 53	26B	61401	J1119 17	08B	60800	J1127 73	36B	61401
	J1135 55	29B	61401	J1141 23	11B	61401			
NBN37A	*J1141 27	13B	61401	J1319 51	27B	61401	J1329 43		60401
	J1330 43		60401						
NBN370V	*J1319 53	26B	61401	J1152 71	36A	61403			
NCACNVB5	*J1427 04		60204	J1427 24		60203	J1427 73		60203
NCACNVB6	*J1423 04		60204	J1423 24		60203	J1423 73		60203
NCACNVB7	*J1420 04		60204	J1420 24		60203	J1420 73		60203
NCADBQB	*J1151 24	13A	62403	J1154 04	04A	62402			
NCADJQB	*J1151 48	26B	62403	J1154 08	06A	62402			
NCAR10V	*J1235 34	15A	61404	J1331 23		60204			
NCAR20V	*J1235 30	14B	61404	J1331 20		60204			
NCAR30V	*J1235 31	16B	61604	J1331 15		60204			
NCAR40V	*J1235 42	18B	61404	J1331 14		60204			
NCAR50V	*J1235 54	25A	61404	J1331 21		60204			
NCAR60V	*J1235 49	23A	61404	J1331 22		60204			
NCAR70V	*J1235 48	21A	61404	J1331 33		60204			
NCAT10V	*J1235 46	22B	61404	J1331 05		60203			
NCAT20V	*J1235 43	24B	61404	J1331 13		60203			
NCAT30V	*J1235 53	26B	61404	J1331 12		60203			
NCAT40V	*J1235 66	32A	61404	J1331 06		60203			
NCAT50V	*J1235 63	30A	61404	J1331 24		60203			
NCAT60V	*J1235 60	28A	61404	J1331 30		60203			
NCAT70V	*J1235 56	28B	61404	J1331 31		60203			
NCA4W1F	J1316 41		62804	*J1429 34		60201			
NCA4W2F	J1316 42		62804	*J1428 34		60201			
NCA4W3F	J1316 43		62804	*J1425 34		60201			
NCA4W4F	J1316 44		62804	*J1424 34		60202			
NCA4W5F	J1316 46		62804	*J1422 34		60202			
NCA4W6F	J1316 34		62804	*J1421 34		60202			
NCA4W7F	J1316 30		62804	*J1418 34		60202			
NCA4W8F	J1316 49		62804	*J1417 34		60202			
NCBA0QB	*J1259 03	02B	62403	J1157 08	06A	62402			
NCBB0QB	*J1260 03	02B	62403	J1157 04	04A	62402			
NCBC0QB	*J1260 07	06B	62403	J1157 03	02A	62402			
NCBD0QB	*J1258 03	02B	62403	J1157 11	05B	62402			
NCBE0QB	*J1258 07	06B	62403	J1157 24	13A	62402			
NCBF0QB	*J1259 07	06B	62403	J1157 18	10A	62402			
NCCDE0T	*J1149 08	04A	62102	J1146 10	07A	62103			
NCCDE1T	*J1149 10	05A	62102	J1146 05	03B	62103			
NCCDE2T	*J1149 14	06A	62102	J1146 07	03A	62103			
NCCDE3T	*J1149 13	07A	62102	J1146 13	06B	62103			
NCCDE4T	*J1149 17	08B	62102	J1146 42	20A	62103			
NCCDE5T	*J1149 07	04B	62102	J1146 36	17A	62103			
NCCDE6T	*J1149 09	05B	62102	J1146 31	15B	62103			
NCCDE7T	*J1149 11	06B	62102	J1146 37	18B	62103			
NCCDE8T	*J1149 15	07B	62102	J1146 70	33A	62103			
NCCDE9T	*J1149 18	09A	62102	J1146 64	30A	62103			
NCDDE0T	*J1149 24	12A	62102	J1147 10	07A	62103			
NCDDE1T	*J1149 26	13A	62102	J1147 05	03B	62103			
NCDDE2T	*J1149 27	14A	62102	J1147 07	03A	62103			
NCDDE3T	*J1149 30	15A	62102	J1147 13	06B	62103			
NCDDE4T	*J1149 33	16A	62102	J1147 42	20A	62103			

Table 6-4. Voice Communications Central Key Signal Lookup-Continued

Signal	Distribution								
NCDDE5T	*J1149 23	11B	62102	J1147 36	17A	62103			
NCDDE6T	*J1149 25	12B	62102	J1147 31	15B	62103			
NCDDE7T	*J1149 29	13B	62102	J1147 37	18B	62103			
NCDDE8T	*J1149 31	14B	62102	J1147 70	33A	62103			
NCDDE9T	*J1149 34	15B	62102	J1147 64	30A	62103			
NCE05A	*J1152 07	03A	62101	J1121 64	30A	62200	J1135 13	06B	62101
NCGRPQB	*J1258 24	13A	62403	J1157 29	14B	62402			
NCHlRGD1	J1231 54	25A	61701	*J1414 02		60600			
NCH1RGD2	J123148	22A	61701	*J1414 80		60600			
NCHlRGD3	J1213 08	06A	61701	*J1416 02		60600			
NCH1RGD4	J1213 05	03B	61701	*J1416 80		60600			
NCNCPAV	*J1254 40	19A	62200	J1116 47	22B	62200	J1150 25	12A	62403
	J1150 31	14B	62403	J1150 40	18A	62403	J1150 47	22B	62403
	J1150 56	24A	62403	J1151 25	12A	62403	J1151 31	14B	62403
	J1151 40	18A	62403	J1151 47	22B	62403	J1258 01	02A	62403
	J1258 18	05A	62403	J1258 19	08B	62403	J1258 25	12A	62403
	J1258 31	14B	62403	J1259 01	02A	62403	J1259 18	05A	62403
	J1259 19	08B	62403	J1259 25	12A	62403	J1259 31	14B	62403
	J1260 01	02A	62403	J1260 18	05A	62403	J1260 19	08B	62403
	J1260 25	12A	62403	J1260 31	14B	62403			
NCND1D1	*J1156 69	35A	62200	J1123 05		62200	J1155 05	03B	62402
	J1155 07	03A	62402	J1155 10	07A	62402	J1155 13	06B	62402
	J1155 19	09B	62402	J1155 20	11A	62402	J1155 25	12B	62402
	J1155 26	14A	62402	J1155 42	20A	62402	J1158 05	03B	62402
	J1158 07	03A	62402	J1158 10	07A	62402	J1158 13	06B	62402
	J1158 19	09B	62402	J1158 20	11A	62402	J1158 25	12B	62402
	J1158 26	14A	62402	J1158 31	15B	62402	J1158 36	17A	62402
	J1158 37	18B	62402	J1158 42	20A	62402	J1158 43	23B	62402
	J1158 50	23A	62402	J1158 56	26A	62402	J1256 62	29A	62200
NCND2D1	*J1156 80	39A	62200	J1123 06		62200	J1153 03	02A	62402
	J1153 08	06A	62402	J1153 11	05B	62402	J1153 17	08B	62402
	J1153 23	11B	62402	J1153 24	13A	62402	J1153 30	15A	62402
	J1153 35	17B	62402	J1153 40	19A	62402	J1255 03	02A	62402
	J1255 08	06A	62402	J1255 11	05B	62402	J1255 17	08B	62402
	J1255 23	11B	62402	J1255 24	13A	62402	J1255 30	15A	62402
	J1255 35	17B	62402	J1255 40	19A	62402	J1255 46	21A	62402
	J1255 47	25B	62402	J1255 54	25A	62402	J1255 59	31B	62402
	J1255 60	28A	62402	J1255 68	32A	62402			
NCN03A	*J1152 15	07B	62101	J1121 61	32B	62200	J1135 08	06A	62101
	J1321 64	30A	62103						
NCN060	*J1136 50	23A	62101	J1152 14	09A	62102	J1152 22	12A	62102
NCN070	*J1135 11	05B	62101	J1147 71	36A	62102	J1147 77	38B	62102
	J1245 62	29A	62102						
NCN11A	*J1141 72	34A	62101	J1139 11	05B	62103			
NCN130	*J1139 15	07B	62103	J1103 03	02A	61002	J1103 29	14B	61002
	J1119 11	05B	60800	J1257 64	30A	62200	J1324 37	18B	62401
NCRR1QB	*J1259 24	13A	62403	J1157 40	19A	62402			
NCRR2QB	*J1258 15	10B	62403	J1157 34	16A	62402			
NCSAFQB	*J1260 15	10B	62403	J1157 23	11B	62402			
NCSPAQB	*J1150 24	13A	62403	J1154 03	02A	62402			
NCS01QB	*J1260 24	13A	62403	J1157 35	17B	62402			
NCS02QB	*J1259 27	16B	62403	J1157 54	25A	62402			
NCS03QB	*J1260 27	16B	62403	J1157 48	22A	62402			

Table 6-4. Voice Communications Central Key Signal Lookup-- Continued

Signal	Distribution								
NCS04QB	*J1259 36	18B	62403	J1157 41	22B	62402			
NCS05QB	*J1151 27	16B	62403	J1154 11	05B	62402			
NCS06QB	*J1150 27	16B	62403	J1154 24	13A	62402			
NCS07QB	*J1151 36	18B	62403	J1154 18	100A	62402			
NCS08QB	*J1150 36	18B	62403	J1154 17	08B	62402			
NCS09QB	*J1151 42	21A	62403	J1154 23	11B	62402			
NCS090V	*J1254 13	06A	61601	J1427 27		60203			
NCS10QB	*J1150 42	21A	62403	J1154 40	19A	62402			
NCS100V	*J1254 08	04A	61601	J1427 30		60203			
NCS110V	*J1254 03	03A	61601	J1427 59		60203			
NCS120V	*J1254 01	02B	61601	J1427 55		60203			
NCS130V	*J1254 07	04B	61601	J1427 26		60203			
NCS140V	*J1254 10	06B	61601	J1427 31		60203			
NCS150V	*J1254 24	13A	61601	J1427 52		60203			
NCS160V	*J1254 25	11A	61601	J1427 51		60203			
NCS170V	*J1254 18	09A	61601	J1423 27		60203			
NCS180V	*J1254 14	08B	61601	J1423 30		60203			
NCS190V	*J1254 19	10B	61601	J1423 59		60203			
NCS200V	*J1254 26	12B	61601	J1423 55		60203			
NCS210V	*J1252 13	06A	61601	J1423 26		60203			
NCS220V	*J1252 08	04A	61601	J1423 31		60203			
NCS230V	*J1252 03	03A	61601	J1423 52		60203			
NCS240V	*J1252 01	02B	61601	J1423 51		60203			
NCS250V	*J1252 07	04B	61601	J1420 27		60203			
NCS260V	*J1252 10	06B	61601	J1420 30		60203			
NCS270V	*J1252 24	13A	61601	J1420 59		60203			
NCS280V	*J1252 25	11A	61601	J1420 55		60203			
NCS290V	*J1252 18	09A	61601	J1420 26		60203			
NCS300V	*J1252 14	08B	61601	J1420 31		60203			
NCS310V	*J1252 19	10B	61601	J1420 52		60203			
NCS320V	*J1252 26	12B	61601	J1420 51		60203			
NC01C0	*J1146 06	05A	62103	J1144 03	02B	62103	J1145 04	03A	62103
	J1302 21		60500						
NC01PA	*J1255 04	04A	62402	J1254 35	18A	62402	J1260 04	03A	62403
NC01P0V	*J1254 37	17A	62402	J1148 29	14B	61404			
NC01RIU	*J1241 38	18A	62401	J1158 17	08B	62402	J1242 41	19B	62401
NC01R2U	*J1241 40	19A	62401	J1158 24	13A	62402	J1242 43	22B	62401
NC01R3U	*J1241 42	20A	62401	J1158 03	02A	62402	J1242 45	23B	62401
NC01R4U	*J124146	21A	62401	J1158 08	06A	62402			
NC02C0	*J1146 01	02B	62103	J1144 05	03B	62103	J1145 10	07A	62103
	J1303 21		60500						
NC02PA	*J1255 07	03A	62402	J1254 36	16A	62402	J1259 04	03A	62403
NC02P0V	*J1254 34	15A	62402	J1148 37	18B	61404			
NC02RIU	*J1242 38	18A	62401	J1158 23	11B	62402	J1241 39	18B	62401
NC02R2U	*J1242 40	19A	62401	J1158 18	10A	62402	J1241 41	19B	62401
NC02R3U	*J1242 42	20A	62401	J1158 11	05B	62402	J1241 43	22B	62401
NC02R4U	*J1242 46	21A	62401	J1158 04	04A	62402	J1241 45	23B	62401
NC03C0	*J1146 09	04B	62103	J1144 07	04B	62103	J1145 20	100A	62103
	J1304 21		60500						
NC03PA	*J1255 15	07B	62402	J1254 29	15B	62402	J1258 04	03A	62403
NC03P0V	*J1254 30	14B	62402	J1148 52	24A	61404			
NC03R2U	*J1243 40	19A	62401	J1126 40	19A	61602	J1155 04	04A	62402
	J1244 43	22B	62401						

Table 6-4. Voice Communications Central Key Signal Lookup-- Continued

Signal	Distribution								
NC03R3U	*J1243 42	20A	62401	J1126 24	13A	61602	J1158 29	14B	62402
	J1244 45	23B	62401						
NC03R4U	*J1243 46	21A	62401	J1126 08	06A	61602	J1158 40	19A	62402
	J1242 39	18B	62401						
NC04C0	*J1146 15	07B	62103	J1144 09	05B	62103	J1145 21	11B	62103
	J1305 21		60500						
NC04PA	*J1255 20	11A	62402	J1254 33	17B	62402	J1260 10	07A	62403
NC04P0V	*J1254 31	16B	62402	J1148 41	22B	61404			
NC04R2U	*J1244 40	19A	62401	J1126 34	16A	61602	J1155 03	02A	62402
	J1243 41	19B	62401						
NC04R3U	*J1244 42	20A	62401	J1126 18	10A	61602	J1155 08	06A	62402
	J1243 43	22B	62401						
NC04R4U	*J1244 46	21A	62401	J1126 05	03B	61602	J1158 34	16A	62402
	J1243 45	23B	62401						
NC05C0	*J1146 38	18A	62103	J1144 11	06B	62103	J1145 30	16A	62103
	J1307 21		60500						
NC05PA	*J1255 19	09B	62402	J1254 39	19B	62402	J1259 10	07A	62403
NC05P0V	*J1254 42	18B	62402	J1148 49	26B	61404			
NC05RiU	*J1241 54	26A	62401	J1155 18	100A	62402	J1242 55	27B	62401
NC05R2U	*J1241 56	28B	62401	J1155 11	05B	62402	J1242 57	29B	62401
NC05R3U	*J1241 60	28A	62401	J1158 48	22A	62402	J1242 59	30B	62401
NC05R4U	*J1241 62	29A	62401	J1158 35	17B	62402	J1244 39	18B	62401
NC06C0	*J1146 30	15A	62103	J1144 15	07B	62103	J1145 35	20A	62103
	J1308 21		60500						
NC06PA	*J1255 27	13B	62402	J1254 52	26A	62402	J1258 10	07A	62403
NC06P0V	*J1254 54	25A	62402	J1148 66	31A	61404			
NC06R1U	*J1242 54	26A	62401	J1155 17	08B	62402	J1241 53	26B	62401
NC06R2U	*J1242 56	28B	62401	J1155 24	13A	62402	J1241 55	27B	62401
NC06R3U	*J1242 60	28A	62401	J1158 41	22B	62402	J1241 57	29B	62401
NC06R4U	*J1242 62	29A	62401	J1158 54	25A	62402	J1241 59	30B	62401
NC07C0	*J1146 33	16B	62103	J1144 18	09A	62103	J1145 43	25B	62103
	J1310 21		60500						
NC07PA	*J1255 36	17A	62402	J1254 47	24A	62402	J1260 20	10A	62403
NC07P0V	*J1254 49	23A	62402	J1148 53	28B	61404			
NC07R4U	*J1243 62	29A	62401	J1155 23	11B	62402	J1242 53	26B	62401
NC08C0	*J1146 39	19B	62103	J1144 17	08B	62103	J1145 52	26A	62103
	J1311 21		60500						
NC08PA	*J1255 31	15B	62402	J1254 50	22A	62402	J1259 20	10A	62403
NC08P0V	*J1254 48	21A	62402	J1331 25		60203			
NC08R4U	*J1244 62	29A	62401	J1155 40	19A	62402	J1243 59	30B	62401
NC09C0	*J1146 66	31A	62103	J1144 51	25B	62103	J1145 57	31B	62103
	J1409 21		60500						
NC09PA	*J1255 39	19B	62402	J1254 41	23B	62402	J1258 20	10A	62403
NC09P0V	*J1254 46	22B	62402	J1331 45		60203			
NC10C0	*J1146 60	28A	62103	J1144 53	26B	62103	J1145 69	33A	62103
	J1410 21		60500						
NC10PA	*J1255 50	23A	62402	J1254 45	25B	62402	J1259 21	11B	62403
NC10P0V	*J1254 43	24B	62402	J1331 52		60203			
NC11PA	*J1255 43	23B	62402	J1254 51	27B	62402	J1260 21	11B	62403
NC11P0V	*J1254 53	26B	62402	J1331 53		60203			
NC12PA	*J1153 04	04A	62402	J1150 52	26A	62403	J1252 38	20A	62402
NC12P0V	*J1252 40	19A	62402	J1331 47		60203			
NC13PA	*J1153 07	03A	62402	J1150 21	11B	62403	J1252 35	18A	62402

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NC13P0V	*J1252 37	17A	62402	J1331 65		60203			
NC14PA	*J1153 15	07B	62402	J1151 21	11B	62403	J1252 36	16A	62402
NC14P0V	*J1252 34	15A	62402	J1331 72		60203			
NC17PA	*J1255 51	27B	62402	J1254 64	33A	62402	J1258 21	11B	62403
NC17P0V	*J1254 66	32A	62402	J1302 63		60500			
NC18PA	*J1255 64	30A	62042	J1254 61	31A	62402	J1260 30	16A	62403
NC18P0V	*J1254 63	30A	62402	J1303 63		60500			
NC19A	*J1255 55	29B	62402	J1254 62	29A	62402	J1259 30	16A	62403
NC19P0V	*J1254 60	28A	62402	J1304 63		60500			
NC20PA	*J1255 63	33B	62402	J1254 55	29B	62402	J1258 30	16A	62403
NC20P0V	*J1254 56	28B	62402	J1305 63		60500			
NC21PA	*J1153 20	11A	62402	J1150 30	16A	62403	J1252 29	15B	62402
NC21P0V	*J1252 30	14B	62402	J1307 63		60500			
NC22PA	*J1153 19	09B	62402	J1151 30	16A	62403	J1252 33	17B	62402
NC22P0V	*J1252 31	16B	62402	J1308 63		60500			
NC23PA	*J1153 27	13B	62402	J1150 35	20A	62403	J1252 39	19B	62402
NC23P0V	*J1252 42	18B	62402	J1310 63		60500			
NC24PA	*J1153 36	17A	62402	J1151 35	20A	62403	J1252 52	26A	62402
NC24P0V	*J1252 54	25A	62402	J1311 63		60500			
NC25PA	*J1153 31	15B	62402	J1150 43	25B	62403	J1252 47	24A	62402
NC25P0V	*J1252 49	23A	62402	J1409 63		60500			
NC26PA	*J1153 39	19B	62402	J1151 43	25B	62403	J1252 50	22A	62402
NC26P0V	*J1252 48	21A	62402	J1410 63		60500			
NC407QB	*J1259 15	10B	62403	J1157 17	08B	62402			
ND160A	J1107 55	29B	62803	J1122 10	07A	62803	J1159 65	34B	62803
	J1159 76	37A	62803	*J1316 25		62804	J1322 40		62804
	*J1316 25		62804	J1322 40		62804			
NFAU1D	*J1156 14	09A	62802	J1160 65		62801	J1160 75		62801
	J1338 55		62801						
NF1T11ND	J1121 50	23A	62802	J1235 73	37B	61800	*J1322 77		61800
	J1415 06		61800						
NF1T10V	*J1235 71	36B	61800	J1156 17	08B	62801	J1156 23	11B	62801
NFP1E0V	*J1323 48	21A	62801	J1159 31	15B	62801	J1159 36	17A	61801
	J1159 37	18B	62801	J1159 42	20A	62801	J1159 50	23A	62801
	J1159 56	26A	62801	J1320 03	02A	62802			
NFRSTA	*J1122 23	11B	62602	J1120 08	06A	61102	J1222 63	31A	62602
	J1226 80	38B	62602	J1228 51	25B	62603	J1228 69	32A	62603
	J1235 65	33B	62602						
NFRST0	*J1235 68	32B	62602	J1129 78	38A	61602			
NFS1KA	J1313 07		62703	J1510 05		61701			
NF16M0V	*J1250 78	36A	62802	J1156 62	29A	62801	J1156 68	32A	62801
NF162A1	J1107 69	35B	62802	J1123 07		62802	J1156 48	22A	62801
	J1156 54	25A	62801	*J1316 09		62802			
NF502A1	J1107 11	07A	62802	J1123 08		62802	J1156 53	28B	62801
	J1156 59	31B	62801	*J1316 77		62802			
NGD01D1	*J1125 06	05A	63405	J1111 10	07A	61701	J1111 56	26A	61900
	J1123 09		63405	J1130 10	07A	61300	J1131 50	24A	62501
	J1132 50	24A	62501	J1133 29	14B	60800	J1207 50	24A	62301
	J1208 50	24A	62301	J1213 14	09A	60903	J1217 52	25A	61102
	J1224 50	24A	62002	J1224 63	31A	62002	J1225 50	24A	62002
	J1225 63	31A	62002	J1227 71	33B	62603	J1228 41	19B	61601
	J1229 75	36B	61101	J1231 14	09A	61102	J1239 80	38B	61500

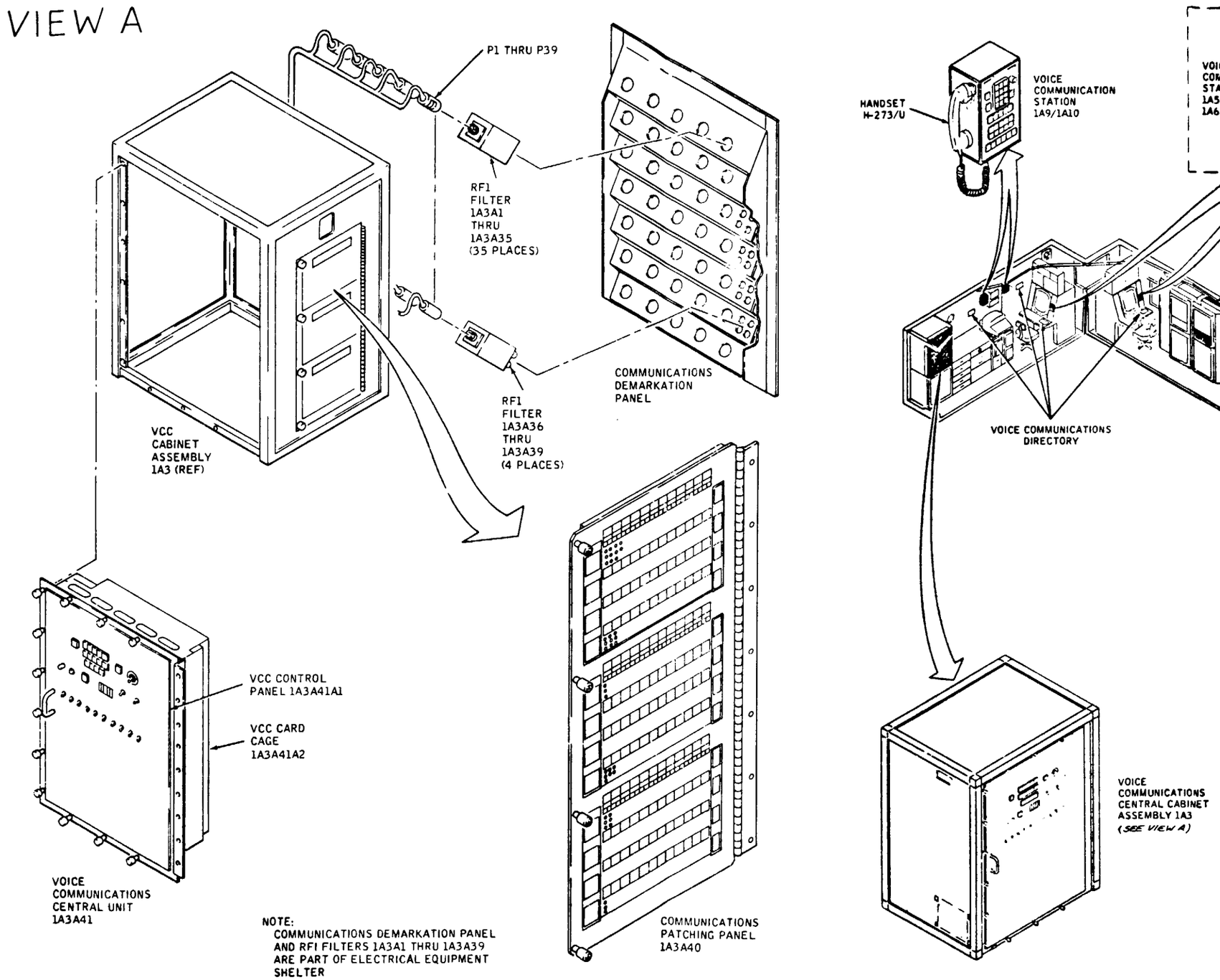
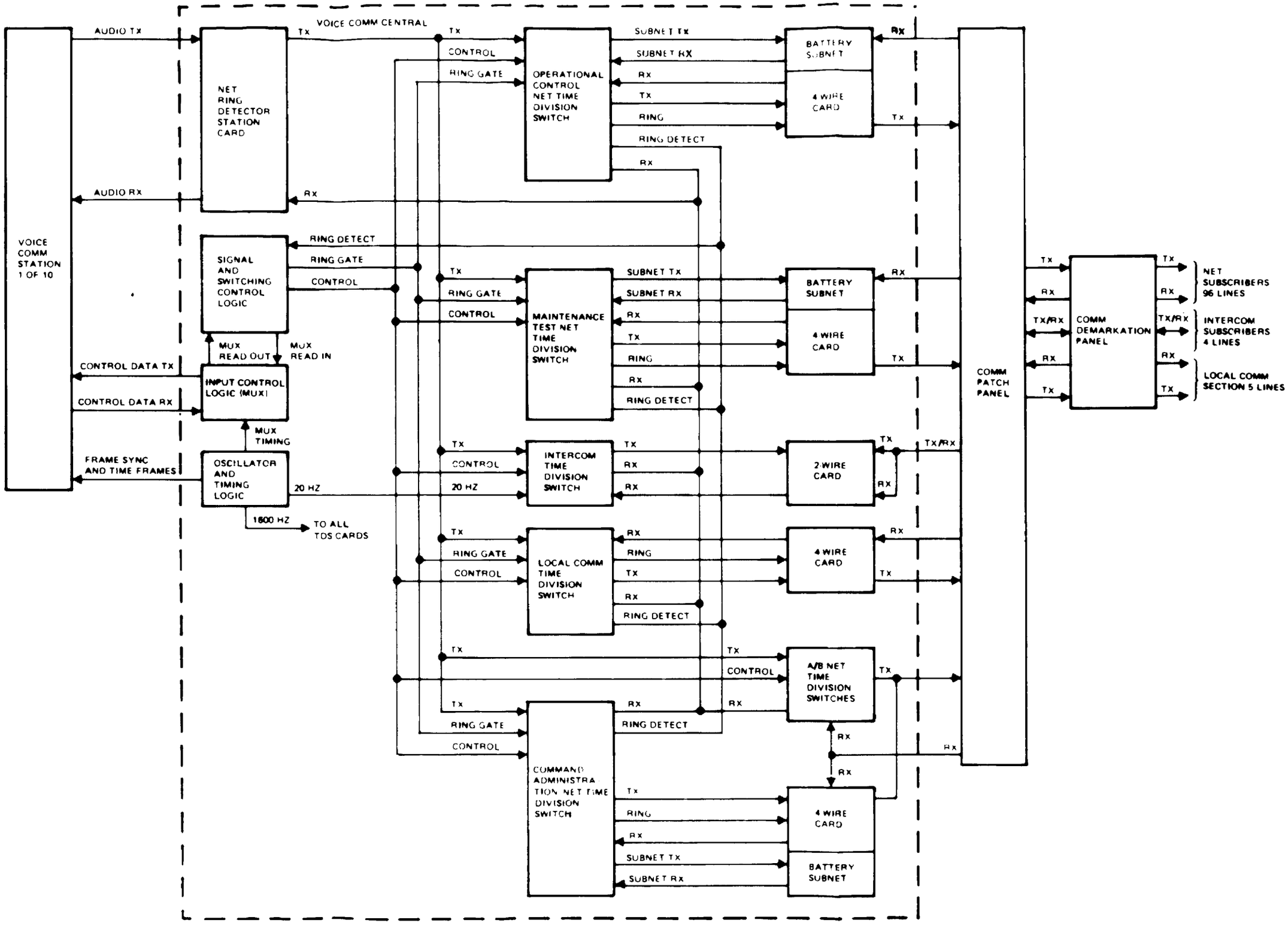


Figure 6-1. Voice Communications Equipment, Major Units and Assemblies



MS 202157

Figure 6-4. VCC Functional Block Diagram

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NGD02D1	*J1125 01	02B	63405	J1111 01	02B	61701	J1111 46	21A	61900
	J1123 10		63405	J1130 01	02B	61300	J1131 63	31A	62501
	J1132 63	31A	62501	J1133 31	15B	60800	J1207 63	31A	62301
	J1209 50	24A	62301	J1213 30	15A	60903	J1217 53	26B	61102
	J1221 80	38B	62002	J1222 80	38B	62002	J1224 80	38B	62002
	J1225 80	38B	62002	J1227 77	36B	62603	J1228 43	22B	62601
	J1229 77	37B	61101	J1234 80	38B	61201	J1240 80	38B	61500
NGD03D1	*J1125 09	04B	63405	J1111 26	14A	61701	J1111 70	33A	61900
	J1123 17		63405	J1130 26	14A	61300	J1132 80	38B	62501
	J1133 33	16B	60800	J1149 63	31A	62501	J1208 63	31A	62301
	J1209 63	31A	62301	J1213 46	21A	60903	J1217 64	30A	61102
	J1226 71	33B	62602	J1229 72	36A	61101	J1238 63	31A	61201
	J1241 80	38B	61500						
NGD04D1	*J1125 15	07B	63405	J1111 14	09A	61701	J1111 60	28A	61900
	J1123 18		63405	J1130 14	09A	61300	J1131 80	38B	62501
	J1149 80	38B	62501	J1207 80	38B	62301	J1208 80	38B	62301
	J1213 60	28A	60903	J1226 73	34B	62602	J1229 70	35A	61101
	J1238 64	30A	61201	J1242 80	38B	61500			
NGD05D1	*J1125 22	12A	63405	J1111 42	20A	61701	J1111 79	39B	61900
	J1123 19		63405	J1207 64	30A	62301	J1213 72	34A	60903
	J1214 52	25A	62802	J1226 75	35B	62602	J1229 68	34A	61101
	J1243 80	38B	61500	J1244 48	22A	62401			
NGD06D1	*J1125 14	09A	63405	J1111 30	15A	61701	J1123 20	63405	
	J1208 78	38A	62301	J1214 13	07A	60901	J1214 30	15A	60901
	J1214 48	22A	60901	J1226 77	36B	62602	J1244 64	30A	62401
NGD07D1	*J1125 21	10B	63405	J1123 24		63405	J1222 53	26B	62602
NGD08D1	*J1125 27	13B	63405	J1123 26		63405	J1130 79	39B	61602
	J1214 68	33A	60901						
NGD09D1	*J1125 38	18A	63405	J1107 04	02A	61002	J1123 23		63405
	J1130 72	34A	61602						
NGD10D1	*J1125 30	15A	63405	J1123 25		63405	J1126 10	07A	61602
	J1127 08	04A	61602	J1224 03	02B	62602	J1225 64	30A	62002
	J1232 50	24A	61102	J1233 50	24A	61102	J1241 50	24A	62401
	J1242 50	24A	62401						
NGD11D1	*J1125 33	16B	63405	J1123 29		63405	J1126 01	02B	61602
	J1127 36	17A	61602	J1233 63	31A	61103	J1234 63	31A	61103
NGD12D1	*J1125 39	19B	63405	J1123 30		63405	J1126 26	14A	61602
	J1127 50	23A	61602	J1221 41	19B	62601	J1222 78	38A	62002
	J1232 80	38B	61103	J1233 80	38B	61103	J1243 50	24A	62401
	J1244 50	24A	62401						
NGD13D1	*J1125 52	24A	63405	J1123 38		63405	J1126 14	09A	61602
	J1127 22	11A	61602	J1222 41	19B	62601	J1229 11	06B	61701
	J1241 63	31A	62401	J1242 63	31A	62401			
NGD14D1	*J1125 46	21A	63405	J1112 18	09A	61701	J1123 36		63100
	J1126 42	20A	61602	J1127 62	30A	61602	J1222 39	18B	62601
	J1243 63	31A	62401	J1244 63	31A	62401			
NGD15D1	*J1125 45	24B	63405	J1108 57	31B	60902	J1108 59	29A	60902
	J1112 17	08B	61701	J1123 35		63405	J1126 30	15A	61602
	J1133 74	36A	61402	J1134 62	30A	61402	J1134 74	36A	61402
	J1137 74	36A	61402	J1222 45	23B	62601	J1238 71	33B	62701
NGD16D1	*J1125 51	27B	63405	J1123 37		63405	J1126 79	39B	61602
	J1133 50	23A	61402	J1133 62	30A	61402	J1134 36	17A	61402
	J1134 50	23A	61402	J1137 73	36B	61402	J1138 66	23A	61401
	J1217 30	15A	61900	J1238 73	34B	62701			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NGD17D1	*J1125 66	31A	63405	J1123 39		63405	J1126 56	26A	61602
	J1126 72	34A	61602	J1127 78	38A	61401	J1137 08	04A	61403
	J1137 22	11A	61403	J1137 36	17A	61403	J1137 50	23A	61403
	J1138 08	04A	61403	J1138 22	11A	61403	J1138 36	17A	61403
	J1138 50	23A	61403	J1217 15	07B	61900	J1238 75	35B	62701
NGD18D1	*J1125 60	28A	63405	J1116 69	33A	62104	J1116 70	36A	62104
	J1116 75	39B	62104	J1123 40		63405	J1126 46	21A	61602
	J1138 45	24B	61403	J1145 70	36A	62104	J1145 75	39B	62104
	J1217 18	09A	61900	J1238 77	36B	62701	J1258 57	31B	62104
	J1258 69	33A	62104	J1258 70	36A	62104	J1258 75	39B	62104
	J1259 75	39B	62503						
NGD19D1	*J1125 57	30B	63405	J1108 78	37A	62200	J1115 78	37A	61900
	J1123 42		63100	J1126 70	33A	61602	J1138 74	36A	61102
	J1217 17	08B	61900	J1217 34	15B	61900			
NGD20D1	*J1125 63	33B	63405	J1123 46		63405	J1126 60	28A	61602
	J1137 62	30A	61601	J1217 33	16A	61900	J1226 39	18B	62701
NGD21D1	*J1125 75	37B	63405	J1123 41		63405	J1130 56	26A	61602
	J1226 41	19B	62701	J1229 29	13B	61900	J1231 30	15A	61101
NGD22D1	*J1125 72	34A	63405	J1123 45		63405	J1130 46	21A	61602
	J1226 43	22B	62701						
NGD23D1	*J1125 69	35A	63405	J1123 47		63405	J1130 70	33A	61602
	J1131 64	30A	62501	J1226 45	23B	62701			
NGD24D1	*J1125 80	39A	63405	J1123 48		63405	J1130 60	28A	61602
	J1149 78	38A	62501						
NICENA	*J1325 33	16B	61800	J1213 06	05A	61701	J1231 52	24A	61701
NICG10	*J1110 45	24B	61701	J1253 76	37A	61900	J1255 72	34A	61701
NIC0N0T	*J1208 08	04A	61701	J1109 31	15B	61702			
NIC0N1T	*J1208 10	05A	61701	J1109 37	18B	61702			
NIC0N2T	*J1208 14	06A	61701	J1109 56	26A	61702			
NIC0N3T	*J1208 13	07A	61701	J1109 48	22A	61702			
NIC0N4T	*J1208 17	08B	61701	J1109 43	23B	61702			
NIC0N5T	*J1208 07	04B	61701	J1109 47	25B	61702			
NIC1F	J1316 67		62804	*J1414 33		60600			
NIC2F	J1316 68		62804	*J1414 44		60600			
NIC3F	J1316 71		62804	*J1416 33		60600			
NIC4F	J1316 70		62804	*J1416 44		60600			
NIDIS0T	*J1208 24	12A	61701	J1110 42	20A	61702			
NIDIS0V	*J1107 68	32B	62701	J1112 30	15A	61701	J1217 48	22A	61900
NIDIS1T	*J1208 26	13A	61701	J1110 34	16A	61702			
NIDIS2T	*J1208 27	14A	61701	J1110 31	15B	61702			
NIDIS3T	*J1208 30	15A	61701	J1110 35	17B	61702			
NIDIS4T	*J1208 33	16A	61701	J1110 56	26A	61702			
NIDIS5T	*J1208 23	11B	61701	J1110 48	22A	61702			
NIER1B	*J1218 60	28A	61800	*J1218 66	31A	61800	J1415 01		60600
NIER10V	*J1220 66	32A	62004	J1314 47		60702			
NIER2B	*J1218 57	30B	61800	*J1218 63	33B	61800	J1415 02		60600
NIER20V	*J1220 63	30A	62004	J1314 65		60702			
NIER3B	*J1218 72	34A	61800	*J1218 75	37B	61800	J1415 03		60600
NIER30V	*J1220 60	28A	62004	J1314 72		60702			
NIER4B	*J1218 69	35A	61800	*J1218 80	39A	61800	J1415 04		60600
NIER40V	*J1220 56	28B	62004	J1314 71		60702			
NIEX1S	*J1219 64	30A	61800	J1218 62	29A	61800	J1218 68	32A	61800
	J1325 03	02A	61800	*J1414 46		60600			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NIEX2S	*J1219 55	29B	61800	J1218 53	28B	61800	J1218 59	31B	61800
	J1325 13	06B	61800	*J1414 24		60600			
NIEX3S	*J1219 73	36B	61800	J1218 71	36A	61800	J1218 77	38B	61800
	J1325 24	13A	61800	*J1416 46		60600			
NIEX4S	*J1219 74	35B	61800	J1218 65	34B	61800	J1218 76	37A	61800
	J1325 18	10A	61800	*J1416 24		60600			
NILR50V	*J1220 42	18B	62001	J1117 55	29B	62003	J1117 61	32B	62003
	J1117 64	30A	62003	J1117 70	33A	62003	J1142 55	29B	62003
	J1142 61	32B	62003	J1142 64	30A	62003	J1142 70	33A	62003
	J1142 73	36B	62003	J1142 79	39B	62003			
NILR60V	*J1220 54	25A	62001	J1216 41	22B	62004	J1216 47	25B	62004
	J1216 48	22A	62004	J1216 54	25A	62004	J1320 77	38B	62001
NILR7A	*J1210 39	19B	62001	J1219 30	15A	62004	J1219 35	17B	62004
	J1219 46	21A	62004	J1219 47	25B	62004	J1219 54	25A	62004
NINDIS	*J1101 45	24B	61701	J1102 50	23A	61701	J1320 79	39B	62001
NINTM2X	*J1112 06	03A	61701	J1203 17	08B	61900			
NINU1J	*J1111 13	06B	61701	J1110 08	06A	61702			
NINU2J	*J1111 07	03A	61701	J1110 03	02A	61702			
NINU3J	*J1111 25	12B	61701	J1109 03	02A	61702	J1231 56	26A	61701
NINU4J	*J1111 19	09B	61701	J1109 24	13A	61702	J1231 46	21A	61701
NINU5J	*J1111 37	18B	61701	J1109 17	08B	61702	J1213 10	07A	61701
NINU6J	*J1111 31	15B	61701	J1109 40	19A	61702	J1213 01	02B	61701
NIN130V	*J1104 34	15A	61702	J1110 40	19A	61702	J1111 08	06A	61701
	J1112 03	02B	61701						
NIN230V	*J1104 30	14B	61702	J1110 36	17A	61702	J1111 05	03B	61701
	J1112 05	03B	61701						
NIN330V	*J1104 31	16B	61702	J1110 29	14B	61702	J1111 24	13A	61701
	J1112 07	04B	61701						
NIN430V	*J1104 42	18B	61702	J1110 37	18B	61702	J1111 18	10A	61701
	J1112 09	05B	61701						
NIN530V	*J1104 54	25A	61702	J1110 54	25A	61702	J1111 40	19A	61701
	J1112 11	06B	61701						
NIN630V	*J1104 49	23A	61702	J1110 50	23A	61702	J1111 34	16A	61701
	J1112 15	07B	61701						
NIRCLA	*J1215 09	04B	61800	J1135 74	35B	62803	J1220 09	05B	61800
	J1323 41	23B	61800						
NIRGNA	*J1109 60	28A	61701	J1117 37	18B	61800	J1207 05	03B	61701
NIRKLOV	*J1323 46	22B	61800	J1325 07	03A	61800	J1325 11	05B	61800
	J1325 20	11A	61800	J1325 26	14A	61800	J1325 43	23B	61002
	J1325 48	22A	61002	J1325 49	26B	61002	J1325 54	25A	61002
	J1325 62	29A	61002	J1325 68	32A	61002			
NIRNG0T	*J1207 08	04A	61701	J1101 24	13A	61002	J1109 55	29B	61702
NIRNG1T	*J1207 10	05A	61701	J1101 18	10A	61002	J1109 61	32B	61702
NIRNG2T	*J1207 14	06A	61701	J1101 17	08B	61002	J1110 64	30A	61702
NIRNG3T	*J1207 13	07A	61701	J1101 23	11B	61002	J1110 55	29B	61702
NIRNG4T	*J1207 17	08B	61701	J1101 40	19A	61002	J1110 61	32B	61702
NIRNG5T	*J1207 07	04B	61701	J1101 34	16A	61002	J1110 79	39B	61702
NIR15A	*J1110 01	02B	61702	J1109 10	07A	61702	J1121 08	06A	60800
NIR160	*J1109 06	05A	61702	J1134 04	02A	60800			
NIR170	*J1321 72	34A	61701	J1103 70	33A	61702			
NIR25A	*J1110 15	07B	61702	J1109 05	03B	61702	J1121 10	07A	60800
NIR260	*J1109 01	02B	61702	J1134 01	02B	60800			
NIR270	*J1320 72	34A	61701	J1103 53	28B	61702			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NIR35A	*J1109 15	07B	61702	J1103 08	06A	61702	J1121 13	06B	60800
NIR360	*J1103 04	04A	61702	J1134 03	03B	60800			
NIR370	*J1321 69	35A	61701	J1103 61	32B	61702			
NIR38A	*J1146 75	37B	61701	J1103 10	07A	61702	J1122 20	11A	60800
NIR45A	*J1109 14	09A	61702	J1103 24	13A	61702	J1121 14	09A	60800
NIR460	*J1103 20	11A	61702	J1133 20	10A	60800			
NIR470	*J1320 69	35A	61701	J1103 75	37B	61702			
NIR48A	*J1146 72	34A	61701	J1103 26	14A	61702	J1122 18	10A	60800
NIR55A	*J1109 27	13B	61702	J1121 18	10A	60800	J1136 71	36A	61702
NIR560	*J1136 74	35B	61702	J1133 18	09A	60800			
NIR570	*J1321 80	39A	61701	J1103 72	34A	61702			
NIR58A	*J1146 69	35A	61701	J1122 14	09A	60800	J1136 72	34A	61702
NIR65A	*J1109 30	15A	61702	J1121 19	09B	60800	J1136 76	37A	61702
NIR660	*J1136 80	39A	61702	J1133 15	08B	60800			
NIR670	*J1320 80	39A	61701	J1103 17	08B	61702			
NIR68A	*J1146 80	39A	61701	J1122 19	09B	60800	J1136 78	38A	61702
NITR11U	*J1224 70	34A	62002	J1142 53	28B	62003	J1225 73	34B	62002
NITR12U	*J1224 72	35A	62002	J1142 68	32A	62003	J1225 75	35B	62002
NITR13U	*J1224 74	36A	62002	J1117 53	28B	62003	J1225 77	36B	62002
NITR14U	*J1224 76	37A	62002	J1117 68	32A	62003			
NITR21U	*J1225 70	34A	62002	J1142 59	31B	62003	J1224 71	33B	62002
NITR22U	*J1225 72	35A	62002	J1142 62	29A	62003	J1224 73	34B	62002
NITR23U	*J1225 74	36A	62002	J1117 59	31B	62003	J1224 75	35B	62002
NITR24U	*J1225 76	37A	62002	J1117 62	29A	62003	J1224 77	36B	62002
NITR32U	*J1221 72	35A	62002	J1216 43	23B	62004	J1222 75	35B	62002
NITR33U	*J1221 74	36A	62002	J1216 56	26A	62004	J1222 77	36B	62002
NITR34U	*J1221 76	37A	62002	J1142 77	38B	62003	J1225 71	33B	62002
NITR42U	*J1222 72	35A	62002	J1216 49	26B	62004	J1221 73	34B	62002
NITR43U	*J1222 74	36A	62002	J1216 50	23A	62004	J1221 75	35B	62002
NITR44U	*J1222 76	37A	62002	J1142 71	36A	62003	J1221 77	36B	62002
NLCADNS	*J1229 22	11A	61900	J1141 79	39B	61300	J1319 59	31B	61300
NLCAD1U	*J1226 54	26A	61900	J1112 27	14A	61701	J1208 20	10A	61701
	J1209 20	10A	61900	J1217 46	21A	61900			
NLCAD2U	*J1226 56	28B	61900	J1112 26	13A	61701	J1208 22	11A	61701
	J1209 22	11A	61900	J1217 42	20A	61900			
NLCAD3U	*J1226 60	28A	61900	J1112 24	12A	61701	J1208 19	09B	61701
	J1209 19	09B	61900	J1217 40	19A	61900			
NLCD1R	*J1321 63	33B	61900	J1320 61	32B	61900	J1324 11	05B	62001
NLCD1S	*J1320 63	33B	61900	J1321 59	31B	61900	J1321 79	39B	62001
NLCIC1U	*J1221 54	26A	61900	J1119 77	38B	62603	J1122 36	17A	62001
	J1203 21	10B	62001	J1226 61	31B	61900			
NLCIC2U	*J1221 56	28B	61900	J1112 14	06A	61701	J1217 14	06A	61900
	J1217 27	14A	61900						
NLCIC3U	*J1221 60	28A	61900	J1112 10	05A	61701	J1217 10	05A	61900
	J1217 26	13A	61900						
NLCIC4U	*J1221 62	29A	61900	J1112 08	04A	61701	J1217 08	04A	61900
	J1217 24	12A	61900						
NLCPIA	*J1118 51	27B	62001	J1224 37	17B	62002	J1224 51	25B	62002
	J1225 37	17B	62002	J1225 51	25B	62002			
NLCR1R	*J1215 66	31A	61800	J1216 70	33A	61800	J1411 39		60703
	J1411 43		60703						
NLCR1S	*J1216 66	31A	61800	J1101 13	06B	61002	J1215 68	32A	61800

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NLCR2R	*J1215 60	28A	61800	J1216 64	30A	61800	J1411 38		60703
	J1411 41		60703						
NLCR2S	*J1216 60	28A	61800	J1101 31	15B	61002	J1215 62	29A	61800
NLCR3R	*J1216 75	37B	61800	J1215 79	39B	61800	J1411 48		60703
	J1411 50		60703						
NLCR3S	*J1215 75	37B	61800	J1101 37	18B	61002	J1216 77	38B	61800
NLCR4R	*J1216 72	34A	61800	J1215 73	36B	61800	J1411 47		60703
	J1411 49		60703						
NLCR4S	*J1215 72	34A	61800	J1102 42	20A	61002	J1216 71	36A	61800
NLCR5R	*J1216 69	35A	61800	J1215 74	35B	61800	J1412 39		60703
	J1412 43		60703						
NLCR5S	*J1215 69	35A	61800	J1102 36	17A	61002	J1216 65	34B	61800
NLCSCAV	*J1220 10	06B	61900	J1108 01	02A	61702	J1108 18	05A	61702
	J1108 19	08B	61702	J1108 25	12A	61702	J1108 31	14B	61702
	J1108 40	18A	61702	J1115 62	31A	61900	J1115 74	34B	61900
	J1115 79	37B	61900						
NLCU1K	*J1111 47	25B	61900	J1211 26	14A	60903	J1213 20	11A	60903
NLCU2K	*J1111 45	24B	61900	J1211 20	11A	60903	J1213 36	17A	60903
NLCU3K	*J1111 59	31B	61900	J1211 19	09B	60903	J1213 50	23A	60903
NLCU4K	*J1111 57	30B	61900	J1211 25	12B	60903	J1213 64	30A	60903
NLCU5K	*J1111 76	37A	61900	J1211 05	03B	60903	J1213 73	36B	60903
NLC01RXA	J1411 18		60703	*J1413 18		60701			
NLC01RXB	J1411 22		60703	*J1413 22		60701			
NLC01TXA	*J1411 30		60703	J1413 30		60701			
NLC01TXB	*J1411 26		60703	J1413 26		60701			
NLC02RXA	J1411 02		60703	*J1413 02		60701			
NLC01RXB	J1411 06		60703	*J1413 06		60701			
NLC02TXA	*J1411 14		60703	J1413 14		60701			
NLC02TXB	*J1411 10		60703	J1413 10		60701			
NLC03RXA	J1411 60		60703	*J1413 60		60701			
NLC03RXB	J1411 64		60703	*J1413 64		60701			
NLC03TXA	*J1411 56		60703	J1413 56		60701			
NLC03TXB	*J1411 52		60703	J1413 52		60701			
NLC04RXA	J1411 76		60703	*J1413 76		60701			
NLC04RXB	J1411 80		60703	*J1413 80		60701			
NLC04TXA	*J1411 72		60703	J1413 72		60701			
NLC04TXB	*J1411 68		60703	J1413 68		60701			
NLC05RXA	J1412 18		60703	*J1413 25		60701			
NLC05RXB	J1412 22		60703	*J1413 33		60701			
NLC05TXA	*J1412 30		60703	J1413 05		60701			
NLC05TXB	*J1412 26		60703	J1413 09		60701			
NLC1R1U	*J1224 38	18A	62002	J1142 41	22B	62003	J1225 41	19B	62002
NLC1R2U	*J1224 40	19A	62002	J1142 54	25A	62003	J1225 43	22B	62002
NLC1R3U	*J1224 42	20A	62002	J1118 53	28B	62003	J1225 45	23B	62002
NLC1R4U	*J1224 46	21A	62002	J1118 68	32A	62003	J1222 71	33B	62002
NLC160	*J1203 19	09B	61900	J1210 14	09A	62001	J1210 38	18A	62001
	J1225 53	26B	62002						
NLC2R1U	*J1225 38	18A	62002	J1142 47	25B	62003	J1224 39	18B	62002
NLC2R2U	*J1225 40	19A	62002	J1142 48	22A	62003	J1224 41	19B	62002
NLC2R3U	*J1225 42	20A	62002	J1120 62	29A	62003	J1224 43	22B	62002
NLC2R4U	*J1225 46	21A	62002	J1118 62	29A	62003	J1224 45	23B	62002
NLC3R1U	*J1224 54	26A	62002	J1118 78	38A	62004	J1225 55	27B	62002
NLC3R2U	*J1224 56	28B	62002	J1118 43	23B	62004	J1225 57	29B	62002

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NLC3R3U	*J1224 60	28A	62002	J1118 56	26A	62004	J1225 59	30B	62002
NLC3R4U	*J1224 62	29A	62002	J1142 65	34B	62003	J1225 39	18B	62002
NLC4R2U	*J1225 56	28B	62002	J1118 74	35B	62004	J1224 55	27B	62002
NLC4R3U	*J1225 60	28A	62002	J1118 50	23A	62004	J1224 57	29B	62002
NLC4R4U	*J1225 62	29A	62002	J1142 76	37A	62003	J1224 59	30B	62002
NLC4W1F	J1316 64		62804	*J1411 34		60703			
NLC4W2F	J1316 65		62804	*J1412 34		60703			
NLC6TAV	*J1319 56	28B	61900	J1119 79	39B	62603	J1122 34	16A	62001
	J1203 23	11B	62001	J1221 61	31B	61900			
NLER10V	*J1220 57	30B	62004	J1315 53		60702			
NLER20V	*J1220 68	32B	62004	J1315 47		60702			
NLER30V	*J1220 80	38B	62004	J1315 65		60702			
NLER40V	*J1220 71	36B	62004	J1315 72		60702			
NLER50V	*J1220 70	34B	62004	J1315 71		60702			
NL1CPA	*J1215 39	19B	62001	J1221 69	32A	62002	J1222 69	32A	62002
	J1224 69	32A	62002	J1225 69	32A	62002			
NL1R50V	*J1220 40	19A	62001	J1118 55	29B	62003	J1118 64	30A	62003
	J1118 70	33A	62003	J1120 64	30A	62003	J1142 43	23B	62003
	J1142 49	26B	62003	J1142 50	23A	62003	J1142 56	26A	62003
	J1142 74	35B	62003	J1142 78	38A	62003			
NL1R60V	*J1220 37	17A	62001	J1118 41	22B	62004	J1118 48	22A	62004
	J1118 54	25A	62004	J1118 65	34B	62004	J1118 76	37A	62004
NL1R7A	*J1210 43	23B	62001	J1219 17	08B	62004	J1219 23	11B	62004
	J1219 24	13A	62004	J1219 40	19A	62004			
NL1SCAV	*J1220 34	15A	62001	J1115 01	02A	62003	J1115 18	05A	62003
	J1115 19	08B	62004	J1115 25	12A	62004	J1115 31	14B	62004
	J1115 40	18A	62004	J1115 51	28B	62004	J1116 01	02A	62003
	J1116 18	05A	62003	J1116 19	08B	62004	J1116 25	12A	62004
	J1116 31	14B	62004	J1116 40	18A	62004	J1116 51	28B	62004
	J1150 01	02A	62003	J1150 18	05A	62003	J1150 19	08B	62003
	J1151 01	02A	62003	J1151 18	05A	62003	J1151 19	08B	62003
NL1110V	*J1220 48	21A	62003	J1314 05		60702			
NL1120V	*J1220 46	22B	62003	J1314 13		60702			
NL1130V	*J1220 43	24B	62003	J1314 12		60702			
NL1140V	*J1220 53	26B	62003	J1314 06		60702			
NL1150V	*J1235 80	38B	62003	J1314 24		60702			
NL1160V	*J1235 78	36A	62003	J1314 30		60702			
NL1170V	*J1235 77	38A	62003	J1314 31		60702			
NL1180V	*J1323 53	26B	62003	J1314 25		60702			
NL1190V	*J1323 66	32A	62003	J1314 45		60702			
NL1200V	*J1323 63	30A	62003	J1314 52		60702			
NL170A	*J1119 74	35B	62001	J1106 31	15B	62003	J1106 38	18A	62003
	J1106 46	21A	62003	J1106 52	24A	62003	J1140 46	21A	62003
	J1140 52	24A	62003	J1140 60	28A	62003	J1140 66	31A	62003
	J1140 72	34A	62003	J1140 77	38B	62003			
NLRCLA	*J1216 15	07B	61800	J1135 73	63B	62803	J1220 04	02A	61800
NLSPRJ	*J1111 74	35B	61900	J1212 11	05B	61001	J1251 79	39B	61102
NLSPRK	*J1111 69	35A	61900	J1103 78	38A	61001			
NLST10	*J1110 21	10B	62803	J1316 08		62804			
NLST20V	*J1107 77	38A	62803	J1316 05		62804			
NLSU10	*J1110 22	12A	62803	J1316 06		62804			
NLSU80	*J1110 14	09A	62803	J1316 03		62804			
NMADBQB	*J1150 48	26B	62503	J1154 29	14B	62502			
NMADJQB	*J1151 53	28A	62503	J1154 34	16A	62502			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NMAD00V	*J1246 24	13A	61102	J1210 09	04B	61701	J1247 41	22B	61401
	J1324 47	25B	61401	J1324 20	11A	62101			
NMAD2AV	*J1236 70	34B	61102	J1216 20	11A	61800	J1230 69	35B	61102
NMAD80V	*J1246 14	08B	61102	J1119 05	03B	60800	J1119 10	07A	60800
	J1119 13	06B	60800	J1119 26	14A	60800			
NMBA0QB	*J1258 36	18B	62503	J1157 47	25B	62502			
NMBB0QB	*J1260 36	18B	62503	J1157 68	32A	62502			
NMBCDS	*J1321 52	24A	62101	J1119 18	10A	60800	J1136 53	28B	62101
	J1152 06	05A	62101	J1152 09	04B	62101	J1152 21	10B	62101
	J1152 38	18A	62101	J1152 41	22B	62101	J1320 64	30A	62101
NMBC0QB	*J1259 42	21A	62503	J1157 62	29A	62502			
NMBDPA	*J1119 39	19B	61102	J1232 35	16B	61102	J1232 66	32B	61103
	J1233 35	16B	61102	J1233 49	24B	61103	J1233 66	32B	61103
	J1234 49	24B	61103						
NMBD0QB	*J1258 42	21A	62503	J1157 53	28B	62502			
NMBE0QB	*J1259 48	26B	62503	J1157 59	31B	62502			
NMBF0QB	*J1260 42	21A	62503	J1157 77	38B	62502			
NMCDE0T	*J1131 08	04A	62102	J1128 10	07A	62104			
NMCDE1T	*J1131 10	05A	62102	J1128 05	03B	62104			
NMCDE2T	*J1131 14	06A	62102	J1128 07	03A	62104			
NMCDE3T	*J1131 13	07A	62102	J1128 13	06B	62104			
NMCDE4T	*J1131 17	08B	62102	J1128 26	14A	62104			
NMCDE5T	*J1131 07	04B	62102	J1128 20	11A	62104			
NMCDE6T	*J1131 09	05B	62102	J1128 19	09B	62104			
NMCDE7T	*J1131 11	06B	62102	J1128 25	12B	62104			
NMCDE8T	*J1131 15	07B	62102	J1128 42	20A	62104			
NMCDE9T	*J1131 18	09A	62102	J1128 36	17A	62104			
NMCLKAV	*J1236 40	19A	62701	J1105 48	22A	60902	J1129 65	34B	61602
	J1231 66	31A	62701	J1231 06	05A	60800			
NMCLKD1	*J1218 38	18A	62701	J1106 68	32A	60902	J1106 72	34A	60902
	J1118 08	06A	60800	J1120 29	14B	61102	J1120 76	37A	61101
	J1123 52		62701	J1133 09	06B	60800	J1136 70	33A	61500
	J1210 05	03B	60902						
NMCLKJ	J1117 79	39B	62703	J1120 59	31B	62603	J1218 40	19A	62701
	J1226 37	17B	62701	J1227 37	17B	62701	J1236 38	20A	62701
	J1238 69	32A	62701						
	*J1313 14		62703						
NMCMDAV	*J1236 68	32B	61103	J1101 64	30A	60902	J1103 45	24B	60902
	J1119 45	24B	61201	J1229 42	20A	61300	J1230 65	33B	61103
	J1256 53	28B	62200	J1324 70	33A	62200			
NMCMD0V	*J1230 68	32B	61103	J1103 30	15A	61002	J1108 70	36A	62200
	J1135 40	19A	62101	J1141 71	36A	62101	J1152 10	07A	62101
	J1152 11	05B	62101	J1257 50	23A	62101	J1257 56	26A	62101
	J1324 35	17B	62401						
NMCSA1U	*J1227 38	18A	62701	J1106 55	29B	61900	J1113 20	10A	62701
	J1114 04	02A	62701	J1114 20	10A	62701	J1324 19	09B	61900
NMCSTD1	*J1218 21	10B	62702	J1123 55		62702	J1131 35	16B	62501
	J1131 49	24B	62501	J1131 66	32B	62501	J1132 35	16B	62501
	J1132 49	24B	62501	J1132 66	32B	62501	J1135 50	23A	62200
	J1148 75	37B	62802	J1149 49	24B	62501	J1149 49	24B	62501
	J1149 66	32B	62501	J1231 04	04A	60800	J1239 66	32B	61500
	J1240 66	32B	61500	J1241 66	32B	61500	J1242 66	32B	61500
	J1243 66	32B	61500	J1324 04	04A	62001	J1324 08	06A	62001

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NMCST2U	*J1226 40	19A	62701	J1106 60	28A	61900	J1107 65	33B	62701
	J1219 76	37A	60800	J1225 03	02B	62701	J1230 33	17B	62701
NMCS46T	*J1113 25	12B	62701	J1231 20	11A	61102	J1236 17	09B	62701
NMCS561T	*J1114 10	06A	62701	J1250 75		62701			
NMCS57T	*J1114 11	06B	62701	J1250 79		62701			
NMCS87T	*J1114 29	13B	62701	J1120 42	20A	60800	J1226 50	24A	62701
	J1231 36	17A	61101	J1236 23	12A	62701			
NMCV10V	*J1319 60	28A	61102	J1237 47	23A	61201	J1237 79	37B	61201
	J1238 47	23A	61201	J1239 61	31B	61201			
NMC0N0V	*J1230 78	36A	61102	J1152 08	06A	62101	J1152 40	19A	62101
NMDAT0V	J1229 71	34B	61101	J1232 39	18B	61102			
	*J1313 78		62703	J1320 42	20A	61101			
NMDC2AV	*J1236 63	30A	61102	J1233 53	26B	61103			
NMDDE0T	*J1131 24	12A	62102	J1129 10	07A	62104			
NMDDE1T	*J1131 26	13A	62102	J1129 05	03B	62104			
NMDDE2T	*J1131 27	14A	62102	J1129 07	03A	62104			
NMDDE3T	*J1131 30	15A	62102	J1129 13	06B	62104			
NMDDE4T	*J1131 33	16A	62102	J1129 26	06B	62104			
NMDDE5T	*J1131 23	11B	62102	J1129 20	11A	62104			
NMDDE6T	*J1131 25	12B	62102	J1129 19	09B	62104			
NMDDE7T	*J1131 29	13B	62102	J1129 25	12B	62104			
NMDDEST	*J1131 31	14B	62102	J1129 42	20A	62104			
NMDDE9T	*J1131 34	15B	62102	J1129 36	17A	62104			
NMDTA0	*J1320 46	21A	60800	J1313 10		62703			
NMFSYA	J1227 69	32A	62603	J1236 27	13B	62702	J1313 11		62703
NMFSYAV	*J1245 78	36A	62702	J1149 37	17B	62101	J1156 26	14A	62802
	J1237 51	25B	61201	J1239 37	17B	61201	J1240 37	17B	62101
	J1240 51	25B	62101						
NMFSY0V	*J1236 26	12B	62702	J1101 59	31B	60903	J1120 25	12B	61101
	J1156 40	19A	61602	J1231 01	02B	60800	J1231 05	03B	60800
	J1245 76	37A	62702	J1319 06	05A	62702			
NMGRPQB	*J1259 61	33B	62503	J1256 17	08B	62502			
NM1KS4	J1337 57			J1338 72					
NM1N1AV	*J1236 54	25A	61103	J1112 19	09B	61701	J1229 09	05B	61701
	J1229 40	19A	61300						
NM1N2AV	*J1236 49	23A	61103	J1112 21	10B	61701	J1229 07	04B	61701
	J1229 35	16B	61300						
NM1N3AV	*J1236 48	21A	61103	J1112 23	11B	61701	J1229 05	03B	61701
	J1229 37	17B	61300						
NM1N4AV	*J1236 46	22B	61103	J1112 25	12B	61701	J1229 03	02B	61701
	J1229 39	18B	61300						
NM1N5AV	*J1236 43	24B	61103	J1112 29	13B	61701	J1120 05	03B	61300
	J1229 08	04A	61701						
NM1N60V	*J1236 53	26B	61103	J1212 50	23A	61800	J1216 42	20A	61800
NMLC1AV	*J1230 43	24B	61103	J1217 35	16B	61900	J1229 25	12B	61900
NMLC2AV	*J1230 53	26B	61103	J1217 37	17B	61900	J1229 23	11B	61900
NMLC3AV	*J1230 66	32A	61103	J1217 39	18B	61900	J1229 21	10B	61900
NMLC4AV	*J1230 63	30A	61103	J1217 41	19B	61900	J1229 19	09B	61900
NMLC5AV	*J1230 60	28A	61103	J1217 43	22B	61900	J1229 24	12A	61900

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NMNCPAV	*J1250 56	28B	62200	J1150 51	28B	62503	J1150 62	31A	62503
	J1150 74	34B	62503	J1150 79	37B	62503	J1151 51	28B	62503
	J1151 56	24A	62403	J1151 62	31A	62503	J1151 74	34B	62503
	J1151 79	37B	62503	J1258 40	18A	62503	J1258 47	22B	62503
	J1258 56	24A	62503	J1259 40	18A	62403	J1259 47	22B	62503
	J1259 51	28B	62503	J1259 56	24A	62503	J1259 62	31A	62503
	J1259 74	34B	62503	J1259 79	37B		J1260 40	18A	62503
	J1260 47	22B	62503	J1260 51	28B	62503	J1260 56	24A	62503
	J1260 62	31A	62503	J1260 74	34B	62503	J1260 79	37B	62503
NMND1D1	*J1156 75	37B	62200	J1123 54		62200	J1155 31	15B	62502
	J1155 36	17A	62502	J1155 37	18B	62502	J1155 43	23B	62502
	J1155 49	26B	62502	J1155 50	23A	62502	J1155 56	26A	62502
	J1155 64	30A	62502	J1155 70	33A	62502	J1158 49	26B	62502
	J1158 55	29B	62502	J1158 61	32B	62502	J1158 64	30A	62502
	J1158 70	33A	62502	J1158 73	36B	62502	J1158 74	35A	62502
	J1158 78	38A	62502	J1158 79	39B	62502	J1247 29	14B	62200
	J1257 19	09B	62502	J1257 20	11A	62502	J1257 31	15B	62502
	J1257 36	17A	62502	J1257 37	18B	62502	J1257 42	20A	62502
NMND2D1	*J1156 72	34A	62200	J1123 51		62200	J1153 46	21A	62502
	J1153 47	25B	62502	J1153 54	25A	62502	J1153 59	31B	62502
	J1153 60	28A	62502	J1153 68	32A	62502	J1153 71	36A	62502
	J1153 76	37A	62502	J1153 77	38B	62502	J1251 03	02A	62502
	J1251 08	06A	62502	J1251 11	05B	62502	J1251 17	08B	62502
	J1251 23	11B	62502	J1251 24	13A	62502	J1251 30	15A	62502
	J1251 35	17B	62502	J1251 40	19A	62502	J1251 46	21A	62502
	J1251 47	25B	62502	J1251 54	25A	62502	J1251 59	31B	62502
	J1251 60	28A	62502	J1251 68	32A	62502			
NMNET0V	*J1230 56	28B	61103	J1130 08	06A	61300	J1130 24	13A	61300
	J1247 74	35B	61300	J1247 79	39B	61300			
NMNM2AV	*J1248 43	24B	62103	J1257 78	38A	62104			
NMNRLAV	*J1319 78	36A	62101	J1135 43	23B	62200			
NMNSCA	*J1141 80	39A	62501	J1131 37	17B	62501	J1131 51	25B	62501
	J1132 37	17B	62501	J1132 51	25B	62501			
NMNTCA	*J1128 33	16B	62103	J1116 62	31A	62104	J1116 74	34B	62104
	J1116 79	37B	62104	J1145 01	02A	62103	J1145 18	05A	62103
	J1145 19	08B	62103	J1145 25	12A	62103	J1145 31	14B	62103
	J1145 40	18A	62103	J1145 47	22B	62103	J1145 51	28B	62103
	J1145 56	24A	62103	J1145 62	31A	62103	J1145 74	34B	62104
	J1145 79	37B	62104	J1258 51	28B	62104	J1258 62	31A	62104
	J1258 74	34B	62104	J1258 79	37B	62104			
NMNTTAV	*J1236 80	38B	61103	J1101 49	26B	60902	J1119 49	26B	61201
	J1152 47	25B	60902	J1229 46	21A	61300	J1230 79	39B	61103
	J1247 35	17B	62200	J1324 53	28B	62200			
NMNTT0V	*J1230 80	38B	61103	J1103 35	17B	61002	J1108 75	39B	62200
	J1135 79	39B	62101	J1136 60	28A	62101	J1152 48	22A	62101
	J1256 74	35B	62101	J1256 78	38A	62101	J1257 65	34B	62101
	J1324 79	39B	62501						
NMN03A	*J1136 55	29B	62101	J1135 49	26B	62101	J1321 17	08B	62101
	J1321 68	32A	62104						
NMN060	*J1136 51	27B	62101	J1152 53	28B	62102	J1152 66	31A	62102
NMN11A	*J1257 69	35A	62101	J1256 77	38B	62104			
NMN130	*J1256 75	37B	62104	J1103 23	11B	61002	J1103 33	16B	61002
	J1119 03	02A	60800	J1257 79	39B	62200	J1324 77	38B	62501

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NMPA2J	*J1231 31	15B	61101	J1119 37	18B	61102	J1122 73	63B	61101
	J1122 78	38A	61101						
NMP01R	*J1118 01	02B	61101	J1117 05	03B	61101	J1121 43	23B	62802
NMP01S	*J1117 01	02B	61101	J1118 04	04A	61101	J1159 04	04A	62801
	J1159 08	06A	62801						
NMP02R	*J1118 09	04B	61101	J1117 07	03A	61101	J1121 46	21A	62802
NMP02S	*J1117 09	04B	61101	J1118 03	02A	61101	J1159 03	02A	62801
	J1159 11	05B	62801						
NMP03R	*J1118 15	07B	61101	J1117 13	06B	61101	J1121 48	22A	62802
NMP03S	*J1117 15	07B	61101	J1118 11	05B	61101	J1159 18	10A	62801
	J1159 24	13A	62801						
NMP04R	*J1118 22	12A	61101	J1117 26	14A	61101	J1121 49	26B	62802
NMP04S	*J1117 22	12A	61101	J1118 24	13A	61101	J1159 17	08B	62801
	J1159 23	11B	62801						
NMP05R	*J1118 14	09A	61101	J1117 20	11A	61101	J1121 71	36A	62802
NMP05S	*J1117 14	09A	61101	J1118 18	10A	61101	J1159 34	16A	62801
	J1159 40	19A	62801						
NMP06R	*J1118 21	10B	61101	J1117 19	09B	61101	J1121 72	34A	62802
NMP06S	*J1117 21	10B	61101	J1118 17	08B	61101	J1159 29	14B	62801
	J1159 35	17B	62801						
NMP07R	*J1118 27	13B	61101	J1117 25	12B	61101	J1121 73	36B	62802
NMP07S	*J1117 27	13B	61101	J1118 23	11B	61101	J1159 48	22A	62801
	J1159 54	25A	62801						
NMP08R	*J1118 38	18A	61101	J1117 42	20A	61101	J1121 74	35B	62802
NMP08S	*J1117 38	18A	61101	J1118 40	19A	61101	J1159 41	22B	62801
	J1159 47	25B	62801						
NMP09R	*J1118 30	15A	61101	J1117 36	17A	61101	J1121 75	37B	62802
NMP09S	*J1117 30	15A	61101	J1118 34	16A	61101	J1159 62	29A	62801
	J1159 68	32A	62801						
NMP10R	*J1118 33	16B	61101	J1117 31	15B	61101	J1121 77	38B	62802
NMP10S	*J1117 33	16B	61101	J1118 29	14B	61101	J1159 53	28B	62801
	J1159 59	31B	62801						
NMRALAV	*J1319 43	24B	61102	J1256 48	22A	62101	J1256 76	37A	62101
	J1257 48	22A	62101						
NMRECAV	*J1319 01	02B	62701	J1120 19	09B	61102	J1136 68	32A	61500
	J1210 03	02A	60902	J1217 49	24B	61102	J1221 49	24B	61900
	J1226 49	24B	61900	J1227 61	31B	62603	J1232 63	31A	61102
	J1244 79	37B	62603	J1313 03		62703	J1320 13	06B	61102
	J1320 48	22A	60800						
NMREC0V	*J1230 31	16B	62701	J1107 06	05A	62701	J1120 31	15B	61102
	J1120 78	38A	61101	J1319 05	03B	62701			
NMREDAV	*J1107 08	04A	62701	J1227 49	24B	62603	J1244 66	32B	62603
NMRLA0V	*J1246 19	10B	61102	J1136 34	16A	61401	J1152 79	39B	61401
NMRLEAV	*J1323 08	04A	61102	J1101 71	36A	62200	J1247 34	16A	62200
	J1256 68	32A	62200						
NMRNG0V	*J1230 77	38A	61102	J1122 04	04A	61201	J1122 66	31A	61201
NMRR1QB	*J1259 53	28A	62503	J1157 76	37A	62502			
NMRR2QB	*J1260 53	28A	62503	J1256 18	10A	62502			
NMR320V	*J1236 19	10B	62701	J1102 10	07A	61800	J1106 20	11A	62802
	J1119 42	20A	61102	J1320 36	17A	61101			
NMSAFQB	*J1260 48	26B	62503	J1157 65	34B	62502			
NMSCEAV	*J1107 80	38B	61102	J1139 37	18B	61102	J1325 10	07A	61001
NMSCE0V	*J1323 18	09A	61102	J1107 79	39B	61102	J1212 13	06B	61001

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NMSCNA	*J1128 69	35A	62501	J1131 69	32A	62501	J1132 69	32A	62501
	J1149 51	25B	62501	J1149 69	32A	62501			
NMSCPAV	*J1104 77	38A	61102	J1232 69	32A	61103	J1233 51	25B	61103
	J1233 69	32A	61103	J1234 51	25B	61103			
NMSC14U	*J1232 46	21A	61102	J1152 46	21A	62101	J1233 45	23B	61102
	J1236 76	37A	61102	J1247 43	23B	61401			
NMSC22U	*J1233 40	19A	61102	J1120 36	17A	60800	J1232 43	22B	61102
NMSC23U	*J1233 42	20A	61102	J1136 62	29A	62101	J1152 13	06B	62101
	J1152 25	12B	62101	J1232 45	23B	61102	J1247 49	26B	61401
	J1323 11	07A	61102						
NMSC24U	*J1233 46	21A	61102	J1120 07	03A	61102	J1210 11	05B	61701
	J1215 76	37A	61800	J1236 75	39A	61102			
NMSC51U	*J1233 54	26A	61103	J1102 34	16A	61002	J1216 76	37A	61800
	J1230 62	29A	61103	J1234 53	26B	61103			
NMSC52U	*J1233 56	28B	61103	J1101 35	17B	61002	J1216 53	28B	61800
	J1230 64	33A	61103	J1234 55	27B	61103			
NMSC53U	*J1233 60	28A	61103	J1101 11	05B	61002	J1215 53	28B	61800
	J1230 45	25B	61103	J1234 57	29B	61103			
NMSC54U	*J1233 62	29A	61103	J1215 19	09B	61800	J1215 25	12B	61800
	J1234 59	30B	61103	J1236 45	25B	61103	J1325 65	34B	61002
NMSC61U	*J1234 54	26A	61103	J1102 40	19A	61002	J1216 59	31B	61800
	J1230 61	31A	61103	J1233 55	27B	61103			
NMSC62U	*J1234 56	28B	61103	J1101 29	14B	61002	J1215 59	31B	61800
	J1230 51	27B	61103	J1233 57	29B	61103			
NMSC63U	*J1234 60	28A	61103	J1233 59	30B	61103	J1245 38	20A	61300
	J1325 76	37A	61002						
NMSC64U	*J1234 62	29A	61103	J1215 20	11A	61800	J1215 26	14A	61800
	J1232 71	33B	61103	J1236 41	23B	61103	J1325 73	36B	61002
NMSC71U	*J1232 70	34A	61103	J1216 19	09B	61800	J1216 25	12B	61800
	J1233 71	33B	61103	J1236 50	22A	61103	J1325 79	39B	61002
NMSC72U	*J1232 72	35A	61103	J1233 73	34B	61103	J1236 52	26A	61103
	J1325 53	28B	61002						
NMSC73U	*J1232 74	36A	61103	J1119 22	12A	60800	J1233 75	35B	61103
	J1236 55	29B	61103						
NMSC74U	*J1232 76	37A	61103	J1103 21	10B	61002	J1119 01	02B	60800
	J1233 77	36B	61103	J1234 75	35B	61201	J1236 79	39B	61103
	J1238 57	29B	61201						
NMSC81U	*J1233 70	34A	61103	J1232 73	34B	61103	J1236 47	24A	61103
	J1325 59	31B	61002						
NMSC82U	*J1233 72	35A	61103	J1119 14	09A	60800	J1130 05	03B	6i300
	J1130 18	10A	61300	J1232 75	35B	61103	J1247 73	36B	61300
	J1247 78	38A	61300						
NMSC83U	*J1233 74	36A	61103	J1103 01	02B	61002	J1119 09	04B	60800
	J1232 77	36B	61103	J1234 73	34B	61202	J1236 65	33B	61103
	J1238 55	27B	61201						
NMSC84U	*J1233 76	37A	61103	J1103 09	04B	61002	J1119 06	05A	60800
	J1234 71	33B	61201	J1236 59	31B	61103	J1238 53	26B	61201
NMSPAQB	*J1150 53	28A	62503	J1154 35	17B	62502			
NMSPBQB	*J1258 48	26B	62503	J1157 71	36A	62502			
NMSTA1T	J1236 06	05A	62702						
	*J1313 48		62703						
NMSTA2T	*J1313 44		62703	J1323 65	33B	61800			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NMSTA3T	J1236 04	02A	62702						
	*J1313 47		62703						
NMSTA5T	J1236 05	03B	62702						
	*J1313 42		62703						
NMSTA7T	J1236 09	05B	62702						
	*J1313 38		62703						
NMSTA9T	J1236 15	07B	62702						
	*J1313 34		62703						
NMSTCD1	*J1218 14	09A	62702	J1106 79	39B	62200	J1121 55	29B	62200
	J1123 53		62702	J1135 01	02B	62101	J1135 06	05A	62101
	J1135 56	26A	62101	J1207 35	16B	62301	J1207 49	24B	62301
	J1207 66	32B	62301	J1208 35	16B	62301	J1208 49	24B	62301
	J1208 66	32B	62301	J1209 35	16B	62301	J1209 49	24B	62301
	J1213 04	04A	61701	J1231 50	23A	61701	J1241 35	16B	62401
	J1241 49	24B	62401	J1242 35	16B	62401	J1242 49	24B	62401
	J1243 35	16B	62401	J1243 49	24B	62401	J1244 35	16B	62401
	J1244 49	24B	62401						
NMSTRAV	*J1230 46	22B	62702	J1209 79	37B	62702	J1218 17	08B	62702
	J1218 18	10A	62702	J1218 24	13A	62702			
NMSTRD4	*J1218 22	12A	62702	J1102 13	06B	61002	J1103 49	26B	60902
	J1110 41	22B	61701	J1124 63		62702	J1130 36	17A	61500
	J1135 20	11A	61401	J1135 64	30A	61401	J1152 49	26B	60902
	J1152 78	38A	60902	J1215 03	02A	61800	J1216 11	05B	61800
	J1221 66	32B	62002	J1222 66	32B	62002	J1224 35	16B	62002
	J1224 49	24B	62002	J1224 66	32B	62002	J1225 35	16B	62002
	J1225 49	24B	62002	J1225 66	32B	62002			
NMSTR5U	*J1209 68	33A	62002	J1230 41	23B	62002			
NMST1AV	*J1230 42	18B	62701	J1218 08	06A	62701	J1227 53	26B	62603
	J1244 71	33B	62603	J1247 20	11A	61500			
NMST1D4	*J1218 06	05A	62701	J1113 04	02A	61101	J1124 61		62701
	J1131 04	02A	62102	J1131 20	10A	62102	J1132 04	02A	62102
	J1132 20	10A	62102	J1144 14	06A	62103	J1144 27	14A	62103
	J1144 46	21A	62104	J1144 49	24B	62103	J1149 04	02A	62102
	J1149 20	10A	62102	J1156 10	07A	61800	J1207 20	10A	61002
	J1214 14	06A	60901	J1214 27	14A	60901	J1214 46	21A	60901
NMST2AV	*J1230 54	25A	62701	J1218 04	04A	62701	J1227 55	27B	62603
	J1244 73	34B	62603						
NMST2D4	*J1218 01	02B	62701	J1113 06	03A	61101	J1124 53		62701
	J1131 06	03A	62102	J1131 22	11A	62102	J1132 06	03A	62102
	J1132 22	11A	62102	J1144 10	05A	62103	J1144 26	13A	62103
	J1144 42	20A	62104	J1149 06	03A	62102	J1149 22	11A	62102
	J1207 22	11A	61002	J1214 10	05A	60901	J1214 26	13A	60901
	J1214 42	20A	60901						
NMST4AV	*J1230 49	23A	62701	J1101 05	03B	61002	J1122 71	36A	61101
	J1147 73	36B	62102	J1147 78	38A	62102	J1152 18	10A	62102
	J1152 56	26A	62102	J1152 62	29A	62102	J1218 03	02A	62701
	J1227 57	29B	62603	J1244 75	35B	62603	J1247 42	20A	62102
NMST4D4	*J1218 09	04B	62701	J1124 55		62701	J1144 08	04A	62103
	J1144 24	12A	62103	J1144 40	19A	62104	J1214 08	04A	60901
	J1214 24	12A	60901	J1214 40	19A	60901			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NMST8D4	*J1218 15	07B	62701	J1101 08	06A	61002	J1122 75	37B	61101
	J1124 56		62701	J1147 74	35B	62102	J1147 79	39B	62102
	J1152 26	14A	62102	J1152 37	18B	62102	J1152 70	33A	62102
	J1211 31	15B	60901	J1211 36	17A	60901	J1211 42	20A	60901
	J1227 59	30B	62603	J1230 50	22A	62701	J1244 77	36B	62603
	J1247 25	12B	62102	J1320 43	23B	62701			
NMST80V	*J1230 48	21A	62701	J1211 56	26A	60901	J1320 37	18B	60901
	J1320 40	26B	62701	J1320 54	25A	60901			
NMSYFAV	*J1319 08	04A	62702	J1113 69	32A	61800	J1114 69	32A	61800
	J1209 69	32A	62702						
NMS01QB	*J1260 61	33B	62503	J1256 40	19A	62502			
NMS02QB	*J1259 66	34A	62503	J1256 34	16A	62502			
NMS020V	*J1236 08	04A	62702	J1247 08	06A	61500			
NMS03QB	*J1260 66	34A	62503	J1256 29	14B	62502			
NMS04QB	*J1259 76	39A	62503	J1256 35	17B	62502			
NMS0 0V	*J1236 03	03A	62702	J1106 22	12A	61800	J1247 04	04A	61500
N S05QB	*J1151 61	33B	62503	J1154 54	25A	62502			
NMS06QB	*J1150 61	33B	62503	J1154 48	22A	62502			
NMS060V	*J1236 01	02B	62702	J1247 03	02A	61500			
NMS07QB	*J1151 66	34A	62503	J1154 41	22B	62502			
NMS08QB	*J1150 66	34A	62503	J1154 47	25B	62502			
NMS080V	*J1236 07	04B	62702	J1247 11	05B	61500			
NMS09QB	*J1151 76	39A	62503	J1154 68	32A	62502			
NMS10QB	*J1150 76	39A	62503	J1154 62	29A	62502			
NMS100V	*J1236 10	06B	62702	J1105 50	23A	60902	J1106 74	35B	60902
	J1127 14	06A	61602	J1127 26	13A	61602	J1127 40	19A	61602
	J1127 54	25A	61602	J1127 66	32A	61602	J1136 24	13A	61300
	J1136 25	12B	61300	J1148 71	36A	62802	J1247 24	13A	61500
NMS8TA	*J1320 45	24B	62701	J1144 13	07A	62103	J1144 30	15A	62103
	J1144 48	22A	62104						
NMS8T0	*J1320 51	27B	62701	J1144 52	25A	62103			
*NMTCNVB1	J1336 04		60304	J1336 24		60303	J1336 73		60303
*NMTCNVB2	J1434 04		60304	J1434 24		60303	J1434 73		60303
*NMTCNVB3	J1432 04		60304	J1432 24		60303	J1432 73		60303
NMTD50	*J1135 47	25B	62101	J1247 23	11B	62102	J1247 40	19A	62102
	J1248 51	27B	62102						
NMTSPJ	*J1231 13	06B	60800	J1105 46	21A	60902	J1106 71	36A	60902
	J1133 08	04A	60800	J1133 22	11A	60800	J1133 36	17A	60800
	J1134 08	04A	60800	J1134 22	11A	60800	J1219 78	38A	60800
NMT1M0V	*J1245 77	38A	62603	J1102 31	15B	61001	J1102 37	18B	61001
	J1135 36	17A	62101	J1135 42	20A	62101	J1135 77	38B	62101
NMT1TAV	*J1323 03	03A	62701	J1118 10	07A	60800	J1246 05	03B	60800
NMT1T0V	*J1236 18	09A	62701	J1117 71	36A	62603	J1120 56	26A	61102
	J1136 66	31A	61500	J1234 48	22A	61102	J1231 49	26B	62603
	J1323 04	02A	62701						
NMT320V	*J1236 25	11A	62701	J1106 66	31A	60902	J1122 06	05A	62803
	J1129 74	35B	61602	J1136 21	10B	61300	J1136 26	14A	61300
	J1210 01	02B	60902	J1231 10	07A	60800	J1231 68	32A	62701
	J1238 78	38A	62701	J1253 70	33A	62701			
NMT4W1F	J1316 52		62804	*J1332 34		60301			
NMT4W2F	J1316 53		62804	*J1333 34		60301			
NMT4W3F	J1316 56		62804	*J1337 34		60301			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NMT4W4F	J1316 57		62804	*J1339 34		60302			
NMT4W5F	J1316 59		62804	*J1436 34		60302			
NMT4W6F	J1316 51		62804	*J1435 34		60302			
NMT4W7F	J1316 50		62804	*J1431 34		60302			
NMT4W8F	J1316 61		62804	*J1430 34		60302			
NM0PCAV	*J1236 57	30B	61103	J1101 55	29B	60902	J1101 76	37A	62200
	J1119 47	25B	61201	J1152 76	37A	60902	J1229 48	22A	61300
	J1230 59	31B	61103	J1324 62	29A	62200			
NM0PC0V	*J1230 57	30B	61103	J1103 40	19A	61002	J1108 68	35B	62200
	J1135 34	16A	62101	J1152 23	11B	62101	J1152 42	20A	62101
	J1256 11	05B	62101	J1256 50	23A	62101	J1256 56	26A	62101
	J1324 59	31B	62301						
NM01C0	*J1128 06	05A	62104	J1144 35	16B	62104	J1258 55	29B	62'34
	J1302 14		60500						
NM01PA	*J1251 04	04A	62502	J1254 59	31B	62502	J1260 35	20A	62503
NM01P0V	*J1254 57	30B	62502	J1334 05		60303			
NM01R1U	*J1132 38	18A	62501	J1131 41	19B	62501	J1158 71	36A	62502
NM01R2U	*J1132 40	19A	62501	J1131 43	22B	62501	J1158 59	31B	62502
NM01R3U	*J1132 42	20A	62501	J1131 45	23B	62501	J1158 62	29A	62502
NM01R4U	*J1132 46	21A	62501	J1158 47	25B	62502			
NM02C0	*J1128 01	02B	62104	J1144 37	17B	62104	J1258 59	29A	62104
	J1303 14		60500						
NM02PA	*J1251 07	03A	62502	J1254 65	33B	62502	J1258 35	20A	62503
NM02P0V	*J1254 68	32B	62502	J1334 13		60303			
NM02R1U	*J1131 38	18A	62501	J1132 39	18B	62501	J1158 65	34B	62502
NM02R2U	*J1131 40	19A	62501	J1132 41	19B	62501	J1158 77	38B	62502
NM02R3U	*J1131 42	20A	62501	J1132 43	22B	62501	J1158 53	28B	62502
NM02R4U	*J1131 46	21A	62501	J1132 45	23B	62501	J1158 68	32A	62502
NM03C0	*J1128 09	04B	62104	J1144 39	18B	62104	J1258 68	35B	62104
	J1304 14		60500						
NM03PA	*J1251 15	07B	62502	J1254 79	39B	62502	J1258 43	25B	62502
NM03P0V	*J1254 80	38B	62502	J1334 12		60303			
NM03R2U	*J1132 56	28B	62501	J1130 77	38B	61602	J1131 57	29B	62501
	J1155 29	14B	62502						
NM03R3U	*J1132 60	28A	62501	J1130 68	32A	61602	J1131 59	30B	62501
	J1257 17	08B	62502						
NM03R4U	*J1132 62	29A	62501	J1130 54	25A	61602	J1131 39	18B	62501
	J1158 76	37A	62502						
NM04C0	*J1128 15	07B	62104	J1144 41	19B	62104	J1258 78	37A	62104
	J1305 14		60500						
NM04PA	*J1251 20	11A	62502	J1254 73	37B	62502	J1259 43	25B	62503
NM04P0V	*J1254 71	36B	62502	J1334 06		60303			
NM04R2U	*J1131 56	28B	62501	J1130 71	36A	61602	J1132 55	27B	62501
	J1155 35	17B	62502						
NM04R3U	*J1131 60	28A	62501	J1130 62	29A	61602	J1132 57	29B	62501
	J1155 34	16A	62502						
NM04R4U	*J1131 62	29A	62501	J1130 48	22A	61602	J1132 59	30B	62501
	J1257 18	10A	62502						
NM05C0	*J1128 22	12A	62104	J1144 43	22B	62104	J1260 78	37A	62104
	J1307 14		60500						
NM05PA	*J1251 19	09B	62502	J1254 69	35B	62502	J1260 43	25B	62503
NM05P0V	*J1254 70	34B	62502	J1334 24		60303			
NM05R1U	*J1132 70	34A	62501	J1149 55	27B	62501	J1155 41	22B	62502

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NM05R2U	*J1132 72	34A	62501	J1149 57	29B	62501	J1155 54	25A	62502
NM05R3U	*J1132 74	36A	62501	J1149 59	30B	62501	J1257 29	14B	62502
NM05R4U	*J1132 76	37A	62501	J1131 53	26B	62501	J1257 40	19A	62502
NM06C0	*J1128 14	09A	62104	J1144 45	23B	62104	J1145 68	35B	62104
	J1308 14		60500						
NM06PA	*J1251 27	13B	62502	J1254 74	35A	62502	J1259 52	26A	62503
NM06P0V	*J1254 72	34A	62502	J1334 30		60303			
NM06R1U	*J1149 54	26A	62501	J1132 71	33B	62501	J1155 47	25B	62502
NM06R2U	*J1149 56	28B	62501	J1132 73	34B	62501	J1155 48	22A	62502
NM06R3U	*J1149 60	28A	62501	J1132 75	35B	62501	J1257 35	17B	62502
NM06R4U	*J1149 62	29A	62501	J1132 77	36B	62501	J1257 34	16A	62502
NM07C0	*J1128 21	10B	62104	J1144 47	23A	62104	J1145 78	37A	62104
	J1310 14		60500						
NM07PA	*J1251 36	17A	62501	J1254 76	37A	62501	J1260 52	26A	62503
NM07P0V	*J1254 78	36A	62502	J1334 31		60303			
NM07R4U	*J1131 76	37A	62501	J1149 53	26B	62501	J1155 68	32A	62502
NM08C0	*J1128 27	13B	62104	J1116 59	29A	62104	J1144 50	24A	62104
	J1311 14		60500						
NM08PA	*J1251 31	15B	62502	J1254 75	39A	62502	J1258 52	26A	62503
NM08P0V	*J1254 77	38A	62502	J1334 25		60303			
NM08R4U	*J1149 76	37A	62501	J1131 77	36B	62501	J1155 62	29A	62502
NM09C0	*J1128 38	18A	62104	J1116 68	35B	62104	J1144 54	26A	62103
	J1409 14		60500						
NM09PA	*J1251 39	19B	62502	J1250 50	22A	62502	J1260 57	31B	62503
NM09P0V	*J1250 48	21A	62502	J1334 45		60303			
NM10C0	*J1128 30	15A	62104	J1116 78	37A	62104	J1144 56	28B	62103
	J1410 14		60500						
NM10PA	*J1251 50	23A	62502	J1250 41	23B	62502	J1259 57	31B	62503
NM10P0V	*J1250 46	22B	62502	J1334 52		60303			
NM11PA	*J1251 43	23B	62502	J1250 45	25B	62502	J1260 69	33A	62503
NM11P0V	*J1250 43	24B	62502	J1334 53		60303			
NM12PA	*J1153 50	23A	62502	J1150 57	31B	62503	J1252 41	23B	62502
NM12P0V	*J1252 46	22B	62502	J1334 47	6	0303			
NM13PA	*J1153 43	23B	62502	J1151 52	26A	62503	J1252 45	25B	62502
NM13P0V	*J1252 43	24B	62502	J1334 65		60303			
NM131J	*J1231 61	32B	62701	J1320 40	19A	61101			
NM14PA	*J1153 51	27B	62502	J1151 57	31B	62503	J125251	27B	62502
NM14P0V	*J1252 53	26B	62502	J1334 72	6	0303			
NM160J	*J1231 78	38A	62601	J1316 02	6	2802			
NM17PA	*J1251 51	27B	62502	J1250 51	27B	62502	J1259 69	33A	62503
NM17P0V	*J1250 53	26B	62502	J1302 49	6	0500			
NM18PA	*J1251 64	30A	62502	J1250 64	33A	62502	J1260 70	36A	62503
NM18P0V	*J1250 66	32A	62502	J1303 49	6	0500			
NM19PA	*J1251 55	29B	62502	J1250 61	31A	62502	J1259 70	36A	62503
NM19P0V	*J1250 63	30A	62502	J1304 49		60500			
NM20PA	*J1251 63	33B	62502	J1250 62	29A	62502	J1260 75	39B	62503
NM20P0V	*J1250 60	28A	62502	J1305 49		60500			
NM21PA	*J1153 64	30A	62502	J1150 69	33A	62503	J1252 64	33A	62502
NM21P0V	*J1252 66	32A	62502	J1307 49		60500			
NM22PA	*J1153 55	29B	62502	J1151 69	33A	62503	J125261	31A	62502
NM22P0V	*J1252 63	30A	62502	J1308 49		60500			
NM23PA	*J1153 63	33B	62502	J1150 70	36A	62503	J1252 62	29A	62502
NM23P0V	*J1252 60	28A	62502	J1310 49		60500			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NM24PA	*J1153 73	36B	62502	J1151 70	36A	62503	J1252 55	29B	62502
NM24P0V	*J1252 56	28B	62502	J1311 49		60500			
NM25PA	*J1153 74	35B	62502	J1150 75	39B	62503	J1252 59	31B	62502
NM25P0V	*J1252 57	30B	62502	J1409 49		60500			
NM26PA	*J1153 80	39A	62502	J1151 75	39B	62503	J1252 65	33B	62502
NM26P0V	*J1252 68	32B	62502	J1410 49		60500			
NNRADAV	*J1245 08	04A	61201	J1119 46	21A	61201	J1243 19	09B	61202
NNRCBAV	*J1246 37	17A	61201	J1243 21	10B	61202			
NNRCEA	*J1122 59	31B	61201	J1245 20	10A	61201	J1324 50	23A	61001
NNRCL1U	*J1238 38	18A	61201	J1226 04	02A	61202	J1226 20	10A	61202
	J1227 04	02A	61202	J1227 20	10A	61202	J1246 79	39B	61201
NNRCL2U	*J1238 40	19A	61201	J1226 06	03A	61202	J1226 22	11A	61202
	J1227 06	03A	61202	J1227 22	11A	61202	J1246 73	37B	61201
NNRCL3U	*J1238 42	20A	61201	J1226 03	02B	61202	J1226 19	09B	61202
	J1227 03	02B	61202	J1227 19	09B	61202	J1246 69	35B	61201
NNRCL4U	*J1238 46	21A	61201	J1104 41	23B	61001	J1243 04	02A	61202
	J1243 20	10A	61202						
NNRCM1U	*J1237 38	18A	61201	J1104 45	25B	61001	J1243 06	03A	61202
	J1243 22	11	61202						
NNRC00	*J1119 51	27B	61201	J1122 01	02B	61201	J1122 61	32B	61201
	J1135 26	14A	61102	J1251 75	37B	61102			
NNRC1AV	*J1246 80	38B	61201	J1113 39	18B	61001	J1245 79	39B	61201
NNRC10V	*J1245 80	38B	61201	J1228 04	02A	61.202	J1228 20	10A	61202
	J1232 04	02A	61202	J1232 20	10A	61202	J1233 04	02A	61202
	J1233 20	10A	61202	J1234 04	02A	61202	J1234 20	10A	61202
NNRC2AV	*J1246 71	36B	61201	J1113 41	19B	61001	J1245 73	37B	61201
NNRC20V	*J1245 71	36B	61201	J1228 06	03A	61202	J1228 22	11A	61202
	J1232 06	03A	61202	J1232 22	11A	61202	J1233 06	03A	61202
	J1233 22	11A	61202	J1234 06	03A	61202	J1234 22	11A	61202
NNRC4AV	*J1246 70	34B	61201	J1113 43	22B	61001	J1245 69	35B	61201
NNRC40V	*J1245 70	34B	61201	J1228 03	02B	61202	J1228 19	09B	61202
	J1232 03	02B	61202	J1232 19	09B	61202	J1233 03	02B	61202
	J1233 19	09B	61202	J1234 03	02B	61202		09B	61202
NNRNC2U	*J1234 72	35A	61201	J1243 05	03B	61202	J1245 06	05A	61201
NNRT90V	*J1246 40	19A	61201	J1120 43	23B	61201	J1120 49	26B	61201
	J1135 71	36A	62803	J1324 47	25B	61002	J1324 48	22A	61001
NNR0PAV	*J1245 03	03A	61201	J1243 03	02B	61202			
NNR010T	*J1226 08	04A	61202	J1401 43		60101			
NNR011T	*J1226 10	05A	61202	J1401 38		60101			
NNR012T	*J1226 14	06A	61202	J1401 50		60101			
NNR013T	*J1226 13	07A	61202	J1401 47		60101			
NNR014T	*J1226 17	08B	61202	J1402 43		60101			
NNR015T	*J1226 07	04B	61202	J1402 38		60101			
NNR016T	*J1226 09	05B	61202	J1402 50		60101			
NNR017T	*J1226 11	06B	61202	J1402 47		60101			
NNR020T	*J1226 24	12A	61202	J1405 43		60101			
NNR021T	*J1226 26	13A	61202	J1405 38		60101			
NNR022T	*J1226 27	14A	61202	J1405 50		60101			
NNR023T	*J1226 30	15A	61202	J1405 47		60101			
NNR024T	*J1226 33	16A	61202	J1406 43		60102			
NNR025T	*J1226 23	11B	61202	J1406 38		60102			
NNR026T	*J1226 25	12B	61202	J1406 50		60102			
NNR027T	*J1226 29	13B	61202	J1406 47		60102			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution				
NNR030T	*J1227 08	04A	61202	J1501 43	60102
NNR031T	*J1227 10	05A	61202	J1501 38	60102
NNR032T	*J1227 14	06A	61202	J1501 50	60102
NNR033T	*J1227 13	07A	61202	J1501 47	60102
NNR034T	*J1227 17	08B	61202	J1502 43	60102
NNR035T	*J1227 07	04B	61202	J1502 38	60102
NNR036T	*J1227 09	05B	61202	J1502 50	60102
NNR037T	*J1227 11	06B	61202	J1502 47	60102
NNR040T	*J1227 24	12A	61202	J1506 43	60102
NNR041T	*J1227 26	13A	61202	J1506 38	60102
NNR042T	*J1227 27	14A	61202	J1506 50	60102
NNR043T	*J1227 30	15A	61202	J1506 47	60102
NNR044T	*J1227 33	16A	61202	J1507 43	60102
NNR045T	*J1227 23	11B	61202	J1507 38	60102
NNR046T	*J1227 25	12B	61202	J1507 50	60102
NNR047T	*J1227 29	13B	61202	J1507 47	60102
NNR050T	*J1228 08	04A	61202	J1429 43	60201
NNR051T	*J1228 10	05A	61202	J1429 38	60201
NNR052T	*J1228 14	06A	61202	J1429 50	60201
NNR053T	*J1228 13	07A	61202	J1429 47	60201
NNR054T	*J1228 17	08B	61202	J1428 43	60201
NNR055T	*J1228 07	04B	61202	J1428 38	60201
NNR056T	*J1228 09	05B	61202	J1428 50	60201
NNR057T	*J1228 11	06B	61202	J1428 47	60201
NNR060T	*J1228 24	12A	61202	J1425 43	60201
NNR061T	*J1228 26	13A	61202	J1425 38	60201
NNR062T	*J1228 27	14A	61202	J1425 50	60201
NNR063T	*J1228 30	15A	61202	J1425 47	60201
NNR064T	*J1228 33	16A	61202	J1424 43	60202
NNR065T	*J1228 23	11B	61202	J1424 38	60202
NNR066T	*J1228 25	12B	61202	J1424 50	60202
NNR067T	*J1228 29	13B	61202	J1424 47	60202
NNR070T	*J1232 08	04A	61202	J1422 43	60202
NNR071T	*J1232 10	05A	61202	J1422 38	60202
NNR072T	*J1232 14	06A	61202	J1422 50	60202
NNR073T	*J1232 13	07A	61202	J1422 47	60202
NNR074T	*J1232 17	08B	61202	J1421 43	60202
NNR075T	*J1232 07	04B	61202	J1421 38	60202
NNR076T	*J1232 09	05B	61202	J1421 50	60202
NNR077T	*J1232 11	06B	61202	J1421 47	60202
NNR080T	*J1232 24	12A	61202	J1418 43	60202
NNR081T	*J1232 26	13A	61202	J1418 38	60202
NNR082T	*J1232 27	14A	61202	J1418 50	60202
NNR083T	*J1232 30	15A	61202	J1418 47	60202
NNR084T	*J1232 33	16A	61202	J1417 43	60202
NNR085T	*J1232 23	11B	61202	J1417 38	60202
NNR086T	*J1232 25	12B	61202	J1417 50	60202
NNR087T	*J1232 29	13B	61202	J1417 47	60202
NNR090T	*J1233 08	04A	61202	J1332 43	60301
NNR091T	*J1233 10	05A	61202	J1332 38	60301
NNR092T	*J1233 14	06A	61202	J1332 50	60301
NNR093T	*J1233 13	07A	61202	J1332 47	60301
NNR094T	*J1233 17	08B	61202	J1333 43	60301

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution						
NNR095T	*J1233 07	04B	61202	J1333 38	60301		
NNR096T	*J1233 09	05B	61202	J1333 50	60301		
NNR097T	*J1233 11	06B	61202	J1333 47	60301		
NNR100T	*J1233 24	12A	61202	J1337 43	60301		
NNR101T	*J1233 26	13A	61202	J1337 38	60301		
NNR102T	*J1233 27	14A	61202	J1337 50	60301		
NNR103T	*J1233 30	15A	61202	J1337 47	60301		
NNR104T	*J1233 33	16A	61202	J1339 43	60302		
NNR105T	*J1233 23	11B	61202	J1339 38	60302		
NNR106T	*J1233 25	12B	61202	J1339 50	60302		
NNR107T	*J1233 29	13B	61202	J1339 47	60302		
NNR110T	*J1234 08	04A	61202	J1436 43	60302		
NNR111T	*J1234 10	05A	61202	J1436 38	60302		
NNR112T	*J1234 14	06A	61202	J1436 50	60302		
NNR113T	*J1234 13	07A	61202	J1436 47	60302		
NNR114T	*J1234 17	08B	61202	J1435 43	60302		
NNR115T	*J1234 07	04B	61202	J1435 38	60302		
NNR116T	*J1234 09	05B	61202	J1435 50	60302		
NNR117T	*J1234 11	06B	61202	J1435 47	60302		
NNR120T	*J1234 24	12A	61202	J1431 43	60302		
NNR121T	*J1234 26	13A	61202	J1431 38	60302		
NNR122T	*J1234 27	14A	61202	J1431 50	60302		
NNR123T	*J1234 30	15A	61202	J1431 47	60302		
NNR124T	*J1234 33	16A	61202	J1430 43	60302		
NNR125T	*J1234 23	11B	61202	J1430 38	60302		
NNR126T	*J1234 25	12B	61202	J1430 50	60302		
NNR127T	*J1234 29	13B	61202	J1430 47	60302		
NRCASN1	J1316 48		62804	J1331 69	60204	*J1427 35	60203
NRCASN2	J1316 47		62804	J1331 68	60204	*J1427 80	60203
NRCASN3	J1316 17		62804	J1331 78	60204	*J1423 35	60203
NRCASN4	J1316 15		62804	J1331 77	60204	*J1423 80	60203
NRCASN5	J1316 26		62804	J1331 79	60204	*J1420 35	60203
NRCASN6	J1316 27		62804	J1331 80	60204	*J1420 80	60203
NRCA01	J1327 08		60402	J1330 08	60402	J1331 08	60204
	*J1429 20		60201				
NRCA02	J1327 09		60402	J1330 09	60402	J1331 09	60204
	*J1429 08		60201				
NRCA03	J1327 17		60402	J1330 17	60402	J1331 17	60204
	*J1429 66		60201				
NRCA04	J1327 16		60402	J1330 16	60402	J1331 16	60204
	*J1429 78		60201				
NRCA05	J1327 34		60402	J1330 34	60402	J1331 34	60204
	*J1428 20		60201				
NRCA06	J1327 36		60402	J1330 36	60402	J1331 36	60204
	*J1428 08		60201				
NRCA07	J1327 50		60402	J1330 50	60402	J1331 50	60204
	*J1428 66		60201				
NRCA08	J1327 49		60402	J1330 49	60402	J1331 49	60204
	*J1428 78		60201				
NRCA09	J1327 69		60402	J1330 69	60402	*J1425 20	60201
	J1427 15		60204				
NRCA10	J1327 68		60402	J1330 68	60402	*J1425 08	60201
	J1427 29		60204				

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NRCA11	J1327 78		60402	J1330 78		60402	*J1425 66		60201
	J1427 41		60204						
NRCA12	J1327 77		60402	J1330 77		60402	*J1425 78		60201
	J1427 53		60204						
NRCA13	J1327 79		60402	J1330 79		60402	*J1424 20		60202
	J1427 13		60204						
NRCA14	J1327 80		60402	J1330 80		60402	*J1424 08		60202
	J1427 25		60204						
NRCA15	J1327 73		60402	J1330 73		60402	*J1424 66		60202
	J1427 34		60204						
NRCA16	J1327 74		60402	J1330 74		60402	*J1424 78		60202
	J1427 48		60204						
NRCA17	J1328 08		60402	J1329 08		60402	*J1422 20		60202
	J1423 15		60204						
NRCA18	J1328 09		60402	J1329 09		60402	*J1422 08		60202
	J1423 29		60204						
NRCA19	J1328 17		60402	J1329 17		60402	*J1422 66		60202
	J1423 41		60204						
NRCA20	J1328 16		60402	J1329 16		60402	*J1422 78		60202
	J1423 53		60204						
NRCA21	J1328 34		60402	J1329 34		60402	*J1421 20		60202
	J1423 13		60204						
NRCA22	J1328 36		60402	J1329 36		60402	*J1421 08		60202
	J1423 25		60204						
NRCA23	J1328 50		60402	J1329 50		60402	*J1421 66		60202
	J1423 34		60204						
NRCA24	J1328 49		60402	J1329 49		60402	*J1421 78		60202
	J1423 48		60204						
NRCA25	J1328 69		60402	J1329 69		60402	*J1418 20		60202
	J1420 15		60204						
NRCA26	J1328 68		60402	J1329 68		60402	*J1418 08		60202
	J1420 29		60204						
NRCA27	J1328 78		60402	J1329 78		60402	*J1418 66		60202
	J1420 41		60204						
NRCA28	J1328 77		60402	J1329 77		60402	*J1418 78		60202
	J1420 53		60204						
NRCA29	J1328 79		60402	J1329 79		60402	*J1417 20		60202
	J1420 13		60204						
NRCA30	J1328 80		60402	J1329 80		60402	*J1417 08		60202
	J1420 25		60204						
NRCA31	J1328 73		60402	J1329 73		60402	*J1417 66		60202
	J1420 34		60204						
NRCA32	J1328 74		60402	J1329 74		60402			
	*J1417 78		60202	J1420 48		60204			
NRCP4AV	*J1107 57	30B	60902	J1108 56	24A	60902	J1108 62	31A	60902
	J1108 74	34B	62200	J1108 79	37B	62200			
NRC07A	*J1102 57	30B	60902	J1101 62	29A	60902	J1121 05	03B	60800
NRC080	*J1101 60	28A	60902	J1133 01	02B	60800			
NRC110	*J1321 39	19B	60901	J1102 68	32A	60902	J1108 55	29B	60902
NRD01A	J1214 35	16B	60901	*J1302 06		60500			
NRD02A	J1214 37	17B	60901	*J1303 06		60500			
NRD03A	J1214 39	18B	60901	*J1304 06		60500			
NRD04A	J1214 41	19B	60901	*J1305 06		60500			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NRD05A1	J1214 43	22B	60901	*J1307 06		60500	J1322 05		60901
NRD06A1	J1214 45	23B	60901	*J1308 06		60500	J1322 06		60901
NRD07A1	J1214 47	23A	60901	*J1310 06		60500	J1322 07		60901
NRD08A1	J1214 50	24A	60901	*J1311 06		60500	J1322 08		60901
NRD09A1	J1214 70	34A	60901	J1322 09		60901	*J1409 06		60500
NRD10A1	J1214 72	35A	60901	J1322 10		60901	*J1410 06		60500
NRD21A	J1214 03	02B	60901	*J1302 22		60500			
NRD22A	J1214 05	03B	60901	*J1303 22		60500			
NRD23A	J1214 07	04B	60901	*J1304 22		60500			
NRD24A	J1214 09	05B	60901	*J1305 22		60500			
465									
NRD25A1	J1214 11	06B	60901	*J1307 22		60500	J1322 17		60901
NRD26A1	J1214 15	07B	60901	*J1308 22		60500	J1322 18		60901
NRD27A1	J1214 18	09A	60901	*J1310 22		60500	J1322 19		60901
NRD28A1	J1214 17	08B	60901	*J1311 22		60500	J1322 20		60901
NRD29A1	J1214 69	32A	60901	J1322 23		60901	*J1409 22		60500
NRD30A1	J1214 71	33B	60901	J1322 24		60901	*J1410 22		60500
NRD41A	J1214 19	09B	60901	*J1302 29		60500			
NRD42A	J1214 21	10B	60901	*J1303 29		60500			
NRD43A	J1214 23	11B	60901	*J1304 29		60500			
NRD44A	J1214 25	12B	60901	*J1305 29		60500			
NRD45A1	J1214 29	13B	60901	*J1307 29		60500	J1322 26		60901
NRD46A1	J1214 31	14B	60901	*J1308 29		60500	J1322 26		60901
NRD47A1	J1214 34	15B	60901	*J1310 29		60500	J1322 29		60901
NRD48A1	J1214 33	16A	60901	*J1311 29		60500	J1322 30		60901
NRD49A1	J1214 75	35B	60901	J1322 35		60901	*J1409 29		60500
NRD50A1	J1214 77	36B	60901	J1322 36		60901	*J1410 29		60500
NRGALA	*J1120 09	04B	61102	J1110 47	25B	61701	J1122 05	03B	61201
	J1122 68	32A	61201	J1246 15	07B	61102			
NRGAL0V	*J1246 10	06B	61102	J1135 31	15B	62101	J1135 38	18A	62101
	J1135 75	37B	62101	J1152 57	30B	62101	J1216 24	13A	61800
NR1C01	J1314 77		60702	"J1414 32		60600			
NR1C02	J1314 79		60702	*J1414 52		60600			
NR1C03	J1314 80		60702	*J1416 32		60600			
NR1C04	J1314 73		60702	*J1416 52		60600			
NRLC01	J1302 26		60703	J1115 78		60702	*J1411 20		60703
NRLC02	J1303 26		60703	J1315 77		60702	*J1411 08		60703
NRLC03	J1304 26		60703	J1315 79		60702	*J1411 66		60703
NRLC04	J1305 26		60703	J1315 80		60702	*J1411 78		60703
NRLC05	J1315 73		60702	J1316 69		60703	*J1412 20		60703
NRLC1A	J1204 79	39B	60903	J1213 26	14A	60903	*J1302 31		60703
NRLC2A	J1204 73	37B	60902	J1213 42	20A	60902	*J1303 31		60703
NRLC3A	J1204 69	35B	60903	J1213 56	26A	60903	*J1304 31		60703
NRLC4A	J1204 74	35A	60903	J1213 70	33A	60903	*J1305 31		60703
NRLC5A	J1204 76	37A	60903	J1213 79	39B	60903	*J1316 62		60703
NRLT20V	*J1104 60	28A	60903	J1101 61	32B	60903	J1105 43	23B	60902
	J1106 61	32B	60902						
NRMTSN1	J1316 60		62804	J1334 69		60304	*J1336 35		60303
NRMTSN2	J1316 55		62804	J1334 68		60304	*J1336 80		60303
NRMTSN3	J1316 37		62804	J1334 78		60304	*J1434 35		60303
NRMTSN4	J1316 54		62804	J1334 77		60304	*J1434 80		60303
NRMTSN5	J1316 66		62804	J1334 79		60304	*J1432 35		60303
NRMTSN6	J1316 63		62804	J1334 80		60304	*J1432 80		60303

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
*NRMT01	J1332 20		60301	J1334 08		60304			
*NRMT02	J1332 08		60301	J1334 09		60304			
*NRMT03	J1332 66		60301	J1334 17		60304			
*NRMT04	J1332 78		60301	J1334 16		60304			
*NRMTR05	J1333 20		60301	J1334 34		60304			
*NRMT06	J1333 08		60301	J1334 36		60304			
*NRMT07	J1333 66		60301	J1334 50		60304			
*NRMT08	J1333 78		60301	J1334 49		60304			
NRMT09	J1336 15		60304	*J1337 20		60301			
NRMT10	J1336 29		60304	*J1337 08		60301			
NRMT11	J1336 41		60304	*J1337 66		60301			
NRMT 12	J1336 53		60304	*J1337 78		60301			
NRMT13	J1336 13		60304	*J1339 20		60302			
NRMT14	J1336 25		60304	*J1339 08		60302			
NRMT15	J1336 34		60304	*J1339 66		60302			
NRMT16	J1336 48		60304	*J1339 78		60302			
NRMT17	J1434 15		60304	*J1436 20		60302			
NRMT18	J1434 29		60304	*J1436 08		60302			
NRMT19	J1434 41		60304	*J1436 66		60302			
NRMT20	J1434 53		60304	*J1436 78		60302			
NRMT21	J1434 13		60304	*J1435 20		60302			
NRMT22	J1434 25		60304	*J1435 08		60302			
NRMT23	J1434 34		60304	*J1435 66		60302			
NRMT24	J1434 48		60304	*J1435 78		60302			
NRMT25	*J1431 20		60302	J1432 15		60304			
NRMT26	*J1431 08		60302	J1432 29		60304			
NRMT27	*J1431 66		60302	J1432 41		60304			
NRMT28	*J1431 78		60302	J1432 53		60304			
NRMT29	*J1430 20		60302	J1432 13		60304			
NRMT30	*J1430 08		60302	J1432 25		60304			
NRMT31	*J1430 66		60302	J1432 34		60304			
NRMT32	*J1430 78		60302	J1432 48		60304			
NRM07A	*J1102 51	27B	60902	J1101 47	25B	60902	J1121 04	04A	60800
NRM080	*J1101 51	27B	60902	J1133 04	02A	60800			
NRM110	*J1321 33	16B	60901	J1101 48	22A	60902	J1108 46	22A	60902
NRNADAV	*J1245 07	04B	61201	J1119 60	28A	61201	J1244 19	09B	61203
NRNCBAV	*J1246 34	15A	61201	J1244 21	10B	61203			
NRNCEA	*J1122 09	04B	61201	J1246 39	19B	61201	J1324 56	26A	61001
NRNCL1U	*J1239 54	26A	61201	J1237 04	02A	61203	J1237 20	10A	61203
	J1238 04	02A	61203	J1238 20	10A	61203	J1246 52	26A	61201
NRNCL2U	*J1239 56	28B	61201	J1237 06	03A	61203	J1237 22	11A	61203
	J1238 06	03A	61203	J1238 22	11A	61203	J1246 47	24A	61201
NRNCL3U	*J1239 60	28A	61201	J1237 03	02B	61203	J1237 19	09B	61203
	J1238 03	02B	61203	J1238 19	09B	61203	J1246 50	22A	61201
NRNCL4U	*J1239 62	29A	61201	J1104 51	27B	61001	J1244 04	02A	61203
	J1244 20	10A	61203						
NRNCM1U	*J1237 70	34A	61201	J1104 64	33A	61001	J1244 06	03A	61203
	J1244 22	11A	61203						
NRNCPAV	*J1245 25	11A	61001	J1237 37	17B	61201	J1237 69	32A	61201
	J1238 37	17B	61201	J1239 51	25B	61201			
NRNC1AV	*J1246 54	25A	61201	J1114 53	26B	61001	J1245 52	26A	61201

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NRNC10V	*J1245 54	25A	61201	J1239 04	02A	61203	J1239 20	10A	61203
	J1240 04	02A	61203	J1240 20	10A	61203	J1241 04	02A	61203
	J1241 20	10A	61203	J1242 04	02A	61203	J1242 20	10A	61203
NRNC2AV	*J1246 49	23A	61201	J1114 55	27B	61001	J1245 47	24A	61201
NRNC20V	*J1245 49	23A	61201	J1239 06	03A	61203	J1239 22	11A	61203
	J1240 06	03A	61203	J1240 22	11A	61203	J1241 06	03A	61203
	J1241 22	11A	61203	J1242 06	03A	61203	J1242 22	11A	61203
NRNC4AV	*J1246 48	21A	61201	J1114 57	29B	61101	J1245 50	22A	61201
NRNC40V	*J1245 48	21A	61201	J1239 03	02B	61203	J1239 19	09B	61203
	J1240 03	02B	61203	J1240 19	09B	61203	J1241 03	02B	61203
	J1241 19	09B	61203	J1242 03	02B	61203	J1242 19	09B	61203
NRNNC2U	*J1238 56	28B	61201	J1244 05	03B	61203	J1245 09	05B	61201
NRNT90V	*J1246 31	16B	61201	J1118 73	36B	61201	J1120 74	35B	61201
	J1135 72	34A	62803	J1324 43	23B	61002	J1324 54	25A	61001
NRNVY0V	*J1323 37	17A	61002	J1120 71	36A	61201			
NRN0PAV	*J1245 10	06B	61201	J1244 03	02B	61203			
NRN010T	*J1237 08	04A	61203	J1401 39		60101			
NRN011T	*J1237 10	05A	61203	J1401 41		60101			
NRN012T	*J1237 14	06A	61203	J1401 48		60101			
NRN013T	*J1237 13	07A	61203	J1401 49		60101			
NRN014T	*J1237 17	08B	61203	J1402 39		60101			
NRN015T	*J1237 07	04B	61203	J1402 41		60101			
NRN016T	*J1237 09	05B	61203	J1402 48		60101			
NRN017T	*J1237 11	06B	61203	J1402 49		60101			
NRN020T	*J1237 24	12A	61203	J1405 39		60101			
NRN021T	*J1237 26	13A	61203	J1405 41		60101			
NRN022T	*J1237 27	14A	61203	J1405 48		60101			
NRN023T	*J1237 30	15A	61203	J1405 49		60101			
NRN024T	*J1237 33	16A	61203	J1406 39		60102			
NRN025T	*J1237 23	11B	61203	J1406 41		60102			
NRN026T	*J1237 25	12B	61203	J1406 48		60102			
NRN027T	*J1237 29	13B	61203	J1406 49		60102			
NRN030T	*J1238 08	04A	61203	J1501 39		60102			
NRN031T	*J1238 10	05A	61203	J1501 41		60102			
NRN032T	*J1238 14	06A	61203	J1501 48		60102			
NRN033T	*J1238 13	07A	61203	J1501 49		60102			
NRN034T	*J1238 17	08B	61203	J1502 39		60102			
NRN035T	*J1238 07	04B	61203	J1502 41		60102			
NRN036T	*J1238 09	05B	61203	J1502 48		60102			
NRN037T	*J1238 11	06B	61203	J1502 49		60102			
NRN040T	*J1238 24	12A	61203	J1506 39		60102			
NRN041T	*J1238 26	13A	61203	J1506 41		60102			
NRN042T	*J1238 27	14A	61203	J1506 48		60102			
NRN043T	*J1238 30	15A	61203	J1506 49		60102			
NRN044T	*J1238 33	16A	61203	J1507 39		60102			
NRN045T	*J1238 23	11B	61203	J1507 41		60102			
NRN046T	*J1238 25	12B	61203	J1507 48		60102			
NRN047T	*J1238 29	13B	61203	J1507 49		60102			
NRN050T	*J1239 08	04A	61203	J1429 39		60201			
NRN051T	*J1239 10	05A	61203	J1429 41		60201			
NRN052T	*J1239 14	06A	61203	J1429 48		60201			
NRN053T	*J1239 13	07A	61203	J1429 49		60201			
NRN054T	*J1239 17	08B	61203	J1428 39		60201			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal		Distribution			
NRN055T	*J1239 07	04B	61203	J1428 41	60201
NRN056T	*J1239 09	05B	61203	J1428 48	60201
NRN057T	*J1239 11	06B	61203	J1428 49	60201
NRN060T	*J1239 24	12A	61203	J1425 39	60201
NRN061T	*J1239 26	13A	61203	J1425 41	60201
NRN062T	*J1239 27	14A	61203	J1425 48	60201
NRN063T	*J1239 30	15A	61203	J1425 49	60201
NRN064T	*J1239 33	16A	61203	J1424 39	60202
NRN065T	*J1239 23	11B	61203	J1424 41	60202
NRN066T	*J1239 25	12B	61203	J1424 48	60202
NRN067T	*J1239 29	13B	61203	J1424 49	60202
NRN070T	*J1240 08	04A	61203	J1422 39	60202
NRN071T	*J1240 10	06A	61203	J1422 41	60202
NRN072T	*J1240 14	06A	61203	J1422 48	60202
NRN073T	*J1240 13	07A	61203	J1422 49	60202
NRN074T	*J1240 17	08B	61203	J1421 39	60202
NRN075T	*J1240 07	04B	61203	J1421 41	60202
NRN076T	*J1240 09	05B	61203	J1421 48	60202
NRN077T	*J1240 11	06B	61203	J1421 49	60202
NRN080T	*J1240 24	12A	61203	J1418 39	60202
NRN081T	*J1240 26	13A	61203	J1418 41	60202
NRN082T	*J1240 27	14A	61203	J1418 48	60202
NRN083T	*J1240 30	15A	61203	J1418 49	60202
NRN084T	*J1240 33	16A	61203	J1417 39	60202
NRN085T	*J1240 23	11B	61203	J1417 41	60202
NRN086T	*J1240 25	12B	61203	J1417 48	60202
NRN087T	*J1240 29	13B	61203	J1417 49	60202
NRN090T	*J1241 08	04A	61203	J1332 39	60301
NRN091T	*J1241 10	05A	61203	J1332 41	60301
NRN092T	*J1241 14	06A	61203	J1332 48	60301
NRN093T	*J1241 13	07A	61203	J1332 49	60301
NRN094T	*J1241 17	08B	61203	J1333 39	60301
NRN095T	*J1241 07	04B	61203	J1333 41	60301
NRN096T	*J1241 09	05B	61203	J1333 48	60301
NRN097T	*J1241 11	06B	61203	J1333 49	60301
NRN100T	*J1241 24	12A	61203	J1337 39	60301
NRN101T	*J1241 26	13A	61203	J1337 41	60301
NRN102T	*J1241 27	14A	61203	J1337 48	60301
NRN103T	*J1241 30	15A	61203	J1337 49	60301
NRN104T	*J1241 33	16A	61203	J1339 39	60302
NRN105T	*J1241 23	11B	61203	J1339 41	60302
NRN106T	*J1241 25	12B	61203	J1339 48	60302
NRN107T	*J1241 29	13B	61203	J1339 49	60302
NRN110T	*J1242 08	04A	61203	J1436 39	60302
NRN111T	*J1242 10	05A	61203	J1436 41	60302
NRN112T	*J1242 14	06A	61203	J1436 48	60302
NRN113T	*J1242 13	07A	61203	J1436 49	60302
NRN114T	*J1242 17	08B	61203	J1435 39	60302
NRN115T	*J1242 07	04B	61203	J1435 41	60302
NRN116T	*J1242 09	05B	61203	J1435 48	60302
NRN117T	*J1242 11	06B	61203	J1435 49	60302
NRN120T	*J1242 24	12A	61203	J1431 39	60302

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NRN121T	*J1242 26	13A	61203	J1431 41		60302			
NRN122T	*J1242 27	14A	61203	J1431 48		60302			
NRN123T	*J1242 30	15A	61203	J1431 49		60302			
NRN124T	*J1242 33	16A	61203	J1430 39		60302			
NRN125T	*J1242 23	11B	61203	J1430 41		60302			
NRN126T	*J1242 5	12B	61203	J1430 48		60302			
NRN127T	*J1242 29	13B	61203	J1430 49		60302			
NRSA15U	*J1114 36	17A	61001	J1103 05	03B	61002	J1103 13	06B	61002
	J1103 25	12B	61002						
NRSA45U	*J1113 52	25A	61001	J1103 34	16A	61002	J1103 37	18B	61002
	J1103 42	20A	61002						
NRSVY0V	*J1323 40	19A	61002	J1118 59	31B	61201			
NRS01R	*J1212 45	24B	61002	J1211 43	23B	61002	J1302 33		60500
NRS02R	*J1212 51	27B	61002	J1211 49	26B	61002	J1303 33		60500
NRS03R	*J1212 66	31A	61002	J1211 70	33A	61002	J1304 33		60500
NRS04R	*J1212 60	28A	61002	J1211 64	30A	61002	J1305 33		60500
NRS05R	*J1212 57	30B	61002	J1211 55	29B	61002	J1307 33		60500
NRS06R	*J1212 63	33B	61002	J1211 61	32B	61002	J1308 33		60500
NRS07R	*J1212 75	37B	61002	J1211 79	39B	61002	J1310 33		60500
NRS08R	*J1212 72	34A	61002	J1211 73	36B	61002	J1311 33		60500
NRS09R	*J1212 69	35A	61002	J1211 74	35B	61002	J1409 33		60500
NRS10R	*J1212 80	39A	61002	J1211 78	38A	61002	J1410 33		60500
NRT01J	*J1231 55		62701	J1105 49		60902	J1106 73		60902
NRT010V	*J1250 77		62701	J1231 62		62701			
NRT020V	*J1250 80		62701	J1231 60		62701			
NR0CSN1	J1301 69		60104	J1316 21		62804	J1404 35		60103
NR0CSN2	J1301 68		60104	J1316 22		62804	J1404 80		60103
NR0CSN3;	J1301 78		60104	J1316 12		62804	J1503 35		60103
NR0CSN4	J1301 77		60104	J1316 11		62804	J1503 80		60103
NR0CSN5	J1301 79		60104	J1316 13		62804	J1505 35		60103
NR0CSN6	J1301 80		60104	J1316 14		62804	J1505 80		60103
NR0C01	J1301 08		60104	*J1401 20		60101			
NR0C02	J1301 09		60104	*J1401 08		60101			
NR0C03	J1301 17		60104	*J1401 66		60101			
NR0C04	J1301 16		60104	*J1401 78		60101			
NR0C05	J1301 34		60104	*J1402 20		60101			
NR0C06	J1301 36		60104	*J1402 08		60101			
NR0C07	J1301 50		60104	*J1402 66		60101			
RN0C08	J1301 49		60104	*J1402 78		60101			
NR0C09	J1404 15		60104	*J1405 20		60101			
NR0C10	J1404 29		60104	*J1405 08		60101			
NR0C11	J1404 41		60104	*J1405 66		60101			
NR0C12	J1404 53		60104	*J1405 78		60101			
NR0C13	J1404 13		60104	*J1406 20		60102			
NR0C14	J1404 25		60104	*J1406 08		60102			
NR0C15	J1404 34		60104	*J1406 66		60102			
NR0C16	J1404 48		60104	*J1406 78		60102			
NR0C17	*J1501 20		60102	J1503 15		60104			
NR0C18	*J1501 08		60102	J1503 29		60104			
NR0C19	*J1501 66		60102	J1503 41		60104			
NR0C20	*J1501 78		60102	J1503 53		60104			
NR0C21	*J1502 20		60102	J1503 13		60104			
NR0C22	*J1502 08		60102	J1503 25		60104			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution				
NROC23	*J1502 66	60102	J1503 34	60104	
NROC24	*J1502 78	60102	J1503 48	60104	
NROC25	J1505 15	60104	*J1506 20	60102	

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NR0C26	J1505 29		60104	*J1506 08		60102			
NR0C27	J1505 41		60104	*J1506 66		60102			
NR0C28	J1505 53		60104	*J1506 78		60102			
NR0C29	J1505 13		60104	*J1507 20		60102			
NR0C30	J1505 25		60104	*J1507 08		60102			
NR0C31	J1505 34		60104	*J1507 66		60102			
NR0C32	J1505 48		60104	*J1507 78		60102			
NR007A	*J1102 63	33B	60902	J1101 53	28B	60902	J1121 01	02B	60800
NR0080	*J1101 57	30B	60902	J1133 06	03A	60800			
NR0110	*J1321 30	15A	60901	J1102 54	25A	60902	J1108 43	25B	60902
NR06LA	*J1212 22	12A	60903	J1121 20	11A	60800	J1211 24	13A	60903
NR07L0	*J1211 22	12A	60903	J1133 17	09B	60800			
NR08LA	*J1212 14	09A	60903	J1121 22	12A	60800	J1211 18	10A	60903
NR09L0	*J1211 14	09A	60903	J1134 20	10A	60800			
NR10LA	*J1212 21	10B	60903	J1121 24	13A	60800	J1211 17	08B	60903
NR11L0	*J1211 21	10B	60903	J1134 18	09A	60800			
NR12LA	*J1212 27	13B	60903	J1121 25	12B	60800	J1211 23	11B	60903
NR13L0	*J1211 27	13B	60903	J1134 15	08B	60800			
NR14LA	*J1212 01	02B	60903	J1121 26	14A	60800	J1211 04	04A	60903
NR15L0	*J1211 01	02B	60903	J1134 17	09B	60800			
NSNC1A	*J1128 52	24A	61602	J1427 65		60203			
NSNC20V	*J1248 66	32A	61602	J1427 42		60203			
NSNC3A	*J1128 45	24B	61602	J1423 65		60203			
NSNC40V	*J1248 63	30A	61602	J1423 42		60203			
NSNC5A	*J1128 66	31A	61602	J1420 65		60203			
NSNC60V	*J1248 60	28A	61602	J1420 42		60203			
NSNM1A	*J1129 33	16B	61602	J1336 65		60303			
NSNM20V	*J1248 72	34A	61602	J1336 42		60303			
NSNM3A	*J1129 52	24A	61602	J1434 65		60303			
NSNM40V	*J1248 78	36A	61602	J1434 42		60303			
NSNM5A	*J1129 45	24B	61602	J1432 65		60303			
NSNM60V	*J1248 77	38A	61602	J1432 42		60303			
NSNP1A	*J1129 66	31A	61602	J1404 65		60103			
NSNP20V	*J1248 80	38B	61602	J1404 42		60103			
NSNP3A	*J1129 57	30B	61602	J1503 65		60103			
NSNP40V	*J1248 71	36B	61602	J1503 42		60103			
NSNP5A	*J1128 57	30B	61602	J1505 65		60103			
NSNP60V	*J1248 70	34B	61602	J1505 42		60103			
NSNT10V	*J1323 80	38B	61601	J1336 76		60303	J1404 76		60103
	J1427 76		60203						
NSNT20V	*J1323 71	36B	61601	J1336 75		60303	J1404 75		60103
	J1427 75		60203						
NSNT30V	*J1323 70	34B	61601	J1423 76		60303	J1434 76		60303
	J1503 76		60103						
NSNT40V	*J1323 72	34A	61601	J1423 75		60203	J1434 75		60303
	J1503 75		60103						
NSNT50V	*J1323 78	36A	61601	J1420 76		60203	J1432 76		60303
	J1505 76		60103						
NSNT60V	*J1323 77	38A	61601	J1420 75		60203	J1432 75		60303
	J2505 75		60103						
NSN01AV	*J1250 71	36B	61601	J1128 56	26A	61602	J1129 31	15B	61602
	J1229 70	33A	61602	J1324 71	36A	61601			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NSN02AV	*J1250 70	34B	61601	J1128 50	23A	61602	J1129 37	18B	61602
	J1129 64	30A	61602	J1324 74	35B	61601			
NSN03AV	*J1250 72	34A	61601	J1128 43	23B	61602	J1129 55	29B	61602
	J1129 56	26A	61602	J1324 76	37A	61601			
NSN04AV	*J1319 07	04B	61601	J1102 18	10A	61601	J1128 49	26B	61602
	J1129 50	23A	61602	J1129 61	32B	61602			
NSN05AV	*J1323 24	13A	61601	J1102 19	09B	61601	J1128 55	29B	61602
	J1128 70	33A	61602	J1129 43	23B	61602			
NSN06AV	*J1319 24	13A	61601	J1102 25	12B	61601	J1128 61	32B	61602
	J1128 64	30A	61602	J1129 49	26B	61602			
NSTM11U	*J1238 70	34A	62701	J1214 66	32B	60901	J1230 39	19B	62701
	J1253 66	31A	62701						
NTA2P0V	*J1319 34	15A	62602	J1253 53	28B	61102			
NTBAS0V	*J1323 01	02B	62601	J1122 31	15B	62001	J1136 35	17B	61401
	J1441 25	12B	61401	J1319 15	07B	62601	J1320 70	33A	62200
NTBC11U	*J1226 70	34A	62602	J1210 49	26B	61601	J1221 04	02A	62602
	J1221 20	10A	62602	J1222 04	02A	62602	J1222 20	10A	62602
NTBC14U	*J1226 76	37A	62602	J1210 47	25B	61601	J1223 75	39A	62602
	J1224 04	02A	61602						
NTBC20V	*J1220 78	36A	62602	J1112 13	07A	61701	J1210 45	24B	61601
	J1227 64	30A	62603	J1325 05	03B	61800			
NTBC21U	*J1222 54	26A	62602	J1210 17	08B	62001	J1210 54	25A	62001
	J1223 74	35A	62602	J1224 06	03A	62602			
NTBDD0V	*J1319 68	32B	62601	J1224 05	03B	62602	J1323 05	03B	62601
NTBDLAV	*J1319 10	06B	62601	J1227 51	25B	62603	J1323 15	07B	62601
NTBDL0V	*J1323 10	06B	62601	J1256 07	03A	61601	J1257 07	03A	61601
	J1257 13	06B	61601	J1321 04	04A	61601	J1321 11	05B	61601
	J1321 18	10A	61601						
NTB010T	*J1221 08	04A	62602	J1139 26	14A	61402	J1141 10	07A	61403
	J1223 11	07A	62602	J1251 10	07A	62502	J1256 08	06A	61601
NTB011T	*J1221 10	05A	61601	J1106 34	16A	62003	J1139 20	11A	61402
	J1141 05	03B	61403	J1203 05	03B	62302	J1223 06	05A	62602
	J1251 05	03B	62502	J1253 05	03B	61601	J1255 05	03B	62402
	J1336 30		60303	J1404 30		60103			
NTB012T	*J1221 14	06A	62602	J1106 54	25A	62003	J1139 19	09B	61402
	J1141 07	03A	61403	J1203 13	06B	62302	J1223 04	02A	62602
	J1251 13	06B	62502	J1253 13	06B	61601	J1255 13	06B	62402
	J1336 59		60303	J1404 59		60103			
NTB013T	*J1221 13	07A	62602	J1106 48	22A	62003	J1139 25	12B	61402
	J1141 13	06B	61403	J1203 26	14A	62302	J1223 05	03B	62602
	J1251 26	14A	62502	J1253 26	14A	61601	J1255 26	14A	62402
	J1336 55		60303	J1404 55		60103			
NTB014T	*J1221 17	08B	62602	J1137 60	29A	61601	J1139 42	20A	61402
	J1140 54	25A	62003	J1141 26	14A	61403	J1210 26	14A	62302
	J1223 09	05B	62602	J1251 18	10A	62502	J1255 18	10A	62402
	J1324 73	36B	61601						
NTB015T	*J1221 07	04B	62602	J1139 36	17A	61402	J1140 48	22A	62003
	J1141 20	11A	61403	J1210 25	12B	62302	J1223 15	07B	62602
	J1251 25	12B	62502	J1253 18	10A	61601	J1255 25	12B	62402
	J1256 04	04A	61601	J1336 26		60303	J1404 26		60103
NTB016T	*J1221 09	05B	62602	J1139 31	15B	61402	J1140 68	32A	62003
	J1441 19	09B	61403	J1203 42	20A	62302	J1223 22	14A	62602
	J1251 42	20A	62502	J1253 25	12B	61601	J1255 42	20A	62402
	J1336 31		60303	J1404 31		60103			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NTB017T	*J1221 11	06B	62602	J1140 62	29A	62003	J1152 72	34A	61403
	J1203 34	16A	62302	J1211 11	05B	61001	J1223 23	12A	62602
	J1251 34	16A	62502	J1253 42	20A	61601	J1255 34	16A	62402
	J1255 78	38A	61402	J1319 04	02A	62602	J1319 36	16A	62602
	J1336 52		60303	J1404 52		60103			
NTB020T	*J1221 24	12A	62602	J1139 56	26A	61402	J1140 78	38A	62003
	J1141 42	20A	61403	J1203 37	18B	62302	J1223 20	10A	62602
	J1251 37	18B	62502	J1253 34	16A	61601	J1255 37	18B	62402
	J1336 51		60303	J1404 51		60103			
NTB021T	*J1221 26	13A	62602	J1137 57	28A	61601	J1139 50	23A	61402
	J1140 73	36B	62003	J1141 36	17A	61403	J1203 56	26A	62302
	J1223 17	09B	62602	J1251 56	26A	62502	J1255 56	26A	62402
	J1324 65	34B	61601						
NTB022T	*J1221 27	14A	62602	J1139 43	23B	61402	J1141 31	15B	61403
	J1203 48	22A	62302	J1211 03	02A	61900	J1219 26	14A	62004
	J1223 21	11B	62602	J1251 48	22A	62502	J1253 37	18B	61601
	J1255 48	22A	62402	J1257 24	13A	61601	J1434 27		60303
	J1503 27		60103						
NTB023T	*J1221 30	15A	62602	J1139 49	26B	61402	J1141 37	18B	61403
	J1153 10	07A	62402	J1153 56	26A	62502	J1203 49	26B	62302
	J1212 03	02A	61900	J1219 18	10A	62004	J1223 27	13B	62602
	J1253 56	26A	61601	J1434 30		60303	J1503 30		60103
NTB024T	*J1221 33	16A	62602	J1139 70	33A	61402	J1141 56	26A	61403
	J1153 05	03B	62402	J1153 48	22A	62502	J1203 70	33A	62303
	J1211 48	22A	61900	J1219 25	12B	62004	J1223 38	20A	62602
	J1253 48	22A	61601	J1434 59		60303	J1503 59		60103
NTB025T	*J1221 23	111	62602	J1139 64	30A	61402	J1141 50	23A	61403
	J1153 13	06B	62402	J1153 49	26B	62502	J1203 62	29A	62303
	J1219 42	20A	62004	J1223 35	18A	62602	J1253 49	26B	61601
	J1434 55		60303	J1503 55		60103			
NTB026T	*J1221 25	12B	62602	J1137 53	28B	61601	J1139 55	29B	61402
	J1141 43	23B	61403	J1223 36	16A	62602	J1324 78	38A	61601
NTB027T	*J1221 29	13B	62602	J1139 61	32B	61402	J1141 49	26B	61403
	J1143 10	07A	61601	J1223 29	15B	62602	J1227 63	31A	62603
	J1320 08	06A	61601	J1434 26		60303			
NTB030T	*J1222 08	04A	62602	J1106 42	20A	62003	J1139 79	39B	61402
	J1141 70	33A	61403	J1143 05	03B	61601	J1203 61	32B	62303
	J1223 33	17B	62602	J1251 49	26B	62502	J1255 49	26B	62402
	J1434 31		60303	J1503 31		60103			
NTB031T	*J1222 10	05A	62602	J1106 36	17A	62003	J1139 73	36B	61402
	J1141 64	30A	61403	J1143 13	06B	61601	J1203 79	39B	62303
	J1223 39	19B	62602	J1251 70	33A	62502	J1255 70	33A	62402
	J1434 52		60303	J1503 52		60103			
NTB032T	*J1222 14	06A	62602	J1106 56	26A	62003	J1139 74	35B	61402
	J1141 55	29B	61403	J1143 26	14A	61601	J1203 72	34A	62303
	J1223 52	26A	62602	J1251 62	29A	62502	J1255 62	29A	62402
	J1434 51		60303	J1503 51		60103			
NTB033T	*J1222 13	07A	62602	J1102 20	11A	61601	J1106 50	23A	62003
	J1137 55	29B	61601	J1139 78	38A	61402	J1141 61	32B	61403
	J1203 78	38A	62303	J1223 47	24A	62602	J1251 61	32B	62502
	J1255 61	32B	62402						

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NTB034T	*J1222 17	08B	62602	J1140 56	26A	62003	J1142 10	07A	61402
	J1143 18	10A	61601	J1153 26	14A	62402	J1153 70	33A	62502
	J1155 55	29B	61403	J1210 70	33A	62303	J1223 50	22A	62602
	J1320 04	04A	61601	J1432 27		60303			
NTB035T	*J1222 07	04B	62602	J1140 50	23A	62003	J1142 05	03B	61402
	J1143 25	12B	61601	J1153 18	10A	61402	J1153 62	29A	62502
	J1155 61	32B	61403	J1210 62	29A	62303	J1223 41	23B	62602
	J1432 30		60303						
NTB036T	*J1222 09	05B	62602	J1140 70	33A	62003	J1142 07	03A	61402
	J1143 42	20A	61601	J1153 25	12B	62402	J1153 61	32B	62502
	J1155 79	39B	61403	J1210 61	32B	62303	J1223 45	25B	62602
	J1432 59		60303						
NTB037T	*J1222 11	06B	62602	J1140 64	30A	62003	J1142 13	06B	61402
	J1143 34	16A	61601	J1153 42	20A	62402	J1153 79	39B	62502
	J1155 73	36B	61403	J1210 79	39B	62303	J1223 51	27B	62602
	J1432 55		60303						
NTB040T	*J1222 24	12A	62602	J1102 17	08B	61601	J1140 79	39B	62003
	J1142 26	14A	61402	J1153 34	16A	62402	J1153 72	34A	62502
	J1155 74	35B	61403	J1210 72	34A	62303	J1223 64	33A	62602
NTB041T	*J1222 26	13A	62602	J1140 74	35B	62003	J1142 20	11A	61402
	J1143 37	18B	61601	J1153 37	18B	62402	J1153 78	38A	62502
	J1155 78	38A	61403	J1210 78	38A	62303	J1223 61	31A	62602
	J1320 24	13A	61601	J1432 26		60303	J1505 26		60103
NTB042T	*J1222 27	14A	62602	J1142 19	09B	61402	J1143 56	26A	61601
	J1154 55	29B	61403	J1219 34	16A	62004	J1223 62	29A	62602
	J1432 31		60303	J1505 31		60103			
NTB043T	*J1222 30	15A	62602	J1142 25	12B	61402	J1143 48	22A	61601
	J1154 61	32B	61403	J1219 37	18B	62004	J1223 55	29B	62602
	J1432 52		60303	J1505 52		60103			
NTB044T	*J1222 33	16A	62602	J1142 42	20A	61402	J1143 49	26B	61601
	J1154 79	39B	61403	J1211 07	03A	61900	J1219 56	26A	62004
	J1223 59	31B	62602	J1432 51		60303	J1505 51		60103
NTB045T	*J1222 23	11B	62602	J1102 23	11B	61601	J1142 36	17A	61402
	J1154 73	36B	61403	J1212 07	03A	61900	J1219 48	22A	62004
	J1223 65	33B	62602						
NTB046T	*J1222 25	12B	62602	J1142 31	15B	61402	J1154 74	35B	61403
	J1211 50	23A	61900	J1219 49	26B	62004	J1223 79	39B	62602
	J1321 26	14A	61601						
NTB047T	*J1222 29	13B	62602	J1142 37	18B	61402	J1154 78	38A	61403
	J1223 73	37B	62602	J1244 80	38B	62603			
NTB1CAV	*J1223 77	38A	62602	J1320 29	14B	61102			
NTB2DAV	*J1223 72	34A	62602	J1103 76	37A	61001	J1119 56	26A	61002
	J1128 29	14B	62103	J1210 30	15A	62001	J1210 40	19A	62001
	J1217 13	07A	61900	J1220 76	37A	62602	J1244 78	38A	62603
	J1320 41	22B	62701	J1320 47	25B	62701	J1324 07	03A	61001
	J1324 31	15B	61002						
NTCASN1	*J1331 48		60203	J1427 06		60204			
NTCASN2	*J1331 51		60203	J1427 79		60204			
NTCASN3	*J1331 56		60203	J1423 06		60204			
NTCASN4	*J1331 60		60203	J1423 79		60204			
NTCASN5	*J1331 66		60203	J1420 06		60204			
NTCASN6	*J1331 70		60203	J1420 79		60204			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution					
NTCA01	J1327 07	60401	*J1330 07	60401	*J1331 07	60203
	J1429 23	60201				
NTCA02	*J1327 11	60401	*J1330 11	60401	*J1331 11	60203
	J1429 15	60201				
NTCA03	*J1327 18	60401	*J1330 18	60401	*J1331 18	60203
	J1429 61	60201				
NTCA04	*J1327 19	60401	*J1330 19	60401	*J1331 19	60203
	J1429 69	60201				
NTCA05	*J1327 26	60401	*J1330 26	60401	*J1331 26	60203
	J1428 23	60201				
NTCA06	*J1327 29	60401	*J1330 29	60401	*J1331 29	60203
	J1428 15	60201				
NTCA07	*J1327 27	60401	*J1330 27	60401	*J1331 27	60203
	J1428 61	60201				
NTCA08	*J1331 39	60401	J1428 69	60201		
NTCA09	*J1327 48	60401	*J1330 48	60401	J1425 23	60201
	*J1427 16	60203				
NTCA10	*J1327 51	60401	*J1330 51	60401	J1425 15	60201
	*J1427 33	60203				
NTCA11	*J1327 56	60401	*J1330 56	60401	J1425 61	60201
	*J1427 54	60203				
NTCA12	*J1327 60	60401	*J1330 60	60401	J1425 69	60201
	*J1427 60	60203				
NTCA13	*J1327 66	60401	*J1330 66	60401	J1424 23	60202
	*J1427 22	60203				
NTCA14	*J1327 70	60401	*J1330 70	60401	J1424 15	60202
	*J1427 32	60203				
NTCA15	*J1327 75	60401	*J1330 75	60401	J1424 61	60202
	*J1427 44	60203				
NTCA16	*J1327 76	60401	*J1330 76	60401	J1424 69	60202
	*J1427 56	60203				
NTCA17	*J1328 07	60401	*J1329 07	60401	J1422 23	60202
	*J1423 16	60203				
NTCA18	*J1328 11	60401	*J1329 11	60401	J1422 15	60202
	*J1423 33	60203				
NTCA19	*J1328 18	60401	*J1329 18	60401	J1422 61	60202
	*J1423 54	60203				
NTCA20	*J1328 19	60401	*J1329 19	60401	J1422 69	60202
	*J1423 60	60203				
NTCA21	*J1328 26	60401	*J1329 26	60401	J1421 23	60202
	*J1423 22	60203				
NTCA22	*J1328 29	60401	*J1329 29	60401	J1421 15	60202
	*J1423 32	60203				
NTCA23	*J1328 27	60401	*J1329 27	60401	J1421 61	60202
	*J1423 44	60203				
NTCA24	*J1328 39	60401	*J1329 39	60401	J1421 69	60202
	*J1423 56	60203				
NTCA25	*J1328 48	60401	*J1329 48	60401	J1418 23	60202
	*J1420 16	60203				
NTCA26	*J1328 51	60401	*J1329 51	60401	J1418 15	60202
	*J1420 33	60203				
NTCA27	*J1328 56	60401	*J1329 56	60401	J1418 61	60202
	*J1420 54	60203				

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NTCA28	*J1328 60		60401	*J1329 60		60401	J1418 69		60202
	*J1420 60		60203						
NTCA29	*J1328 66		60401	*J1329 66		60401	J1417 23		60202
	*J1420 22		60203						
NTCA30	*J1328 70		60401	*J1329 70		60401	J1417 15		60202
	*J1420 32		60203						
NTCA31	*J1328 75		60401	*J1329 75		60401	J1417 61		60202
	*J1420 44		60203						
NTCA32	*J1328 76		60401	*J1329 76		60401	J1417 69		60202
	*J1420 56		60203						
NTDS1D4	*J1218 30	15A	62601	J1102 78	38A	62301	J1103 69	35A	61001
	J1118 49	26B	62001	J1119 23	11B	60800	J1119 54	25A	61002
	J1124 65		62601	J1128 31	15B	62103	J1128 74	35B	62501
	J1128 77	38B	60800	J1128 78	38A	62401	J1129 73	36B	62301
	J1141 78	38A	62501	J1204 64	33A	62200	J1215 37	18B	62001
	J1220 15	07B	61900	J1220 36	16A	62001	J1250 55	29B	62200
	J1254 38	20A	62200	J1256 43	23B	62401	J1320 18	10A	61102
	J1324 29	14B	61002						
NTDS2D4	*J1218 33	16B	62601	J1115 56	24A	61401	J1116 56	24A	61401
	J1124 66		62601	J1210 06	05A	61002	J1245 39	19B	61401
	J1245 64	33A	61401						
NTDS3D4	*J1156 30	15A	62601	J110605	03B	61701	J112242	20A	61900
	J1124 51		62601						
NTEN2AV	*J1246 78	36A	62601	J1301 43		60103	J1314 43		60702
	J1315 43		60702	J1331 43		60203	J1334 43		60303
NTE0P0H	*J1229 64	31A	62601	J1308 38		60500	J1310 38		60500
	J1311 38		60500	J1319 65	33B	62601	J1409 38		60500
	J1410 38		60500						
NTFLSD4	*J1218 27	13B	62702	J1120 49	26B	60902	J110255	29B	60902
	J1102 61	32B	60902	J1109 13	06B	61702			
	J1109 20	11A	61702	J1109 25	12B	61702	J110936	17A	61702
	J1110 05	03B	61702	J1110 13	06B	61702	J1124 71		62702
	J1146 65	34B	61701	J1146 71	36A	61701	J114676	37A	61701
	J1146 77	38B	61701	J1212 05	03B	60903	J121219	09B	60903
	J1212 20	11A	60903	J1212 25	12B	60903	J121226	14A	60903
	J1247 56	26A	61300	J1247 61	32B	61300			
NT1C01	*J1314 60		60702	J1414 30		60600			
NT1C02	*J1314 66		60702	J1414 79		60600			
NT1C03	*J1314 70		60702	J1416 30		60600			
NT1C04	*J1314 75		60702	J1416 79		60600			
NT1L70V	J1323 14	08B	62603	J1324 17	08B	61900			
NTLC01	*J1315 56		60702	J1411 23		60703			
NTLC02	*J1315 60		60702	J1411 15		60703			
NTLC03	*J1315 66		60702	J1411 61		60703			
NTLC04	*J1315 70		60702	J1411 69		60703			
NTLC05	*J1315 75		60702	J1412 23		60703			
NTL1C6T	*J1224 25	12B	62603	J1102 48	22A	61701	J132317	09B	62603
NTL1S0V	*J1230 34	15A	62603	J1203 25	12B	62001			
NTL1U0V	*J1230 30	14B	62603	J1122 30	15A	62001	J1253 78	38A	61900
	J1255 65	34B	61701						
NTMTSN1	*J1334 48		60303	J1336 06		60304			
NTMTSN2	*J1334 51		60303	J1336 79		60304			
NTMTSN3	*J1334 56		60303	J1434 06		60304			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NTMTSN4	*J1334 60		60303	J1434 79		60304			
NTMTSN5	*J1334 66		60303	J1432 06		60304			
NTMTSN6	*J1334 70		60303	J1432 79		60304			
NTMT01	J1332 23		60301	*J1334 07		60303			
NTMT02	J1332 15		60301	*J1334 11		60303			
NTMT03	J1332 61		60301	*J1334 18		60303			
NTMT04	J1332 60		60301	*J1334 19		60303			
NTMT05	J1333 23		60301	*J1334 26		60303			
NTMT06	J1333 15		60301	*J1334 29		60303			
NTMT07	J1333 61		60301	*J1334 27		60303			
NTMT08	J1333 69		60301	*J1334 39		60303			
NTMT09	*J1336 16		60303	J1337 23		60301			
NTMT10	*J1336 33		60303	J1337 15		60301			
NTMT11	*J1336 54		60303	J1337 61		60301			
NTMT12	*J1336 60		60303	J1337 69		60301			
NTMT13	*J1336 22		60303	J1339 23		60302			
NTMT14	*J1336 32		60303	J1339 15		60302			
NTMT15	*J1336 44		60303	J1339 61		60302			
NTMT16	*J1336 56		60303	J1339 69		60302			
NTMT17	*J1434 16		60303	J1436 23		60302			
NTMT18	*J1434 33		60303	J1436 15		60302			
NTMT19	*J1434 54		60303	J1436 61		60302			
NTMT20	*J1434 60		60303	J1436 69		60302			
NTMT21	*J1434 22		60303	J1435 23		60302			
NTMT22	*J1434 32		60303	J1435 15		60302			
NTMT23	*J1434 44		60303	J1435 61		60302			
NTMT24	*J1434 56		60303	J1435 69		60302			
NTMT25	J1431 23		60302	*J1432 16		60303			
NTMT26	J1431 15		60302	*J1432 33		60303			
NTMT27	J1431 61		60302	*J1432 54		60303			
NTMT28	J1431 69		60302	*J1432 60		60303			
NTMT29	J1430 23		60302	*J1432 22		60303			
NTMT30	J1430 15		60302	*J1432 32		60303			
NTMT31	J1430 61		60302	*J1432 44		60303			
NTMT32	J1430 69		60302	*J1432 56		60303			
NTSYD0T	*J1225 24	12A	62603	J1113 35	16B	61001	J111349	24B	61001
	J1114 35	16B	61001	J1114 49	24B	61001			
NTSYD2T	*J1225 27	14A	62603	J1102 79	39B	62200	J1230 20	10A	62603
	J1230 35	18A	62603	J1257 61	32B	62200	J1257 70	33A	62200
	J1319 11	07A	62603						
NTSYD5T	*J1225 23	11B	62603	J110226	14A	62101	J1323 21	11B	62603
NTSYN2U	*J1228 56	28B	62603	J110662	29A	61900	J111940	19A	61102
	J1224 22	11A	62603	J122522	11A	62603			
NTSYN3U	*J1228 60	28A	62603	J1106 64	30A	61900	J1224 19	09B	62603
	J1225 19	09B	62603						
NTSY20V	*J1230 25	11A	62603	J111933	16B	61102	J112010	07A	61102
	J1120 41	22B	61201	J112065	34B	61201	J125362	29A	61102
	J1255 79	39B	61102	J1320 31	15B	61102	J132504	04A	61800
NTSY3AV	*J1236 60	28A	62603	J1245 41	23B	61401	J1245 61	31A	61401
	J1323 27	13B	62603						

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NTSY30V	*J1230 18	09A	62603	J1102 71	36A	62200	J1102 76	37A	62301
	J1110 68	32A	61701	J1141 76	37A	62501	J1152 03	02A	62101
	J1152 30	15A	62101	J1152 59	31B	62101	J1216 26	14A	61800
	J1257 62	29A	62200	J1257 77	38B	62200			
NTSY40V	*J1319 54	25A	62603	J1102 62	29A	61102	J1119 25	12B	60800
	J1320 65	34B	61701	J1320 71	36A	61701	J1320 76	37A	61701
	J1321 71	36A	61701	J1321 74	35B	61701	J1321 78	38A	61701
NTSY50V	*J1230 19	10B	62603	J1118 61	32B	661201	J1120 73	36B	61201
	J1122 72	34A	61101	J1122 77	38B	61101	J1129 76	37A	61602
	J1251 65	34B	61300	J1251 69	35A	61300	J1320 68	32A	62200
	J1324 03	02A	61001						
NTSY6D4	*J1218 39	19B	62603	J1111 04	04A	61701	J1111 20	11A	61701
	J1111 36	17A	61701	J1111 50	23A	61900	J1111 64	30A	61900
	J1111 73	36B	61900	J1124 72		62603			
NSTY60V	*J1323 19	10B	62603	J1148 65	34B	62802			
NTS030V	*J1319 46	22B	62603	J1119 38	18A	61102			
NTS3Y0V	*J1230 37	17A	62603	J1109 64	30A	61701	J1120 37	18B	61102
	J1128 65	34B	62501	J1128 76	37A	62401	J1129 71	36A	62301
	J1136 59	31B	62101	J1210 10	07A	61002	J1215 42	20A	61900
	J1236 62	29A	62603	J1256 41	22B	62401			
NTS300V	*J1323 26	12B	62603	J1120 11	05B	61102			
NT0CSN1	*J1301 66		60103	J1505 06		60104			
NT0CSN2	J1301 51		60103	J1404 79		60104			
NT0CSN3	*J1301 56		60103	J1503 06		60104			
NT0CSN4	*J1301 60		60103	J1503 79		60104			
NT0CSN5	*J1301 48		60103	J1404 06		60104			
NT0CSN6	*J1301 70		60103	J1505 70		60104			
NT0C01	*J1301 07		60103	J1401 23		60101			
NT0C02	*J1301 11		60103	J1401 15		60101			
NT0C03	*J1301 18		60103	J1401 61		60101			
NT0C04	*J1301 19		60103	J1401 69		60101			
NT0C05	*J1301 26		60103	J1402 23		60101			
NT0C06	*J1301 29		60103	J1402 15		60101			
NT0C07	*J1301 27		60103	J1402 61		60601			
NT0C08	*J1301 39		60103	J1402 69		60601			
NT0C09	*J1404 16		60103	J1405 23		60601			
NT0C10	*J1404 33		60103	J1405 15		60101			
NT0C11	*J1404 54		60103	J1405 61		60101			
NT0C12	*J1404 60		60103	J1405 69		60101			
NT0C13	*J1404 22		60103	J1405 23		60102			
NT0C14	*J1404 32		60103	J1406 15		60102			
NT0C15	*J1404 44		60103	J1406 61		60102			
NT0C16	*J1404 56		60103	J1406 69		60102			
NT0C17	J1501 23		60102	*J1503 16		60103			
NT0C18	J1501 15		60102	*J1503 33		60103			
NT0C19	J1501 61		60102	*J1503 54		60103			
NT0C20	J1501 69		60102	*J1503 60		60103			
NT0C21	J1502 23		60102	*J1503 22		60103			
NT0C22	J1502 15		60102	*J1503 32		60103			
NT0C23	J1502 61		60102	*J1503 44		60103			
	*J1503 44		60103			60103			
NT0C24	J1502 69		60102	*J1503 56		60103			
NT0C25	*J1505 16		60103	J1506 23		60102			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NT0C26	*J1505 33		60103	J1506 15		60102			
NT0C27	*J1505 54		60103	J1506 61		60102			
NT0C28	*J1505 60		60103	J1506 69		60102			
NT0C29	*J1505 22		60103	J1507 23		60102			
NT0C30	*J1505 32		60103	J1507 15		60102			
NT0C31	*J1505 44		60103	J1507 61		60102			
NT0C32	*J1505 56		60103	J1507 69		60102			
NT0PE0H	*J1229 61	31B	62601	J1302 38		60500	J1303 38		60500
	J1304 38		60500	J1305 38		60500	J1307 38		60500
NT0PR0V	*J1223 70	34B	62603	J1110 70	33A	61701	J1119 21	10B	60800
NT0PR5U	*J1244 68	33A	62603	J1106 04	04A	61701	J1246 20	10A	62603
NT0PT0V	*J1220 72	34A	62603	J1101 78	38A	62200	J1141 73	36B	62101
	J1215 40	19A	61900	J1247 37	18B	62200	J1256 13	06B	62101
	J1256 55	29B	62200	J1257 74	35B	62101			
NT0PT5U	*J1227 52	25A	62603	J1101 07	03A	62001	J1122 37	18B	61900
	J1321 47	25B	62603						
NT0P1AV	*J1246 18	09A	62603	J1110 43	23B	61701			
NT01PAV	*J120477	38A	62602	J1106 40	19A	62003	J1203 10	07A	62302
	J1253 10	07A	61601	J1255 10	07A	62402	J1336 27		60303
	J1404 27		60103						
NT01P0V	*J1223 13	06A	62602	J1137 78	38A	61402	J1138 54	25A	61403
	J1148 06	05A	61404	J1204 75	39A	62602	J1301 23		60104
	J1315 23		60702	J1327 23		60402	J1330 23		60401
	J1334 23		60304	J1336 08		60304	J1336 09		60304
	J1336 10		60304	J1404 08		60104	J1404 09		60104
	J1404 10		60104	J1427 10		60204			
NT02P0V	*J1223 08	04A	62602	J1148 03	02A	61404	J1301 20		60104
	J1315 20		60702	J1327 20		60402	J1330 20		60402
	J1334 20		60304	J1336 38		60304	J1336 39		60304
	J1336 40		60304	J1404 38		60104	J1404 39		60104
	J1404 40		60104	J1427 38		60204			
NT03P0V	*J122303	03A	62602	J114813	06B	61404	J1301 15		60104
	J1315 15		60702	J1327 15		60402	J1330 15		60402
	J1334 15		60304	J1336 43		60304	J1336 47		60304
	J1336 49		60304	J1404 43		60104	J1404 47		60104
	J1404 49		60104	J1427 43		60204			
NT04P0V	*J1223 01	02B	62602	J1148 22	12A	61404	J1301 14		60104
	J1315 14		60702	J1327 14		60402	J1330 14		60402
	J1334 14		60304	J1336 67		60304	J1336 68		60304
	J1336 69		60304	J1404 67		60104	J1404 68		60104
	J1404 69		60104	J1427 69		60204			
NT05P0V	*J1223 07	04B	62602	J1134 40	19A	61402	J1137 14	06A	61403
	J1148 17	08B	61404	J130121		60104	J1315 21		60702
	J1327 21		60402	J1330 21		60402	J1334 21		60304
	J1336 72		60304	J1404 72		60104	J1427 72		60204
	J1315 22		60702	J1327 22		60402	J1330 22		60402
	J1334 22		60304	J1336 11		60304	J1336 14		60304
	J1336 21		60304	J1404 11		60104	J1404 14		60104
	J1404 21		60104	J1427 21		60204			
NT07P0V	*J1223 24	13A	62602	J1148 38	18A	61404	J1301 33		60104
	J1315 33		60702	J1327 33		60402	J1330 33		60402
	J1334 33		60304	J1336 19		60304	J1336 20		60304
	J1336 23		60304	J1404 19		60104	J1404 20		60104
	J1404 23		60104	J1427 20		60204			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NT08P0V	*J1223 25	11A	62602	J1139 07	03A	61401	J130144		60104
	J1302 50		60500	J1302 53		60500	J1303 50		60500
	J1303 53		60500	J1304 50		60500	J1304 53		60500
	J1305 50		60500	J1305 53		60500	J1307 50		60500
	J1307 53		60500	J1315 44		60702	J1331 44		60204
	J1334 44		60304	J1336 01		60304	J1336 37		60304
	J1336 71		60304	J1404 01		60104	J1404 37		60104
	J1404 71		60104	J1427 71		60204			
NT09P0V	*J1223 18	09A	62602	J1133 54	25A	61402	J1138 14	06A	61403
	J1301 32		60104	J1315 32		60702	J1327 32		60402
	J1330 32		60402	J1331 32		60204	J1334 32		60304
	J1336 63		60304	J1336 64		60304	J1336 66		60304
	J1404 63		60104	J1404 64		60104	J1404 66		60104
	J1427 66		60204						
NT1MB0V	*J1319 71	36B	62601	J1137 63	32B	61601	J1246 75	39A	62601
NT1MGAV	*J1230 08	04A	62601	J1156 34	16A	62601	J1218 34	16A	62601
	J1229 51	25B	62601	J1229 62	30A	62601	J1244 69	32A	62603
	J1253 57	30B	62601	J1253 71	36A	62601			
NT1MHD4	*J1156 39	19B	62601	J1107 35	18A	61701	J1224 73		62601
	J1220 22	14A	61900	J1221 37	17B	62601	J1222 37	17B	62601
	J1319 79	39B	62601	J1325 29	14B	61800			
NT1MZAV	*J1246 77	38A	62601	J1222 51	25B	62602	J1226 69	32A	62602
	J1230 05	03B	62602						
NT1SEAV	*J1230 24	13A	62603	J1104 62	29A	60903	J1106 19	09B	62802
	J1148 72	34A	62802						
NT1SE1U	*J1227 70	34A	62603	J1107 22	14A	62702	J1120 23	11B	61101
	J1230 22	14A	62603						
NT1SE2U	*J1227 72	35A	62603	J1102 11	05B	61002			
NT10P0V	*J1223 14	08B	62602	J1301 40		60104	J1315 40		60702
	J1327 40		60402	J1330 40		60402	J1331 40		60204
	J1334 40		60304	J1336 70		60304	J1404 70		60104
	J1427 70		60204						
NT11P0V	*J1223 19	10B	62602	J1301 55		60104	J1314 61		60702
	J1327 55		60402	J1330 55		60402	J1331 55		60204
	J1334 55		60304	J1434 08		60304	J1434 09		60304
	J1434 10		60304	J1503 08		60104	J1503 09		60104
	J1503 10		60104						
NT12P0V	*J1223 26	12B	62602	J1301 61		60104	J1314 62		60702
	J1327 61		60402	J1330 61		60402	J1331 61		60204
	J1334 61		60304	J1434 38		60304	J1434 39		60304
	J1434 40		60304	J1503 38		60104	J1503 39		60104
	J1503 40		60104						
NT13P0V	*J1223 40	19A 62602		J1134	54	25A	61402 J1137	26	13A
	J1301 62		60104	J1314 54		60702	J1327 62		60402
	J1330 62		60402	J1331 62		60204	J1334 62		60304
	J1434 43		60304	J1434 47		60304	J1434 49		60304
	J1503 43		6104	J1503 47		60104	J1503 49		60104
NT14P0V	*J1223 37	17A	62602	J1111 72	34A	61900	J121731	14B	61900
	J1301 54		60104	J1314 63		60702	J1327 54		60402
	J1330 54		60402	J1331 54		60204	J1334 54		60304
	J1434 67		60304	J1434 68		60304	J1434 69		60304
	J1503 67		60104	J1503 68		60104	J1503 69		60104

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NT15POV	*J1223 34	15A	62602	J1327 63		60402	J1330 63		60402
	J1434 72		60304	J1503 72		60104			
NT16POV	*J1223 30	14B	62602	J1136 61	32B	62101	J1152 05	03B	62101
	J1152 34	16A	62101	J1152 61	32B	62101	J1301 59		60104
	J1314 59		60702	J1327 59		60402	J1330 59		60402
	J1331 59		60204	J1334 59		60304	J1434 11		60304
	J1434 14		60304	J1434 21		60304	J1503 11		60104
	J1503 14		60104	J1503 21		60104			
NT17POV	*J122331	16B	62602	J1133 66	32A	61402	J1138 26	13A	61403
	J1302 23		60500	J1302 24		60500	J1302 25		60500
	J1314 23		60702	J1328 23		60401	J1329 23		60402
	J1434 19		60304	J1434 20		60304	J1434 23		60304
	J1503 19		60104	J1503 20		60104	J1503 23		60104
NT18POV	*J1223 42	18B	62602	J1303 23		60500	J1303 24		60500
	J1303 25		60500	J1314 20		60702	J1328 20		60402
	J1329 20		60402	J1434 01		60304	J1434 37		60304
	J1434 71		60304	J1503 01		60104	J1503 37		60104
	J1503 71		60104						
NT19POV	*J1223 54	25A	62602	J1304 23		60500	J1304 24		60500
	J1304 25		60500	J1314 15		60702	J1328 15		60402
	J1329 15		60402	J1434 63		60304	J1434 64		60304
	J1434 66		60304	J1503 63		60104	J1503 64		60104
	J1503 66		60104						
NT20HOV	*J1223 78	36A	61800	J1316 74		60600			
NT20POV	*J1223 49	23A	62602	J1305 23		60500	J1305 24		60500
	J1305 25		60500	J1314 14		60702	J1328 14		60402
	J1329 14		60402	J1434 70		60304	J1503 70		60104
NT21POV	*J1223 48	21A	62602	J1134 66	32A	61402	J1137 40	19A	61403
	J1307 23		60500	J1307 24		60500	J1307 25		60500
	J1314 21		60702	J1328 21		60402	J1329 21		60402
	1432 08		60304	J1432 09		60304	J1432 10		60304
	J1505 08		60104	J1505 09		60104	J1505 10		60104
NT22POV	*J1223 46	22B	62602	J1308 23		60500	J1308 24		60500
	J1308 25		60500	J1314 22		60702	J1328 22		60402
	J1329 22		60402	J1432 38		60304	J1432 39		60304
	J1432 40		60304	J1505 38		60104	J1505 39		60104
	J1505 40		60104						
NT23POV	*J1223 43	24B	62602	J1310 23		60500	J1310 24		60500
	J1310 25		60500	J1314 33		60702	J1328 33		60402
	J1329 33		60402	J1432 43		60304	J1432 47		60304
	J1432 49		60304	J1505 43		60104	J1505 47		60104
	J1505 49		60104						
NT24POV	*J1223 53	26B	62602	J1311 23		60500	J1311 24		60500
	J1311 25		60500	J1314 44		60702	J1328 44		60402
	J1329 44		60402	J1432 67		60304	J1432 68		60304
	J1432 69		60304	J1505 67		60104	J1505 68		60104
	J1505 69		60604						
NT25POV	*J1223 66	32A	62602	J1133 78	38A	61402	J1138 40	19A	61403
	J1314 32		60702	J1328 32		60402	J1329 32		60402
	J1409 23		60500	J1409 24		60500	J1409 25		60500
	J1432 72		60304	J1505 72		60104			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
NT26P0V	*J1223 63	30A	62602	J1314 40		60702	J1328 40		60402
	J1329 40		60402	J1410 23		60500	J1410 24		60500
	J1410 25		60500	J1432 11		60304	J1432 14		60304
	J1432 21		60304	J1505 11		60104	J1505 14		60104
	J1505 21		60104						
NT27P0V	*J1223 60	28A	62602	J1217 19	09B	61900	J1315 55		60702
	J1328 55		60402	J1329 55		60402	J1432 19		60304
	J1432 20		60304	J1432 23		60304	J1505 19		60104
	J1505 20		60104	J1505 23		60104			
NT28P0V	*J1223 56	28B	62602	J1217 21	10B	61900	J1315 61		60702
	J1328 61		60402	J1329 61		60402	J1432 01		60304
	J1432 37		60304	J1432 71		60304	J1505 01		60104
	J1505 37		60104	J1505 71		60104			
NT29P0V	*J1223 57	30B	62602	J1134 78	38A	61402	J1137 54	25A	61403
	J1315 62		60702	J1328 62		60402	J1329 62		60402
	J1432 63		60304	J1432 64		60304	J1432 66		60304
	J1505 63		60104	J1505 64		60104	J1505 66		60104
NT3SY0V	*J1319 13	06A	62603	J1120 48	22A	61201	J1135 22	12A	61102
	J1247 68	32A	61201	J1321 41	22B	61102			
NT30P0V	*J1223 68	32B	62602	J1315 54		60702	J1328 54		60402
	J1329 54		60402	J1432 70		60304	J1505 70		60104
NT31P0V	*J1223 80	38A	62602	J1315 63		60702	J1328 63		60402
	J1329 63		60402						
NT32P0V	*J1223 71	36B	62602	J1328 59		60402	J1329 59		60402
NT4MHAV	*J1107 71	36B	62601	J1323 20	10A	61102			
NT4MH0V	*J1245 57	30B	62601	J1107 73	37B	62601	J1320 19	09B	61102
NT4473U	*J1228 74	36A	62603	J1316 72		62802			
NT80P0V	*J1319 03	03A	62607	J1111 71	36A	61900	J1135 24	13A	61102
	J1308 50		60500	J1308 53		60500	J1310 50		60500
	J1310 53		60500	J1311 50		60500	J1311 53		60500
	J1409 50		60500	J1409 53		60500	J1410 50		60500
	J1410 53		60500						
NT810A	*J1253 74	35B	62601	J1320 62	29A	62101			
N0CCNVB1	J1505 04		60104	J1505 24		60103	J1505 73		60103
N0CCNVB2	J1503 04		60104	J1503 24		60103	J1503 73		60103
N0CCNVB3	J1404 04		60104	J1404 24		60103	J1404 73		60103
N0CDE0T	*J1132 08	04A	62102	J1146 26	14A	62103			
N0CDE1T	*J1132 10	05A	62102	J1146 20	11A	62103			
N0CDE2T	*J113214	06A	62102	J1146 19	09B	62103			
N0CDE3T	*J1132 13	07A	62102	J1146 25	12B	62103			
N0CDE4T	*J1132 17	08B	62102	J1146 56	26A	62103			
N0CDE5T	*J1132 07	04B	62102	J1146 50	23A	62103			
N0CDE6T	*J1132 09	05B	62102	J1146 43	23B	62103			
N0CDE7T	*J1132 11	06B	62102	J1146 49	26B	62103			
N0CDE8T	*J1132 15	07B	62102	J1146 55	29B	62103			
N0CDE9T	*J1132 18	09A	62102	J1146 61	32B	62103			
N0DDE0T	*J1132 24	12A	62102	J1147 26	14A	62103			
N0DDE1T	*J1132 26	13A	62102	J1147 20	11A	62103			
N0DDE2T	*J1132 27	14A	62102	J1147 19	09B	62103			
N0DDE3T	*J1132 30	16A	62102	J1147 25	12B	62103			
N0DDE4T	*J1132 33	16A	62102	J1147 56	26A	62103			
N0DDE5T	*J1132 23	11B	62102	J1147 50	23A	62103			
N0DDE6T	*J1132 25	12B	62102	J1147 43	23B	62103			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
N0DDE7T	*J1132 29	13B	62102	J1147 49	26B	62103			
N0DDE8T	*J1132 31	14B	62102	J1147 55	29B	62103			
N0DDE9T	*J1132 34	15B	62102	J1147 61	32B	62103			
N0NCPAV	*J1204 66	32A	62200	J1115 47	22B	62200	J1201 01	02A	62302
	J1201 18	05A	62302	J1201 19	08B	62302	J1201 25	12A	62302
	J1201 31	14B	62302	J1201 40	18A	62302	J1201 47	22B	62303
	J1201 51	28B	62303	J1201 56	24A	62303	J1201 62	31A	62303
	J1201 74	34B	62303	J1201 79	37B	62303	J1202 01	02A	62302
	J1202 18	05A	62302	J1202 19	08B	62302	J1202 25	12A	62302
	J1202 31	14B	62302	J1202 40	18A	62302	J1202 47	22B	62303
	J1202 51	28B	62303	J1202 56	24A	62303	J1212 62	31A	62303
	J1202 74	34B	62303	J1202 79	37B	62303			
N0ND1D1	*J1218 52	24A	62200	J1101 65	34B	62200	J1123 62	62200	
	J1206 05	03B	62302	J1206 07	03A	62302	J1206 10	07A	62302
	J1206 13	06B	62302	J1206 19	09B	62302	J1206 20	11A	62302
	J1206 25	12B	62302	J1206 26	14A	62302	J1206 31	15B	62302
	J1206 36	17A	62302	J1206 37	18B	62302	J1206 42	20A	62302
	J1206 43	23B	62303	J1206 49	26B	62303	J1206 50	23A	62303
	J1206 55	29B	62303	J1206 56	26A	62303	J1206 61	32B	62303
	J1206 64	30A	62303	J1206 70	33A	62303	J1206 73	36B	62303
	J1206 74	35B	62303	J1206 78	38A	62303	J1206 79	39B	62303
N0ND2D1	*J1218 46	21A	62200	J1123 64		62200	J1203 03	02A	62302
	J1203 08	06A	62302	J1203 11	05B	62302	J1203 24	13A	62302
	J1203 30	15A	62302	J1203 35	17B	62302	J1203 40	19A	62302
	J1203 46	21A	62302	J1203 47	25B	62302	J1203 54	25A	62302
	J1203 59	31B	62303	J1203 60	28A	62303	J1203 68	32A	62303
	J1203 71	36A	62303	J1203 76	37A	62303	J1203 77	38B	62303
	J1210 23	11B	62302	J1210 24	13A	62302	J1210 59	31B	62303
	J1210 60	28A	62303	J1210 68	32A	62303	J1210 71	36A	62303
	J1210 76	37A	62303	J1210 77	38B	62303			
N0NRLAV	*J1319 72	34A	62101	J1106 75	37B	62200			
N0N03A	*J1152 27	13B	62101	J1128 35	17B	62101	J1135 04	04A	62101
	J1321 55 29B	62103							
N0N060	*J1136 43	23B	62101	J1152 33	16B	62102	J1152 52	24A	62102
N0N070	*J1135 09	04B	62101	J1147 65	34B	62102	J1147 76	37A	62102
	J1245 55	29B	62102						
N0N11A	*J1256 15	07B	62101	J1257 23	11B	62103			
N0N130	*J1257 27	13B	62103	J1102 73	36B	62200	J1103 11	05B	61002
	J1103 38	18A	61002	J1119 08	06A	60800	J1324 61	32B	62301
N0PR1C1	*J1302 79		60500	J1314 08		60702			
N0PR1C10	J1314 68		60702	*J1410 79		60500			
N0PR1C2	*J1303 79		60500	J1314 09		60702			
N0PR1C3	*J1304 79		60500	J1314 17		60702			
N0PR1C4	*J1305 79		60500	J1314 16		60702			
N0PR1C5	*J1307 70		60500	J1314 34		60702			
N0PR1C6	*J1308 79		60500	J1314 36		60702			
N0PR1C7	*J1310 79		60500	J1314 50		60702			
N0PR1C8	*J1311 79		60500	J1314 49		60702			
N0PR1C9	J1314 69		60702	*J1409 79		60500			
N0PRLC1	*J1302 75		60500	J1315 08		60702			
N0PRLC10	J1315 68		60702	*J1410 75		60500			
N0PRLC2	*J1303 75		60500	J1315 09		60702			

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution					
N0PRLC3	*J1304 75	60500	J1315 17	60702		
N0PRLC4	*J1305 75	60500	J1315 16	60702		
N0PRLC5	*J1307 75	60500	J1315 34	60702		
N0PRLC6	*J1308 75	60500	J1315 36	60702		
N0PRLC7	*J1310 75	60500	J1315 50	60702		
N0PRLC8	*J1311 75	60500	J1315 49	60702		
N0PRLC9	J1315 69	60702	*J1409 75	60500		
N0PRXA	*J1302 71	60500	*J1303 71	60500	*J1304 71	60500
	*J1305 71	60500	*J1307 71	60500	*J1308 71	60500
	*J1310 71	60500	*J1311 71	60500	J1327 04	60402
	*J1327 10	60402	*J1328 10	60402	*J1409 71	60500
	*J1410 71	60500				
N0PRXB	*J1302 74	60500	*J1303 74	60500	*J1304 74	60500
	*J1305 74	60500	*J1307 74	60500	*J1308 74	60500
	*J1310 74	60500	*J1311 74	60600	*J1329 10	60402
	J1330 04	60402	*J1330 10	60402	*J1409 74	60500
	*J1410 74	60500				
N0PRXCA	*J1302 72	60500	*J1303 72	60500	*J1304 72	60500
	*J1305 72	60500	*J1307 72	60500	*J1308 72	60500
	*J1310 72	60500	*J1311 72	60500	J1331 04	60204
	J1331 10	60204	*J1409 72	60500	*J1410 72	60500
N0PRXMT	*J1302 76	60500	*J1303 76	60500	*J1304 76	60500
	*J1305 76	60500	*J1307 76	60500	*J1308 76	60500
	*J1310 76	60500	*J1311 76	60500	J1334 04	60304
	J1334 10	60304	*J1409 76	60500	*J1410 76	60500
N0PRX0C	J1301 04	60104	J1301 10	60104	*J1302 77	60500
	*J1303 77	60500	*J1304 77	60500	*J1305 77	60500
	*J1307 77	60500	*J1308 77	60500	*J1310 77	60500
	*J1311 77	60500	*J1409 77	60500	*J1410 77	60500
N0PT1C0	*J1314 51	60702	J1410 66	60500		
N0PT1C1	J1302 66	60500	*J1314 07	60702		
N0PT1C2	J1303 66	60500	*J1314 11	60702		
N0PT1C3	J1304 66	60500	*J1314 18	60702		
N0PT1C4	J1305 66	60500	*J1314 19	60702		
N0PT1C5	J1307 66	60500	*J1314 26	60702		
N0PT1C6	J1308 66	60500	*J1314 29	60702		
N0PT1C7	J1310 66	60500	*J1314 27	60702		
N0PT1C8	J131166	60500	*J1314 39	60702		
N0PT1C9	*J1314 48	60702	J1409 66	60500		
N0PTXA	J1302 41	60500	J1303 41	60500	J1304 41	60500
	J1307 41	60500	J1308 41	60500	J1310 41	60500
	J1311 41	60500	*J1327 03	60402	J1327 67	60401
	J1328 67	60401	J1409 41	60500	J1410 41	60500
N0PTXB	J1302 52	60500	J1303 52	60500	J1304 52	60500
	J1305 52	60500	J1307 52	60500	J1308 52	60500
	J1310 52	60500	J1311 52	60500	J1329 67	60401
	*J1330 03	60402	J1330 67	60401	J1409 52	60500
	J1410 52	60500				

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
N0PTXCA	J1302 03		60500	J1302 62		60500	J1303 03		60500
	J1303 62		60500	J1304 03		60500	J1304 62		60500
	J1305 03		60500	J1305 62		60500	J1307 03		60500
	J1307 62		60500	J1308 03		60500	J1308 62		60500
	J1310 03		60500	J1310 62		60500	J1311 03		60500
	J1311 62		60500	*J1331 03		60204	J1331 67		60203
	J1409 03		60500	J1409 62		60500	J1410 03		60500
	J1410 62		60500						
N0PTXMT	J1302 20		60500	J1902 30		60500	J1303 20		60500
	J1303 30		60500	J1304 20		60500	J1304 30		60500
	J1305 20		60500	J1305 30		60500	J1307 20		60500
	J1307 30		60500	J1308 20		60500	J1308 30		60500
	J1310 20		60500	J1310 30		60500	J1311 20		60500
	J1311 30		60500	*J1334 03		60304	J1334 67		60304
	J1409 20		60500	J1409 30		60500	J1410 20		60500
	J1410 30		60500						
N0PTX0C	J1301 03		60104	J1301 67		60103	J1320 04		60500
	J1302 32		60500	J1303 04		60500	J1303 32		60500
	J1304 04		60500	J1304 32		60500	J1305 04		60500
	J1305 32		60500	J1307 04		60500	J1307 32		60500
	J1308 04		60500	J1308 32		60500	J1310 04		60500
	J1310 32		60500	J1311 04		60500	J1311 32		60500
	J1409 04		60500	J1409 32		60500	J1410 04		60500
	J1410 32		60500						
N001C0	*J1146 22	12A	62103	J1144 19	09B	62103	J1145 05	04A	62103
	J1302 08		60500						
N001P0V	*J1204 13	06A	62302	J1301 05		60102			
N001R1U	*J1207 38	18A	62301	J1206 17	08B	62302	J1208 41	19B	62301
N001R2U	*J1207 40	10A	62301	J1206 24	13A	62302	J1208 43	22B	62301
N001R3U	*J1207 42	20A	62301	J1206 03	02A	62302	J1208 45	23B	62301
N001R4U	*J1207 46	21A	62301	J1206 08	06A	62302			
N002C0	*J1146 14	09A	62103	J1144 21	10B	62103	J1145 08	05B	62103
	J1303 08		60500						
N002P0V	*J1204 08	04A	62302	J1301 13		60103			
N002R1U	*J1208 38	18A	62301	J1206 23	11B	62302	J1207 39	18B	62301
N002R2U	*J1208 40	19A	62301	J1206 18	10A	62302	J1207 41	19B	62301
N002R3U	*J1208 42	20A	62301	J1206 11	05B	62302	J1207 43	22B	62301
N002R4U	*J1208 46	21A	62301	J1206 04	04A	62302	J1207 45	23B	62301
N003C0	*J1146 21	10B	62103	J1144 23	11B	62103	J1145 17	09B	62103
	J1304 08		60500						
N003P0V	*J1204 03	03A	62302	J1301 12		60103			
N003R2U	*J1209 40	19A	62301	J1126 77	38B	61602	J1206 54	25A	62303
	J1207 57	20B	62301						
N003R3U	*J1209 42	20A	62301	J1126 68	32A	61602	J1206 29	14B	62302
	J1207 59	30B	62301						
N003R4U	*J1209 46	21A	62301	J1126 54	25A	61602	J1206 40	19A	62302
	J1208 39	18B	62301						
N004C0	*J1146 27	13B	62103	J1144 25	12B	62103	J1145 26	11A	62103
	J1305 08		60500						
N004P0V	*J1204 01	02B	62302	J1301 06		60103			
N004R2U	*J1207 56	28B	62301	J1126 71	36A	61602	J1206 48	22A	62303
	J1209 41	19B	62301						
N004R3U	*J1207 60	28A	62301	J1126 62	29A	61602	J1206 35	17B	62302
	J1209 43	22B	62301						

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
N004R4U	*J1207 62	29A	62301	J1126 48	22A	61602	J1206 34	16A	62302
	J1209 45	23B	62301						
N005C0	*J1146 52	24A	62103	J1144 29	13B	62103	J1145 29	15B	62103
	J1307 08		60500						
N005P0V	*J1204 07	04B	62301	J1301 24		60103			
N005R1U	*J1208 54	26A	62301	J1206 77	38B	62303	J1209 55	27B	62301
N006R2U	*J1208 56	28B	62301	J1206 53	28B	62303	J1209 57	29B	62301
N005R3U	*J1208 60	28A	62301	J1206 68	32A	62303	J1209 59	30B	62301
N000R4U	*J1208 62	29A	62301	J1206 41	22B	62303	J1207 53	26B	62301
N006C0	*J1146 46	21A	62103	J1144 31	14B	62103	J1145 33	17A	62103
	J1308 08		60500						
N006P0V	*J1204 10	06B	62302	J1301 30		60103			
N006R1U	*J1209 54	26A	62301	J1206 71	36A	62303	J1208 53	26B	62301
N006R2U	*J1209 56	28B	62301	J1206 59	31B	62301	J1208 55	27B	62301
N006R3U	*J1209 60	28A	62301	J1206 62	29A	62303	J1208 57	29B	62301
N006R4U	*J1209 62	29A	62301	J1206 47	25B	62303	J1208 59	30B	62301
N007C0	*J1146 46	24B	62103	J1144 34	15B	62103	J1145 46	22A	62103
	J1310 08		60500						
N007P0V	*J1204 24	13A	62302	J1301 31		60103			
N007R4U	*J1207 76	37A	62301	J1206 65	34B	62303	J1209 53	26B	62301
N008C0	*J1146 51	27B	62103	J1144 33	16A	62103	J1145 50	23A	62103
	J1311 08		60500						
N008P0V	*J1204 25	11A	62302	J1301 25		60103			
N008R4U	*J1208 76	37A	62301	J1206 76	37A	62303	J1207 77	36B	62301
N009C0	*J1146 57	30B	62103	J1144 57	29B	62103	J1145 55	29B	62X03
	J1409 08		60500						
N009P0V	*J1204 18	09A	62302	J1301 45		60103			
N010C0	*J1146 63	33B	62103	J1144 59	30B	62103	J1145 59	29A	62103
	J1410 08		60500						
N010P0V	*J1204 14	08B	62302	J1301 52		60103			
N011P0V	*J1204 19	10B	P2302	J1301 53		60103			
N012P0V	*J1204 26	12B	62302	J1301 47		60103			
N013P0V	*J1204 40	19A	62303	J1301 65		60103			
N014P0V	*J1204 37	17A	62303	J1301 72		60103			
N017P0V	*J1204 34	15A	62303	J1302 56		60500			
N018P0V	*J1204 30	14B	62303	J1303 56		60500			
N019P0V	*J1204 31	16B	62303	J1304 56		60500			
N020P0V	*J1204 42	18B	62303	J1305 56		60500			
N021P0V	*J1204 54	25A	62303	J1307 56		60500			
N022P0V	*J1204 49	23A	62303	J1308 56		60500			
N023P0V	*J1204 48	21A	62303	J1310 56		60500			
N024P0V	*J1204 46	22B	62303	J1311 56		60500			
N025P0V	*J1204 43	24B	62303	J1409 56		60500			
N026P0V	*J1204 53	26B	62303	J1410 56		60500			
N16MHA	J1121 52	24A	62802	J1250 76	37A	62802	J1322 42		
N16MZA	*J1318 03		62601						
N1600A	J1302 37		60500	J1303 37		60500	J1304 37		60500
	J1305 37		60500	J1307 37		60500	J1308 37		60500
	J1310 37		60500	J1311 37		60500	*J1316 01		62802
	J1332 37		60301	J1333 37		60301	J1337 37		60301
	J1339 37		60302	J1401 37		60101	J1402 37		60101
	J1405 37		60101	J1406 37		60102	J1409 37		60500
	J1410 37		60500	J1411 37		60703	J1412 37		60702
	J1414 34		60600	J1416 34		60600	J1417 37	60202	

Table 6-4. Voice Communications Central Key Signal Lookup- Continued

Signal	Distribution								
N1600A	J1418 37		60202	J1421 37		60202	J1422 37		60202
	J1424 37		60202	J1425 37		60201	J1428 37		60201
	J1429 37		60201	J1430 37		60302	J1431 37		60302
	J1435 37		60302	J1436 37		60302	J1501 37		60102
	J1502 37		60102	J1605 37		60102	J1507 37		60102
N1600B	J1301 74		60104	J1316 10		62802	J1331 74		60204
	J1334 74		60304						
N5000	J1313 75		62703	*J1316 80		62802			
SPI001	*J1124 36								
SPI002	*J1124 38								
SPI003	*J1124 23								
SP1004	*J1124 25								
SPI005	*J1124 29								
SPI006	*J1124 42								
SPI007	*J1124 46								
SPI008	*J1124 35								
SPI009	*J1124 37								
SPI010	*J1124 39								
SPI011	*J1124 52								
SPI012	*J1124 48								
SPI013	*J1124 47								
SPI014	*J1124 19								
SPI015	*J1124 41								
SPI016	*J1124 62								
SPI017	*J1322 45								
SPI018	*J1322 46								
SPI019	*J1322 47								
SPI020	*J1322 78								
SPI021	*J1124 05								
SPI022	*J1124 08								
SPI023	*J1124 10								
SPI024	*J1124 17								
SPI025	*J1124 45								
WLAMPA6	J01 30		63402	J02 30		63402	J1160 03		62801
	J1160 04		62801	J1160 21		62801	J1160 22		62801
	J116049		62801	J116050		62801	J1160 69		62801
	J1160 70		62801	J1338 53		62801			
WLSH101	J1104 21	11B	62803	J1123 61		62803	J1316 78		62804
	*J1338 60		62803						
WLSH201	J1104 27	13B	62803	J1123 63		62803	J1316 79		62804
	*J1338 59		62803						
WLSH401	J110438	20A	62803	J112366		62803	J1316 73		62804
	*J1338 58		62803						
WLSH801	J1104 35	18A	62803	J1123 66		62803	J1316 76		62804
	*J1338 57		62803						
WLSU201	J110405	03B	62803	J1123 76		62803	J1316 07		62804
	*J1338 67		62803						
WLSU401	J1104 09	05B	62803	J1123 77		62803	J1316 04		62804
	*J1338 66		62803						
WMSTR0	J1209 66	32B	62702						

Section III. VOICE COMMUNICATIONS CENTRAL

6-8. General. The voice communications central contains the analog and digital elements required to provide communications between up to 10 voice communications stations (VCS's) and the net subscriber, local comm and intercomm links. Figure 6-5 illustrates the VCC system interface.

a. The baseline configuration accommodates the communications requirements for four VCS's. Each VCS can access up to 60 external net subscribers. There are five lines to a local comm section and a six-line intercom for operator to operator communications within the consolidated area around the system such as the generator, guard posts, and command posts. The VCS is the operator's interface with the communications system and may be located within the shelter as a wall-mounted voice comm station or as a part of a display console. The system is partitioned so that it can be expanded from four to 10 VCS's. Additional net subscribers can be increased from 60 to 96 by the addition of printed circuit cards for which connectors and wiring are included in the baseline configuration.

b. External audio lines enter the shelter via the communications demarcation panel. Connectors J1 through J32 each contain four audio circuits. Each circuit is a four-wire (duplex) circuit. Three of the circuits are voice and one circuit is data. Only the three voice circuits are utilized by the VCC.

c. Connectors J34 and J35 contain five voice lines for use with local comm functions. These circuits normally interface to a switchboard at the local comm facility and have multiple uses. Terminals El through E16 handle the external two-wire intercom circuits. Up to eight field phones or four equivalent two-wire loads can be tied on the terminals. The external inputs are wired from the communications demarcation panel to the patch panel.

d. At the VCC, two connectors, each containing sixteen 4-wire circuits, are provided for each of the three nets (operational-control J3 and J4; maintenance-Test J5 and J6, and command-administration J7 and J8). A seventh connector (J11) contains the five 4-wire local comm lines, and four lines for external two-wire intercom subscribers.

e. There are 101 four-wire lines terminating at the VCC; additionally there are four 2-wire external subscriber lines. The four-wire lines of each net are numbered 1 through 32 to correspond with the numbering of the connector on the communications demarcation panel on which they enter and leave the shelter. These numbers serve as subscriber's addresses and are subsequently used in operator dialing procedures to gain access to selected lines. For example, connector J7 on the communications demarcation panel contains the line 7 audio of each net, and 07 is the number dialed by an operator ringing line 7 on a selected net.

f. Three connectors have been provided on the VCC for VCS interfaces. One is dedicated to each wall station and the third is for the console mounted stations. Connectors J9 and J10 provide the audio and control signals for each of the wall mounted stations. Each cable consists of 44 wires as follows:

(1) Headset Audio-10 shielded twisted pairs

(2) Microphone Audio-10 shielded twisted pairs

(3) Multiplex Controls-One shielded twisted pair

(4) Multiplex Timing and Sync-One shielded twisted pair

g. Connector J2 supplies the audio and control signals to the console mounted stations and are designated as for the wall mounted stations. These lines are daisy-chained in the consoles to reduce the cable bulk. Additional consoles with VCS may be externally remoted up to 150 meters by connecting P1 of cable W186 to J2 on console A6.

6-9. Net Communication. Referring to figure 6-6, each VCS is provided control for each of the three nets: CA, OC and MN. An operator may place up to 12 of the available 20 subscribers on a single net. If over 12 are used, there is some loss in the ring capability. This capability shall be independently provided to each station operator for each of the three nets. Communication on any configured net shall be controlled by the station operator such that the net must be activated by the VCS before communications occur. Once activated, the line may be used by any subscriber to that net to talk with the station operator. All subscribers connected by the station operator to the net are able to hear both sides of the conversation. In order to communicate, any one subscriber must be connected to at least one operator. One subscriber can also be connected to more than one operator. Missile batteries undergo an additional level of subnetting. Connections are made in groups of four (e.g., batteries 9, 10, 11 and 12 are netted when any one of the four is placed on a single net). A two-digit address for each subscriber is determined by the subscriber connection to the communications demarcation panel, providing no patching is made at the communications patching panel. For example, connector J7 on the communications demarcation panel contains the line 7 audio of each net, and 07 is the number dialed by an operator connecting to line 7 on a selected net. A net is active for communication purposes only when the VCS operator is on the net. Upon terminating a call, either by depressing the net switch indicator of the just-completed call or answering a call on another net, the net subscriber will be disconnected until another input or output call.

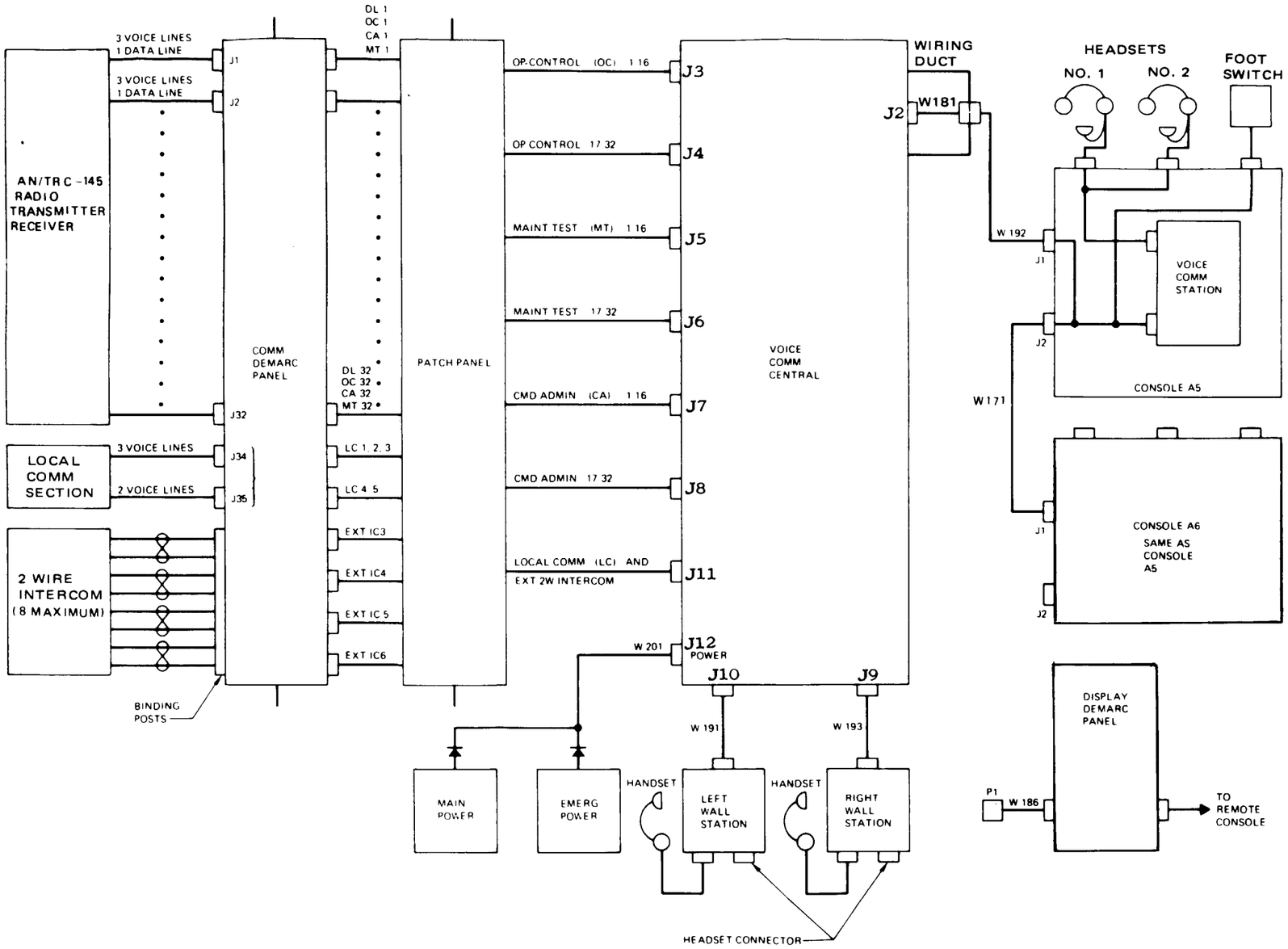


Figure 6-5. VCC System Interface

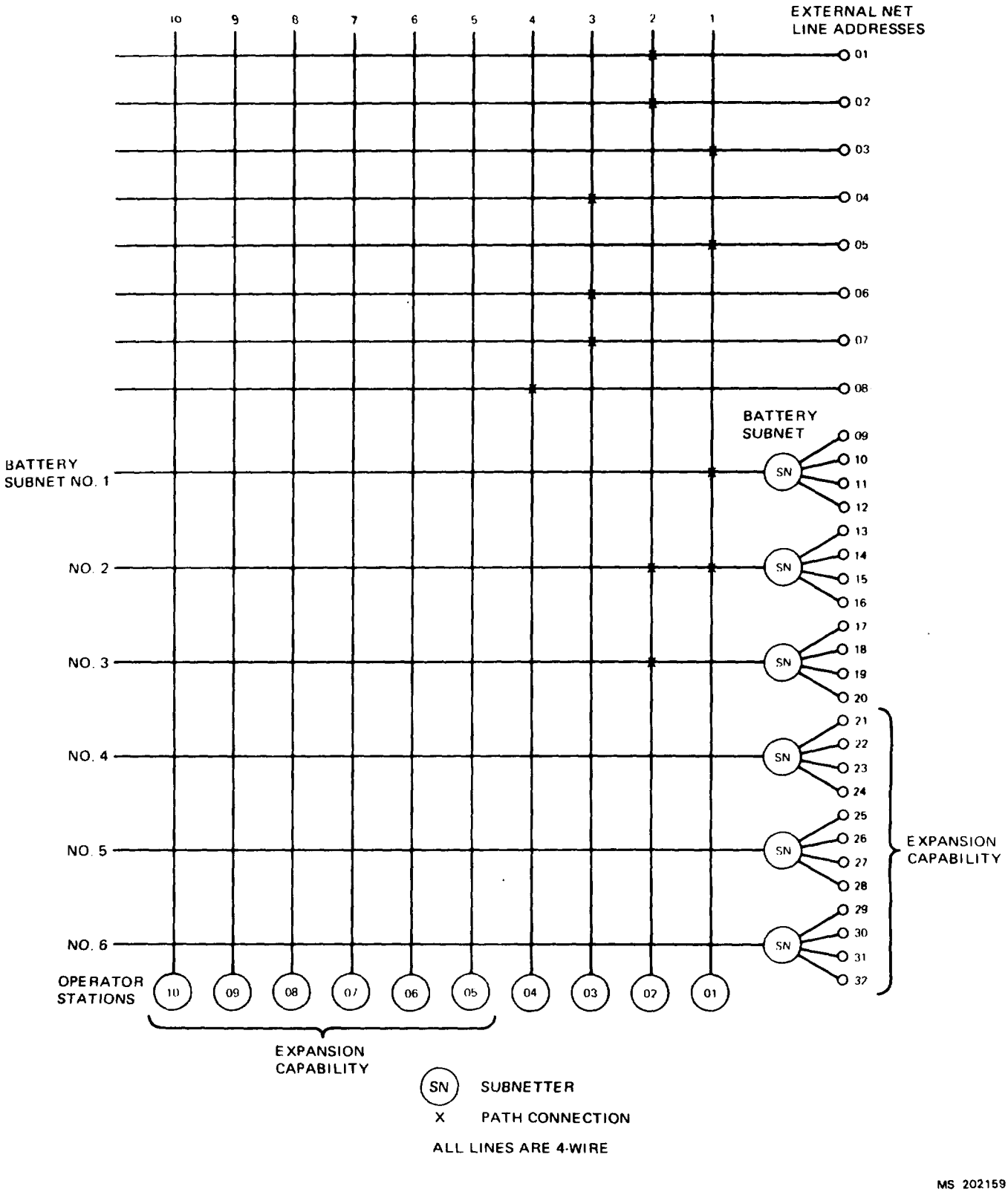


Figure 6-6. Net Communication

6-10. Intercom Communications. Referring to figure 6-7, a six-line intercom is provided among the station operators. Intercom lines 1 and 2 are routed only to operator stations. The remaining four intercom lines (36) are for external two-wire field phones. Two phones may be connected to each of the lines. A selective signaling feature is provided for all lines as follows: for internal calls, choose either line 1 or 2, dial station address 1-10 and ring. For external calls, choose line 3 thru 6, dial 32 and ring. To ring connected subscribers, choose any intercom, depress keyboard clear and ring.

6-11. Local Comm Communication. Referring to figure 6-8, five lines are provided from the shelter to the local section. The lines are supplied to all voice communications stations. Any call-in will appear at all stations and any operator can acknowledge the call by depressing the blinking indicator. Whenever the wrong operator answers the call-in, that operator can contact the intended receiver of the call via an intercom line.

6-12. Net A and B Communications. The A and B nets are shared by all operators and provide the capability for a private conversation on a netted line. The audio of a selected CA subscriber or subscribers can be transferred over to either A or B line for a private conversation. Use of either A or B lines by an operator inactivates the operator's CA party line. At the termination of the call, the subscriber's audio is automatically returned to its subnet within the CA net.

6-13. Multiplexing Techniques. Multiplexing involves the transmission of a number of intelligible signals on the same lines during the same period of time normally required for the transmission of a single signal. Either of two methods of multiplexing may be used: time-division or frequency-division multiplexing. The VCC uses the time division method (TDM). In order to achieve high fidelity when communicating with AM voice and tone signals, it is necessary to transmit and receive the full 360° of each sine wave.

a. An audio signal may be transmitted and received satisfactorily by periodically sampling the signal. Although there is no limit to the maximum number of samples, 2.5 cycles of audio will give satisfactory results. This concept of sampling forms the basis for time division multiplexing (TDM) operation. Figure 6-9 illustrates a simplified form of TDM showing four different audio sine waves starting at the same time. The sine waves vary in frequency and amplitude. Figure 6-10 illustrates time division multiplexing by a rotating switch that turns fast enough to sample each sine wave at least the required 2.5 times. The minimum sample rate can then be determined by multiplying the frequency by 2.5.

b. Referring to figure 6-11, assume that a 2-KHz tone is the highest frequency applied to each of the six channels in the transmitter. Assume also that the rotating switch turns fast enough to sample, in turn, each of 6-78 the six channels 2.5 times during each cycle of the 2 KHz tone. The speed of rotation of the switch must then be 2.5 x 2,000, or 5,000 revolutions per second.

c. As the transmitter and receiver switches are synchronized, the signal will be fed in the proper sequence to the receiver channels. The transmitted samples from transmitter channel 1 will be fed to receiver channel 1. Thus, in the time-division method of multiplexing, many channels of audio are combined (with time spacing between the components of the separate channels) to form a single multiplexed chain. Each demultiplexing receiver selects only the information pertaining to its particular channel.

d. In an actual transmission, segments from the waveforms in all of the channels are electronically interspaced with each other on a time-sharing basis. As the number of channels increases, the sampling rate is increased (for example, 28,000 CPS for 24 channels as opposed to 7,200 CPS for 6 channels). In addition, the width of each segment is proportionately decreased.

e. A standard circuit is used in the VCS and VCC to multiplex and demultiplex the audio signals. Figure 6-12 illustrates the transmit circuit multiplexer. This circuit is an analog switch consisting of a differential amplifier with a constant current generator in the circuit used as the signal input.

f. A logic gate controls the on-off status 'of the switch by providing a logic level low to Q2, one of the differential amplifier transistors, to turn the Q1 switch on, or a logic level high to turn the Q1 switch off. When Q2 is on, +10V is applied to the emitter of Q1; when Q2 is off -10V is applied to the emitter of Q1. When Q2 is conducting, the audio input is blocked from the multiplexed output bus. When the MUX pulse is received, Q2 is cut off and Q1 is allowed to conduct for the time duration of the pulse, allowing a sample of the audio signal to pass onto the common bus. All multiplexed collector outputs within a comm net are connected to this common bus. The audio input are sampled at different times so that the different audio signals on the common bus do not interfere with each other.

g. Demultiplex circuits are contained on several cards used in the VCC analog circuits. The demultiplexer circuit is shown in figure 6-13 and is an analog switch similar to the muliplexer circuit. In the demultiplexer the transistor base inputs are all connected to the common multiplexed audio bus.

h. The demultiplexer circuit operates in the same manner as the multiplexer circuit. When a logic level low is applied to the input gate, Q5 conducts and the input multiplexed audio is blocked. When the demultiplexer time slot pulse is received, transistor Q5 is cut off and Q4 conducts, passing a sample of the audio in that time slot to the sampled audio output bus.

i. The VCC multiplex sample rate is 35.6 KHz. This is a much higher sampling frequency than necessary, and permits many more samples to be taken on each audio sine wave. Figure 6-14 shows an idealized 1500 Hz audio signal and the amount of sampling that would take place. The 1500 Hz sine wave time interval is 0.667 msec. At 35.6 KHz, the audio is sampled every 28 µsec. Thus, approximately 23 samples of audio are taken for each sine wave. This rate of sampling provides increased fidelity and a high accuracy of reproduction of the original audio signal.

j. Each subscriber on a net is assigned a fixed time slot in which there is a sample of the transmitted audio placed on the common bus. Any other subscriber on the same net can hear the audio if connected to the net. The received sampled audio is reconstructed by a low pass filter and amplifier. The TDM technique is particularly well suited to the party line and netting functions of the VCC. Party lining is achieved by permitting all members of the party line to close their receive switches during each member's time slot. The resulting samples are reconstructed and a signal equivalent of the original audio is transmitted.

k. Thirty-two time slots are used in each sample of audio (see figure 6-15). As previously noted, each sample requires 28 microseconds; therefore, each time slot is 875 nanoseconds. All net, local comm, intercom and special net line audio switching is contained on nine analog cards referred to as time division switches. Each time division switch contains 16 send and 16 receive switches.

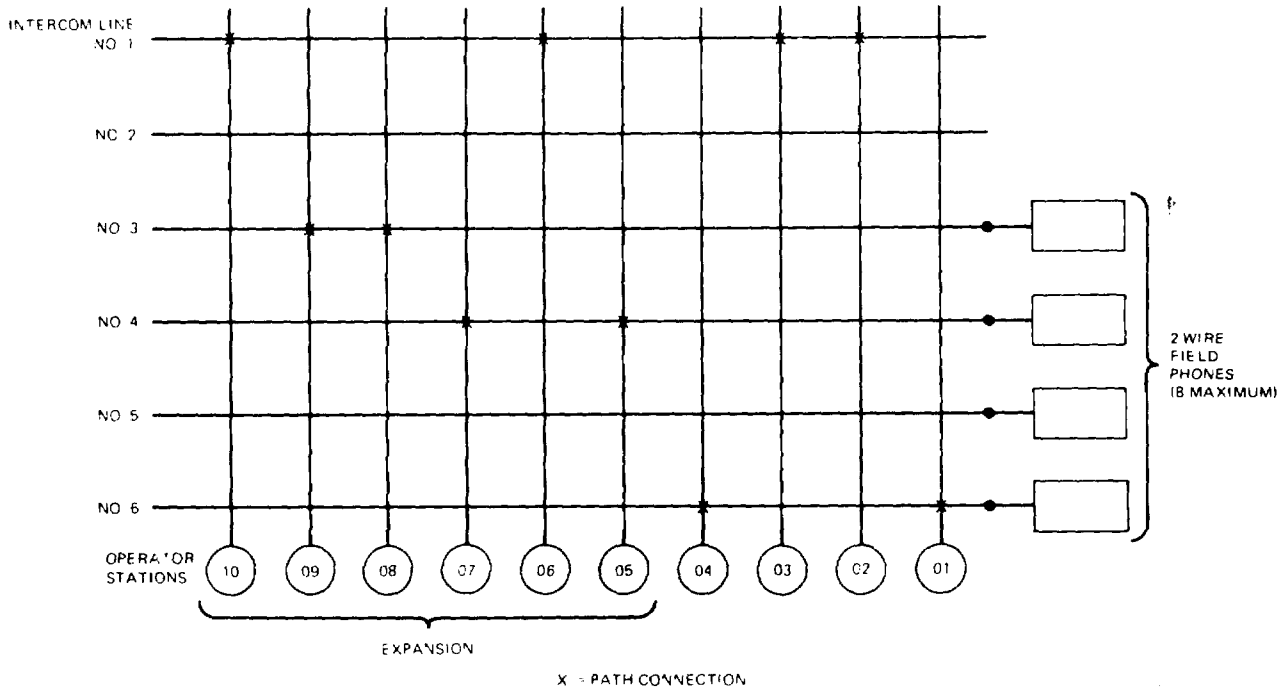


Figure 6- 7 Intercom Communication

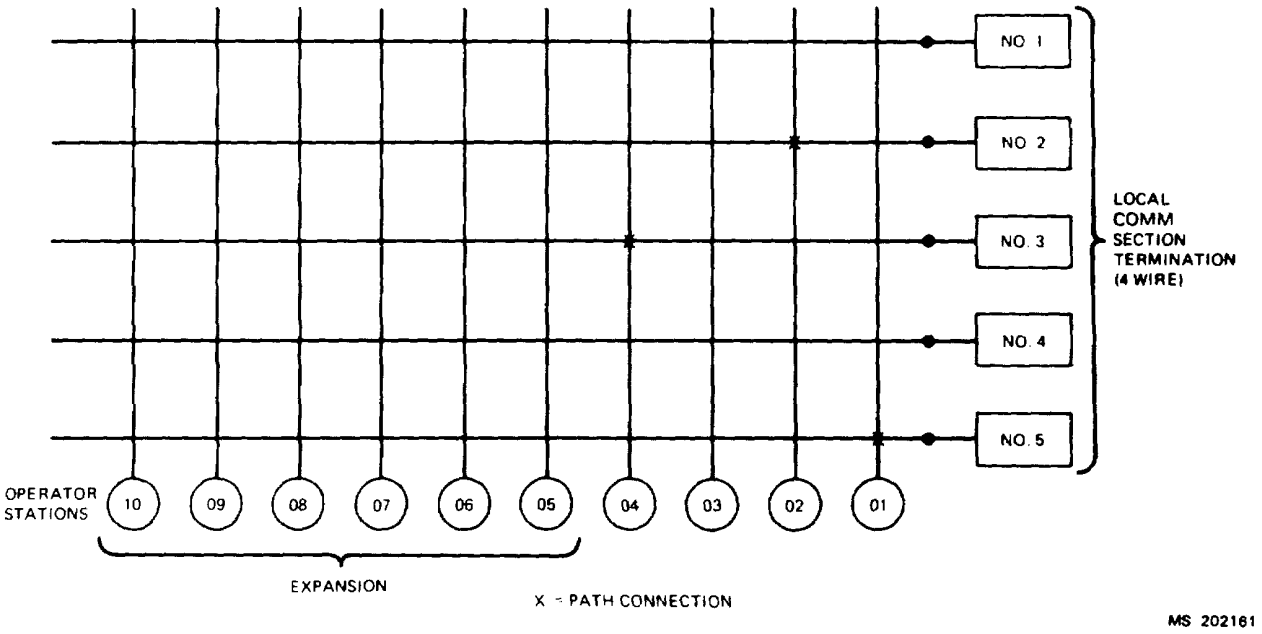


Figure 6-8. Local Comm Communication

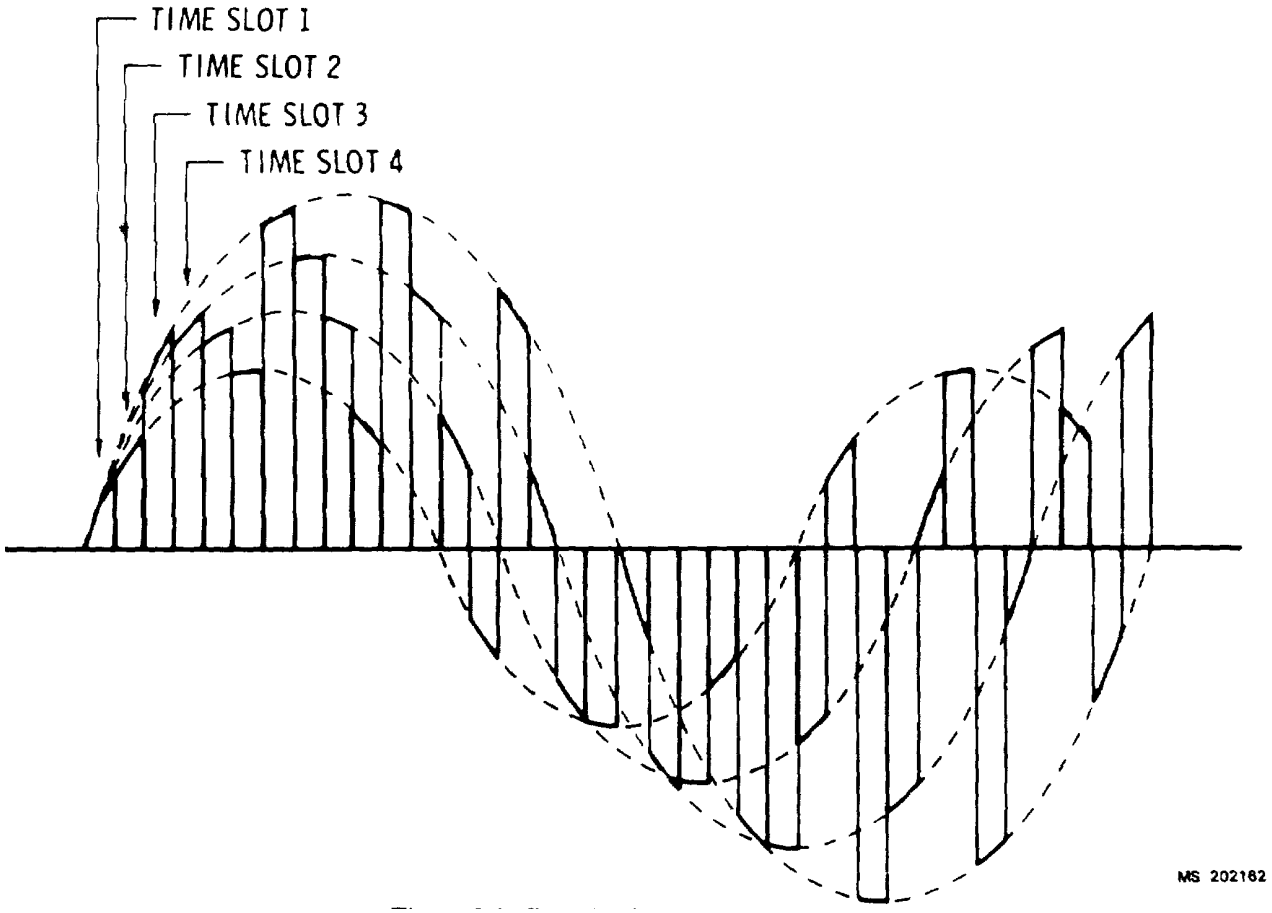


Figure 6-9. Sampled Multiplexed Audio

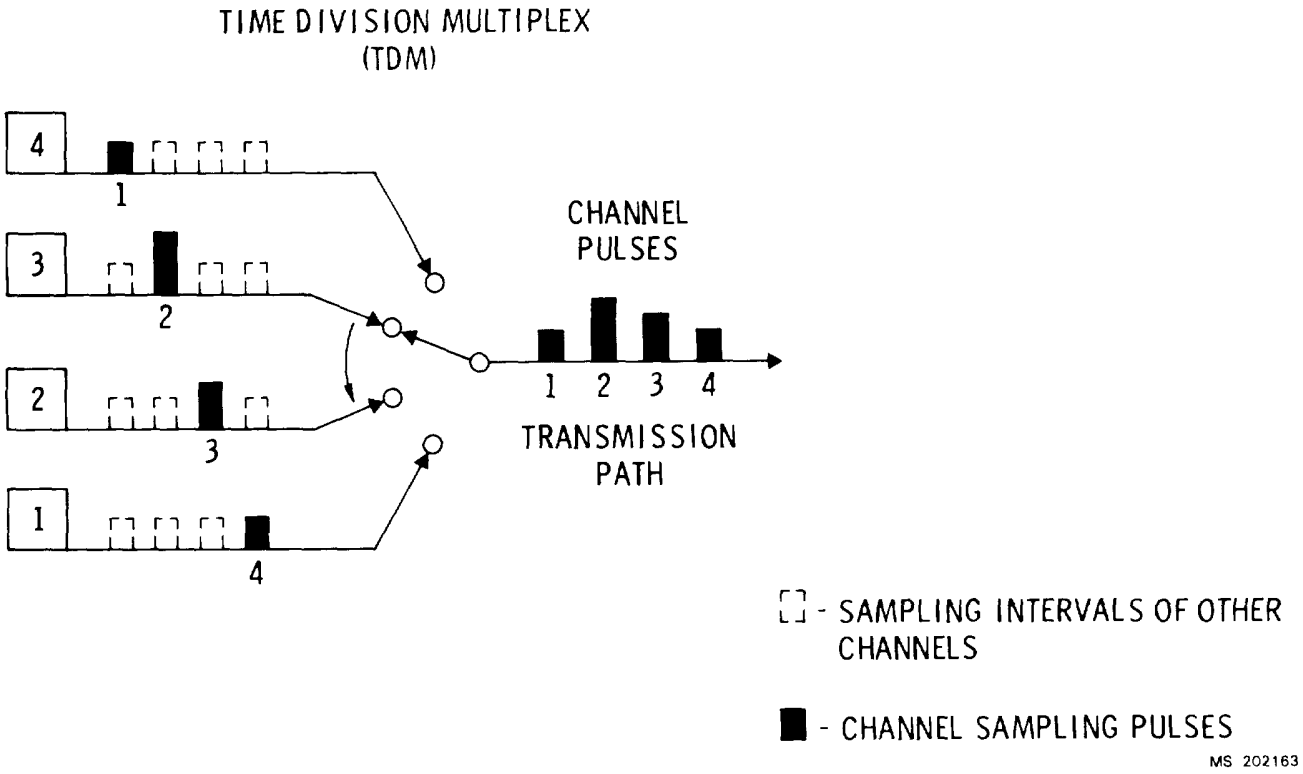


Figure 6-10. Time Division Multiplex Switch

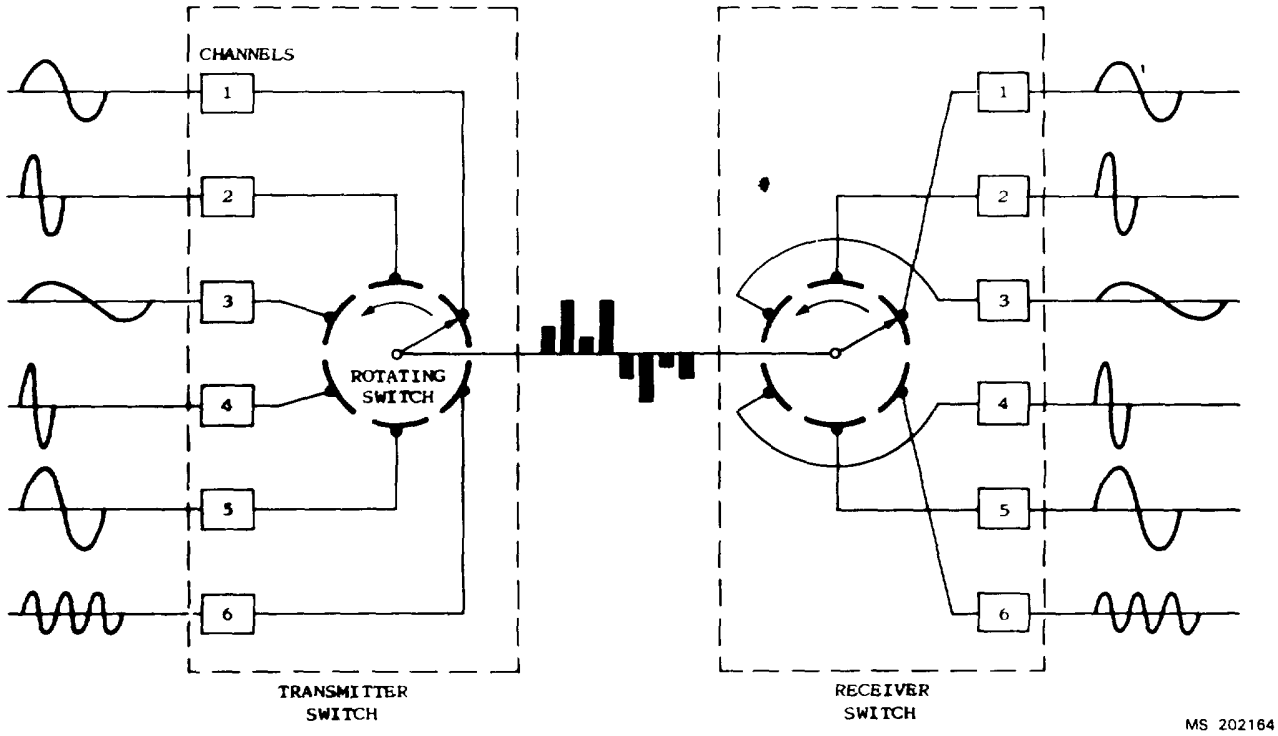
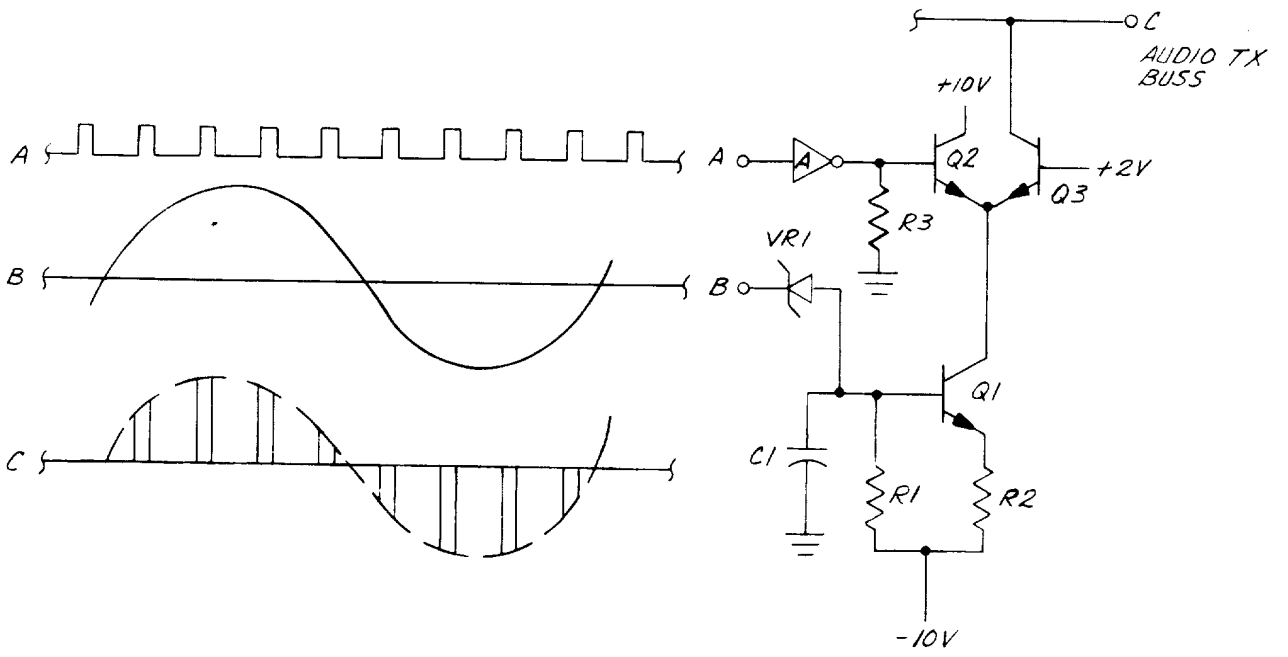


Figure 6-11. Six-Channel TDM Transmit and Receive Switches



A - MPX PULSES FOR SELECTED TIME SLOT

B - AUDIO INPUT

C - TRANSMITTED MPX AUDIO SEGMENT

MS 202165

Figure 6-12. Transmit Circuit Multiplexer

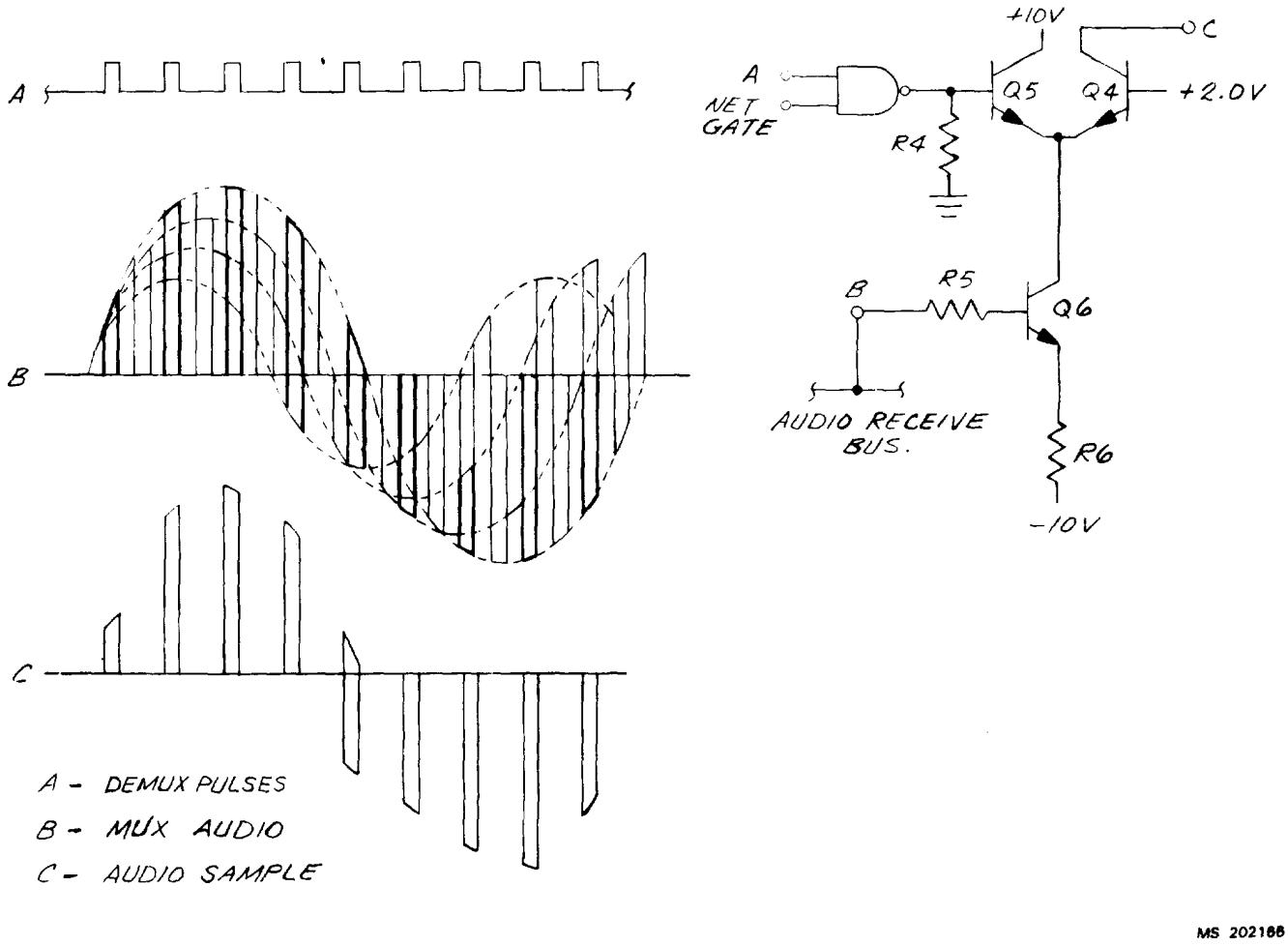
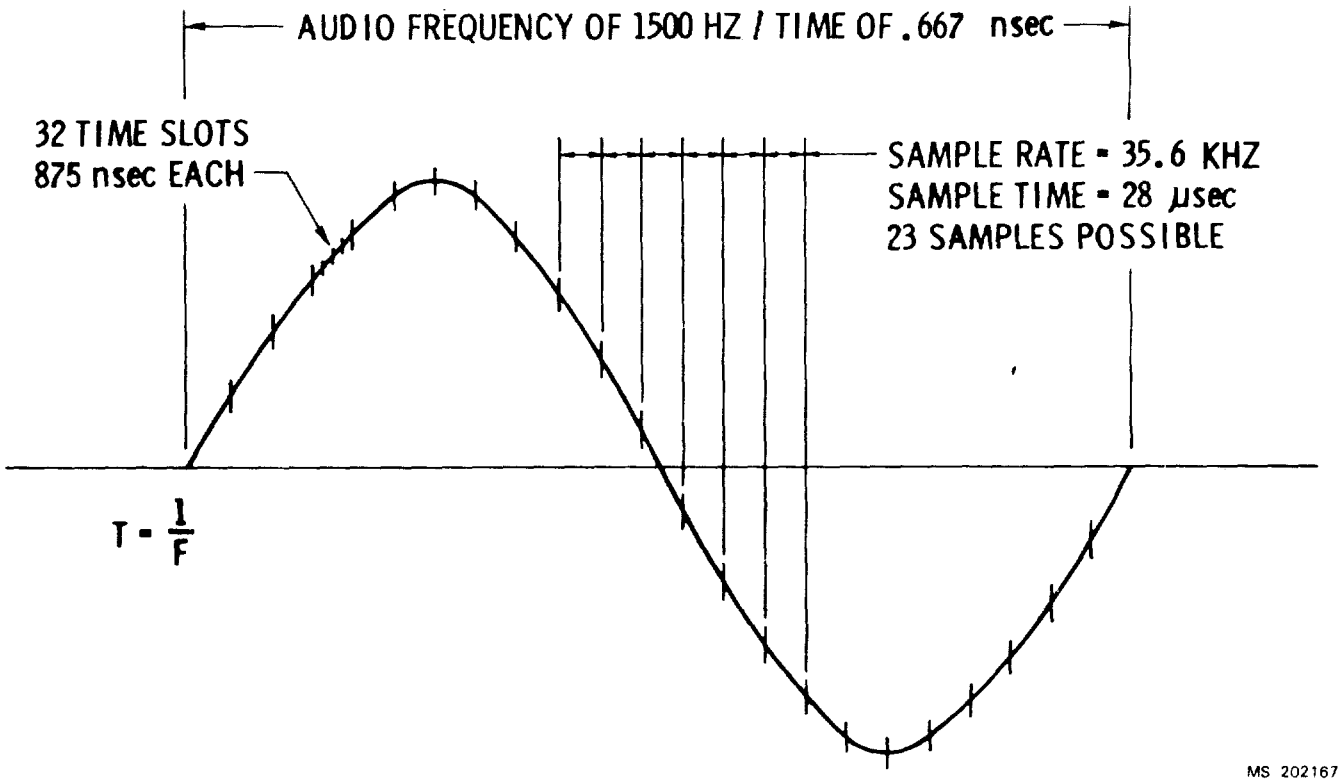


Figure 6-13. Receive Circuit Demultiplexer



MS 202167

TRANSMIT TIME SLOTS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
A NET	407 L	SAFOC	RR NO.1	RR NO.2	GRP	ADJ BN	ADJ BN	OP	BAT A1	BAT A2	BAT A3	BAT A4	BAT B1	BAT B2	BAT B3	BAT B4	BAT C1	BAT C2	BAT C3	BAT C4	BAT D1	BAT D2	BAT D3	BAT D4	BAT E1	BAT E2	BAT E3	BAT E4	BAT F1	BAT F2	BAT F3	BAT F4
B NET	407 L	SAFOC	RR NO.1	RR NO.2	GRP	ADJ BN	ADJ BN	OP	BAT A1	BAT A2	BAT A3	BAT A4	BAT B1	BAT B2	BAT B3	BAT B4	BAT C1	BAT C2	BAT C3	BAT C4	BAT D1	BAT D2	BAT D3	BAT D4	BAT E1	BAT E2	BAT E3	BAT E4	BAT F1	BAT F2	BAT F3	BAT F4
COMMAND ADMINISTRATION NET	407 L	SAFOC	RR NO.1	RR NO.2	GRP	ADJ BN	ADJ BN	SPARE	BN A	BN B	BN C	BN D	BN E	BN F		1800 HZ	OP 1	OP 2	OP 3	OP 4	OP 5	OP 6	OP 7	OP 8	OP 9	OP 10						
OPERATIONS CONTROL NET	407 L	SAFOC	RR NO.1	RR NO.2	GRP	ADJ BN	ADJ BN	SPARE	BN A	BN B	BN C	BN D	BN E	BN F		1800 HZ	OP 1	OP 2	OP 3	OP 4	OP 5	OP 6	OP 7	OP 8	OP 9	OP 10						
MAINTENANCE TEST NET		SAFOC	RR NO.1	RR NO.2	GRP	ADJ BN	ADJ BN	SPARE	BN A	BN B	BN C	BN D	BN E	BN F		1800 HZ	OP 1	OP 2	OP 3	OP 4	OP 5	OP 6	OP 7	OP 8	OP 9	OP 10						
INTERCOM											IC EX1	IC EX2	IC EX3	IC EX4			OP 1	OP 2	OP 3	OP 4	OP 5	OP 6	OP 7	OP 8	OP 9	OP 10						
LOCAL COMM	OP 1	OP 2	OP 3	OP 4	OP 5	OP 6	OP 7	OP 8	OP 9	OP 10																	LC EX1	LC EX2	LC EX3	LC EX4	LC EX5	
TYPICAL RECEIVE TIMING FOR ALL NETS																																
TRANSMIT TIME SLOTS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

875 NANOSECONDS

28 MICROSECONDS

MS 202168

Figure 6-15. Audio Time Slots

6-14. Analog Card Descriptions. The following paragraphs provide a functional description of the analog cards utilized in the VCC to process audio data. These cards are the:

Net ring detector-operator
Time division switch
Battery sub-netter
Four-wire line
Two-wire line

a. *Net Ring Detector/Operator (fig. 6-16).* The net ring detector-operator card routes the selected audio between the VCC and the VCS. This card also provides a switching interface from the station operator to each of the nets. The net ring detector/operator card consists of a receive channel, and time division switches to switch the various net input and output audio signals. This card also provides a connection between the transmit and receive channels (not shown) which provides sidetone feedback in the headset external to the card.

(1) There is one net ring detector/operator card for each VCS in the system. The selected audio is routed to the VCS by this card. In addition to providing an interface to the VCC switching circuits, this card also contains ring detectors (not shown on illustration). The detectors are integrated circuit tone decoders which monitor only those subscriber lines selected by the respective operators for their party line. Its function is to drive a front panel indicator whenever a sustained ring is within its detection band. A 1600 Hz tone, of at least -20 dbm, appearing on any of the monitored receive lines is automatically detected by the tone decoder which then outputs a logic signal. This signal is subsequently transmitted to the operator on the control signal multiplexer and is used with an analog ring switch to sound an alarm and/or flash a light associated with the net line on which the ring appeared.

(2) Audio enters the card through the input filter amplifier. The input filter network provides audio feedback to the operator and then passes amplified audio to the receive common bus. The audio passes through the current-to-voltage converter (CVC) to the transmit bus. Audio on the transmit bus can go only to the TDS that has been activated at the BCS. During net operations the audio passes through one TDS on the card, and is multiplexed onto a time slot assigned to that VCS (17-26). During intercom and local comm operations the audio passes directly to the net time division switch and enters on time slots 17-26 for intercom or time slots 1-10 for local comm.

(3) Multiplexed receive signals are received through one of five net time division switches. Only one

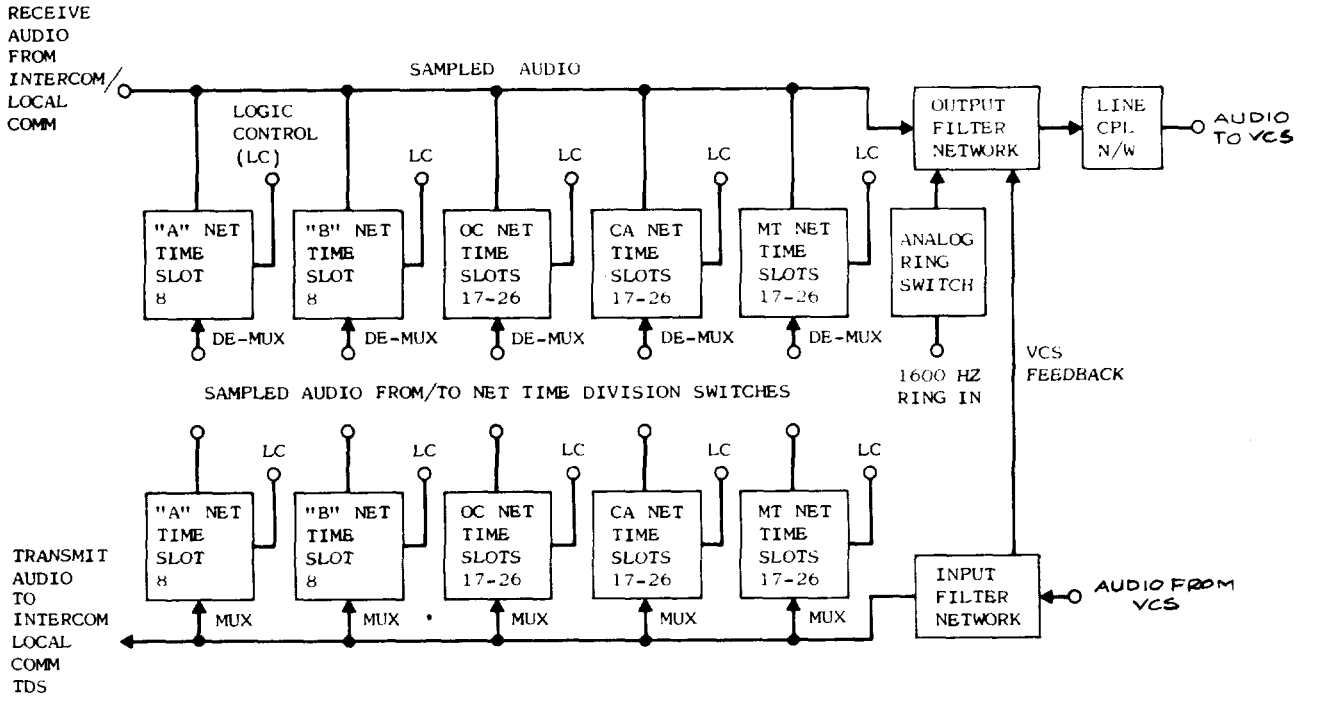


Figure 6-16. Net Ring Detector/Operator Card Block

switch can be active at one time. The TDS demultiplexes all signals from the net that are connected to the VCS. This places sampled audio onto the receive bus. The sampled audio passes through the current-to-voltage converter (CVC) and then to the output-filter amplifier (OFA). The OFA reconstructs the original audio signal and amplifies it before passing it to the VCS.

b. *Time Division Switch Card fig. 6-17).* The time division switch provides audio connections between the various users in a comm net by multiplexing an audio channel signal on the output line during that channel's assigned time. The other function is to demultiplex a selected signal from the common data bus. The audio switching necessary to configure operator party lines on each net is accomplished by the solid state matrix associated with each net. Similar matrices are used for the local comm and intercomm functions.

(1) Multiplexed transmit signals are received from the net ring detector card onto a common bus. The signals pass through a current-to-voltage converter where selected signals are demultiplexed by time division switches. The sampled audio outputs pass to the selected output lines through battery subnet cards, four-wire line interface cards, and two-wire line interface cards. The signals are reconstructed to their original sine waves by the line interface cards.

(2) Audio is received into the cards' separate time division switches depending on the address being used. The audio is multiplexed onto the common bus. The multiplexed audio passes through the current-to-voltage converter onto another bus that goes to the net ring detector card. The net ring detector card demultiplexes the signals. The other time division switches on the bus also demultiplex the signal and cause it to be retransmitted to all subscribers connected to the net.

c. *Battery Subnet Card (fig. 6-18).* The battery subnet card provides connections between the fire units of a battalion. This card permits the audio directed to one fire unit to be heard at all battalion fire units. This card also permits retransmission of audio coming in from battalion fire units to all battalion fire units. Each card is designed to accommodate switches for two battalions (eight fire units). Since both halves of the card operate identically, only one-half is discussed.

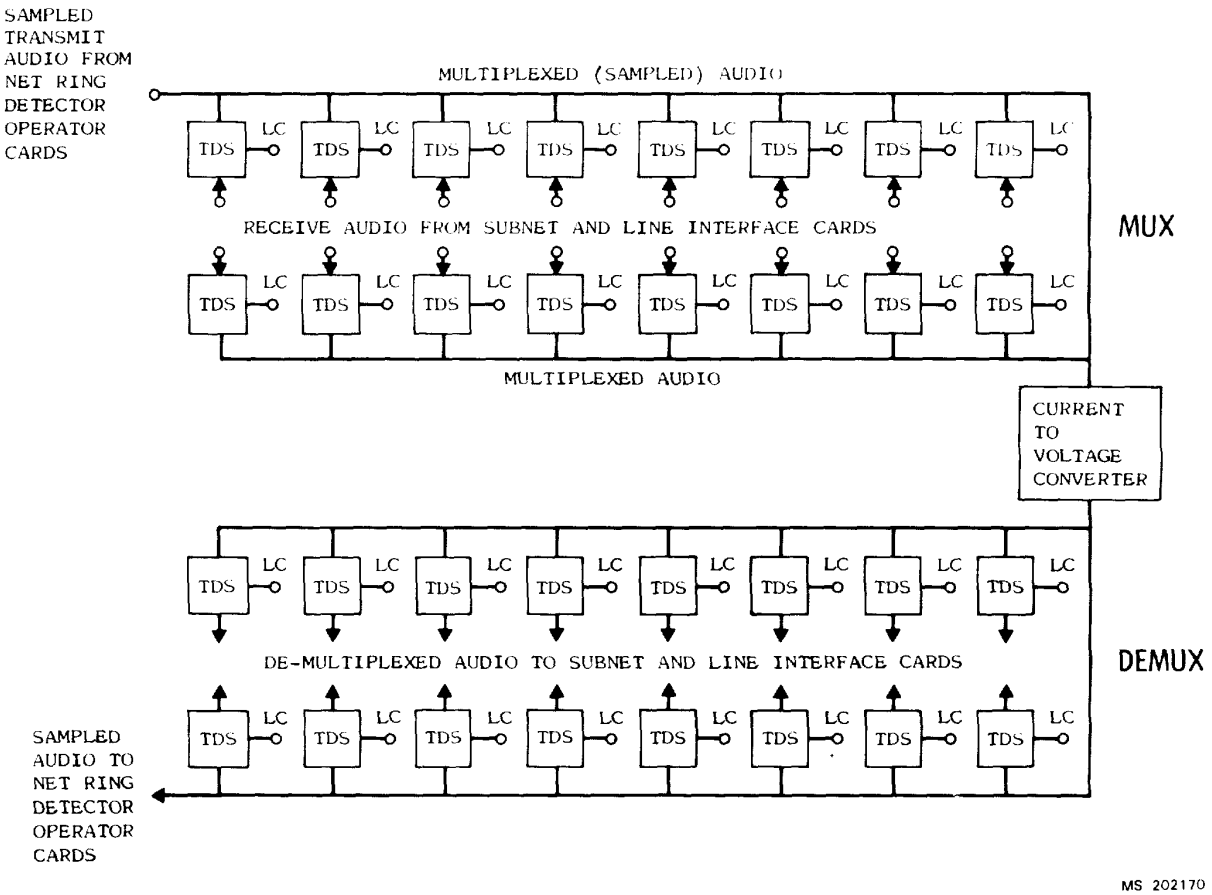


Figure 6-17. Time Division Switch Card Block

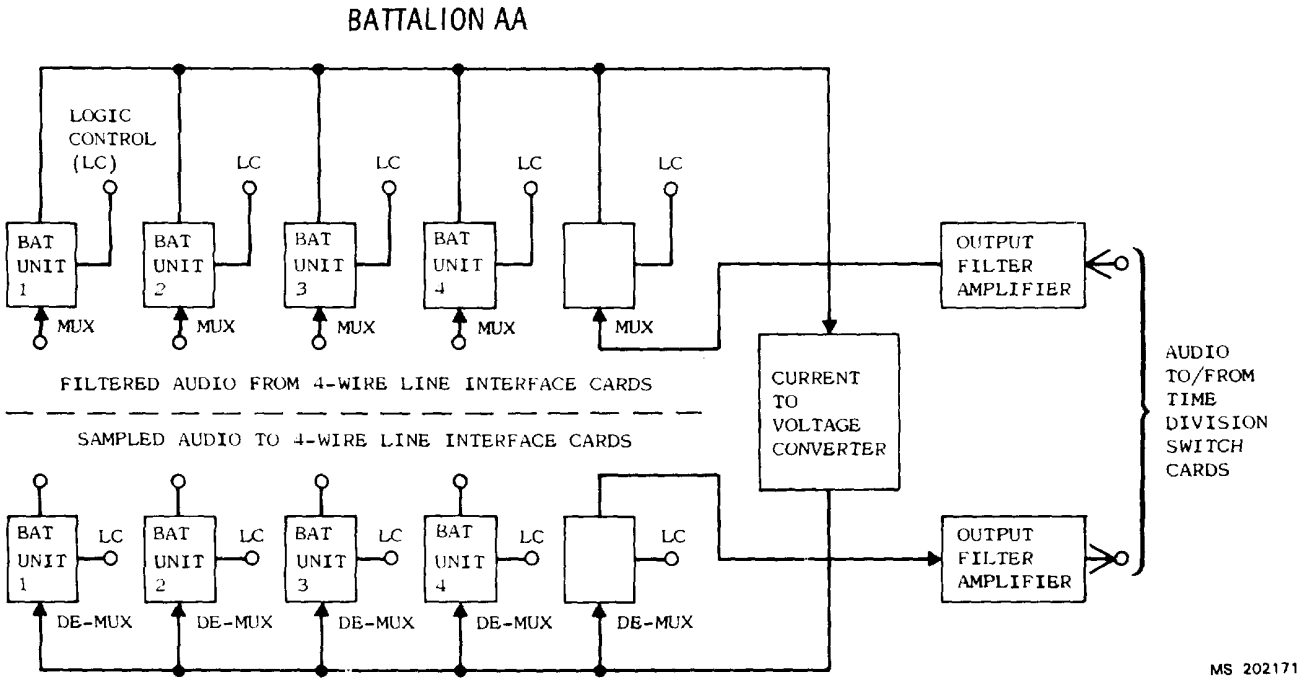


Figure 6-18. Battery Subnetter Card Block (1/2)

(1) All audio addressed to subscribers one through eight bypass the battery subnet cards. All audio addressed to subscribers nine through 32 goes through a subnet card. This latter address group is divided into sub-groups of four as in the battalion scheme. Therefore addresses 9-12, 13-16 and 17-20 all use common battery subnet cards.

(2) Audio from the VCS is multiplexed by the net time division switch card. The signal arriving at the battery subnet card is sampled audio. This signal is reconstructed to its original form by the output filter amplifier. The signal then goes through a time division switch and is again multiplexed onto a common bus. The multiplexed audio goes through the current-to-voltage converter onto another bus. From this bus the signal is demultiplexed onto four separate lines corresponding to the four fire units. Sampled audio is passed on four separate lines to the four-wire line interface cards.

(3) Received signals enter the card on four separate lines through time division switches where they are multiplexed onto a common bus. The signal passes through the current-to-voltage converter onto the transmit bus. From this bus the signal is demultiplexed and retransmitted to the four-wire card. One time-division switch demultiplexes the signal and passes it to an output filter amplifier where it is reconstructed to its original form. The audio then goes to the TDS card for routing to the correct net.

d. *Four-Wire Interface Card (fig. 6-19).* The four-wire interface card matches the VCC interface to external communication circuits by providing balanced 600 ohm terminations and audio gain sufficient to maintain approximately 0-db insertion loss from line to line through the VCC. The latter requirement is necessary to prevent any significant volume loss in netted operations (in this mode, incoming audio is retransmitted on outgoing lines to all subscribers on any operator's party line).

(1) The four-wire interface card consists of four separate, identical circuits. Each circuit has a receive channel and a transmit channel. In addition, the four-wire interface card accommodates selective signaling and fault detection.

(2) The transmit channel accepts sampled audio from the time division switch card and filters out the sample rate leaving only the reconstituted audio signal. The signal is sent out to the stations and local comm lines which are active at the time.

(3) The receive channel accepts audio from a 600-ohm balanced input using an audio transformer to accomplish the purpose. The signal is filtered by passing it through a low pass filter. The filtered signal is then applied to the time division switch card.

(4) The system's selective signaling feature is accommodated by the standard interface card. Each outgoing line amplifier contains an audio input and a 1600 Hz tone input. Under logic control, the tone is gated into the amplifier by a solid state analog switch for 1.14 seconds in response to an operator initiated ring-out on the selected line. Signaling on two-wire lines is also selective, but is accomplished by switching an 80-volt rms 20-Hz signal onto the appropriate line.

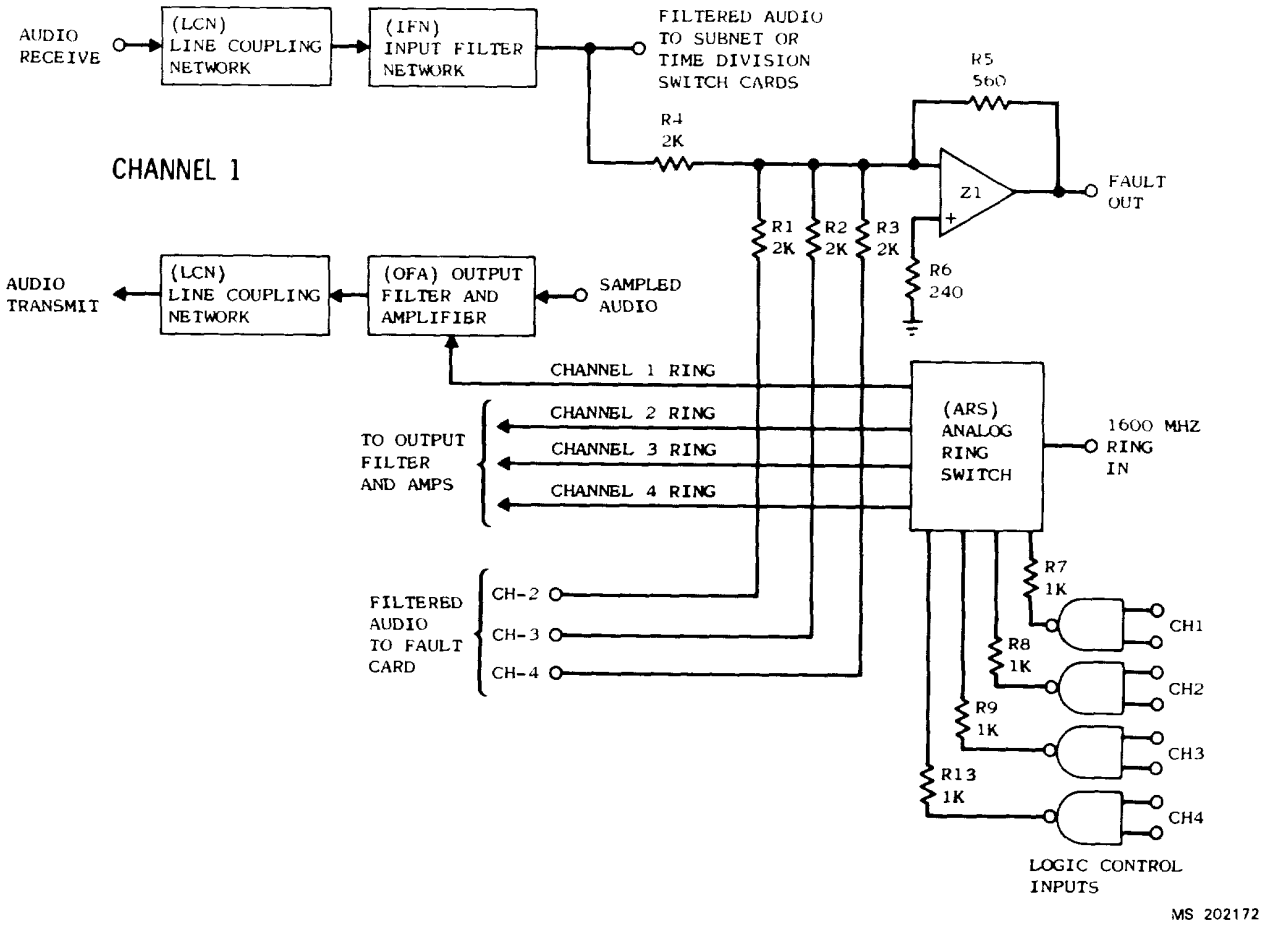


Figure 6-19. Four- Wire Interface Card (Channel 1)

(5) The four-wire card also has an interface with the fault detection circuit. When an audio loop test is performed, the presence of audio is detected at the output. This audio is passed to the fault isolation circuit and causes the GO/NO-GO light to operate.

e. *Two-Wire Interface Card (fig. 6-20).* The two-wire interface card accepts external audio signals, provides low pass filtering, reconstitutes sampled audio, provides fault and ring-in detection circuits, and converts two-wire audio to four-wire audio and four-wire audio to two-wire audio. Sampled audio coming from the time division switch card is passed through a low pass filter to filter out the 35 KHz sample rate, and boost the audio lost in sampling. The signal is then passed through an audio transformer for isolation and impedance matching. The signal also enters the input low pass filter channel going to the time division switch card. This signal is balanced out at the first operational amplifier state of the low pass filter (LPF) network to prevent feedback to the time division switch card in this mode of operation. Two two-wire cards are used in the VCC. Each handles two intercom channels.

6-15. Operational Control Net Analog Functional Description (fig. 6-21, FO-1). The operational control net analog provides audio communications between up to 10 VCS's and up to 32 subscribers. Figure 6-21 is a block diagram representation of the logic diagram shown on FO-1. Figure 6-22 is an idealized representation of operational control net audio signal flow.

a. VCS audio enters the VCC operational control net ring detector cards J1302, J1303, J1304 and J1305. The net ring detector card multiplexes the audio onto time slots 17, 18, 19 and 20 with the multiplexed audio passing through TPS card J1301 to the receive audio bus through a CVC onto the common bus.

b. The multiplexed audio is then demultiplexed by the OC audio control commands associated with the individual subscribers connected to each station. Sampled audio for addresses 1-4 goes to 4-wire line interface card J1401. Sampled audio for addresses 5-8 goes to 4-wire line interface card J1402. Sampled audio for addresses 9-16 goes to battery subnetter card J1404. Sampled audio for addresses 17-20 goes to battery sub-netter card J1503. This sampled audio is reconstituted

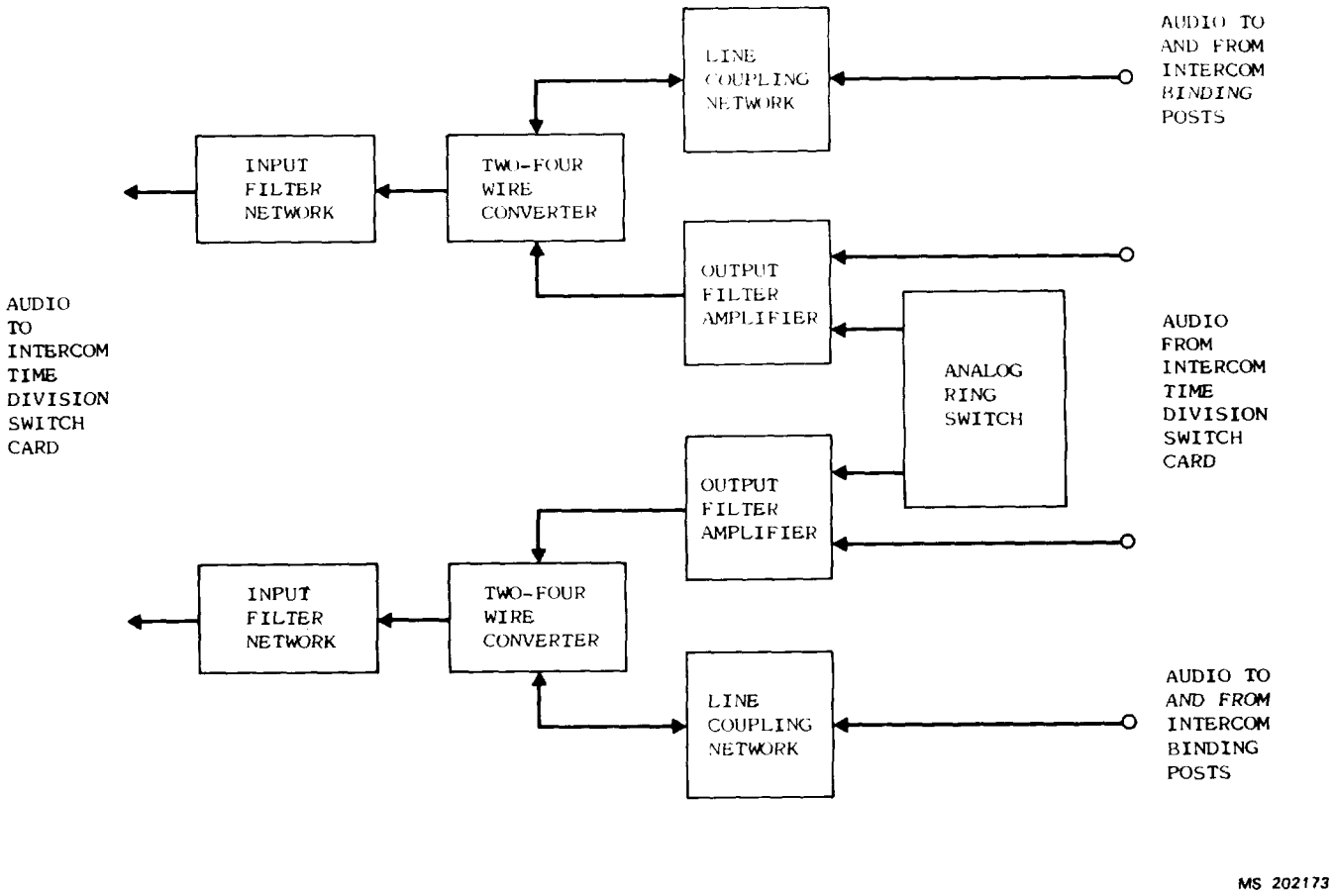


Figure 6-20. Two- Wire Line Interface Card Block

at the BSN, multiplexed onto battalion time slots, and demultiplexed according to the battalion being called. Sampled audio from battery subnetter card J1404 on addresses 9-12 is sent to four-wire line interface card J1405, and on addresses 13-16 is sent to four-wire line interface card J1406. Sampled audio from battery subnetter card J1503 goes to four-wire line interface card J1501.

c. Received audio enters the operational control net at the four-wire line interface cards as follows:

Address	Card slot
1-4	J1401
5-8	J1402
9-12	J1405
13-16	J1406
17-20	J1501

d. Audio from the four-wire line interface cards for addresses 1-8 goes to time division switch J1401 where it is multiplexed onto time slots 1-8. Audio from the four-wire line interface cards for addresses 9-20 are distributed to battery subnet cards as follows:

Address	From time slot	To BSN
9-12	9	J1404
13-16	10	J1404
17-20	11	J1503

The battery subnet circuits multiplex the battalion audio inputs, demultiplex and filter the audio. All signals are multiplexed onto time slots 9, 10, and 11 by TDS J1301 onto a common bus. This line is then demultiplexed in the net ring detector cards J1302, J1303, J1304 and J1305, and connected to subscriber lines. The sampled audio is reconstructed by output filter amplifiers.

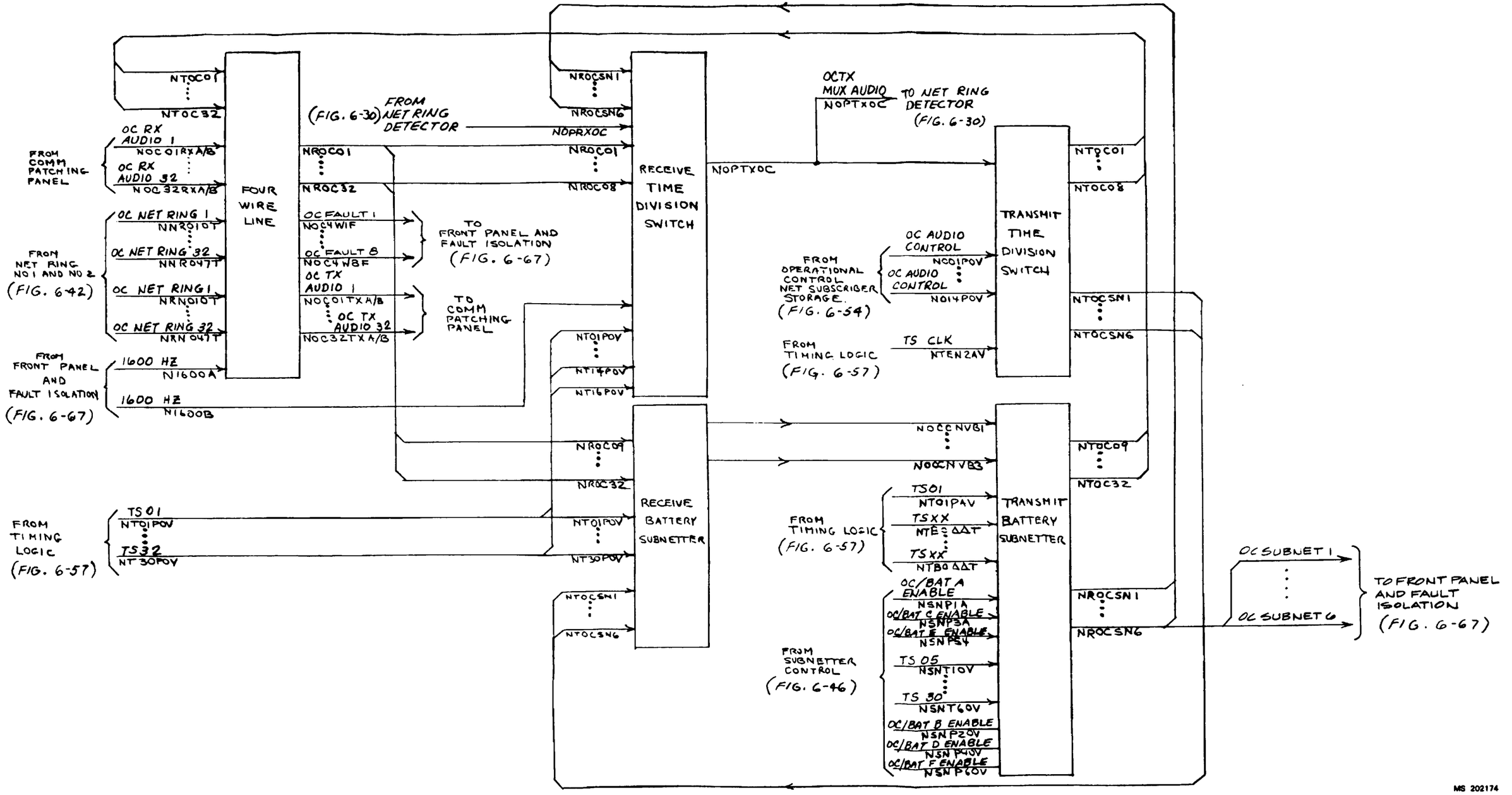


Figure 6-21. Operational Control Net Analog Block Diagram

Figure 6-91/(6-92 blank)

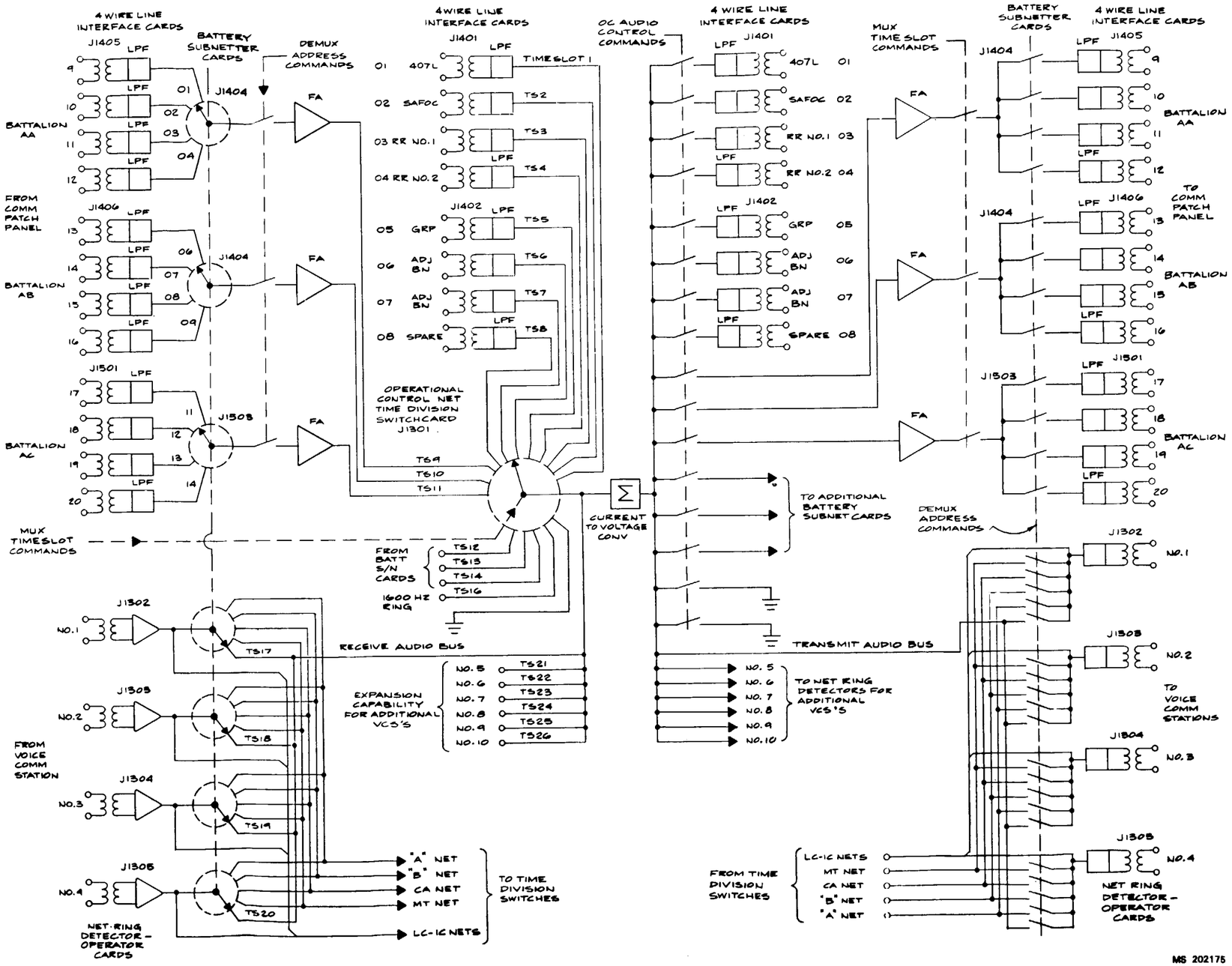


Figure 6-22. Operational Control Net Audio Functional Diagram

6-16. Command Administration Net Analog Functional Description (fig. 6-23, FO-2). The command administration net analog provides audio communications between up to 10 VCS's and up to 32 subscribers. Figure 6-23 is a block diagram representation of the logic diagram shown on FO-2. Figure 6-24 is an idealized representation of the command administration net audio signal flow.

a. VCS audio enters the VCC at net ring detector J1302, J1303, J1304 or J1305, dependent upon the VCS initiating the call. The net ring detector multiplexes the audio onto time slots 17, 18, 19, and 20 and passes this signal to the CVC in TDS J1331 and onto a common bus to be demultiplexed onto selected subscriber lines. Sampled audio for addresses 1-4 goes to four-wire interface card J1429. Sampled audio for addresses 5-8 goes to four-wire line interface card J1428. Sampled audio for addresses 9-16 goes to battery subnetter J1427 and for addresses 17-20 goes to battery subnetter J1423. The BSN's reconstitute the sampled audio, remultiplex and demultiplex it for distribution. Sampled audio from battery subnetter J1427 for addresses 9-12 goes to four-wire line interface card J1425 and for addresses 13-16 goes to four-wire line interface card J1424. Sampled audio from battery subnetter card J1423 goes to four-wire interface card J1422.

b. Receive audio enters the command-administration net at four-wire line interface cards as follows:

Addresses	Card
1-4	J1429
5-8	J1428
9-12	J1425
13-16	J1424
17-20	J1422

Audio from addresses 1-8 goes directly to the command-administration net TDS J1331 where it is multiplexed on time slots 1-8. Audio from addresses 9-12 and 13-16 are distributed to battery subnet card J1427 and are multiplexed, demultiplexed, reconstituted, and passed onto time slots 9 and 10 respectively. Audio from addresses 17-20 is directed to battery subnet card J1423 and is multiplexed, demultiplexed, reconstituted, and passed on to time slot 11. The multiplexed audio out of the CVC and on the transmit audio bus is demultiplexed by the net ring detector cards J1302, J1303, J1304 and J1305 onto the VCS lines. Sampled audio is reconstructed by output for the amplifier and sent to the selected VCS.

6-17. Maintenance Test Net Analog Functional Description (fig. 6-25., FO-3). The maintenance test net analog provides audio communications between up to 10 VCS's and up to 32 subscribers. Figure 6-25 is a block diagram representation of the logic diagram shown on FO-3. Figure 6-26 is an idealized representation of the maintenance test net audio signal flow.

a. VCS audio is received by net ring detector cards J1302, J1303, J1304 and J1305. The net ring detector cards multiplex the audio onto time slots 17, 18, 19 and 20 and pass it to the maintenance test net TDS card J1334. The signal passes through the CVC and onto a common bus. The signals are then demultiplexed by the TDS and sent to individual subscribers to each station. Sampled audio for addresses 1-4 goes to four-wire line interface card J1332. Sampled audio for addresses 5-8 goes to four-wire line interface card J1333. Sampled audio for addresses 9-16 goes to battery subnet card J1336. Sampled audio for addresses 17-20 goes to battery subnet card J1434. The BSN cards reconstitute the audio through a filter amplifier, then multiplex the audio onto subscriber time slots, and finally demultiplex the output according to MN audio control commands. The audio is distributed to the subscribers on call. Sampled audio outputs from BSN cards J1336 are sent to four-wire line interface cards J1337 and J1339: outputs from BSN cards J1434 are sent to four-wire line interface card J1442.

b. Received audio enters the maintenance test net at the four-wire line interface cards as follows:

Address	4-WLF
1-4	J1332
5-8	J1333
9-12	J1337
13-16	J1339
17-20	J1442

Audio from addresses 1-8 goes directly through the four-wire line interface cards J1332 and J1333 to TDS card J1334 where it is multiplexed onto time slots 1-8. Audio from addresses 9-12, 13-16, and 17-20 are applied to BSN cards J1336, J1336, and J1434 respectively. Battalion audio applied to BSN cards is multiplexed to battery time slots, demultiplexed and then reconstituted into audio by BSN filter amplifiers. This reconstituted audio is applied to TDS J1334 so that addresses 9-12, 13-16, and 17-20 appear at time slots 9, 10, 11, respectively. All signals are applied to a common bus, passed through the CVC, and applied to the transmit audio bus, and then demultiplexed by net ring detector cards J1302, J1303, J1304, and J1305.

6-18. Net A and Net B Analog Functional Description (fig. 6-27, FO-4). The net A and net B analog provides private communications between the VCS's and selected subscribers connected on the command administration net. Figure 6-27 is a block diagram representation of the logic diagram shown on FO-4. Figures 6-28 and 6-29 are idealized representations of audio signal flow for nets A and B respectively.

a. VCS audio enters the VCC at special net A ring detector cards J1302, J1303, J1304 and J1305. The net ring detector cards multiplex the audio onto time slot 8 and send the multiplexed audio to the CVC's on TDS

cards J1327 and J1328. This signal is then demultiplexed and the sampled audio is passed to the output filter amplifier on the four-wire line interface card of the addressee. Thus, the battery subnet card circuit is bypassed to ensure complete privacy. The output filter amplifier reconstructs the signal and passes it to the comm patch panel.

b. Audio enters special net A at four-wire line interface cards J1425, J1424 and J1422 from addresses 9 through 20 callers. Note that battery subnet cards J1427 and J1423 are bypassed by the signal being extracted at the output of the low pass filter which is applied directly to the inputs of TDS cards J1327 and J1328. The audio is multiplexed by the TDS onto time slots 1-32 (except for TS8) depending on the origination point. The audio is then passed through the CVC to the special net A common bus, and to the net ring detector card associated with the VCS that is using the special net A. Here, the signal is demultiplexed, and the audio is reconstructed and sent to the VCS.

c. Special net B operation is initiated at a VCS. Audio enters the VCC at special net B ring detector cards J1302, J1303, J1304 and J1305. The net ring detector cards multiplex the audio onto time slot 8 and send the multiplexed audio to the CVC's on TDS cards J1329 and J1330. This signal is then demultiplexed and the sampled audio is passed to the output filter amplifier on the four-wire line interface card of the addressee. Thus, the battery subnet card circuit is bypassed to ensure complete privacy. The output filter amplifier reconstructs the signal and passes it to the comm patch panel.

d. Audio enters special net B at four-wire line interface cards J1425, J1424, and J1422 from address 9 through 20 callers. Note that battery subnet cards J1429 and J1430 are bypassed by the signal being extracted at the output of the low pass filter which is applied directly to the inputs of TDS cards J1329 and J1330. The audio is multiplexed by the TDS onto time slots 1-32 (except for TS8) depending on the origination point. The audio is then passed through the CVC to the special net B common bus, and to the net ring detector card associated with the VCS that is using the special net B. Here, the signal is demultiplexed, and the audio is reconstructed and sent to the VCS.

6-19. Net Ring Detector Circuit Functional Description (fig. 6-30, FO-6). The net ring detector routes the selected audio between the VCC and VCS and also provides the switching interface from the station operator to each of the nets. There is one net ring detector card for each VCS. Each card consists of a transmit and receive channel. A path is provided between the channels for sidetone feedback to the external headset. Each net ring detector card contains ring detectors which monitor only those lines currently selected by the particular operator. The ring detector is enabled by a 1600 Hz tone and enables the ring in indicator on the control line during that operator's frame time.

6-20. Intercomm Interface Functional Description (fig. 6-31, FO-6). The intercomm interface provides the two-wire receive and transmit circuits for four intercomm channels. This circuit also contains the 20 Hz bell ringer power source and associated switch circuit which supplied the ring out tone to a selected intercomm. In addition, tone detectors monitor the receive lines for the 20 Hz tone and provide an active level to the intercomm net and ring when the tone is present. An idealized functional diagram of intercomm audio flow is shown in figure 6-32. The VCS passes audio to the net ring/ detector operator card in the VCC. The audio is passed directly to the intercom time division switch card. The audio enters the TDS card on a time slot 17-26 depending on which VCS originated the audio. The TDS card multiplexes the audio onto a common intercom bus. The multiplexed audio is demultiplexed by the TDS card into a selected VCS, or an external intercom line. If the signal is addressed to an internal intercom, the demultiplexed sample is reconstructed to the original sine wave by the output filter amplifier on the net ring detector operator card. If the signal is addressed to an external intercom, the sample is reconstructed by the output filter amplifier on the two-wire line interface card. Intercom audio received from an outside source is multiplexed into the time slots 11-14 by the intercom TDS card. It is then demultiplexed and passed to the addressee in the same manner as previously described. Intercomm net operation is initiated by an operator at a VCS or subscriber station (e.g., VCS #1 calling VCS #2). The audio from VCS #1 passes to the VCS net ring detector card where it is filtered and passed to the TDS in the intercom net. This audio is applied to TDS time slot 17 by the net ring detector, and is then multiplexed by the TDS onto a common bus. This multiplexed audio is passed through a current of voltage converter in the TDS and is then demultiplexed to extract the VCS 1 audio which is routed out of the TDS on time slot 18 to the net ring detector in VCS 2 if VCS 2 has answered the call. The output filter amplifier associated with VCS 2 reconstructs the original audio and sends it to VCS #2 through a coupling network.

6-21. Local Comm Interface Functional Description (fig. 6-33, FO-7). The local comm interface provides communication between up to 10 VCS's and the five local comm links. Figure 6-33 is a block diagram representation of the logic diagram shown on FO-7. Figure 634 is an idealized diagram of the local comm audio signal flow. Audio from VCS 1-4 is applied to local comm net ring detector card J1302, J1303, J1304 or J1305, respectively. The audio is filtered and passed to local comm net TDS J1315 and is multiplexed on time slots 14 dependent upon the time slot associated with the initiating VCS. The multiplexed audio passes through the CVC on the common bus and is demultiplexed onto the selected local comm line, TS27-TS31. The audio sample is reconstructed by an output filter amplifier on four-wire line interface card J1411 or J1412 dependent upon the subscriber being called. The audio is applied to

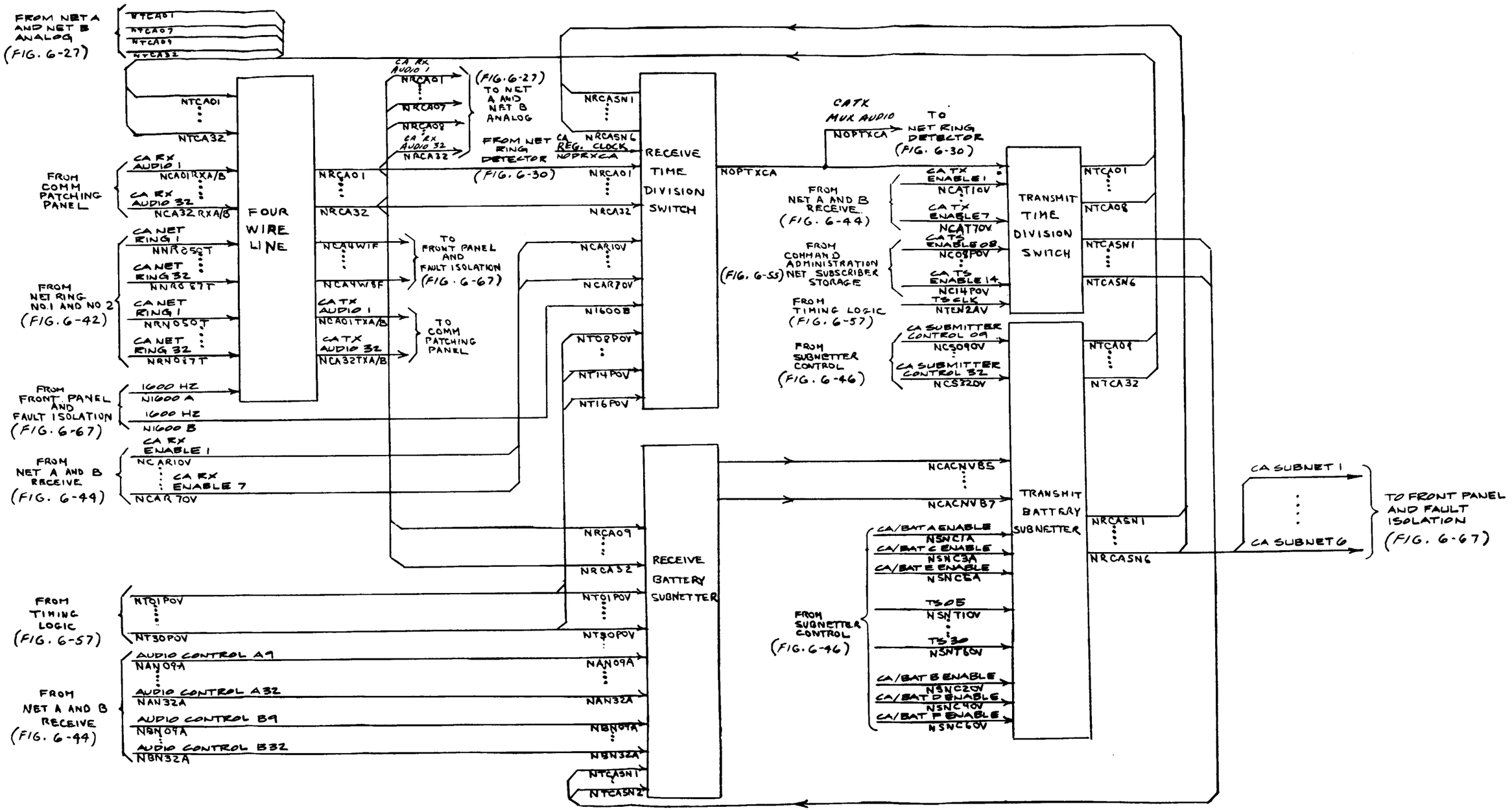


Figure 6-23. Command Administration Net Analog Block Diagram

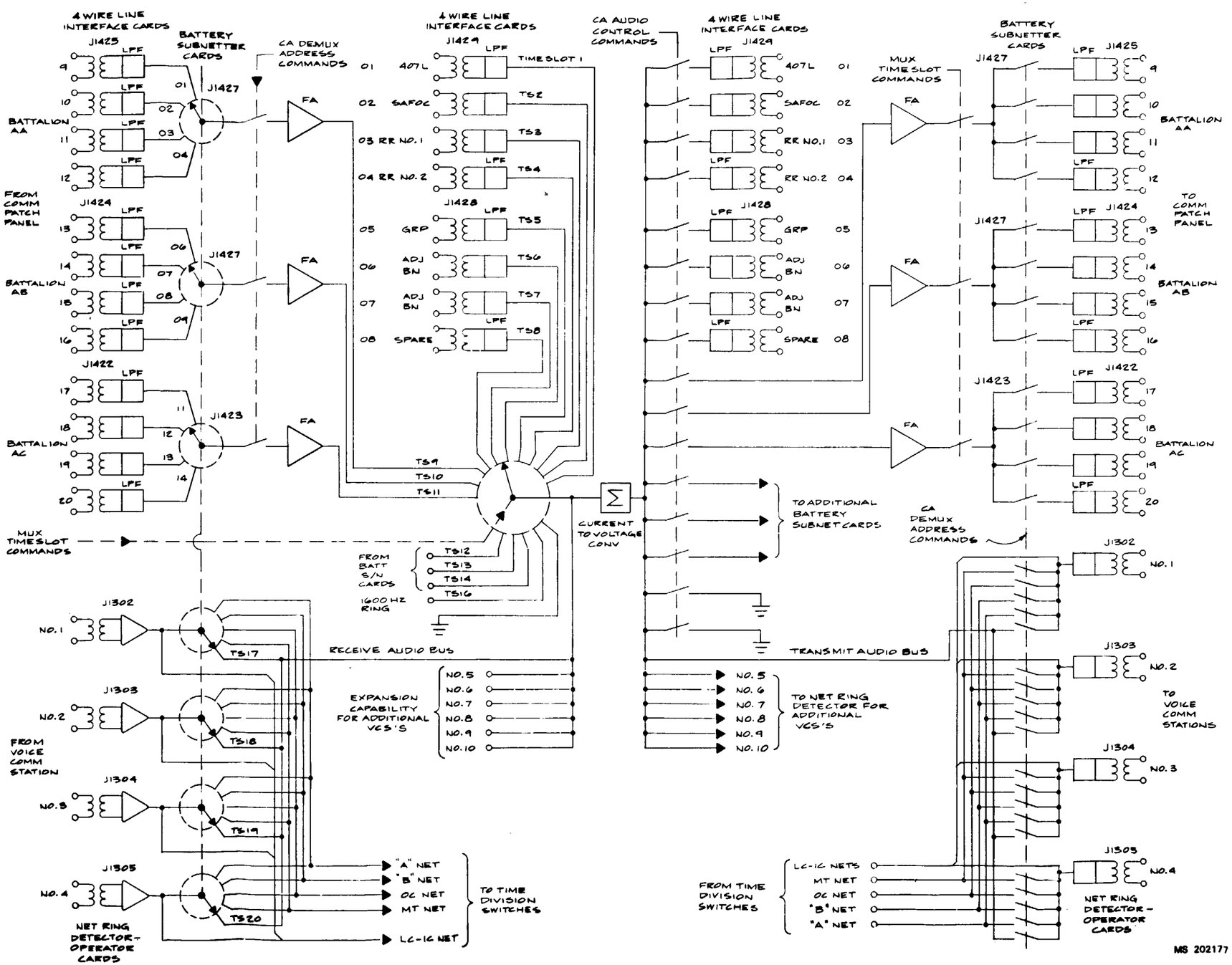


Figure 6-24. Command Administration Net Audio Functional Diagram

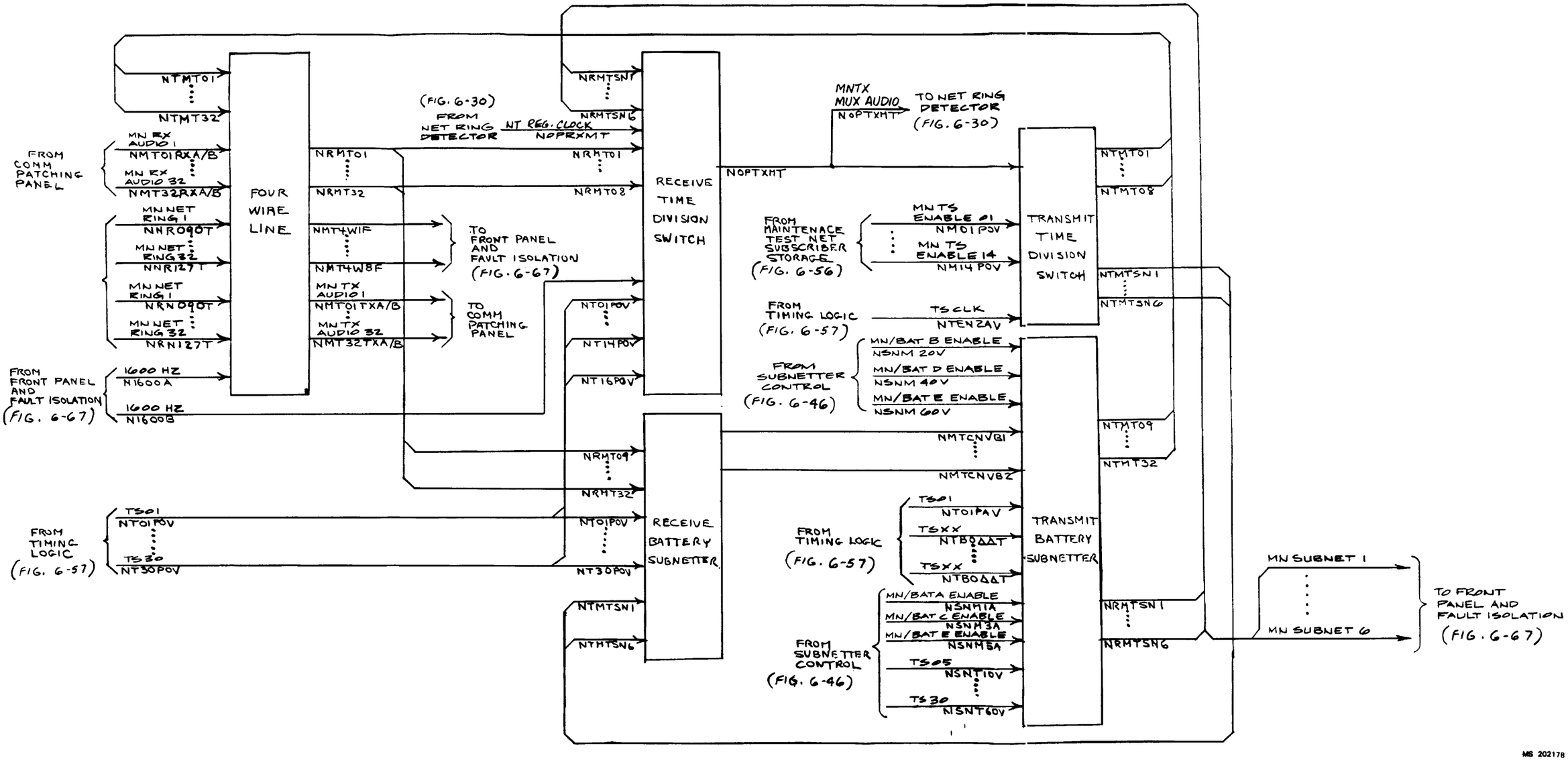


Figure 6-25. Maintenance Test Net Analog Block Diagram

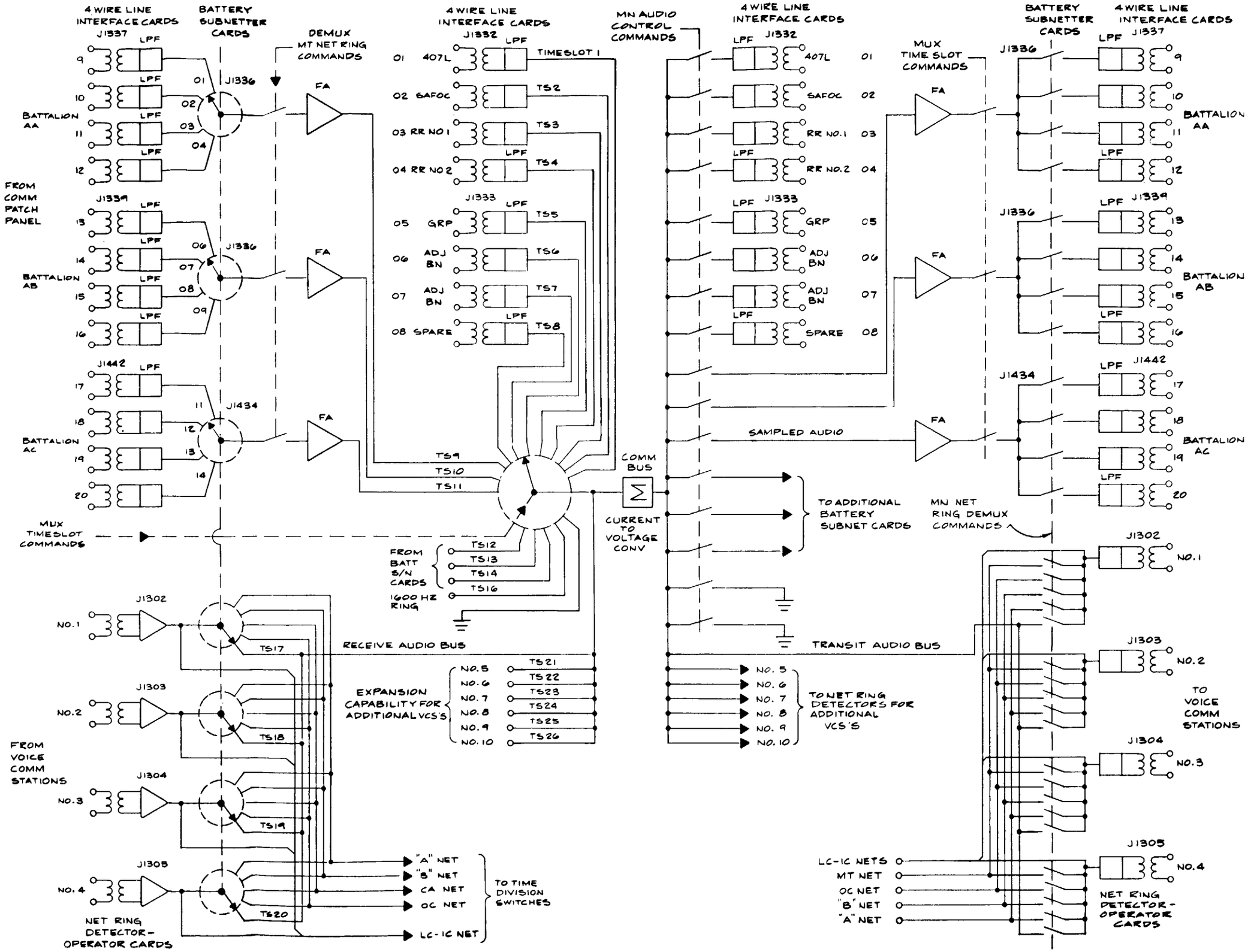


Figure 6-26. Maintenance Test Net Audio Functional Diagram

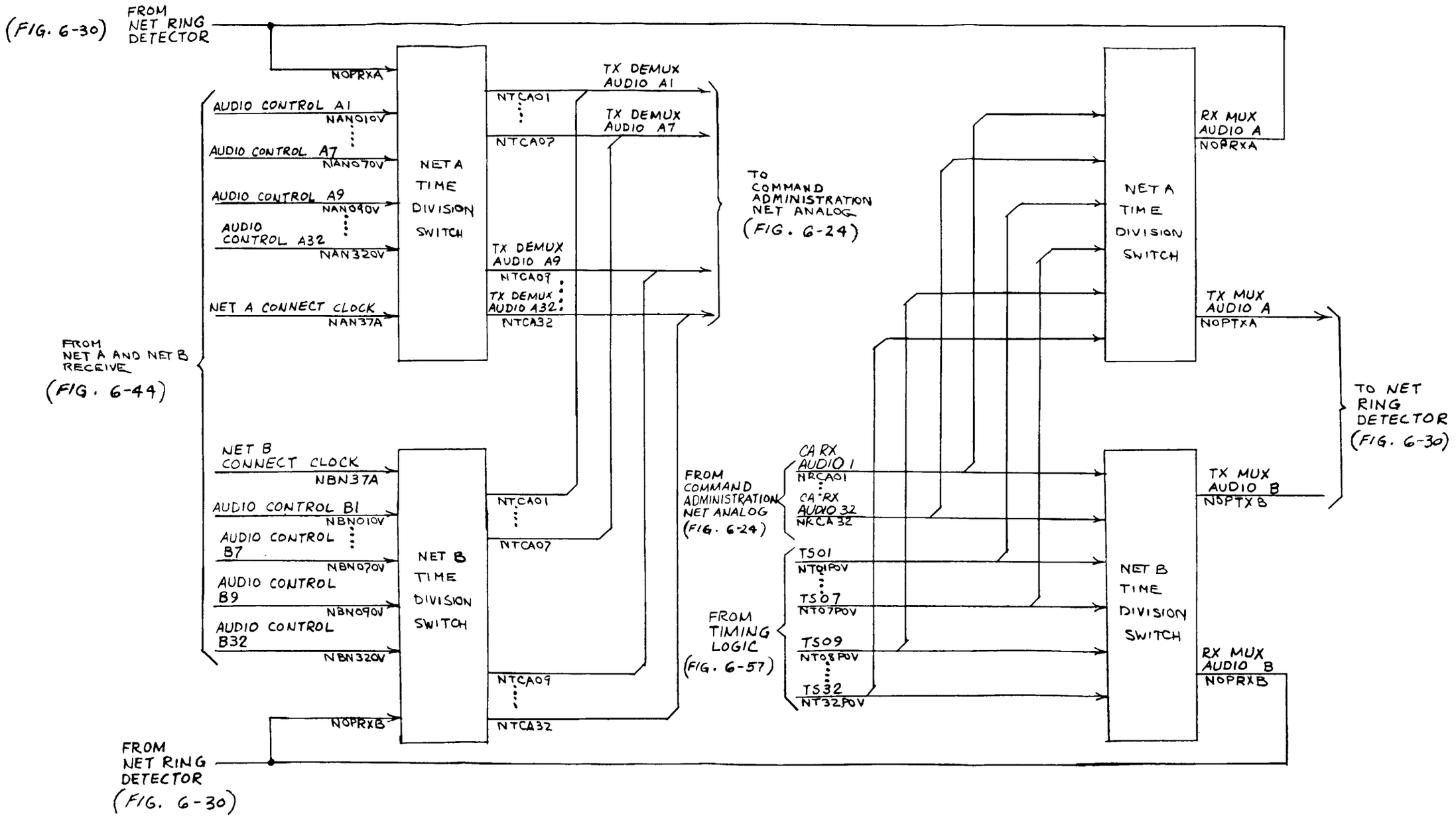


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Figure 6-27. Net A and B Analog Diagram

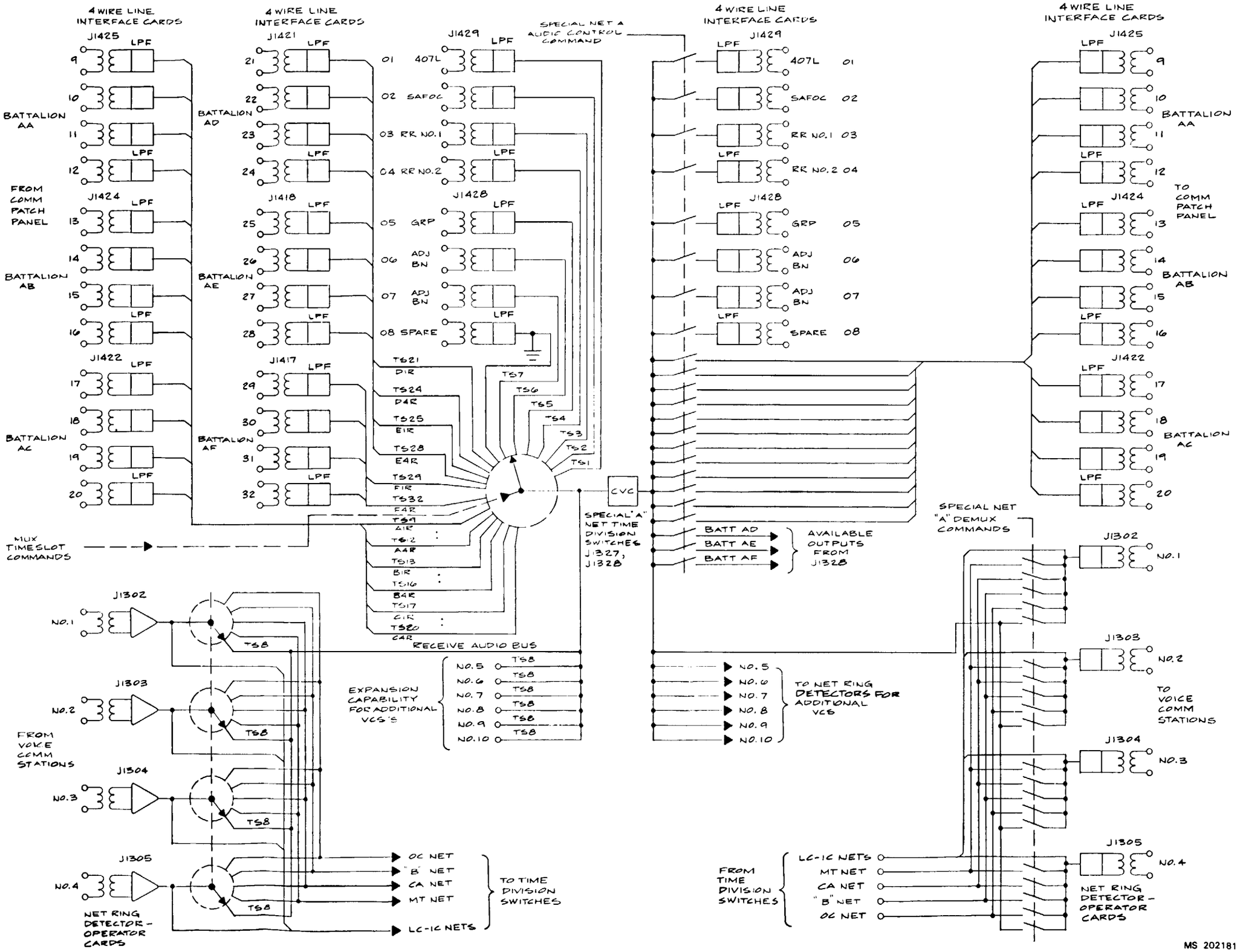

Figure 6-28. Special Net A Audio Functional Diagram

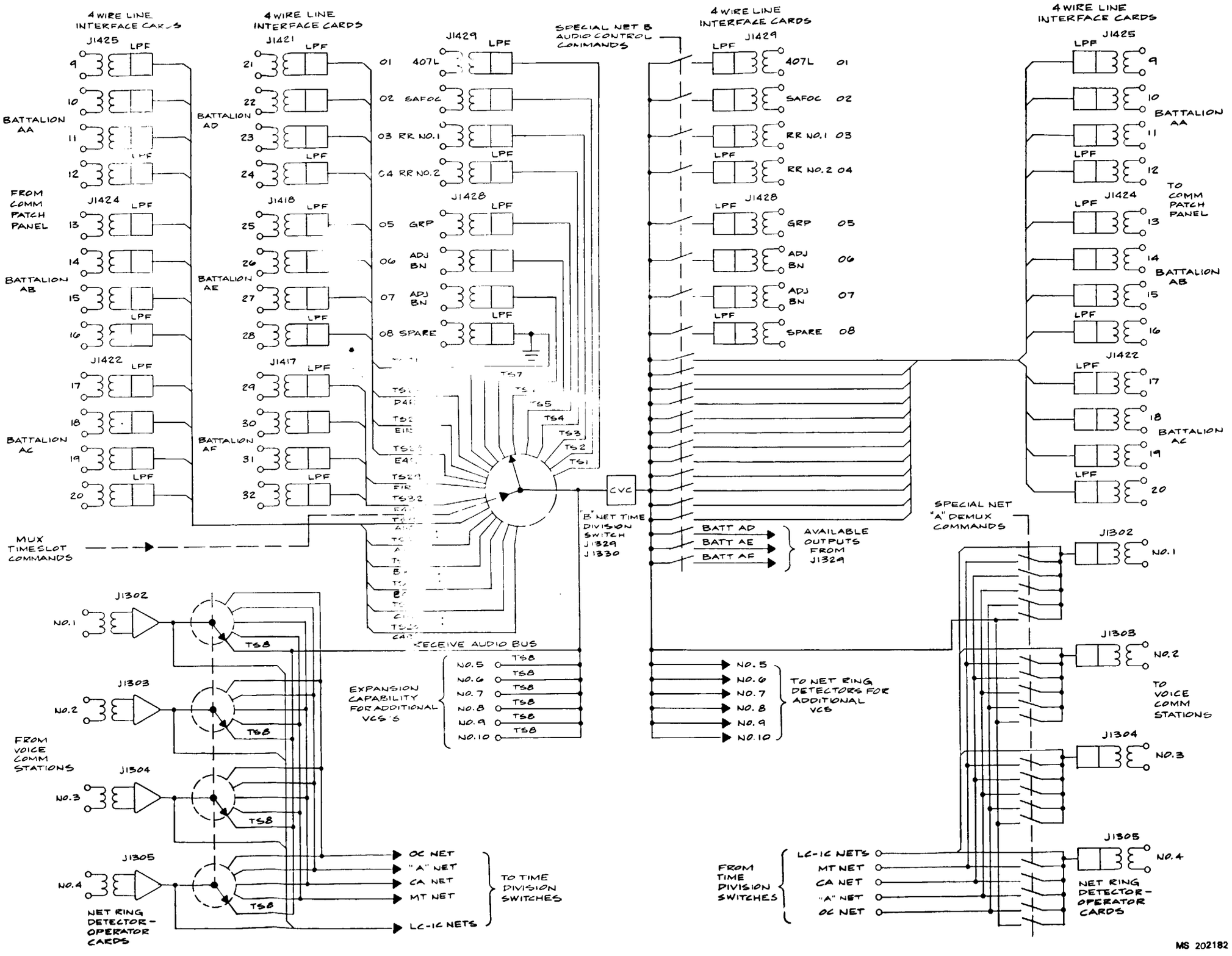

Figure 6-29. Special Net B Audio Functional Diagram

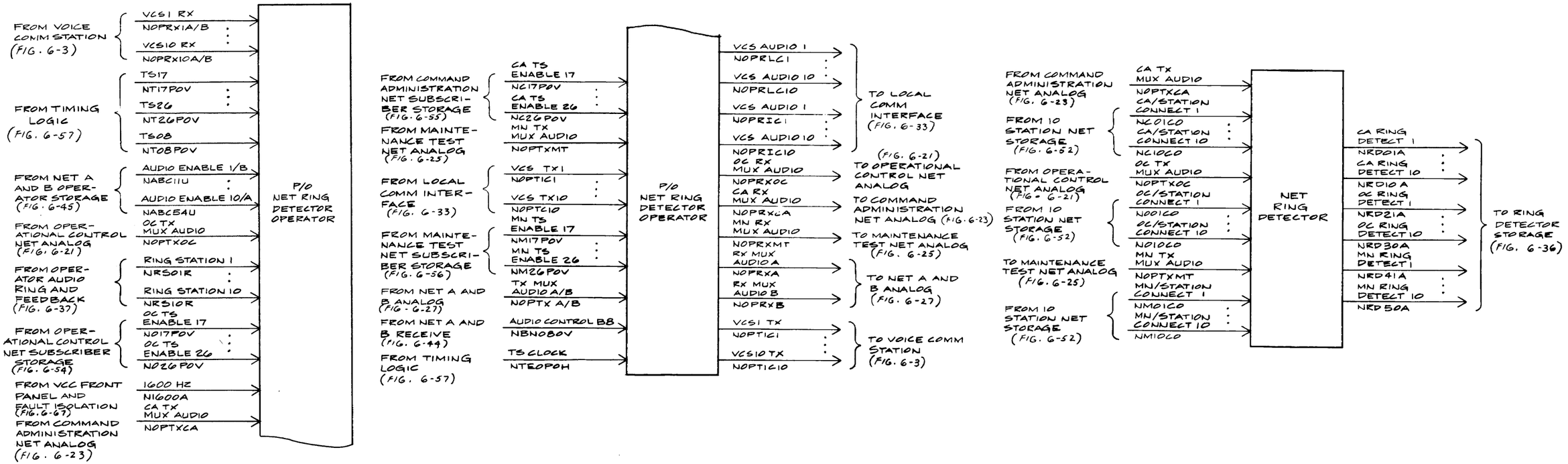

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Figure 6-30. Net Ring Detector Circuits Block Diagram

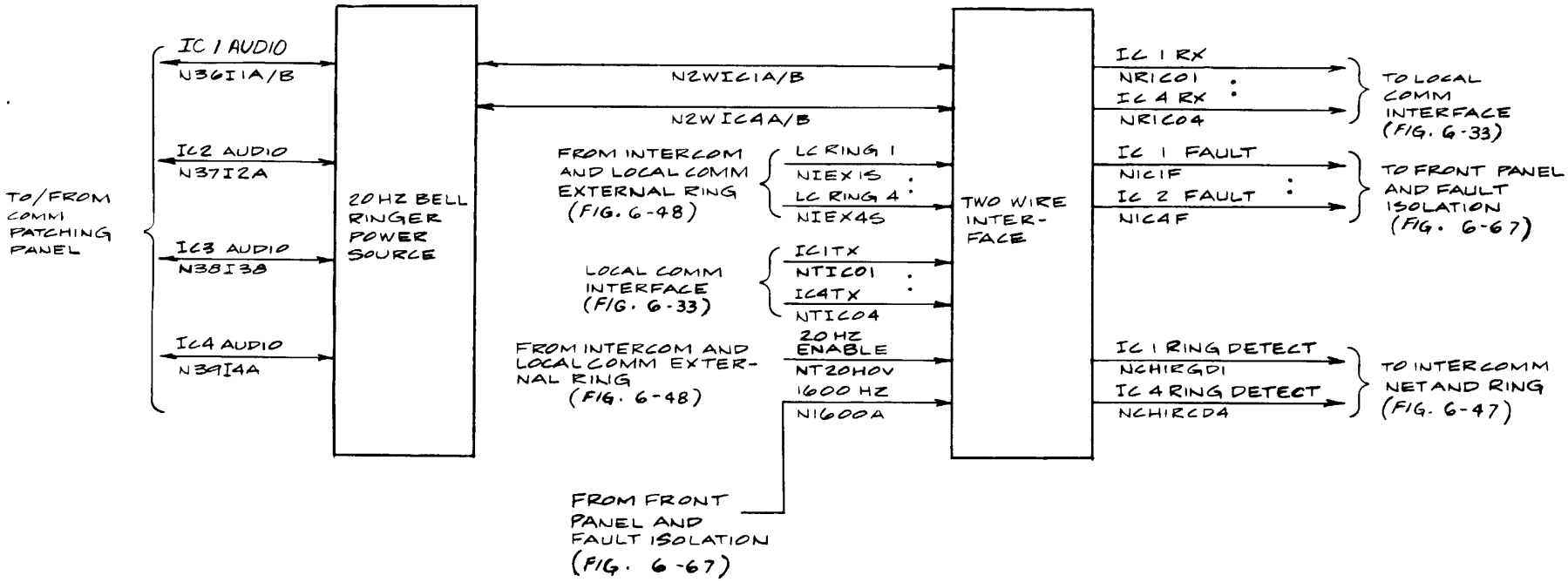

Figure 6-31. Intercom Interface Block Diagram

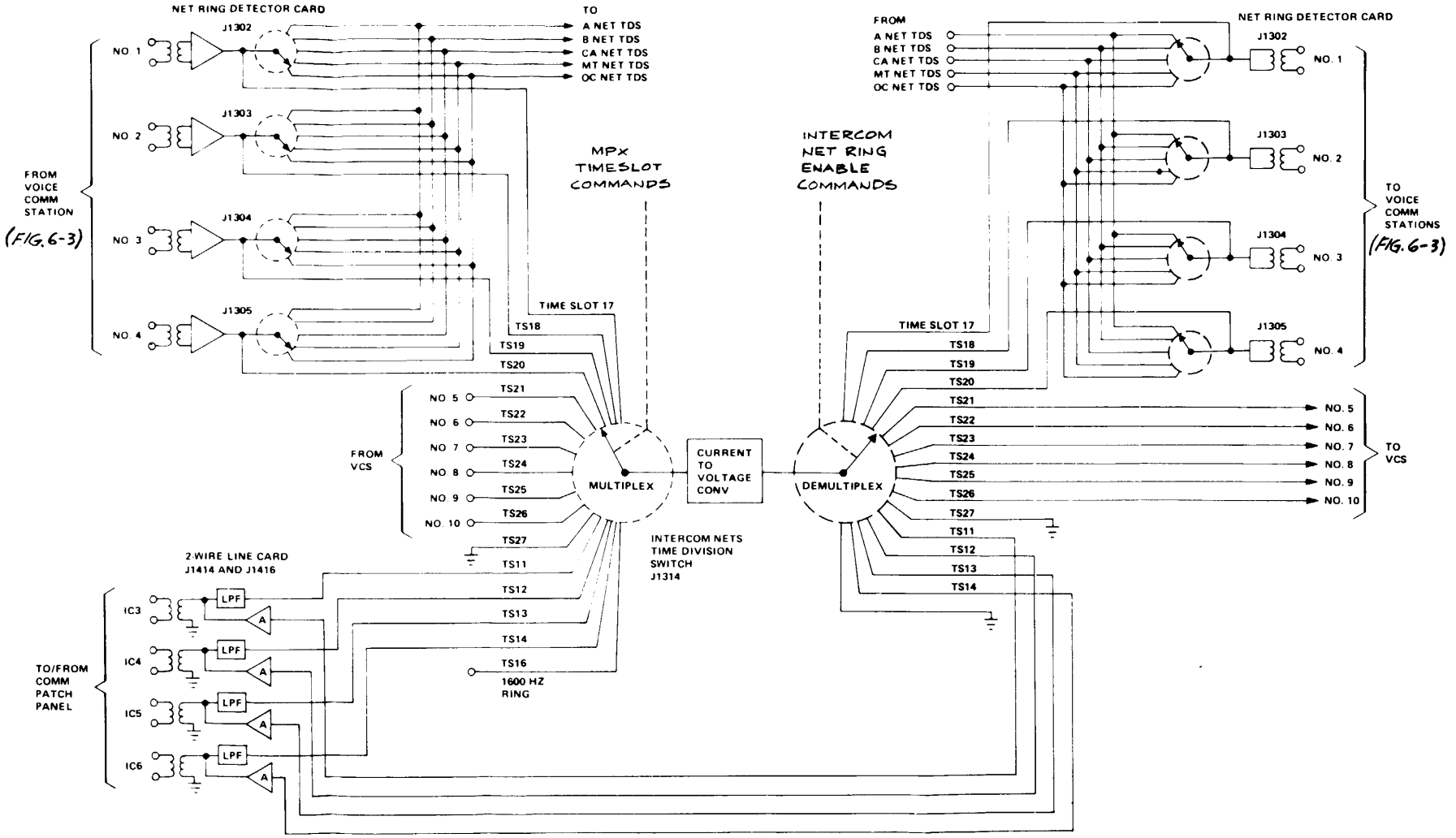

Figure 6-32. Intercomm Net Audio Functional Diagram
6-115/(6-116 blank)

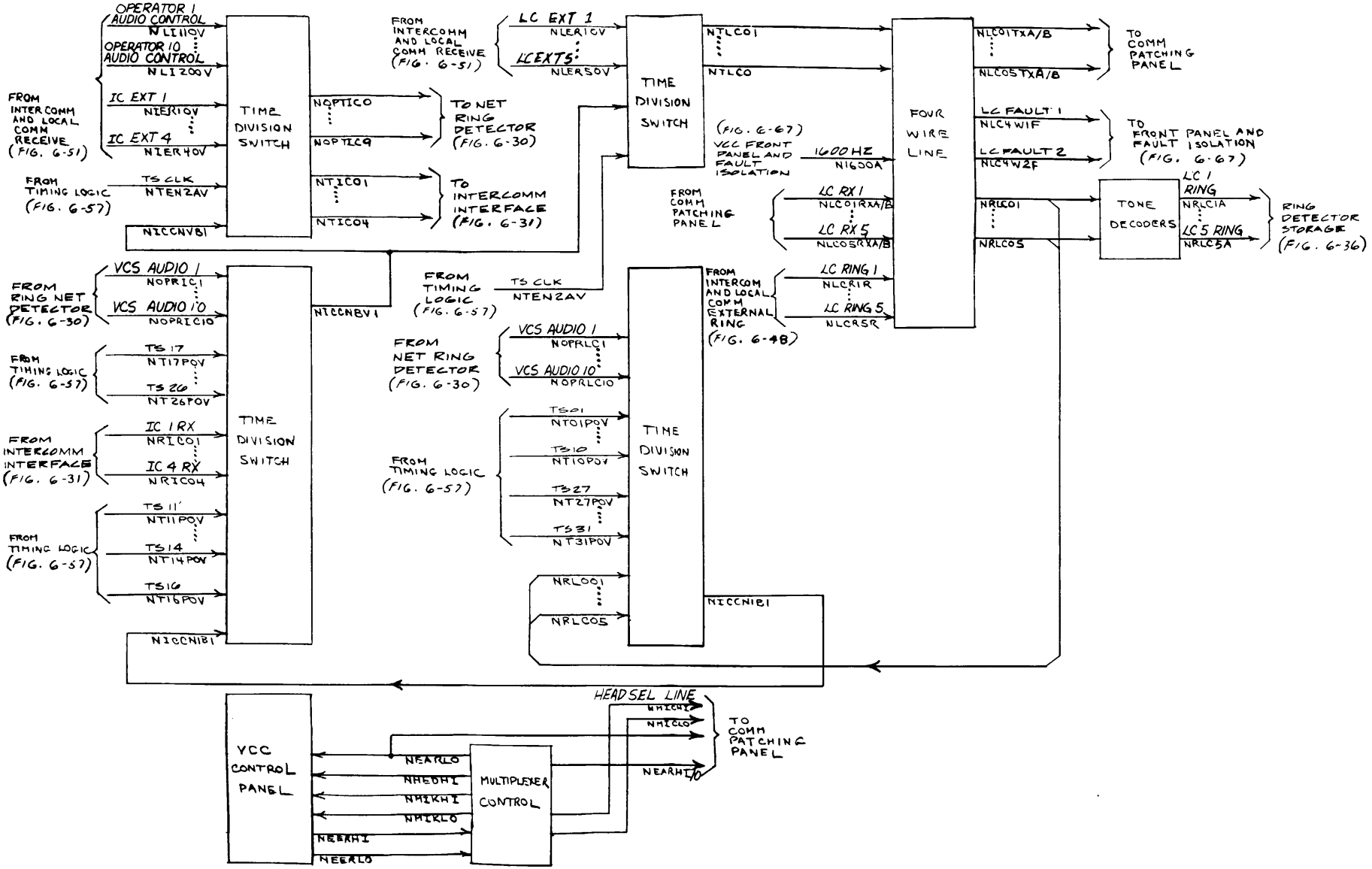

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Figure 6-33. Local Comm Interface Block Diagram
6-117/(6-118 blank)

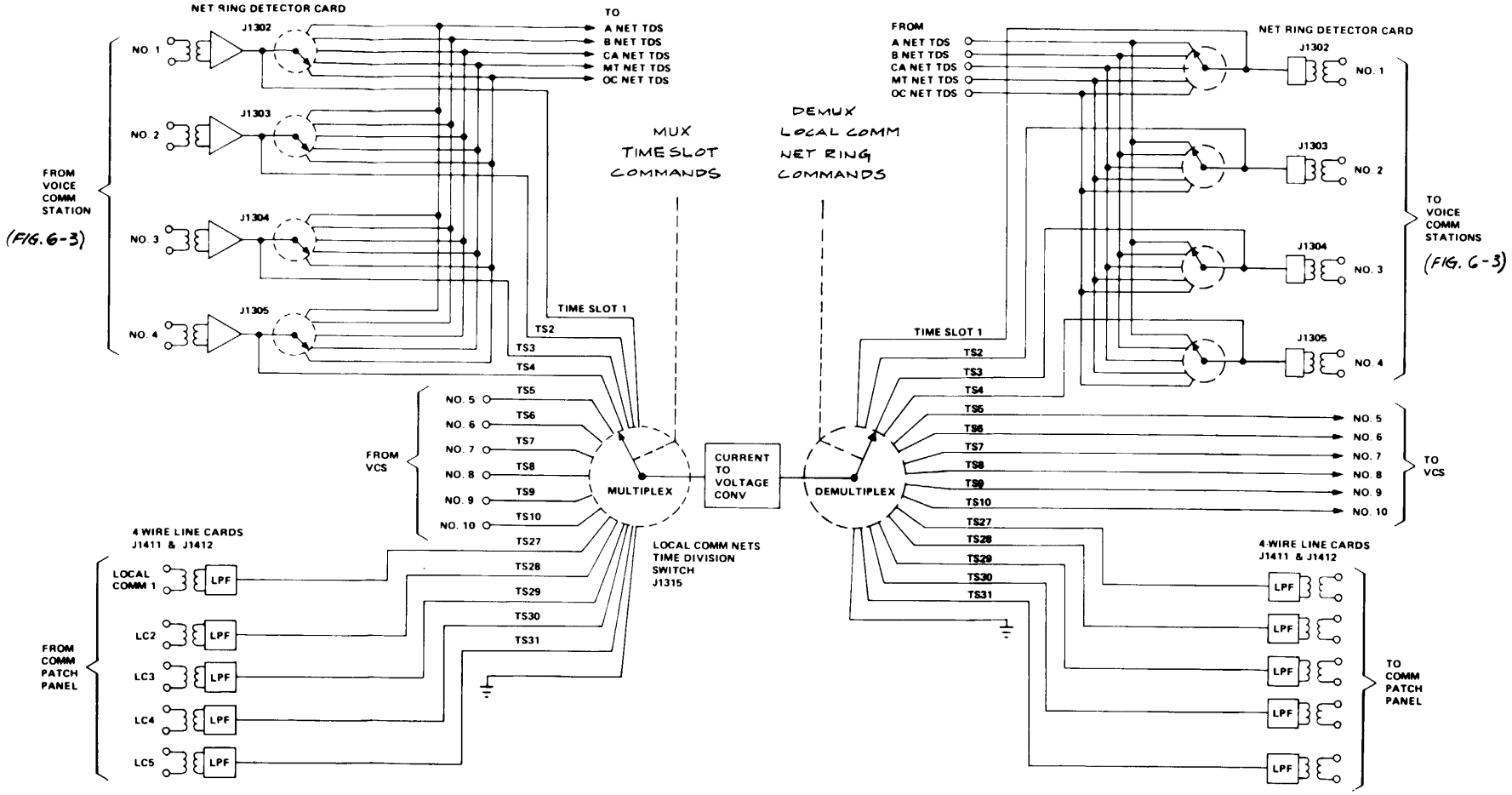


Figure 6-34. Local Comm Audio Functional Diagram

the comm patch panel for distribution. When a local comm operator rings out on a local comm line LC1-LC5, audio is applied through the comm patch panel to input filter amplifiers on four-wire line interface cards J1411 or J1412. The outputs of the four-wire line interface cards, TS28-TS31 are applied to the local comm net TDS J1315 and are multiplexed onto time slots TS28TS31. The multiplexed audio is passed through the CVC onto a common bus and is demultiplexed onto all VCS lines, TS1-TS4. The multiplexed audio is then applied to a net ring detector cards J1302, J1303, J1304, and J1305. The sampled audio is reconstructed to its original form and passed to the VCS's.

6-22. Central-to-Station Functional Description (fig. 6-35, FO-8). The central to station logic collects and stores the various control indicators for transmission to the selected VCS. The A/B and net, intercomm, local comm, inquiry and ring in indicators are loaded into a 20-stage during TX1. The 18 bits, constituting the VCS indicator information, are then shifted out to the central-to-station multiplex timing during TX2 through TX32.

6-23. Ring Detector Storage Functional Description (fig. 6-36, FO-9). The ring detector storage provides circulating storage for the net ring indications associated with the currently selected VCS and supplies the properly timed ring enables to the control-to-station logic. This circuit also stores and supplies the ring enables for the five local comm channels. The net ring indication from the net ring detector is gated by the VCS address into a 16-bit staticizer associated with the net initiating the ringing. This indication is loaded during TX32 of each flash timer frame (i.e., every 1.4 seconds). The circulating register is updated during each TX32 of each VCS transmit time. The net to station indications, in addition to the local comm to station signals are forwarded to the central-to-station logic for inclusion in the VCS control word.

6-24. Operator Audio Ring and Feedback Functional Description (fig. 6-37, FO-10). The operator and audio ring and feedback combines the various net, LC and IC ring indications and determines that the ringed subscriber is actually connected to the currently addressed VCS. This logic then generates the ring enable feedback signal that allows the initiating operator to hear the ring. Net ring register 1 and net ring register 2 are loaded with subscriber indications from the net ring no. 1 and no. 2 logic at each TX1 time of the transmit mode. The outputs from these registers are compared with the current net select and connect indications to ensure that the subscriber being rung is actually connected. Similar indications from the intercomm and local comm logic are also processed. The net, IC and LC indications are utilized to set the currently addressed station ring latch which enables the net ring detector to feed back the ring to the initiating operator or operators. The station ring latches are reset every 1.4 seconds by the flash timer level.

6-26. Central Input Register Functional Description (fig. 6-38, FO-11). The central input register provides parity checking and staticizing of the significant VCS control bits for processing by the VCC logic. The control word format is illustrated in figure 6-39.

a. Referring to figure 6-38, sheet 1, parity checking is enabled during the receive mode from RX1 to RX31. Each data ONE in the control information toggles the data ONE flip-flop. At RX32, comparison is made to ensure that the total VCS control message reflected an odd number of ONES. Should bad parity be detected, the VCS decode circuits are enabled. A bad parity latch is then set for the currently selected VCS as long as the associated station FAULT DETECTION switch is on. The parity latches are cleared at each frame sync time.

b. A block diagram of the control input register and associated logic is shown in figure 6-38, sheet 2. Figure 6-40 illustrates the control data input timing during the receive mode. The control data is shifted into the 32-bit register during RXI through RX32 under control of the 4.47 KHz clock. At RX32, an additional clock is applied to the register to place the control bits in the proper register stages. For all control bits, with the exception of the input address, the data is circulated in succeeding stages of pairs of binary counters. The address is shifted sequentially into the units and tens input address register. Figure 6-38, sheet 2, denotes the significance of the data stored in each stage when the control word is staticized.

c. During TX1, which is the transmit guard slot, the TX sync signals are utilized to process the control message. The special A, special B, CA net, OC net, MN net, local comm and intercomm select outputs are distributed to various VCC logic as are the control instructions (i.e., ring, connect, release, etc.). The primary logic process for the central input register during TX1 involves the input address. The BCD units and tens address is stored in the two four-bit registers in inverted form. An all ZERO address will load a BCD FF (all ONES) into the register, resulting in a terminal count from the tens register. This is sampled at TS08 of TX sync 2 setting the address 0 flip-flop. An all ZERO address combined with a ring bit generates the ring all level which enables the ring all signal for a connected subscriber.

d. For other than an all ZEROS address, the address registers are mechanized to perform BCD to binary conversion (see figure 6-41). The input BCD unit and tens address reflect a count of from one to 32. Therefore, immediately prior to the beginning of TX sync 3, a pulse is applied to the register effectively subtracting one and altering the address to zero to 31. For other than a CM, OC or MN select (i.e., special nets A or B), a chain of 32 TS clocks is applied to the address register. The units register is stepped to terminal count, stepping the tens register and loading a binary six into the units register. The tens register is then stepped

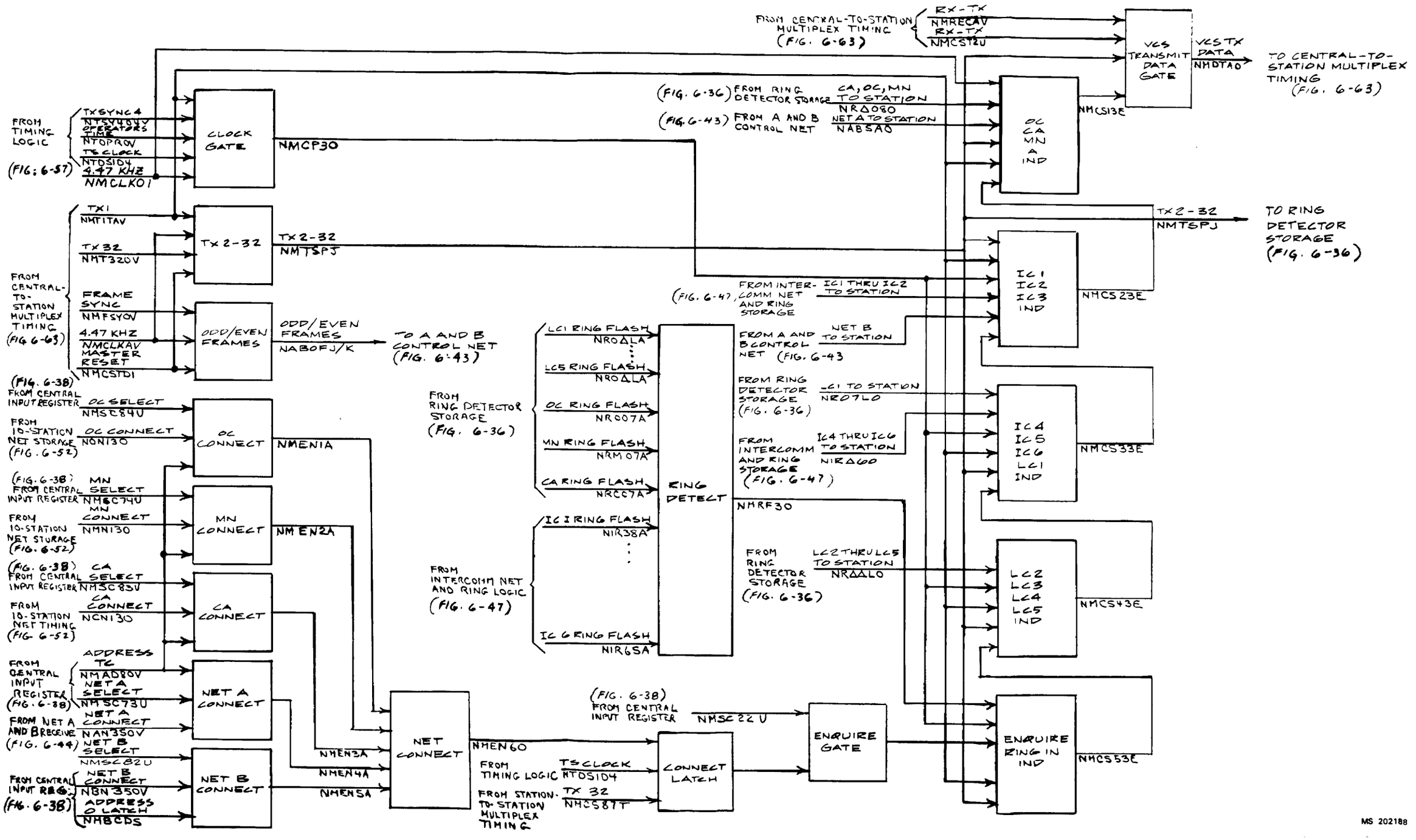


Figure 6-35. Central-to-Station lock Diagram

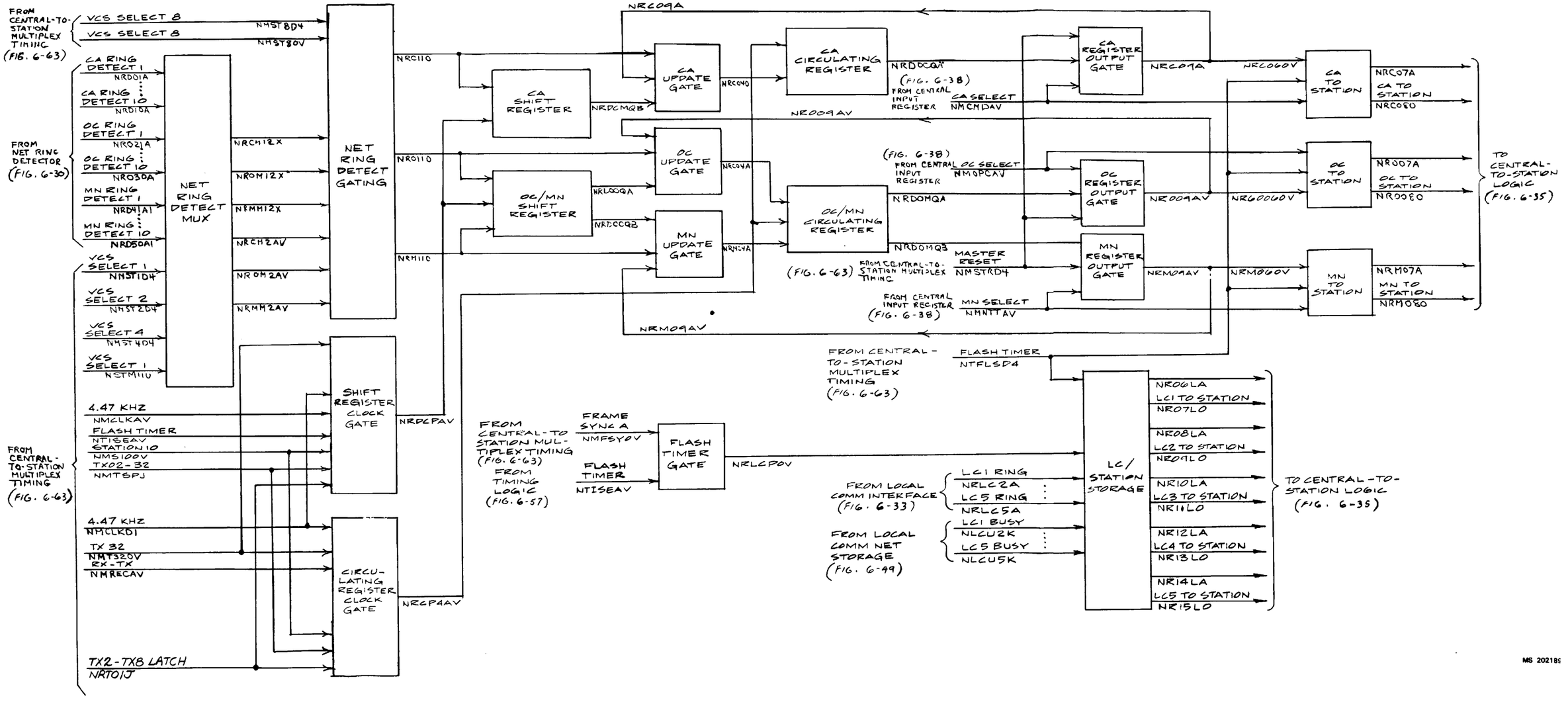


Figure 6-36. Ring Detector Storage Block Diagram

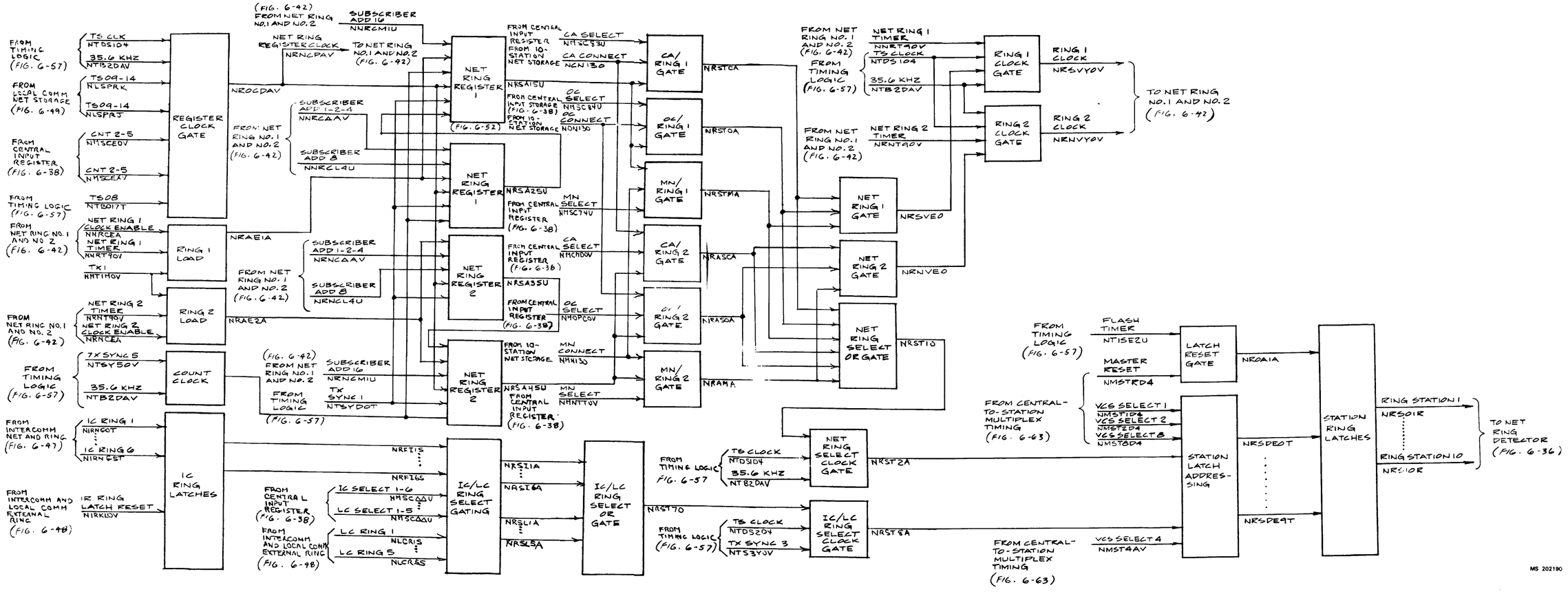
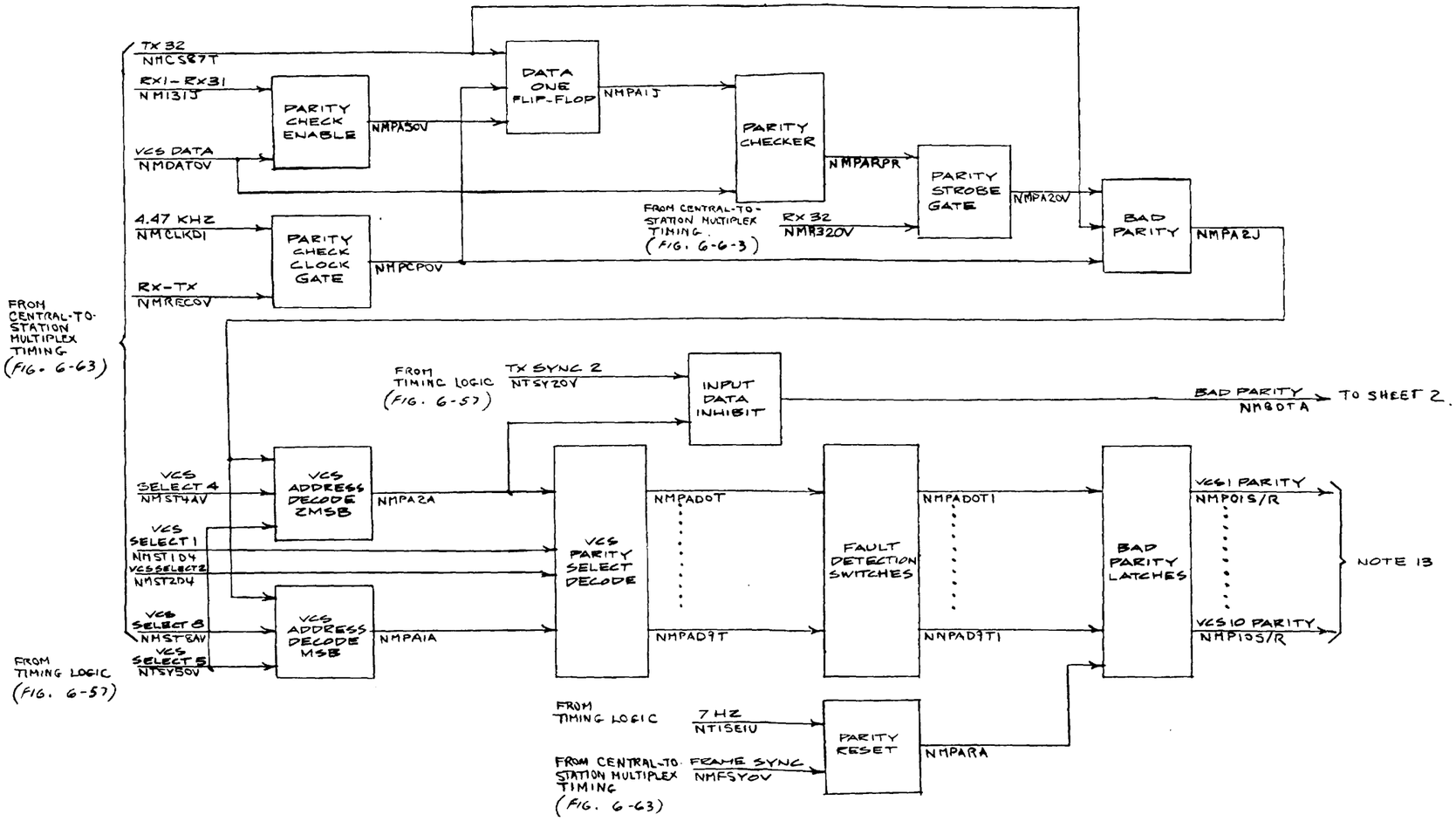


Figure 6-37. Operator Audio Ring and Feedback Block Diagram



NOTES (Output References)

	FIG NR.
1. Central-to-Station	6-35
2. Ring detector storage	6-36
3. Operator audio ring and feedback	6-37
4. Net ring No.1 and No. 2	6-42
5. A and B control net	6-43
6. Net A and B receive	6-44
7. Intercom net and ring	6-47
8. Intercom and local comm external ring	6-48
9. 10-station net storage	6-52
10. Net subscriber storage control	6-53
11. Operational control net subscriber storage	6-54
12. Maintenance test net subscriber storage	6-56
13. VCC front panel and fault isolation	6-67
14. Command Administration Net Subscriber Storage	6-55
15. Local Comm Net Storage	6-49
16. Voice Comm Central Timing	6-57
17. Central Input Register	6-38

Figure 6-38. Central Input Register Block Diagram (Sheet 1 of 2)

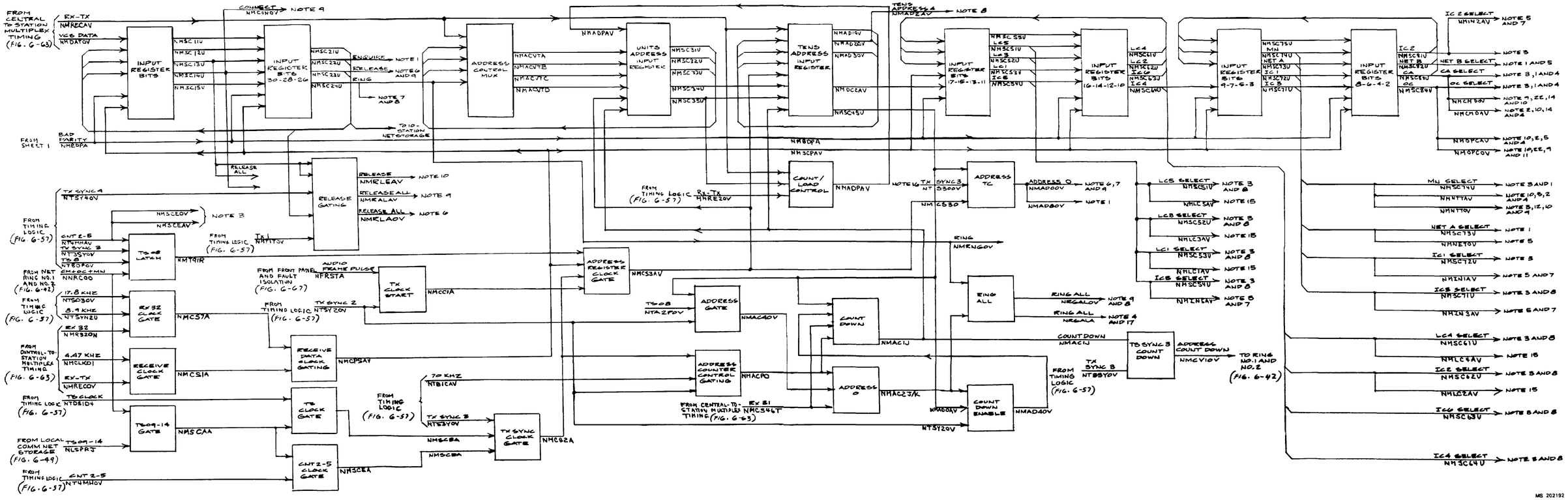


Figure 6-38. Central Input Register Block Diagram (Sheet 2 of 2)

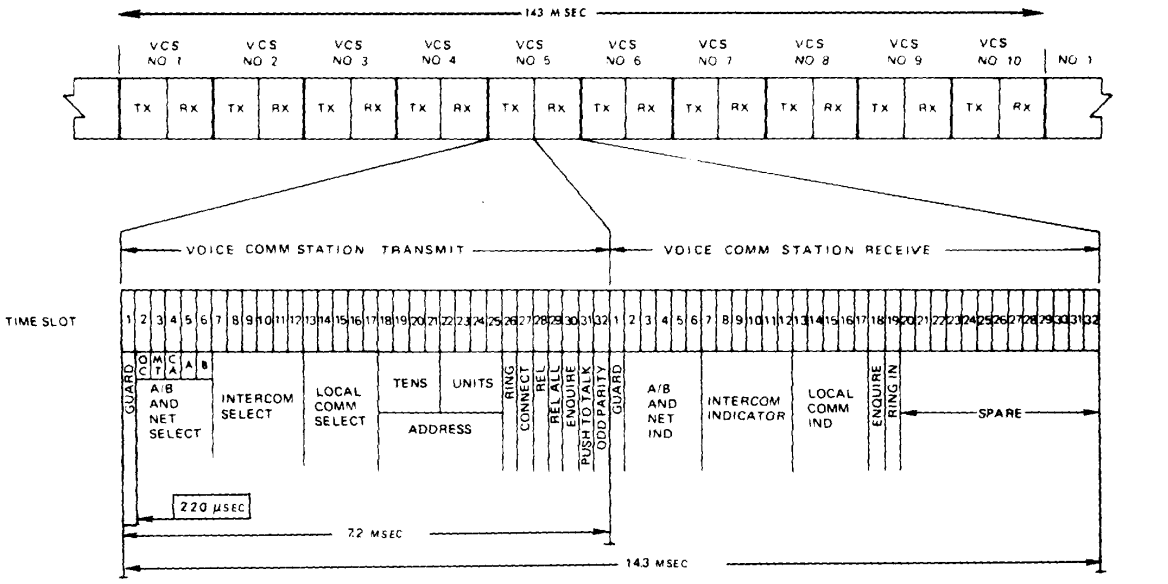


Figure 6-39. VCS Control Word Format

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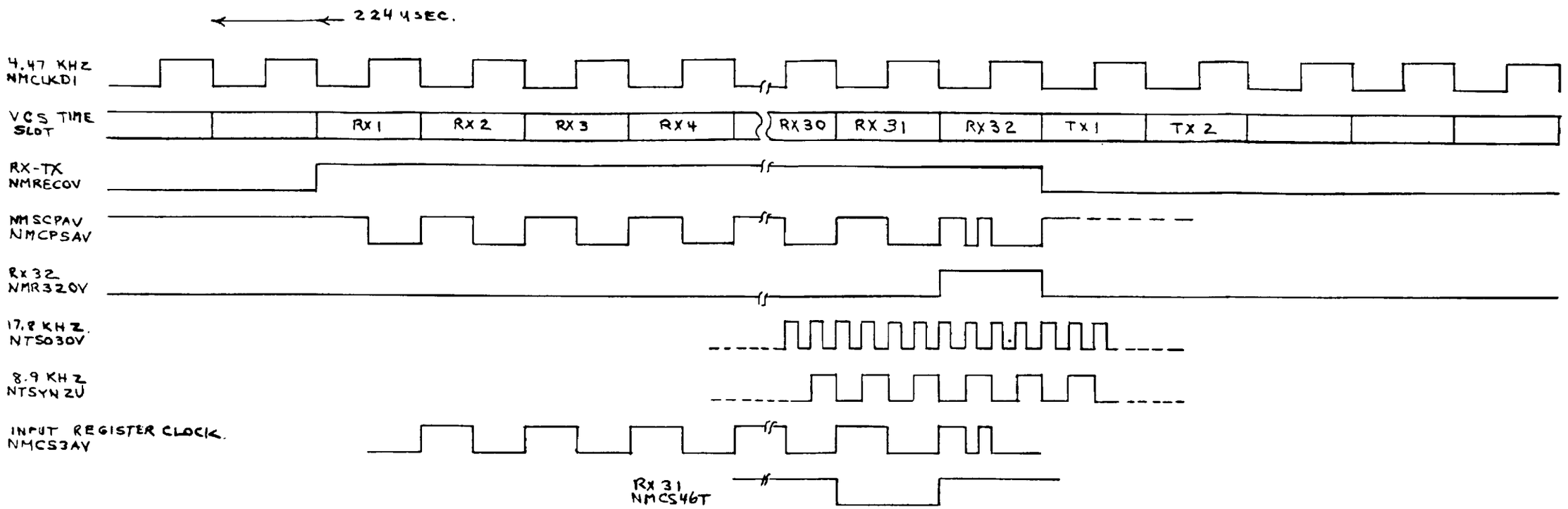

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Figure 6-40. VCS Control Data Input Timing

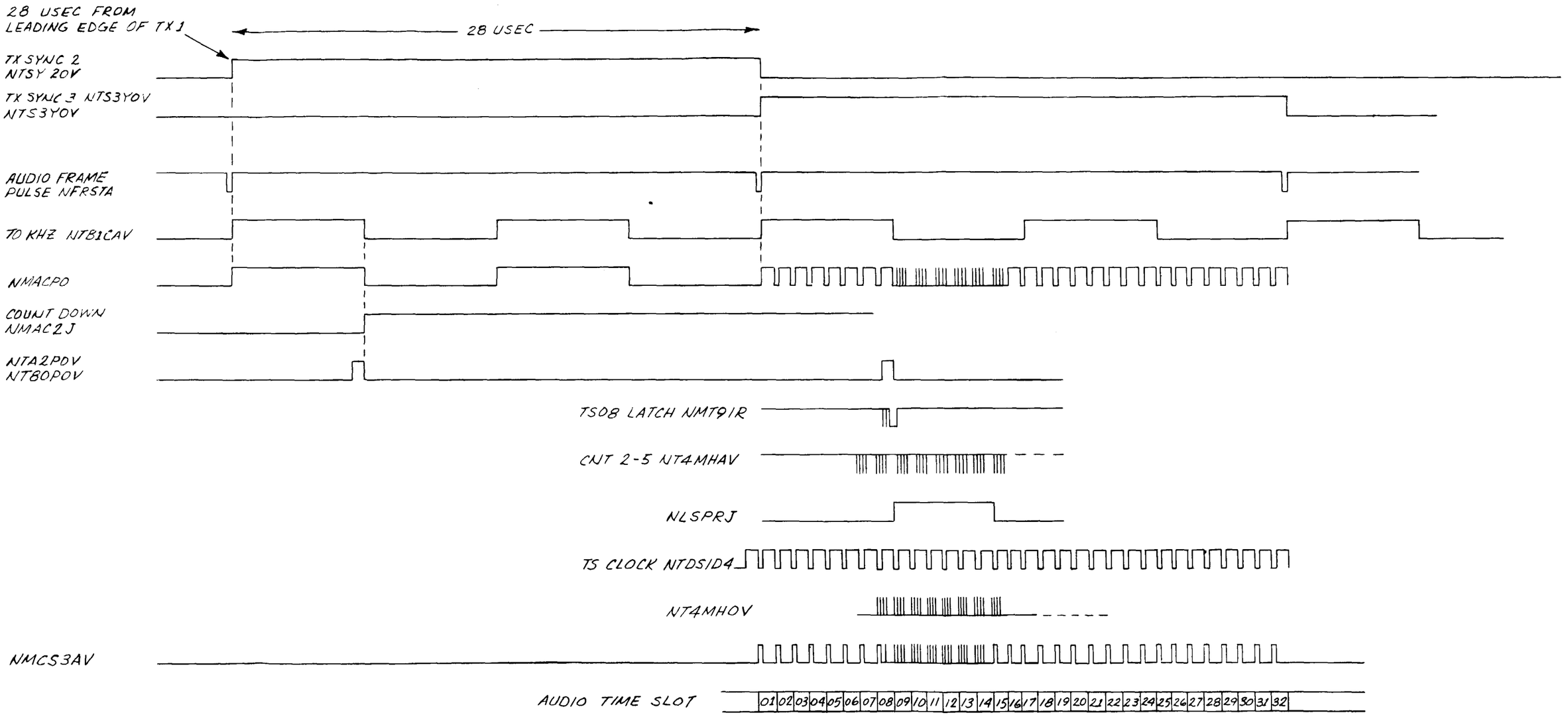

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Figure 6-41. Input Address Process Timing

every 10 clocks until terminal count is reached and the address TC flip-flop is set. Therefore, the number of TS slots required to set the address TC flip-flop is a binary indication of the input BCD address.

e. For a CM, OC or MN select, each of time slots 09 through 14 is associated with battery units. Therefore, for these net selects, four register clocks are generated for each of time slots 09 through 14. Thus, fire units A1 through A4 provide a terminal count at TS09, fire units B1 through B4 at TS10, etc.

6-26. Net Ring No. 1 and Net Ring No. 2 Functional Description (fig. 6-42, FO-12). The net ring No. 1 and net ring No. 2 logic combine the net select indications, the current subscriber address and the ring enable indications to provide ring enable to the net analog circuits for each of the selected subscribers. Net ring No. 1 is associated with the 32 normal channels of the OC, CA and MN nets; net ring No. 2 is associated with the 32 expansion channels of the OC, CA and MN nets. The net ring No. 1 and 2 circuits are identical; therefore, only net ring No. 1 is discussed. The net ring 1 timer is triggered by an active ring 1 clock and remains enabled for six frame times or 858 milliseconds. In a timed out condition, the ring 1 net select and subscriber address storage are cleared each TX sync 2 time. The ring 1 clock, indicating a ring enable for net 1, triggers the ring 1 timer and also sets the net ring latch. After 858 milliseconds, an active net select (CA + OC + MN), in conjunction with an active ring enable, generates a ring 1 clock which stores the net indication in the ring 1 net select storage. In addition, the address countdown level is utilized during TX sync 3 to step a binary indication of the current subscriber address into the subscriber address storage register. The net select storage and subscriber address outputs are decoded to provide a net ring indication to the net analog for one of the 32 channels of the selected net.

6-27. A and B Control Net Functional Description (fig. 6-43, FO-13). The A and B control net develops the net A and B to station indications which are supplied to the central-to-station logic for inclusion in the control word to be transmitted to the VCS. The A and B logic functions identically; therefore, only the net A logic is discussed. As long as no OC, CA, MN, IC or LC is currently being selected, an active net A select from the central input register generates the A operator connect to the net A and B receive operating storage. The A in use and alternate A in use flip-flops monitor the net A select in order to provide indications to all stations on the status of net A. During odd frames, the A in use flip-flop monitors the net A select and is set when this signal goes active. This flip-flop remains set for the entire even frame providing the net A indicator to all VCS stations. The alternate A in use flip-flop scans the stations of net A during even frames and provides the appropriate indicator to all stations during odd frames.

6-27.1 Net A and B Receive Functional Description (fig. 6-44, FO-14). The net A and B receive provides static and circulating storage for the net A and B status (i.e., connect or release) and develops the audio control signals for the command administration net analog utilizing the special nets. The connect and release signals from the central input register for each subscriber address are stored in two 32-bit circulating registers, one for net A and the other for net B. These indications are sampled four bits at a time in the A and B connect registers. The 32-bit connect status is staticized in the net A and B registers every audio frame time. The register outputs are sampled from TSO1 through TS32 to develop the audio control signals to the command administration net analog. The register outputs are also combined with the CA TS enables from the command administration net subscriber storage to develop the CA receive and transmit enables for the command administration net analog.

6-28. Net A and B Operator Storage Functional Description (fig. 6-46, FO-15). The net A and B operator storage provides storage for the A and B operator connect indications for each of the 10 stations. For each odd station frame (1, 3, 5, etc.), the A or B connect indications are stored in the A or B odd station flip-flops. For each even station frame (2, 4, 6, etc.), the outputs from the odd station flip-flops and the current operation connect, if active, are stored in the appropriate register stage. The register outputs are used for audio enables in the ring net detector logic.

6-29. Subnetter Control Functional Description (fig. 6-46, FO-16). The subnetter control develops the timing intervals required by the net analog circuits to process battery audio. This logic monitors the net subscriber storage logics for battery connect indications and stores these signals as a battery in-use level. The transmit internal timing and the in-use indications are combined to provide enable clock to the net analogs to activate the selected battery link for the particular net analog.

6-30. Intercomm Net and Ring Functional Description (fig. 6-47, FO-17). The intercomm net and ring provides static and recirculating storage for the status of the intercomm links for each station and generates the enabling levels to the central-to-station logic which are used to incorporate the intercomm indicators into the control word to the currently selected VCS. The intercom select and ring inputs from the central input register are continuously monitored and, when coincident, generate the connect indication in the proper recirculating register time slot. In addition, the intercomm interface is monitored for a ring enable from each of the intercomm lines. These stored signals are utilized to generate the intercomm indicators and ring-in signal which permit the station operator to detect station or intercomm initiated rings.

6-31. Intercomm and Local Comm External Ring Functional Description (fig. 6-48, FO-18). The intercomm and local comm external ring monitors the intercomm and local comm select line and the ring enable

from the central input register and generates the 20 Hz external ring enable to the selected link. This logic provides a ring timer for each of the intercomms and the local comma. Each enables the 858 millisecond external ring when one of the links is selected for ringing by a station operator.

6-32. Local Comm Net Storage Functional Description (fig. 6-49, FO-19). The local comm net storage provides circulating storage for the connect indications for each of the five local comm links. This logic also provides intercomm and local comm synchronization timing as illustrated in figure 6-50. The LC connect commutator provides an enable at each operator time (i.e., one of time slots 17 through 26) when a local comm is selected. This inserts a connect indication into the proper time slot of the circulating shift register associated with the selected local comm. In the same manner, the LC select inputs are continuously monitored for disconnect statuses which removes the connect indication from the appropriate time slot. Five flip-flops monitor the circulating shift register to provide the LC busy levels for each of the five local comm links.

6-33. Intercomm and Local Comm Audio Receive Functional Description (fig. 6-51, FO-20). The intercomm and local comm audio controls provide static and recirculating storage for the intercomm and local comm connect indications and develop the operator audio signals to the local comm interface. The intercomm and local comm current connect or disconnect status is stored in a 32-bit register. The register output is combined with the IC and LC release indications from the local comm net storage and intercomm net and ring, to update 10 operator recirculating registers and five local comm recirculating registers. The register outputs are sampled at the appropriate time slots to provide the audio control signals to the local comm interface.

6-34. 10-Station Net Storage Functional Description (fig. 6-62, FO-21). The 10-station net storage provides shift register storage for the ring, connect and release indications from each of the stations to each of the CA, OC and MN nets. The operation of the CA, OC and MN net logic is identical; therefore, only the CA net is discussed.

a. When a ring enable is indicated for the CA net, the TS16 pulse is passed during TS sync 3 through the CA control decode and the CA control gating. Dependent upon the station currently being selected, this pulse is inserted in time slot 16 of the 16-bit shift register associated with the CA net for the selected station. At TS sync 4, the ring timer is cleared and subsequently stepped by each frame sync. At count 5 (or after an 858 millisecond ring interval), the TS16 ring pulse is cleared.

b. The address TC input from the control input register results in a single time slot pulse from the address TC latch. The time slot that the pulse occurs in is representative of the VCS address for the selected net. When the CA net is selected and the connect instruction is present, a connect pulse is inserted in the associated time of the CA net storage. In a similar manner, the address TC latch combined with a release instruction clears the connect pulse for the addressed time slot.

c. The station net storage outputs are multiplexed to various external logic for control purposes and for subsequent net subscriber storage. For TSO1 through TS16, connect/release indications for the various net subscribers are outputted. For TS17 through TS26, the operator indications are outputted.

6-35. Net Subscriber Storage Functional Description (fig. 6-63, FO-22). The net subscriber storage provides 32-bit recirculating storage for the subscriber/ ring/operator indications for each of the CA, OP and MN nets. The operation of all three nets is similar; therefore, only the CA net is discussed. The connect and ring indications for the currently selected station are shifted from the 10-station net storage into a 32-bit recirculating register during TX sync 3 of TX1 for each transmit time. During TX sync 5, the connect and ring indications are compared with the current disconnect indications from the 10-station net storage and both lines are outputted to the CA net subscriber storage as subscriber/ring/operator indications for the currently selected operator.

6-36. Operational Control Net Subscriber Storage Functional Description (fig. 6-54, FO-23). The operational control net subscriber storage provides circulating storage for the connect/disconnect indications of the OC subscribers and operators and develops the audio control pulses for the OC analog circuits. Each TS sync 3 interval, the OC connect indications from the 10-station net storage are shifted into the 32-bit update register. The contents of the update register are continuously compared with the OC connect/disconnect indications from the net subscriber storage control. The results are shifted in 25 recirculating registers, each of which is associated with one of the OC subscribers or operator time slots. The register outputs are used by the analog to gate the audio signals during multiplexing and demultiplexing operations.

6-37. Command Administration Net Subscriber Storage Functional Description (fig. 6-55, FO-24).

The command administration net subscriber storage provides circulating storage for the connect/disconnect command of the CA subscribers and operators and develops the audio control pulses for the CA analog circuits. This logic is identical with that for the operational control net subscriber storage.

6-38. Maintenance Test Net Subscriber Storage Functional Description (fig. 6-56, FO-25). The maintenance test net subscriber storage provides circulating storage for the connect/disconnect indications of the MN subscribers and operators and develops the audio control pulses for the MN analog circuits. This logic is identical with that for the operational control net subscriber storage.

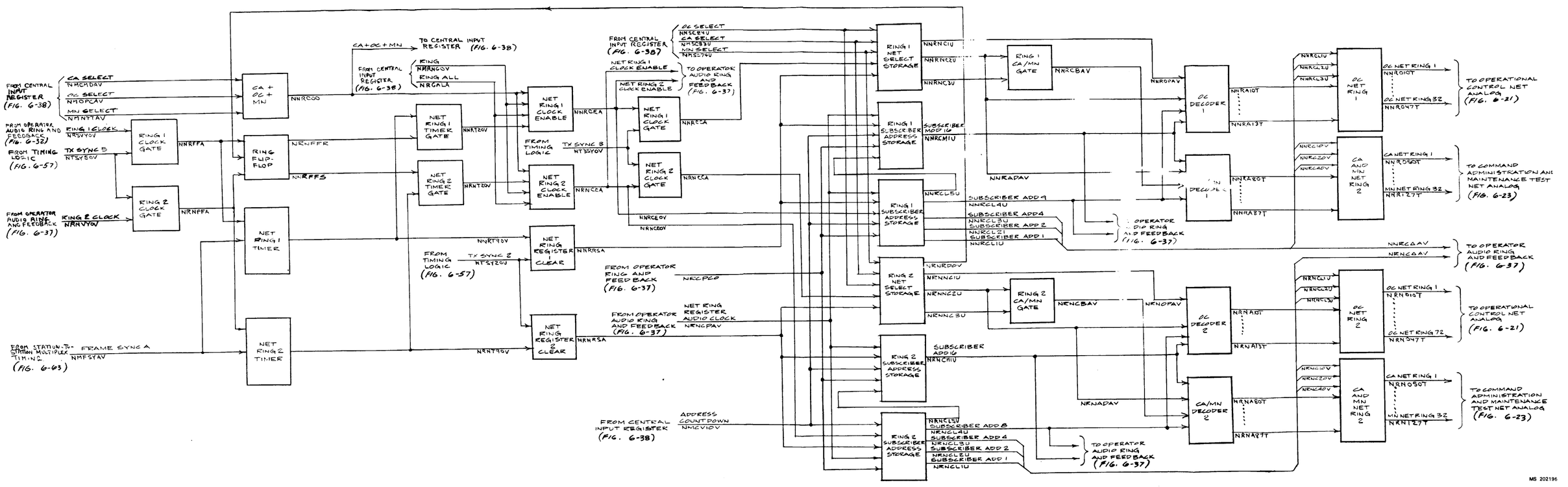

Figure 6-42. Net Ring No. 1 and Net Ring No. 2 Block Diagram

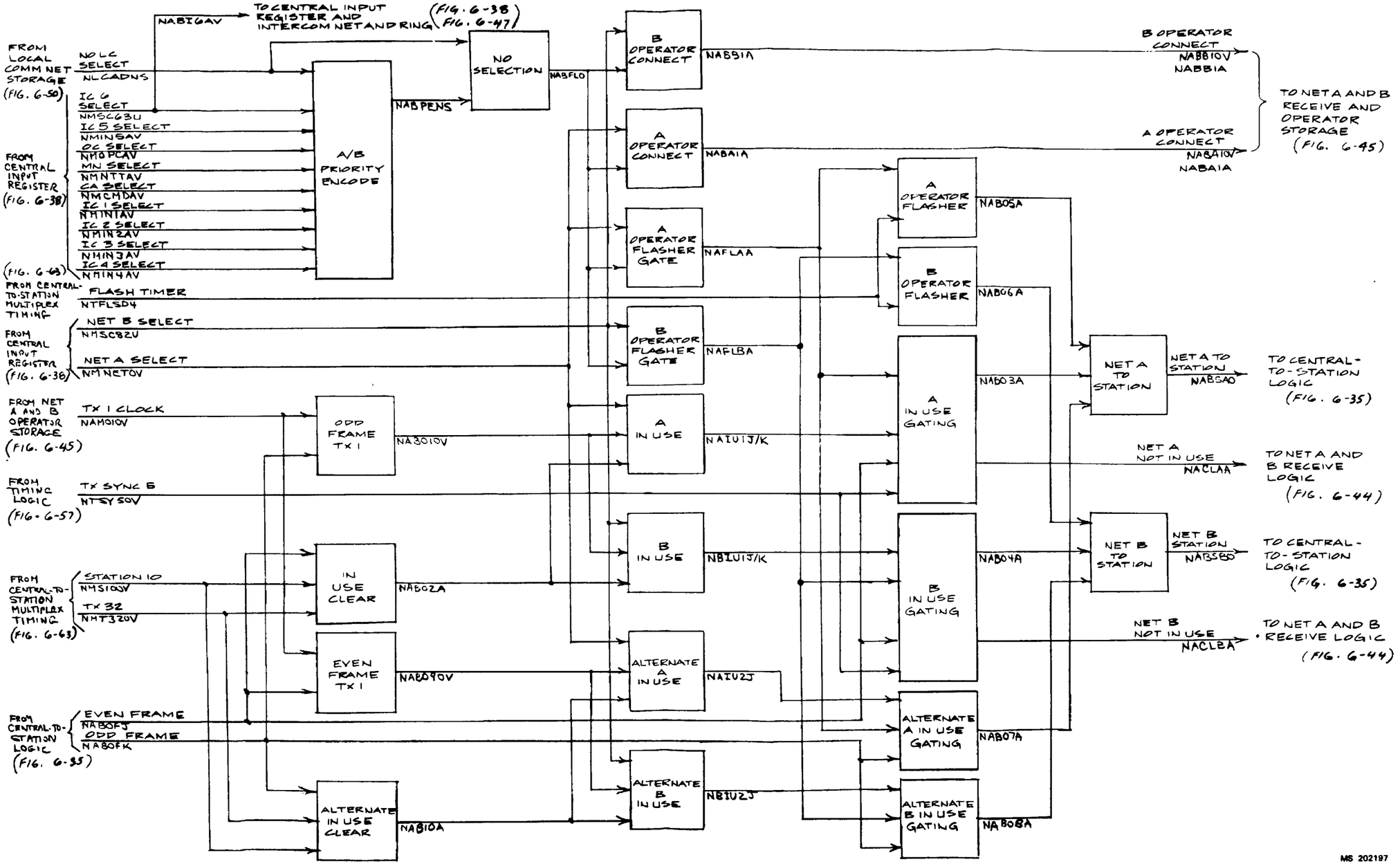

Figure 6-43. A and B Control Net Block Diagram.

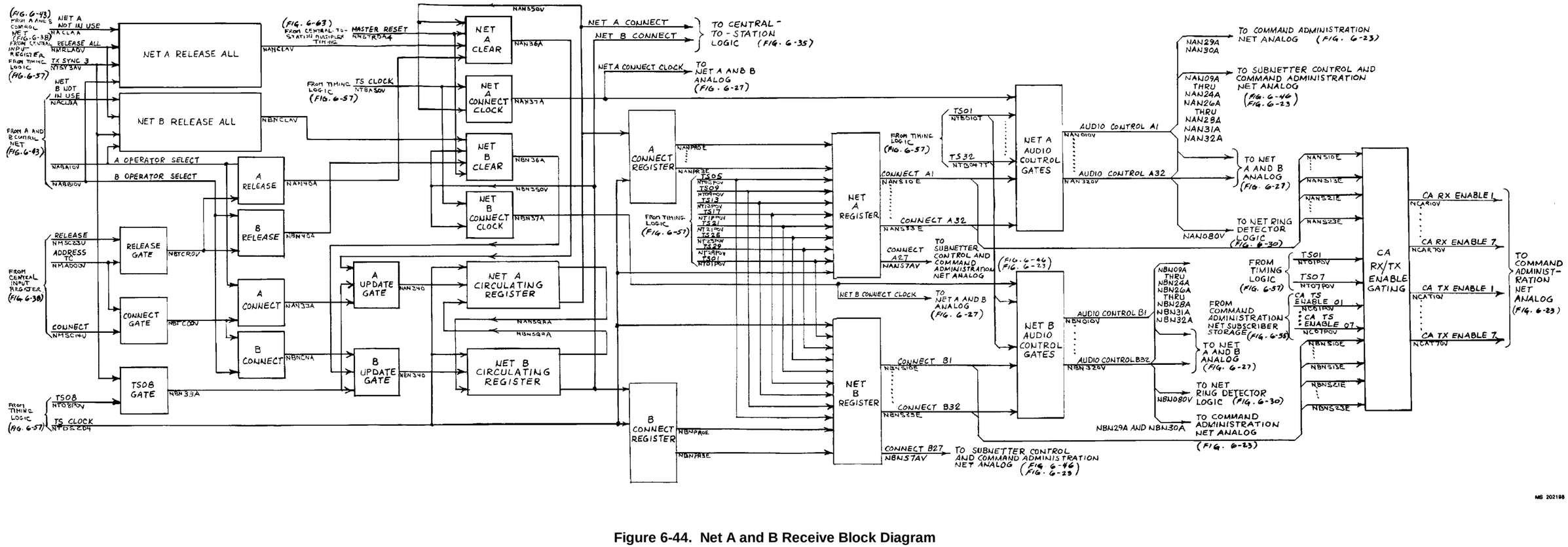

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Figure 6-44. Net A and B Receive Block Diagram

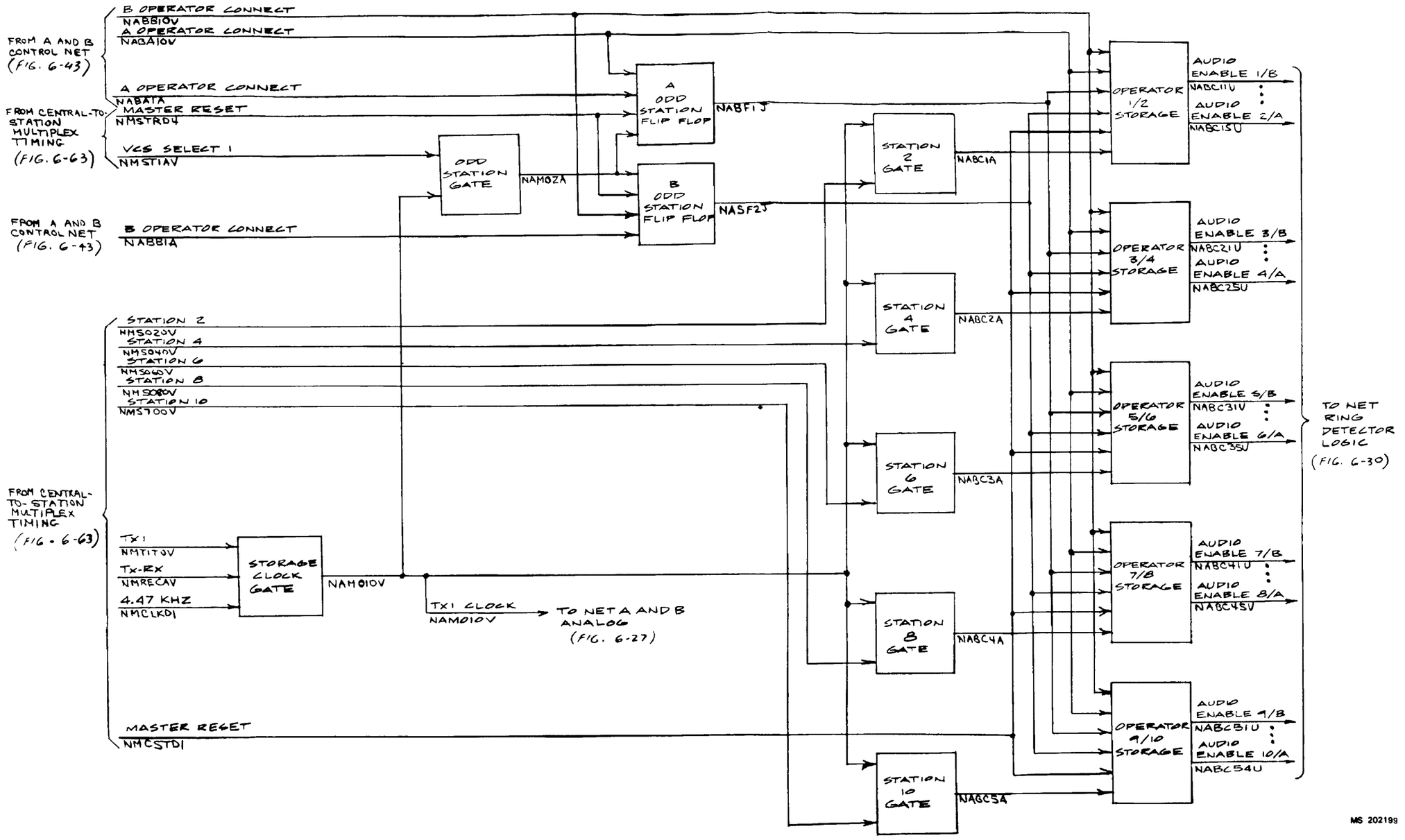

Figure 6-45. Net A and B Operator Storage Block Diagram.

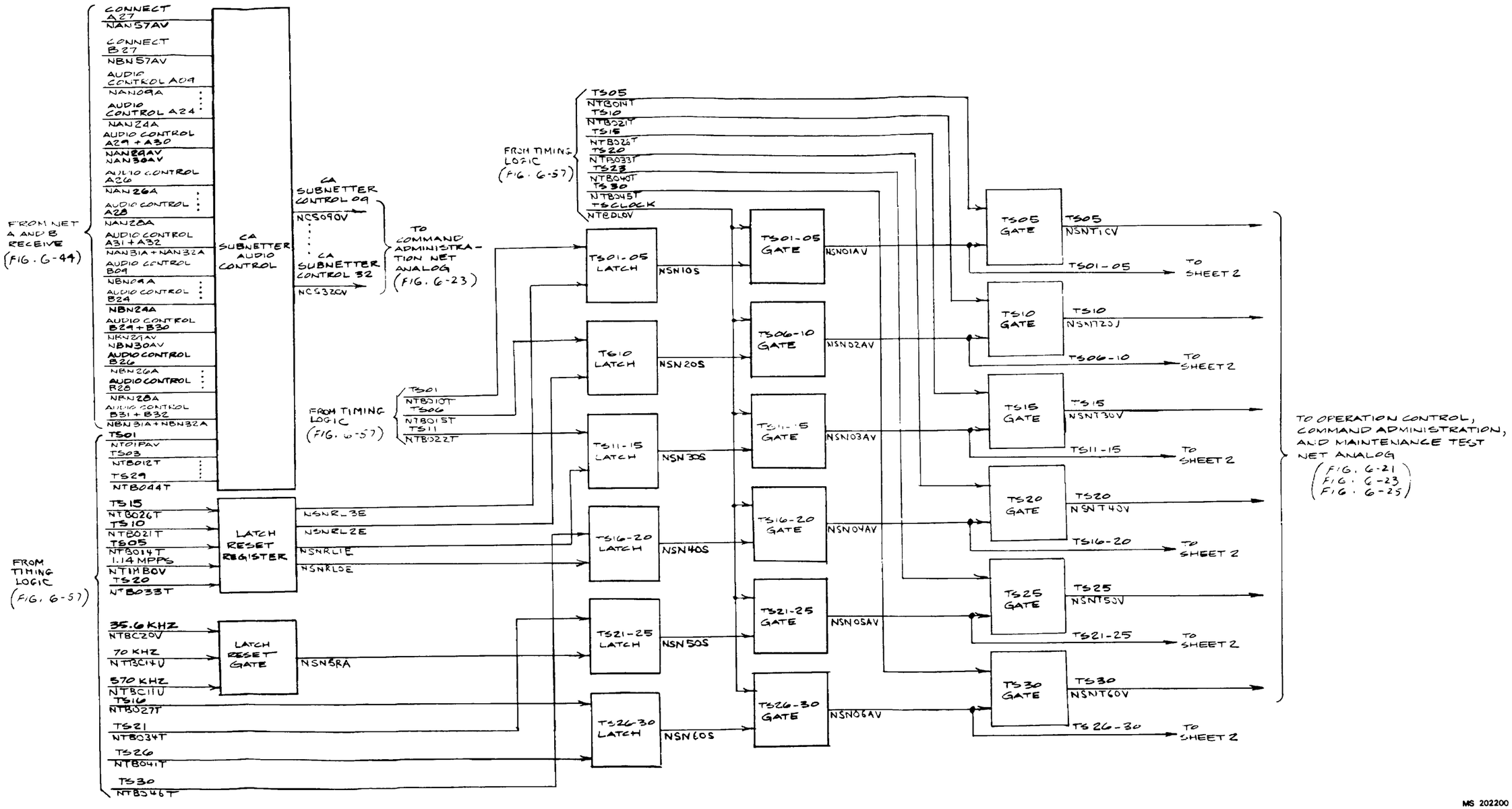

Figure 6-46. Subnetter Control Block Diagram (Sheet 1 of 2)

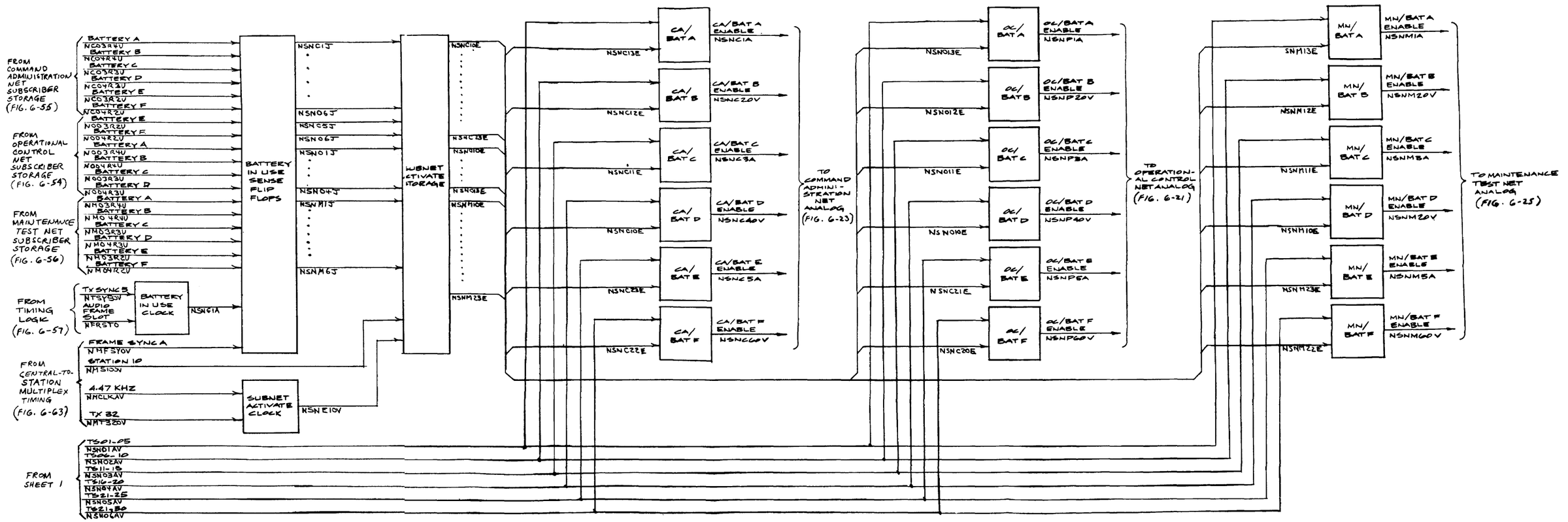

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Figure 6-46. Subnetter Control Block Diagram (Sheet 2 of 2)
6-151/(6-152blank)

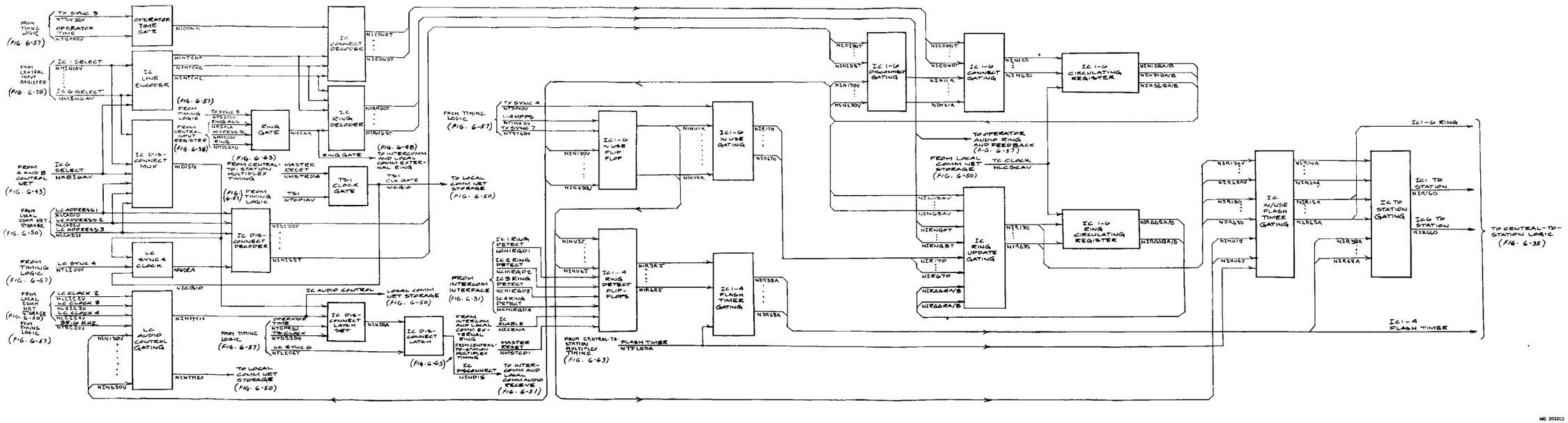
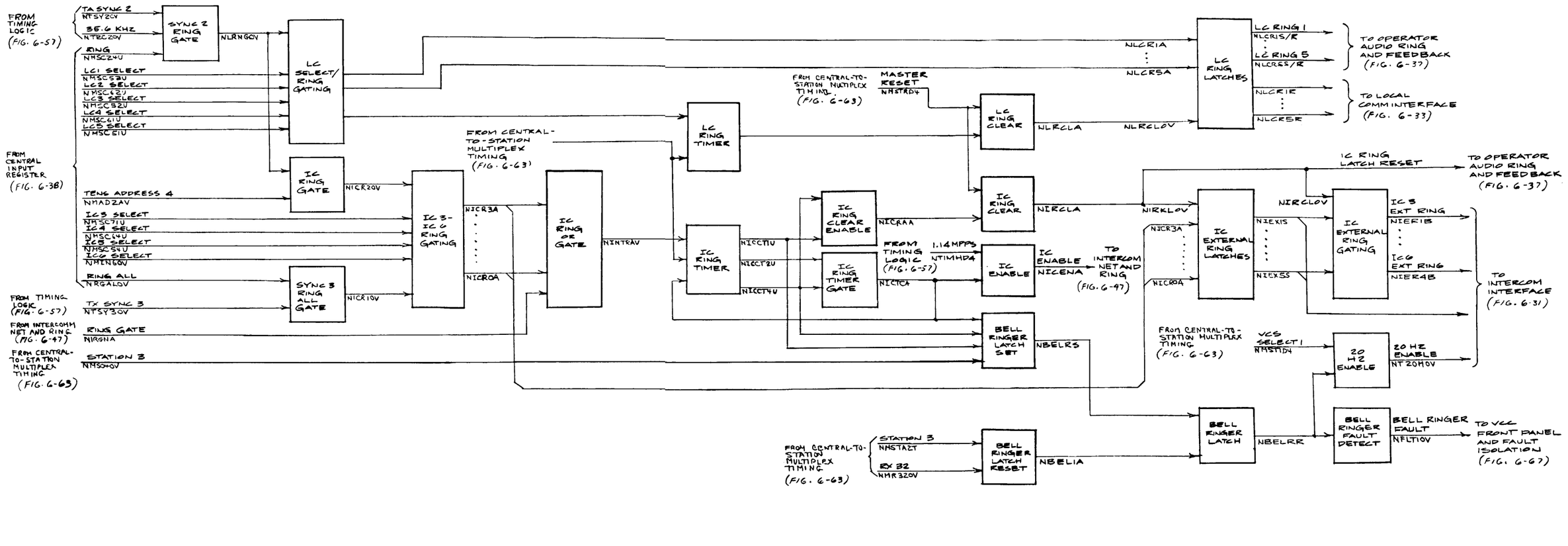


Figure 6-47. Intercomm Net and Ring Block Diagram.
6-153/(6-154 blank)



MS 202203

Figure 6-48. Intercomm and Local Comm External Ring Block Diagram.

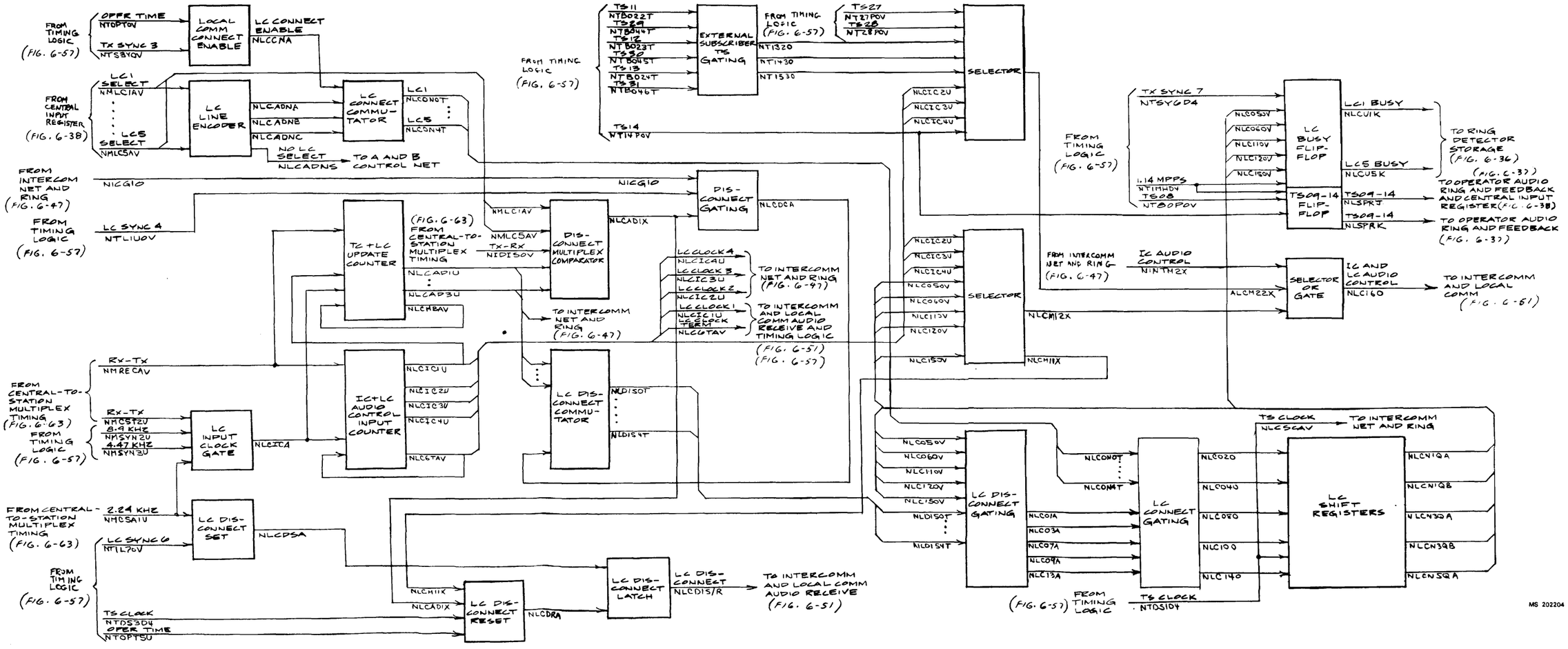


Figure 6-49. Local Comm Net Storage Block Diagram.

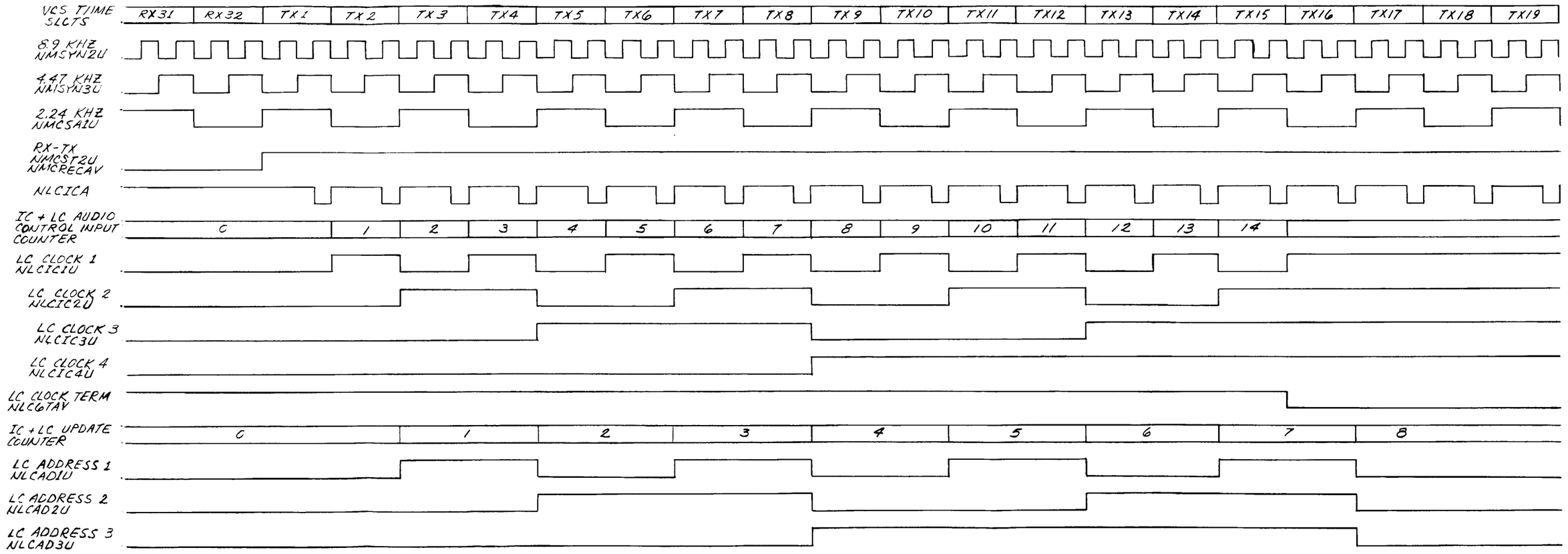


Figure 6-50. Local Comm Net Storage Timing Diagram.

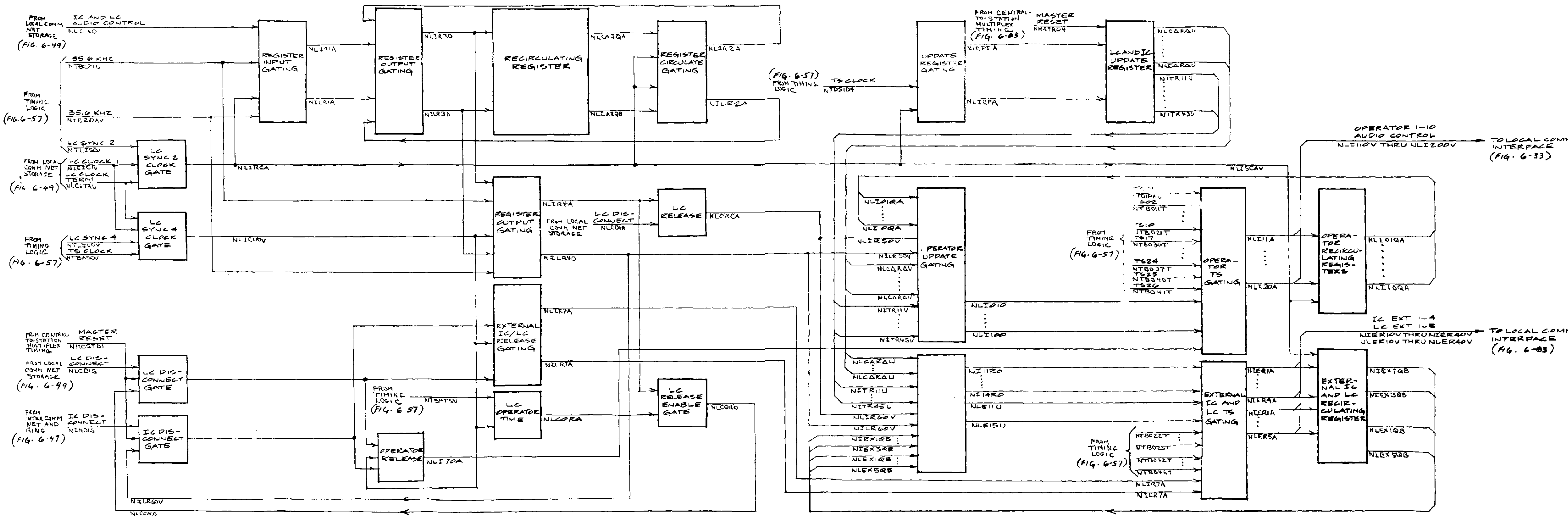


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Figure 6-51. Intercomm and Local Comm Audio Receive Block Diagram

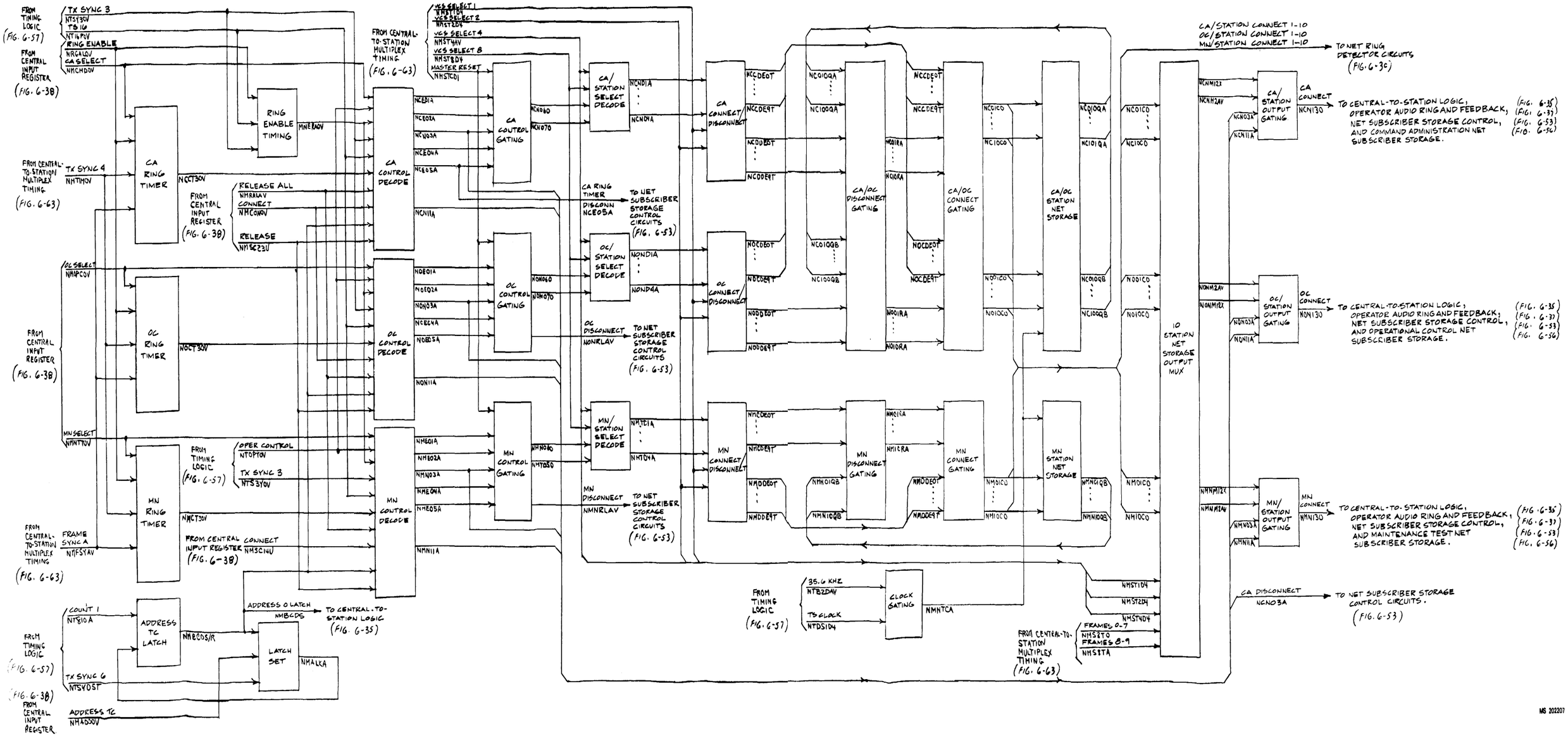

Figure 6-52. 10-Station Net Storage Block Diagram
6-163/(6-164 blank

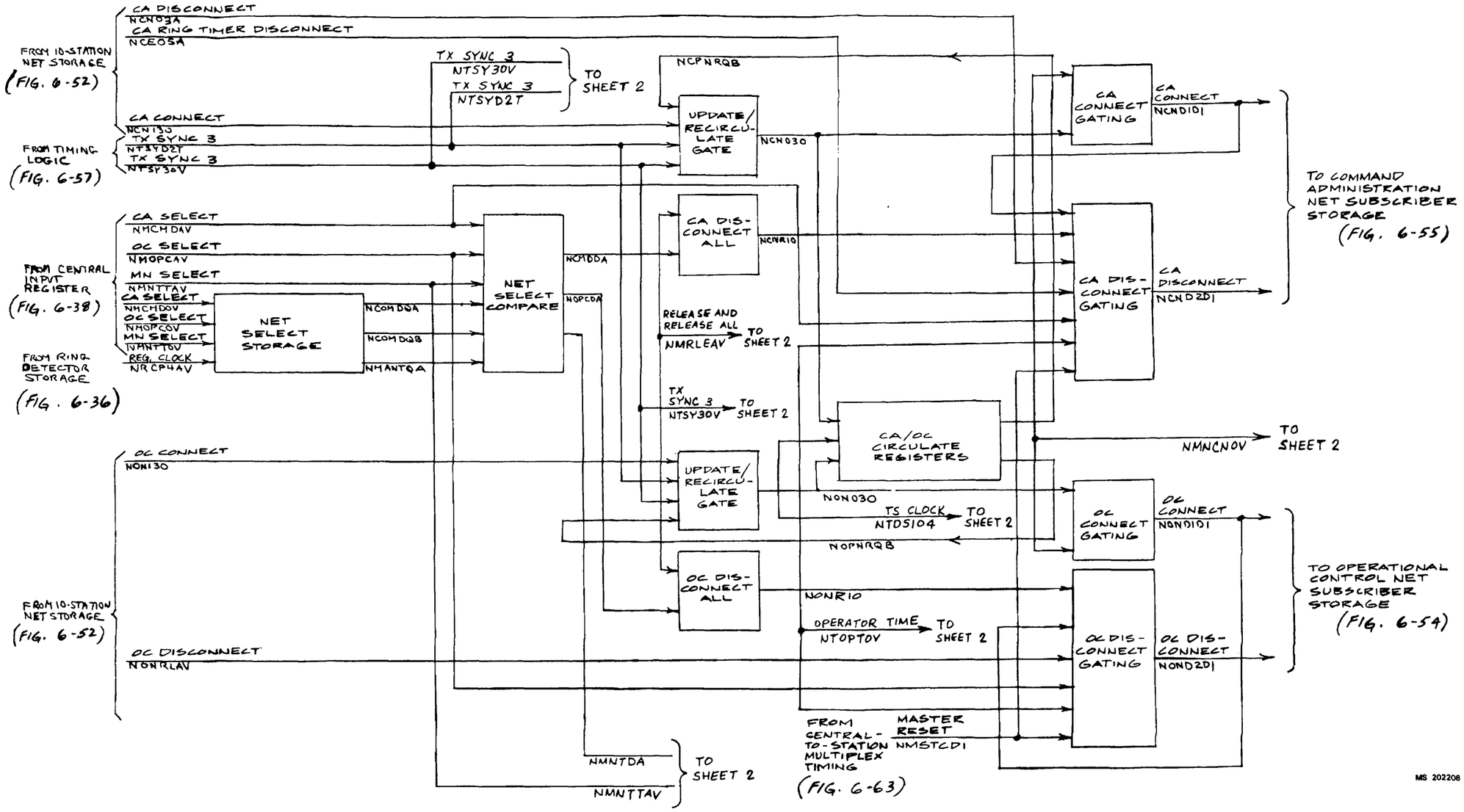

Figure 6-53. Net Subscriber Storage Block Diagram (Sheet 1 of 2)

6-165/6-166 blank)

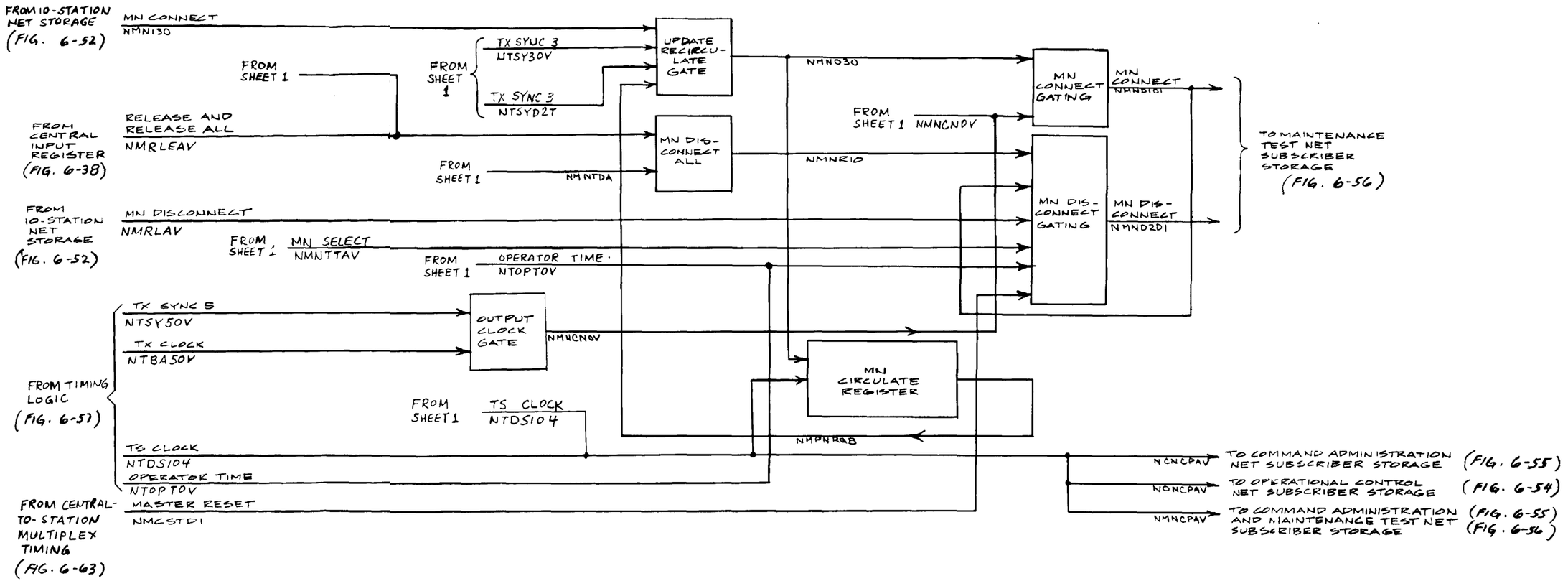

Figure 6-53. Net Subscriber Storage Block Diagram (Sheet 2 of 2)

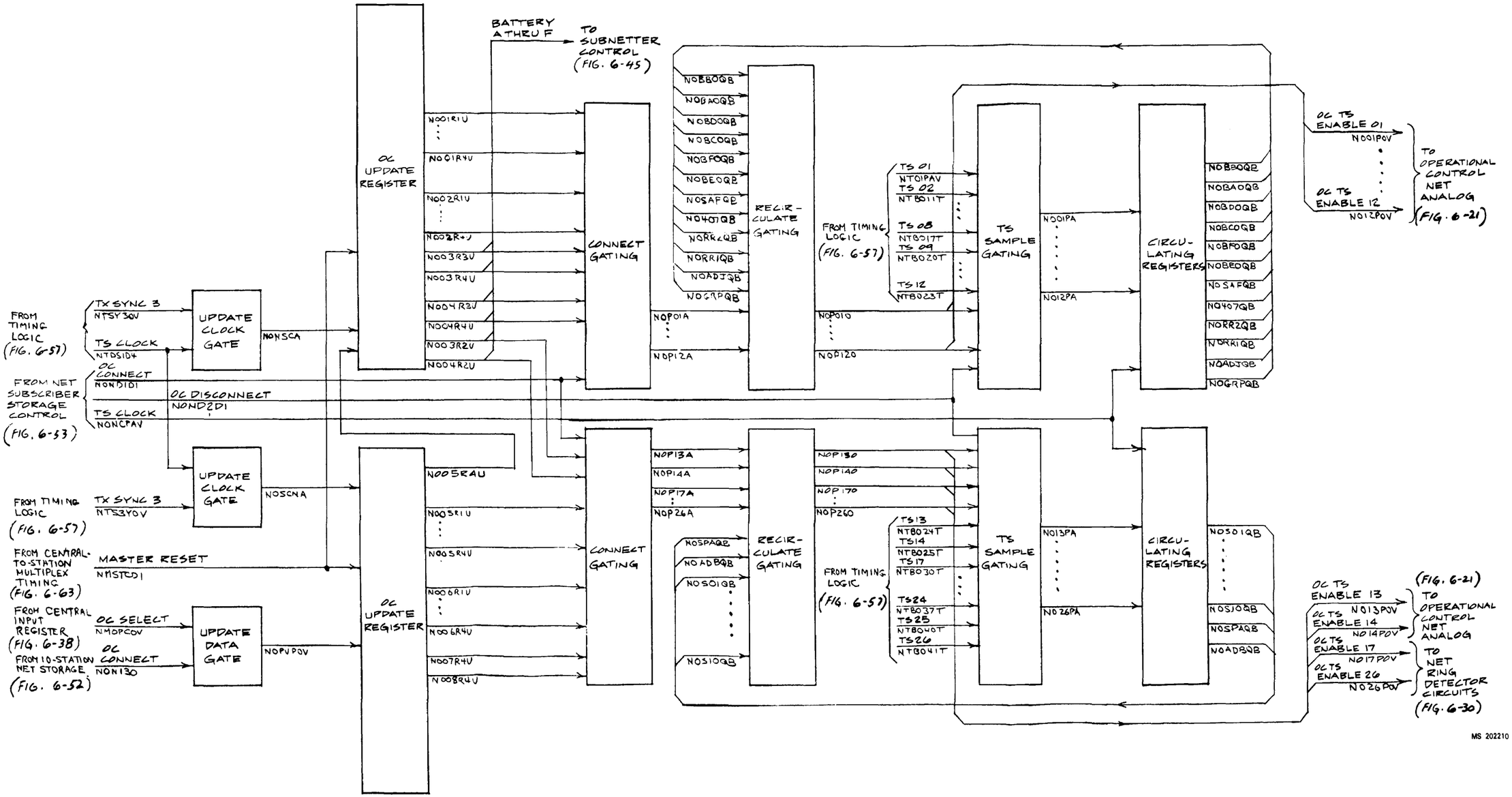

Figure 6-54. Operational Control Net Subscriber Storage Block Diagram

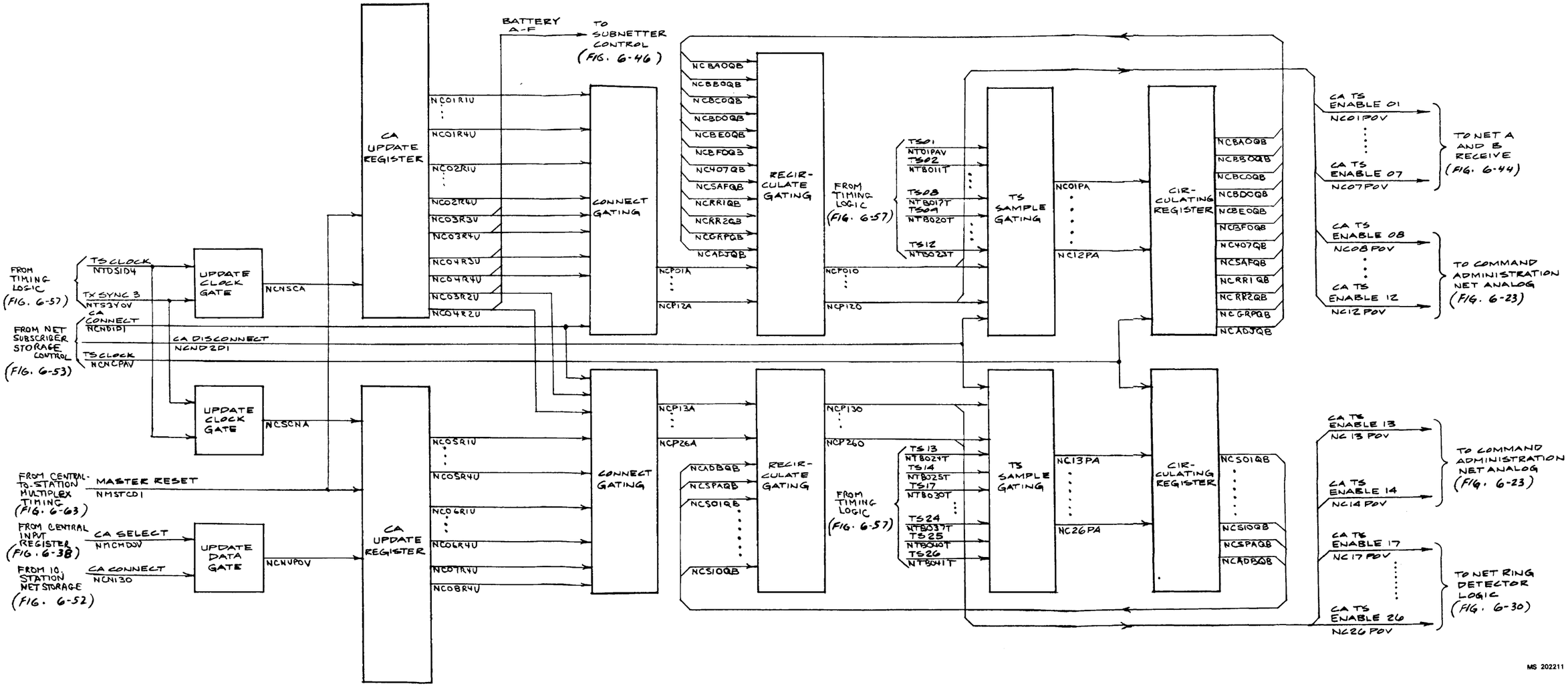

Figure 6-55. Command Administration Net Subscriber Storage Block Diagram

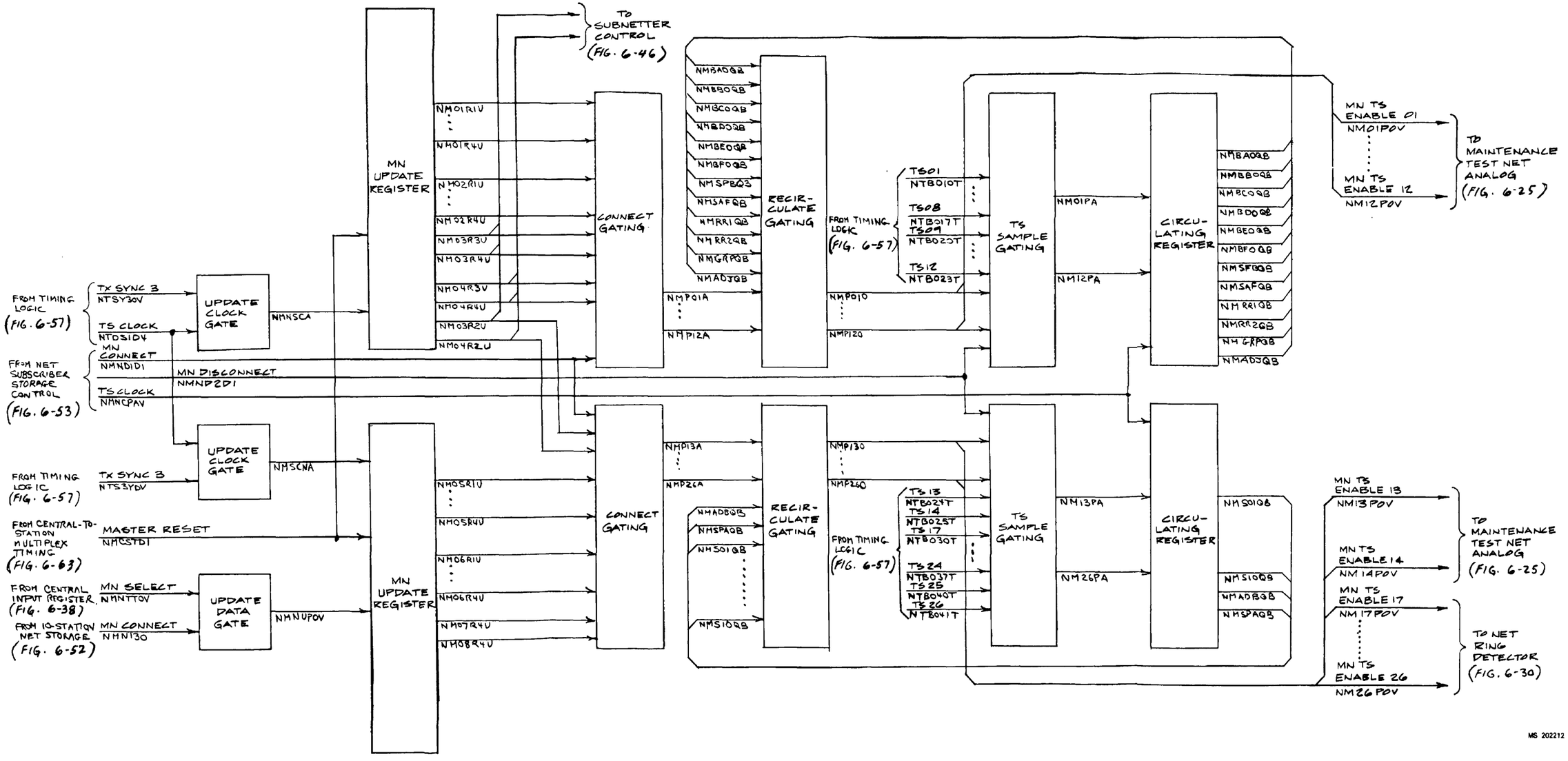

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Figure 6-56. Maintenance Test Net Subscriber Storage Block Diagram

6-39. Timing Logic Functional Description (fig. 657, FO-26). The timing logic develops the various pulse chains and discrete timing pulses required to generate the 1600 and 20 Hz ring signals and to define the audio time slots and various sync pulses utilized to process control and audio signals within the VCC. All VCC timing is derived from an eight-megahertz clock generator.

a. Figure 6-58 illustrates the logic timing for generating the 1600-Hz ring tone. The eight-megahertz clock is initially divided by seven. The output from the + 7 counter provides the basic 1.14-MHz audio time slot timing in addition to ancillary pulse trains of various phase relationships which are utilized throughout the VCC. The 1.14 MHz pulse train is further divided by 179 and then by four to provide the 1600 Hz ring tone.

b. Figure 6-59 illustrates the audio time slot and audio frame generation. These timing signals are developed by a 2 and + 16 counter and associated decoders. The counter's outputs are decoded to produce 32 audio time slots of 875 nsec each. The counter's overflow is gated to produce the 35.6 KHz audio frame slot.

c. Figure 6-60 illustrates the transmit sync time generation. The transmit sync pulses are utilized during TX1, which is the VCS transmit guard slot, to process the stored VCS control information.

d. Figure 6-61 illustrates the operator time control generation. The current VCS address is inverted and loaded into a pair of 16 counters during each audio frame of TX1. The overflow from each counter is representative of the audio time slots for the particular station. As shown on figure 6-61, a VCS five address results in a pulse during time slot 5 (in the event a local comm calling VCS 5) and time slot 21 (for a net or intercom call).

e. Local comm sync timing generation is illustrated in figure 6-62. This logic generates a series of sync pulses that are used to process local comm and intercomm control information during the transmit mode.

f. Several other significant timing signals emanate from the timing logic. A + 8 counter is driven by the 35.6 kilopulse audio frame pulse to provide a 4.47 KHz clock train. This is the basic clock utilized in the central-to-station multiplex timing to generate the VCS time slots. In addition, the 143 millisecond frame sync (NMFSYA), which is generated in the central-to-station multiplex timing, is divided by 10 to provide a 1.44 second timing pulse. These pulses are utilized to time the station rings.

6-40. Central-to-Station Multiplex Timing Functional Description (fig. 6-63. FO-27). The central-to-station multiplex timing develops those timing and control signals required to define the VCS frame time, the VSC receive and transmit time slots and the current VCS selection. This circuit also includes pertinent logic on the multiplexer control which is used to transmit control and timing information to the VCS and to receive control information from the VCS.

a. Multiplexer control operation is illustrated in figure 6-64. The 4.47 KHz square wave (referred to nominally as the 5 KHz clock) from the timing logic is converted to a sine wave by the front panel and fault isolation logic. This sine wave is supplied to the VCS/ VCC interface as the basic control bit clock. The 5 KHz sine-wave is squared-up and utilized to clock the transmit and receive control information to and from the VCS/VCC interface. The 5-KHz clock is divided by 64 and used to drive the station timing counter/decoder. Every 10 decoder counts enables the frame sync generator. Thus, a frame sync pulse is generated every 143.8 milliseconds, defining the time required to receive and transmit control and audio data from and to the maximum of 10 stations. The frame sync pulse is imposed upon the 5 KHz clock to provide a double amplitude sine-wave slot utilized by the stations for synchronization.

b. VCS time slot generation is illustrated in figure 6-65. The 5 KHz clock input drives a + 16 and + 4 counters, which are decoded to provide 64 discrete VCS time slots of 224 psec each. These are referred to as RX1 through RX32 for the receive mode and TX1 through TX32 for the transmit mode. Particular time slots and time slot spans are outputted for processing of information throughout the VCC during the receive and transmit modes. VCS select timing is illustrated in figure 6-66. A + 10 counter is initialized by the frame sync pulse and stepped by TX32 pulse. The counter outputs are combined to provide a BCD indication of the current VCS address.

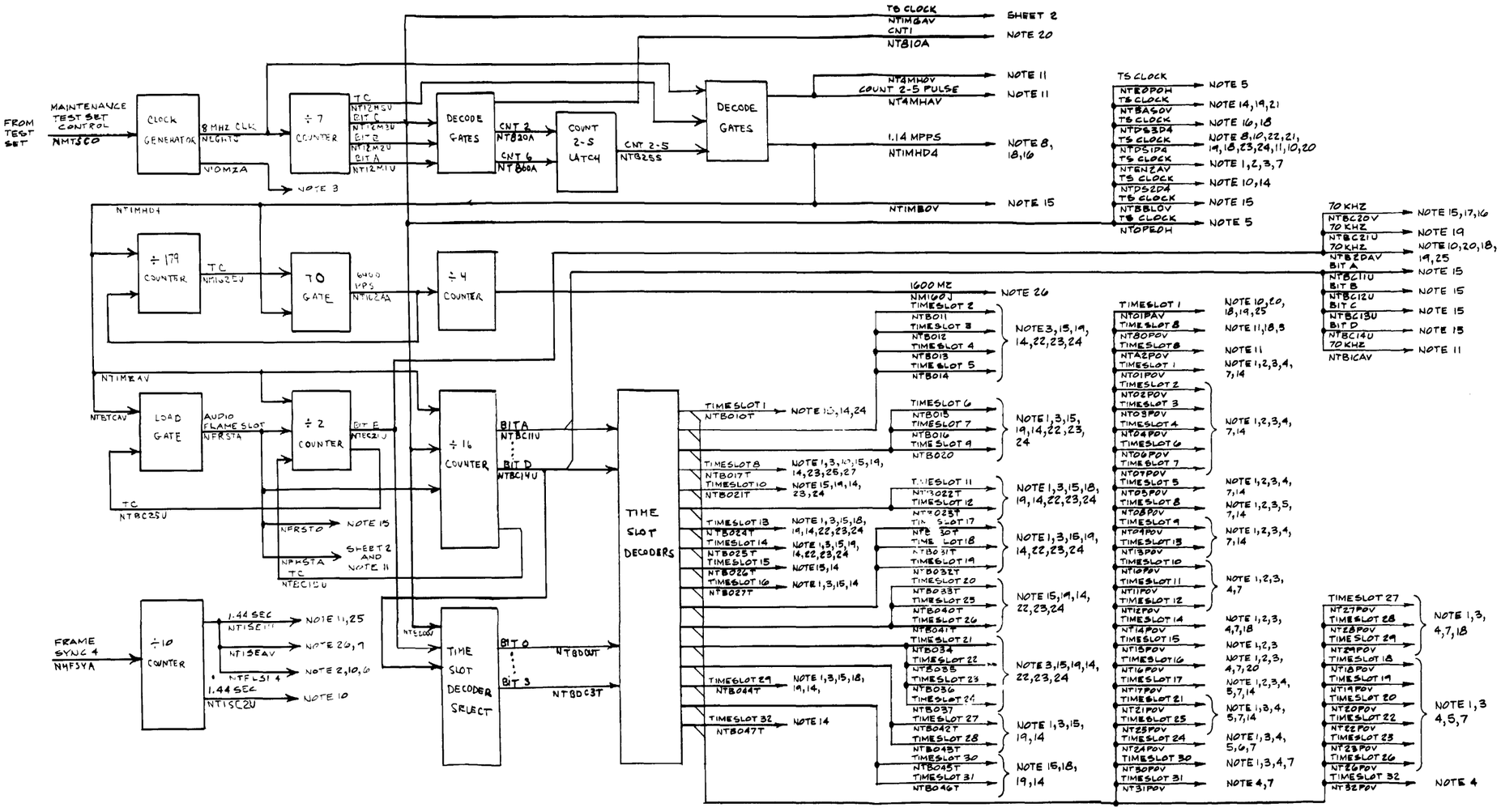
6-41. Front Panel and Fault Isolation Functional Description (fig. 6-67, FO-28). The front panel and fault isolation provide the logic, switches and indicators to monitor critical VCC functions and to implement off-line fault isolation. The Voice Communication subsystem is functionally independent of all other subsystems and has no software interface for fault isolation. Consequently, fault isolation is accomplished by a combination of circuit partitioning, fault monitoring circuits, built-in fault isolation equipment, and status displays. Fault isolation in the analog circuit area is performed by use of the VCC front panel in conjunction with the comm patch panel and one functioning VCS. Fault isolation of the digital logic cards is performed with the module test set.

a. Ten status indicators are provided to display faults occurring in the multiplex link between the station and the VCC. The indicators are driven by circuits which check for excessive parity failures in messages received from the stations. During each control signal multiplex frame, all messages received from the stations are compared for parity and if an error is detected, the station's status indicator is lit during that control frame. Continuous parity errors from the same

station or stations will maintain the indicator in a lighted condition. By observing the combination of indicators illuminated, most of the transmission faults can easily be isolated to internal cabling/connectors, external cabling and open lines in an individual station. Since all console mounted stations use the same two control lines, an error at a console station that is on line indicates a specific station or external cabling fault.

b. The frequency monitor row of indicators displays the status of critical frequencies. Any fault associated with a monitored frequency illuminates the lamp. Tone decoders, which detect the presence of 1600 Hz and KHz signals, cause the respective frequency monitor indicator to light when the tone is absent.

c. The TEST section of the panel consists of three thumbwheel switches and a GO/NO-GO indicator. These are used to fault isolate analog cards by selecting the net, local comm, or intercomm (FUNCTION) to be checked and the line (ADDRESS) of the net, to be monitored. A 1600 Hz ring signal is applied to the selected line due to VCS switch actions and is monitored at selected points. The signal injection and detection is in the four-wire card which has the receive and transmit channel of the selected line. Assuming that channel 1 of a specific four-wire card is selected for test, the audio transmit is connected to the audio receive section of channel 1. This action is accomplished at the patch panel by connecting the INT TRANSMIT to the INT RECEIVE of the selected line with a patch card. If the 1600 Hz signal is detected on the receive channel, the GO half of the indicator illuminates. If the signal is not detected, the NO-GO half illuminates and the position of the switches identify one or two cards which should be replaced. The signal, as was previously mentioned, is injected into the proper line by using an operable VCS to generate a RING command. The ring causes a 1600 Hz signal to be transmitted. This signal is looped back to the VCC on the line selected for test.



NOTES: (Output References)

		FIG. NO.
1.	Operational control net analog	6-21
2.	Command administration net analog	6-23
3.	Maintenance test net analog	6-25
4.	Net A and B analog	6-27
5.	Net ring detector	6-30
6.	Intercom interface	6-31
7.	Local comm interface	6-33
8.	Central-to-station	6-35
9.	Ring detector storage	6-36
10.	Operator audio ring and feedback	6-37
11.	Central input register	6-38
12.	Net ring No. 1 and No. 2	6-42
13.	A and B control net	6-43
14.	Net A and B receive	6-44
15.	Subnetter control	6-46
16.	Intercomm net and ring	6-47
17.	Intercomm and local comm external ring	6-48
18.	Local comm net storage	6-49
19.	Intercomm and local comm audio receive	6-51
20.	10-station net storage	6-52
21.	Net subscriber storage control	6-53
22.	Operational control net subscriber storage	6-54
23.	Command administration net subscriber storage	6-55
24.	Maintenance test net subscriber storage	6-56
25.	Central-to-station Multiplex timing	6-63
26.	VCC front panel and fault isolation	6-70
27.	Voice comm central timing	6-57

MS 202213

Figure 6-57. Timing Logic Block Diagram (Sheet 1 of 2)
6-177/(6-178 blank)

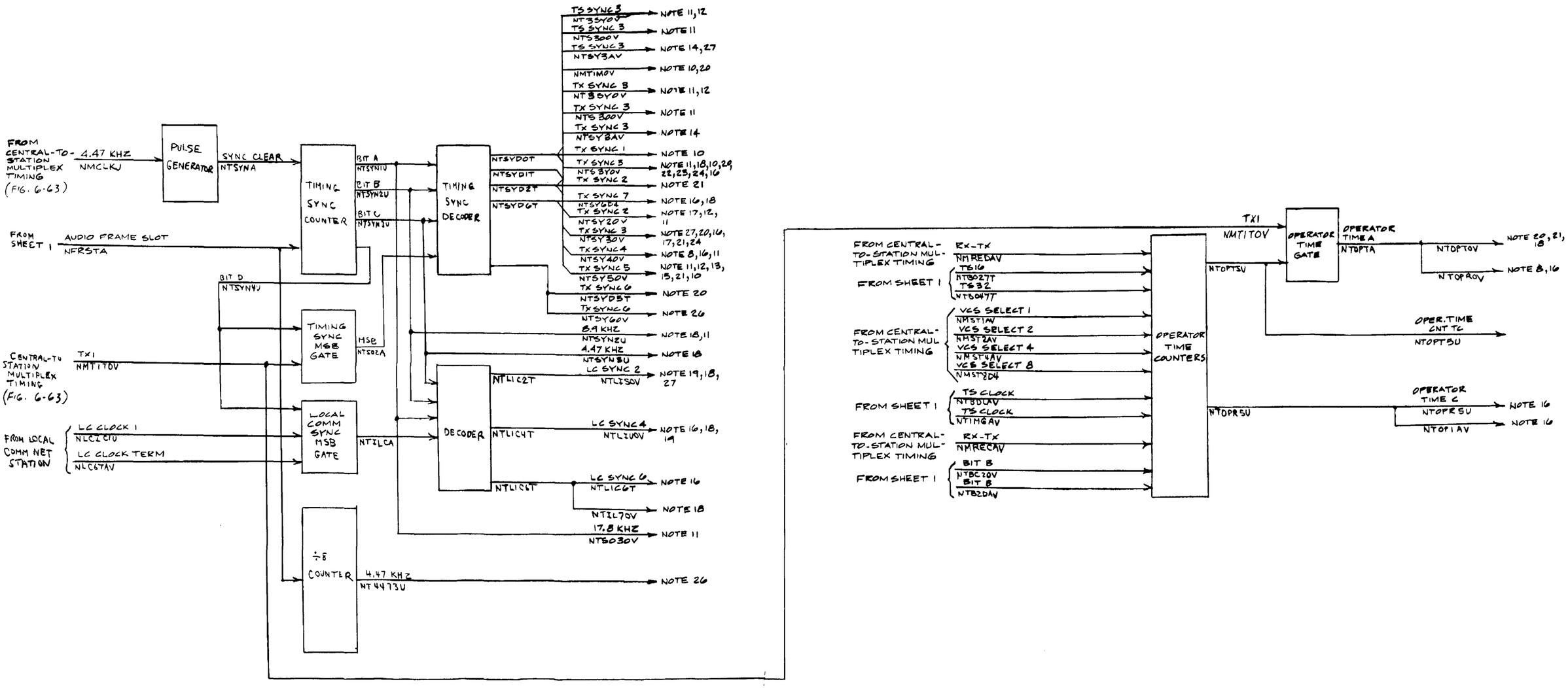


Figure 6-57. Timing Logic Block Diagram (Sheet 2 of 2)

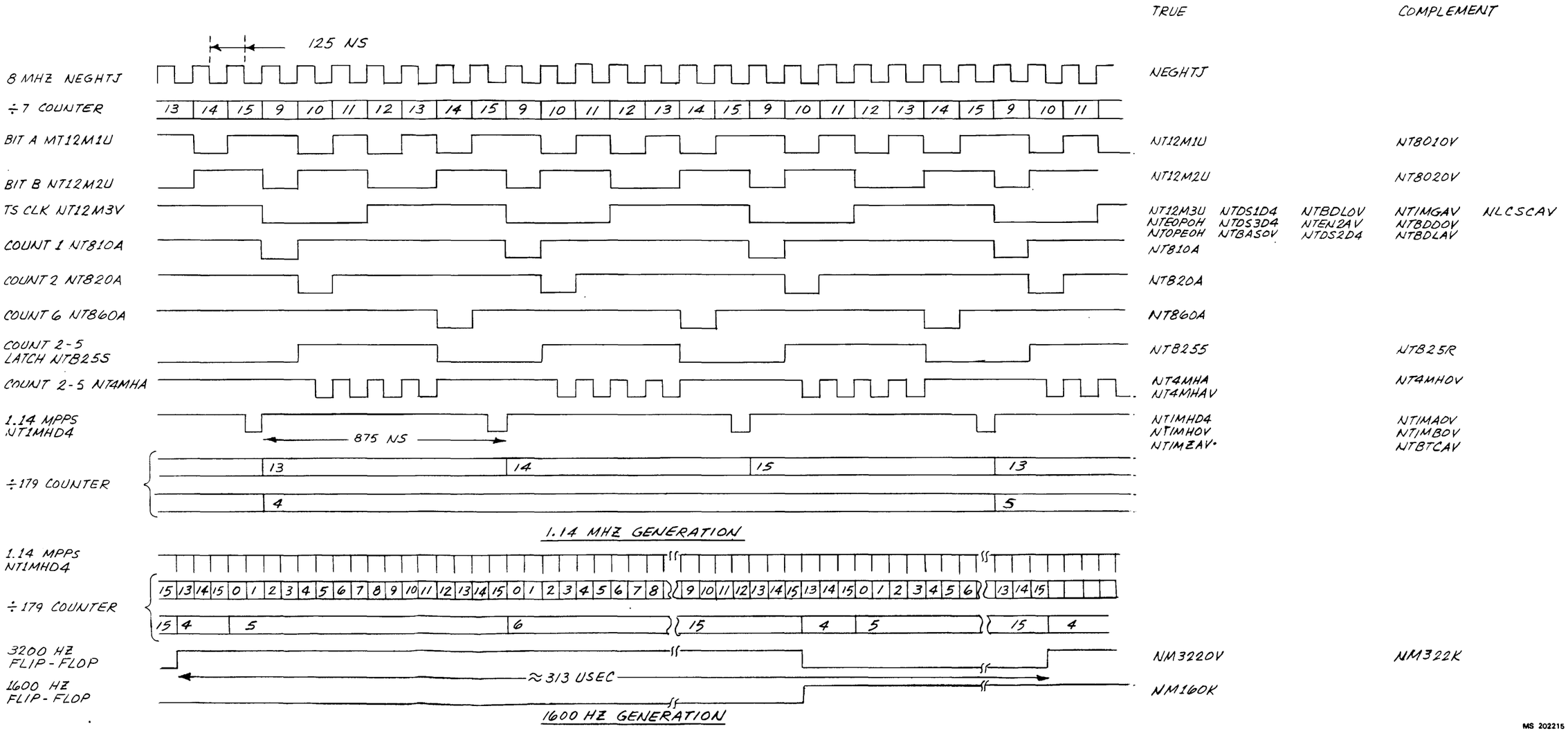


Figure 6-58. 1600 Hz Generation Timing Diagram

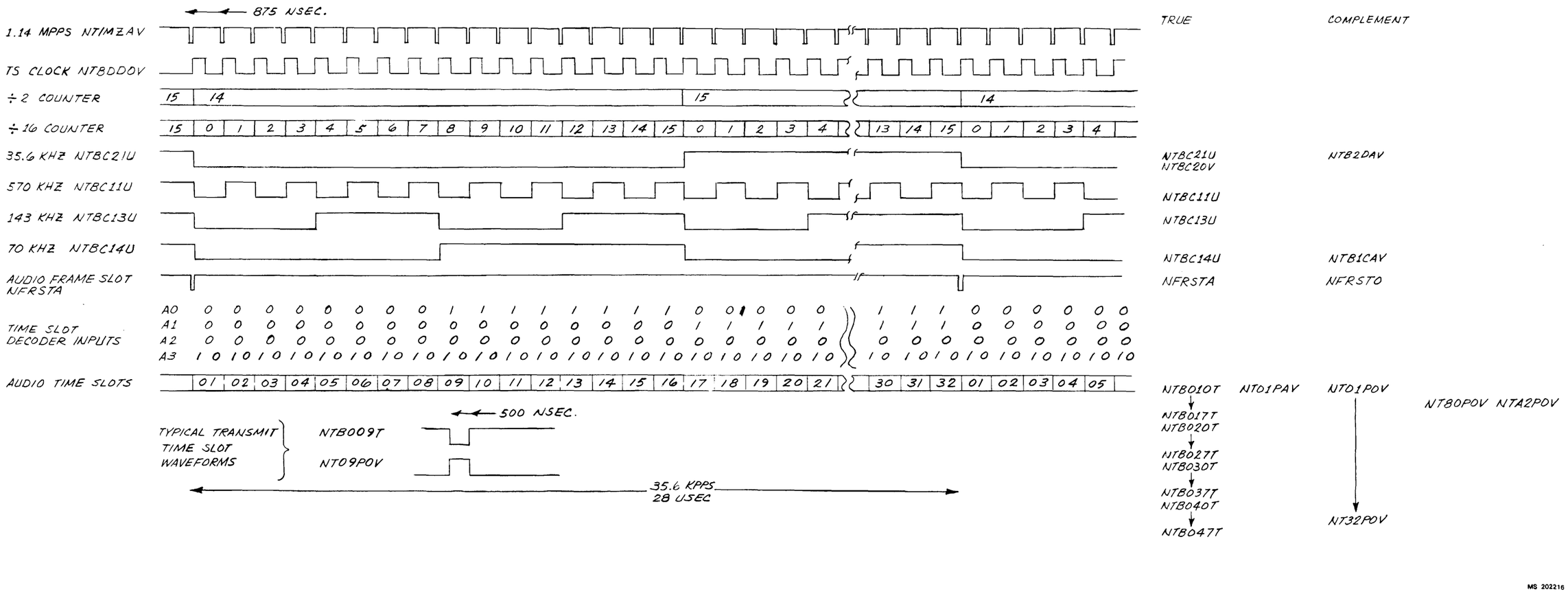
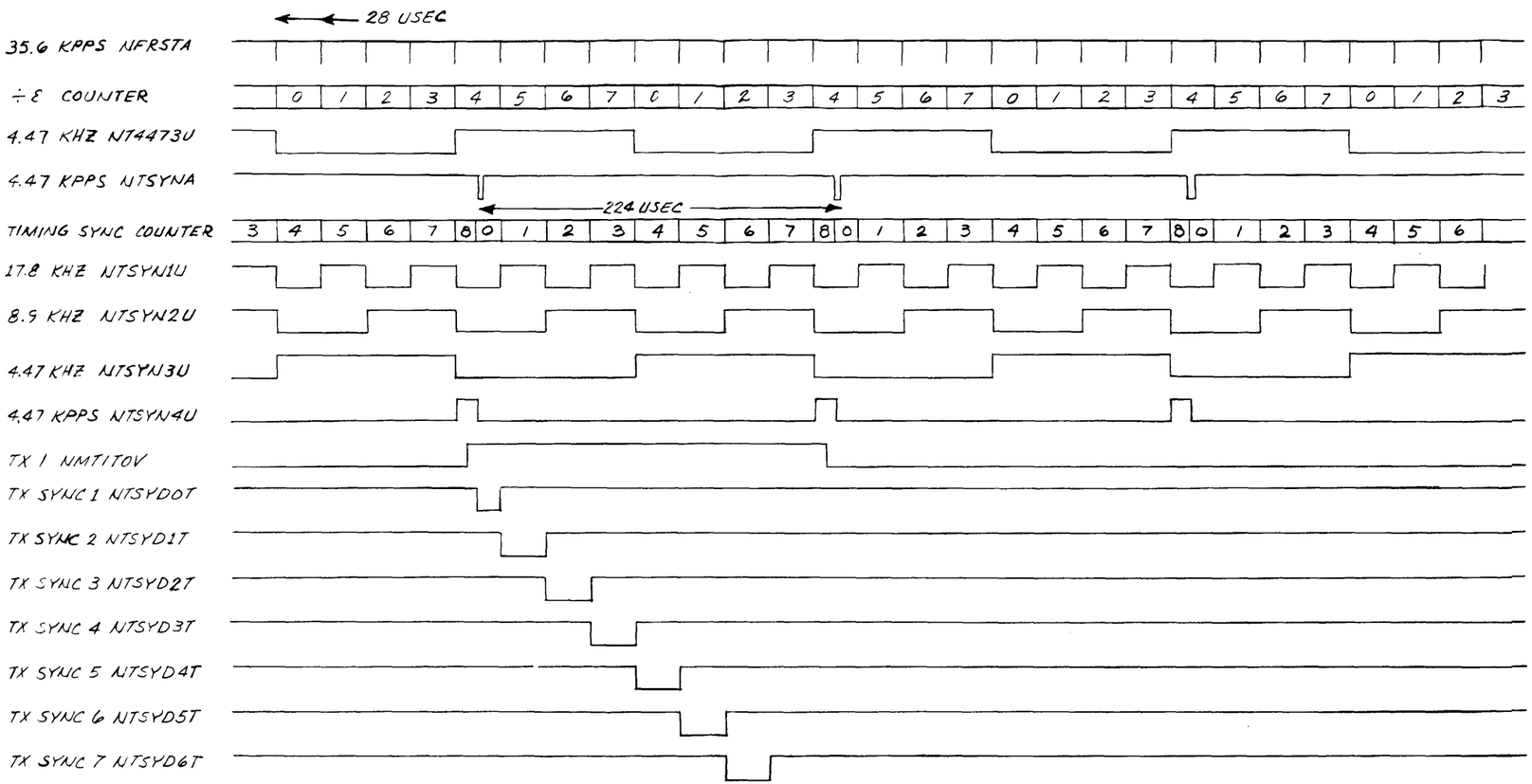


Figure 6-59. Audio Time Slot Generation Timing Diagram



TRUE	COMPLEMENT
NFRSTA	NFRST0
NT4473U	
NTSYNA	
NTSYN1U	NTS030V
NTSYN2U	
NTSYN3U	
NTSYN4U	NTS010V
NMTIT0V	
NTSYD0T	
NTSYD1T	NTSY20V
NTSYD2T NTSY3AV	NTSY30V NT35Y0V NTS3Y0V NTS300V
NTSYD3T	NTSY40V NMTIM0V
NTSYD4T	NTSY50V
NTSYD5T	NTSY60V
NTSYD6T NTSY6D4	NTSY70V

MS 202217

Figure 6-60. Transmit Sync Timing Generation Timing Diagram

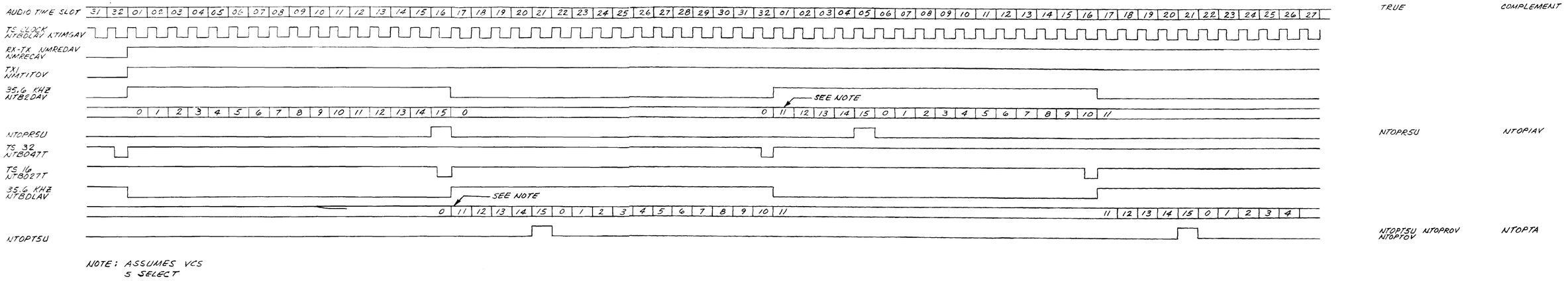


Figure 6-61. Operator Time Control Generation Timing Diagram

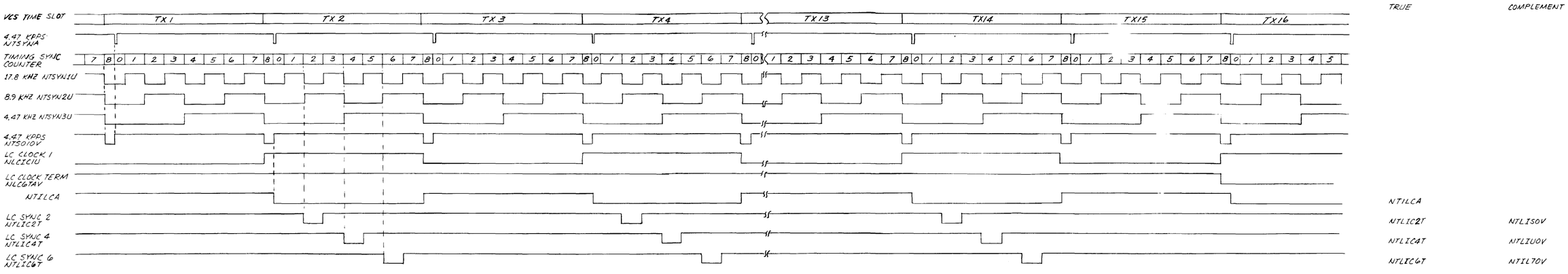
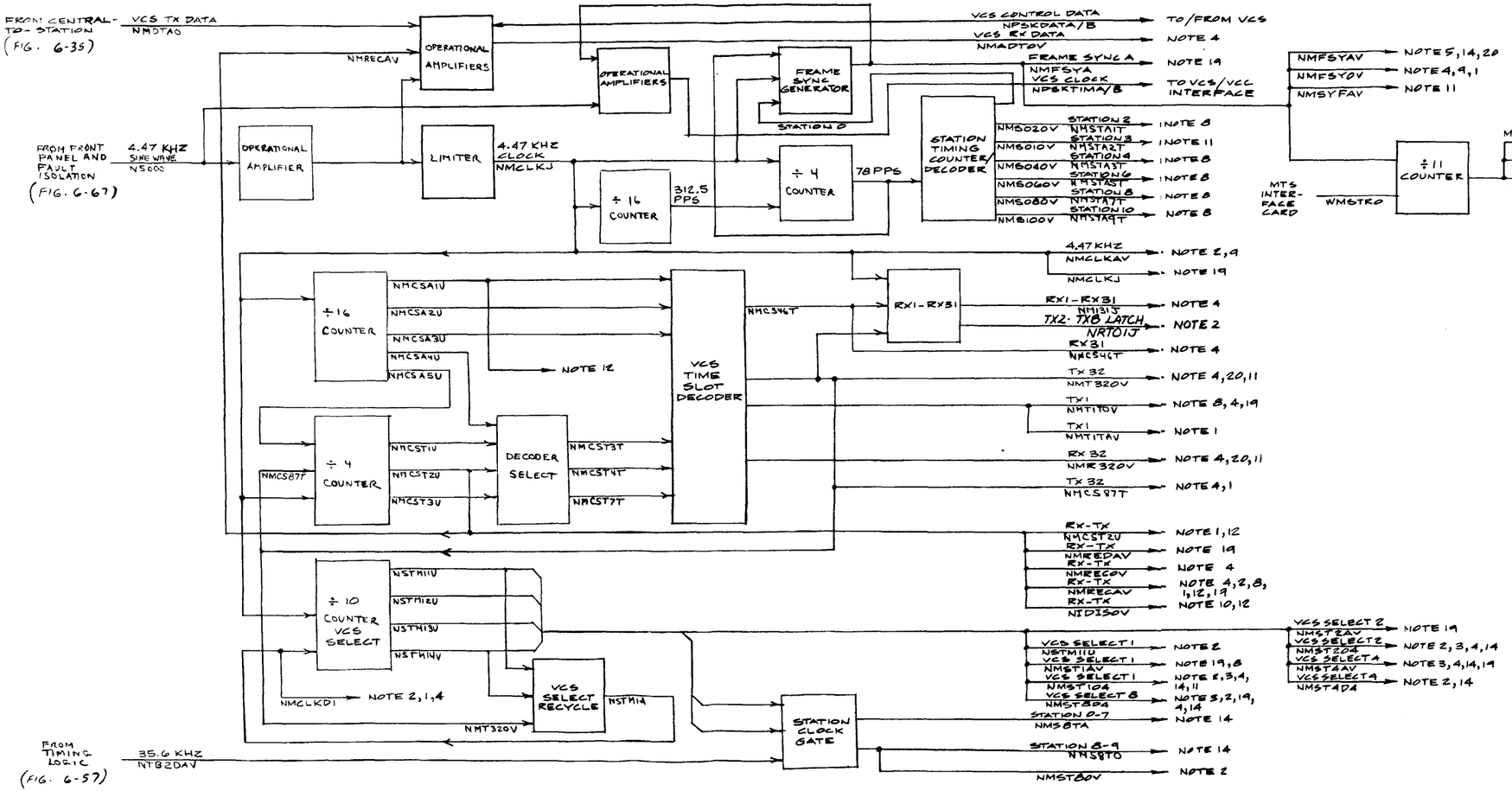


Figure 6-62. Local Comm Sync Generation Timing Diagram



NOTES: (Output References)

		FIG. NO.
1.	Central-to-station	6-35
2.	Ring detector storage	6-36
3.	Operator audio ring and feedback	6-37
4.	Central input register	6-38
5.	Net ring No. 1 and No. 2	6-42
6.	A and B control net	6-43
7.	Net A and B receive	6-44
8.	Net A and B operator storage	6-45
9.	Subnetter control	6-46
10.	Intercomm net and ring	6-47
11.	Intercomm and local comm external ring	6-48
12.	Local comm net storage	6-49
13.	Intercomm and local comm audio receive	6-51
14.	10-station net storage	6-52
15.	Net subscriber storage control	6-53
16.	Operational control net subscriber storage	6-54
17.	Command administration net subscriber storage	6-55
18.	Maintenance test net subscriber storage	6-56
19.	Timing Logic	6-57
20.	VCC front panel and fault isolation	6-67

MS 202220

Figure 6-63. Central-to-Station Multiplex Timing Block Diagram

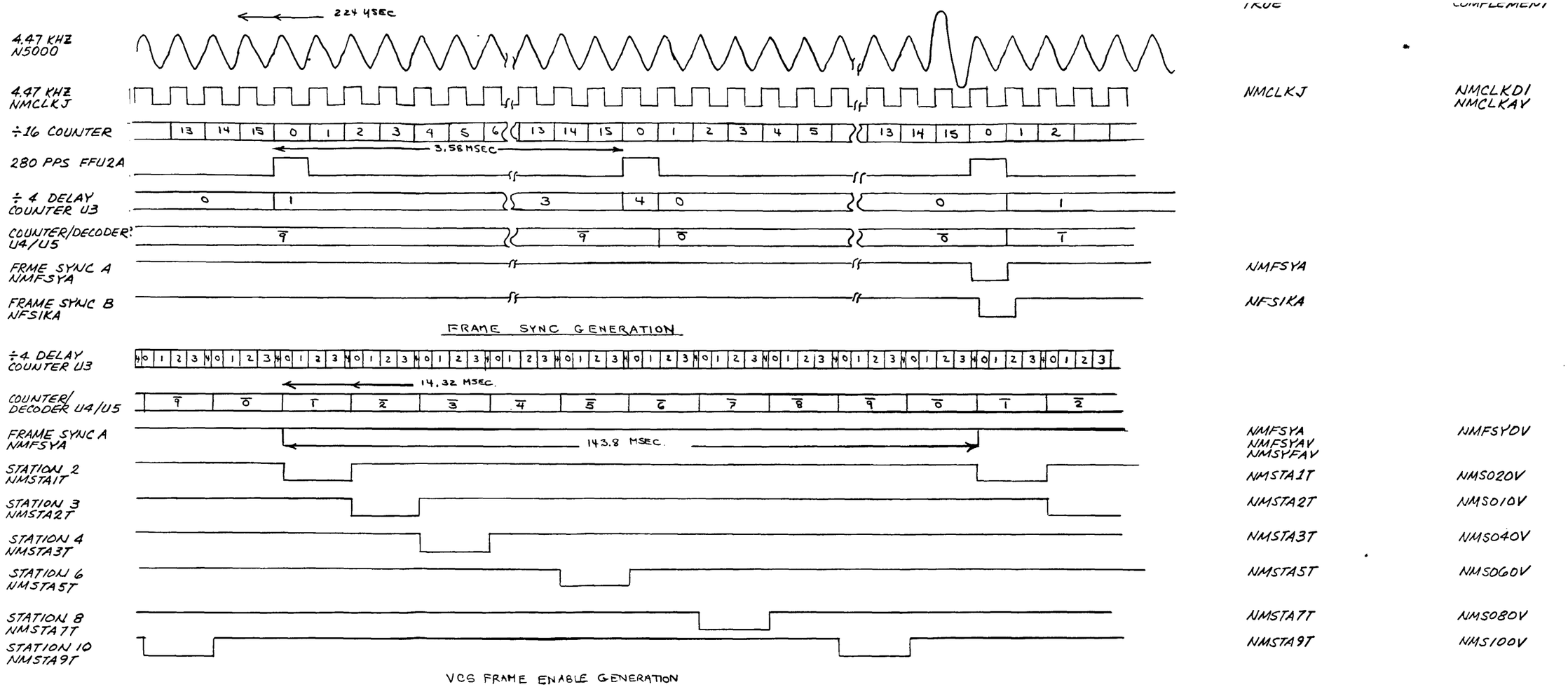


Figure 6-64. VCS Frame Generation Timing Diagram

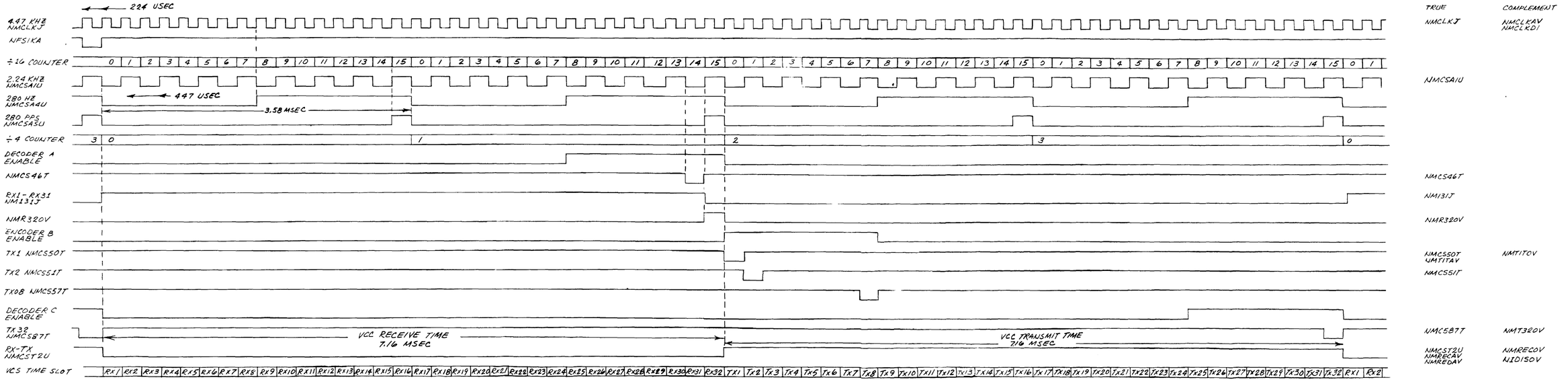
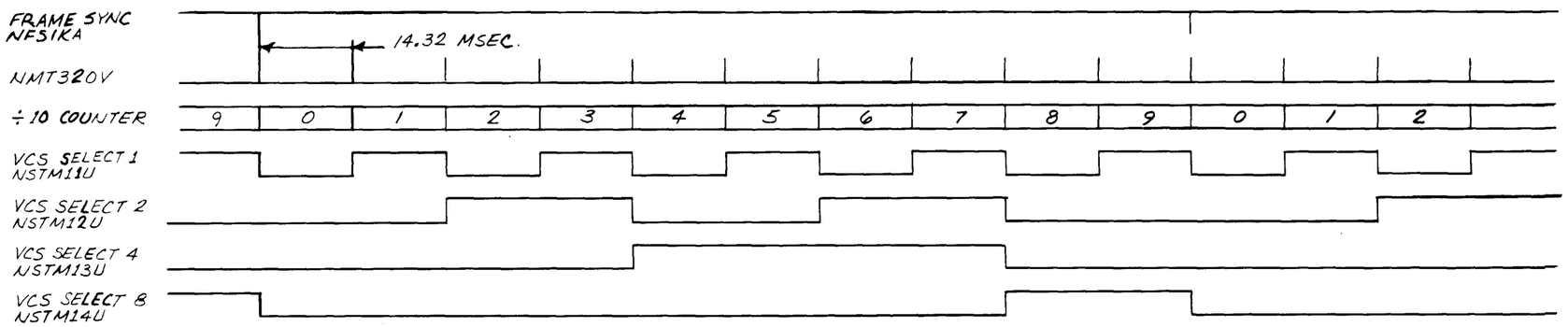


Figure 6-65. VCS Time Slot Generation Timing Diagram



TRUE	COMPLEMENT
NFSIKA	
NMT320V	
NSTM11U NMST1D4	NMST1AV
NSTM12U NMST2D4	NMST2AV
NMST13U NMST4D4	NMST4AV
NSTM14U NMST8OV	NMST8D4

NOTE: NMS8TA = 35.6 KHZ FOR FRAME SLOTS 0 THRU 7
NMS8TO = 35.6 KHZ FOR FRAME SLOTS 8 AND 9

MS 202223

Figure 6-66. VCS Select Timing Diagram

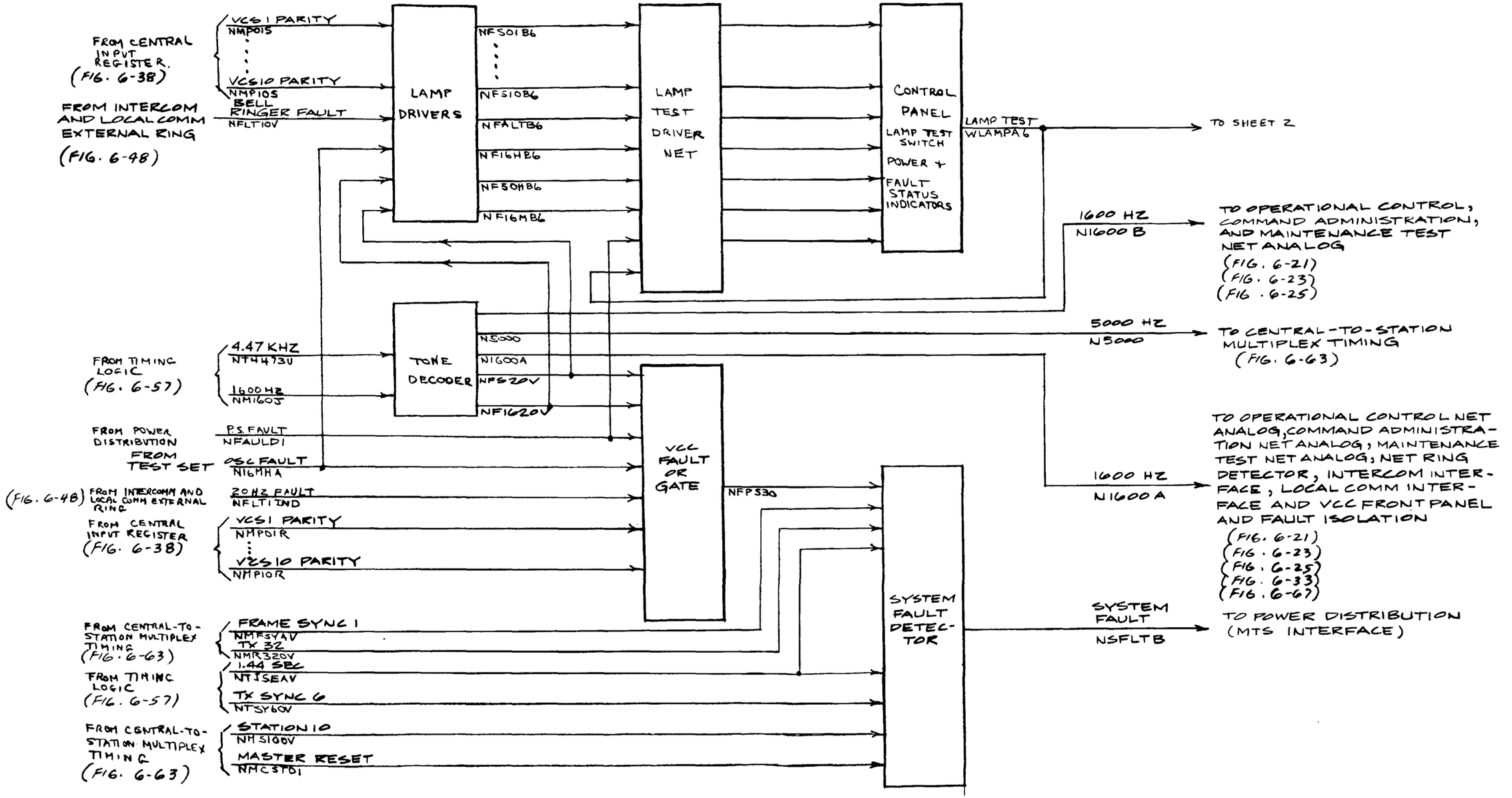


Figure 6-67. Front Panel and Fault Isolation Block Diagram (Sheet 1 of 2)

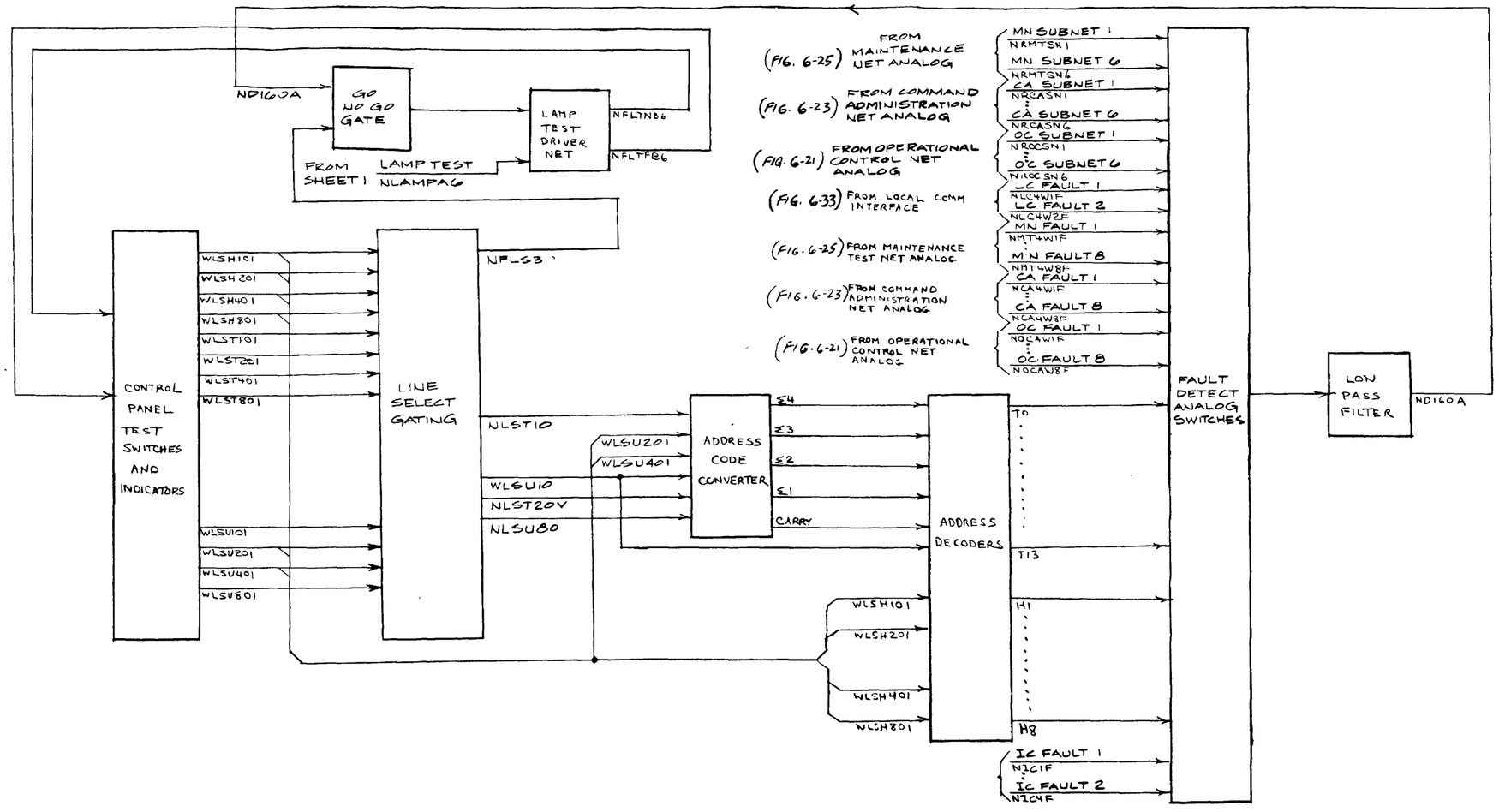


Figure 6-67. Front Panel and Fault Isolation Block Diagram (Sheet 2 of 2).

Section IV. VOICE COMMUNICATIONS STATION

6-42. General (fig. 6-68). The voice communications station (VCS) provides the means of transmitting and receiving control information to and from the VCC and provides headset/handset amplifiers and controls required for full duplex communications over the voice communications network. Communications between the VCS and the VCC is achieved over a common data multiplex utilizing time division techniques. The data multiplex format, as shown in section III, figure 6-14, divides time into 10 equal frames (each of which is assigned to a station). The frames are further subdivided into a transmit phase and a receive phase, each containing 32 time slots. In the transmit phase, the time slots contain the station-to-central commands, while in the receive phase, the time slots contain central-to-station indications. Since the data flow is serial and time shared, the VCS receive time slots follow the transmit time slots.

6-43. Audio Circuits Functional Description (fig. 669, FO-29). The VCS audio circuits provide the switching and amplification for voice signals in the VCS. When voice signals are transmitted to the VCC, a switch control selects between the HOT MIKE and PTT modes and sends control signals to the PTT amplifier. In the HOT MIKE mode, switch control allows the squelch amplifier to operate the PTT amplifier and in the PTT mode switch control operates the PTT amplifier directly. When activated by either the switch control or the squelch amplifier, the PTT amplifier outputs a high, which turns on the analog switch. This high is also applied to the data I/O register for insertion into the VCS transmit time frame to the VCC. The analog switch applies the output of the amplifier through an isolation transformer to the VCC voice lines. The mike in signal is applied, through an isolation transformer, to the mike preamplifier and then to the amplifier and squelch amplifier. The squelch amplifier sends a signal to the PTT amplifier (in HOT MIKE mode) when a signal of sufficient magnitude (operator speaking directly into the microphone) is applied to its input. Voice signals received from the VCC are applied through the front panel VOLUME control to the headset amplifier and out to the headsets through isolation transformers.

6-44. Front Panel Control Logic Functional Description (fig. 6-70, FO-30). The front panel control logic detects, stores and processes all front panel switch and keyboard actions for distribution to the VCC. The front panel control logic is divided into two separate functional circuits, a switch encoder and a keyset control. The switch encoder stores the subscriber select switch actions from the front panel and supplies the results to keyset control. Keyset control places the subscriber address in a data I/O register and processes and stores the addressing functions of connect, release, release all, keyboard clear, enquiry and ring.

a. *Switch Encoder*. The switch encoder circuit detects and stores each switch action in the same manner; therefore, only LOCAL COMM 4 will be described. Refer to figure 6-71 for switch encoder timing.

(1) The local comm scanner scans the local comm multiplexer input lines to determine if a switch has been pressed. When the LOCAL COMM 4 switch is pressed, a low is detected by the scanner and is applied to the scanner control. The scanner control freezes the scanner in that position and starts the appropriate multiplexer control. The multiplexer control counts through the multiplexer addresses, placing the switch information in the proper bit position. The low pulse is also supplied to the local comm register control which gates a string of six clock pulses to the local comm register. The register stores the output of the respective multiplexer. A self-gating end-around shift function causes the second actuation of the switch to cancel its own output, deactivating the net.

(2) The multiplexer begins stepping through the input lines and, because all unselected lines are high, outputs a low for unselected lines and a high when LOCAL COMM 4 is addressed. Meanwhile, the register control is clocking the multiplexer output through the local comm register. When the multiplexer control has reached count 100 (address 4), the register control will wait one clock and then inhibit subsequent outputs until reset by the scanner control. The scanner will return and scan when the switch is released. The high representing LOCAL COMM 4 is now provided by the local comm register to the keyset control data I/O register.

(3) During the time the register control is gating clocks to the register, the multiplexer clock signal goes high, identifying an address reset.

(4) A second actuation of the LOCAL COMM 4 switch will initiate the same chain of events, with the exception that the register's self-gating end-round shift will cause the output to the data I/O register to return to low.

(5) The special A and B memories detect the actuation of the special line switches and cause a reset signal to be supplied to the intercomm net register for clearing.

b. *Keyset Control*. The front panel keyboard outputs four binary digits and a keyboard strobe signal. The output is complimentary (e.g., 0-1111, 8-0111). Since the signal is binary 4 digits and only 10 decimal digits (0-9) are used, connect and release are also output as numbers (REL=0100, CON=0011). The complimentary output of the keyboard is inverted prior to address register processing so that the input to the data I/O register is BCD.

(1) The address register consists of two registers, one for tens and one for units. The register, under the control of the address switch, stores the keyboard address until a keyboard clear action or a subscriber select action is taken at the front panel. Assuming an address entry (address register is disabled for CON and REL), the keyboard strobe causes the address switch to enable loading of the tens portion of the address register, the second strobe enables loading of the units register. The second strobe also enables loading of the address into the data I/O register.

(2) The release/connect decoder decodes the keyboard outputs for connect and release. These signals are applied to the function register. A signal is also applied to the address switch which causes it to disable the input to the address register and enable the input to the function register.

(3) The function register provides temporary storage for ring, connect, and release. It resets the enquiry and release-all latches the next time-frame-one signal after the switch has been released (to ensure that information has been sent to the VCC).

(4) The data I/O register performs serial-to-parallel conversion and acts as the input/output buffer for the VCS. Parallel load is accomplished by the time-frame-one signal and a strobe from the address switch (for address loading). Serial load and output is provided by the I/O register clock signal. Lamp data from the data I/O register is parallel-loaded into the lamp storage register. The lamp storage register holds the lamp data for distribution to the lamp drivers which provide the current necessary to light the VCS front panel lamps.

(5) When the VCS is first turned on, erroneous data is generated because of the different activation times for the various elements. The reset latch signal, which is initially low until the first master reset, sets it to a permanent high. This momentary low ensures that all data is cleared when the VCS comes online.

6-45. Multiplexer Control Functional Description (fig. 6-72, FO-31). The multiplexer control circuit synchronizes operations within the VCS by converting the timing signal from the VCC into clock pulses which are used to derive the various internal control signals and the frame sync which synchronizes the VCS with all other VCS's and the VCC.

a. Refer to figure 6-73 for multiplexer control timing. The frame sync appears as a sine wave at double-amplitude during the first bit of the first frame of the timing signal from the VCC. The amplitude detector and driver converts the frame sync signal to a negative going pulse which is applied to the VCS as a master reset. The squaring amplifier and driver converts the time signal to clock pulses.

b. The binary counter provides timing pulses for the timing and gating network and the delay counter. It also generates the switch clock signal which is used by the front panel control logic. The delay counter, after receiving the timing pulses, clocks the address counter and decoder and provides gating signals to the timing and gating network.

c. The time select signal, selected by the address switch, goes low during the selected time frame to provide a frame select signal for the timing and gating network. The timing and gating network then generates control signals used throughout the VCS circuitry as follows:

(1) The frame transmit signal goes high during the transmit portion of the selected VCS time frame and turns on the analog switch in the phase shift amplifier and analog switch enabling data from the VCS to be sent out to the VCC.

(2) The time-frame-one signal loads the data I/ O register and is a positive-going pulse that appears just prior to the selected time frame.

(3) The I/O register clock signal clocks the data I/O register and appears as a train of 64 clock pulses during the selected time frame.

(4) The strobe signal is used as a load pulse for the lamp storage register and appears as a negative going pulse just prior to clocking the lamp storage register.

(5) The storage register clock signal is a negative-going pulse which appears at the beginning of each time frame except for the selected time frame. The timing and gating network also provides a time select gating signal to the data output gate which gates the output of the data I/O register to the phase shift amplifier and analog switch. The phase shift amplifier and analog switch compare the data output signal to the timing signal and place a single sine wave in-phase with the timing signal for each one in the data output signal, and an out-of-phase sine wave for each zero. This signal, gated by the analog switch and frame transmit signal, is applied to an isolation transformer which places the information on the VCC data lines.

d. Data from the VCC is applied as an analog signal to the phase shift detector and amplifier which compares it to the clock and creates a one for each in-phase sine wave and a zero for each out-of-phase sine wave. This digital data is sent to the data I/O register where it is serially loaded by the I/O register clock.

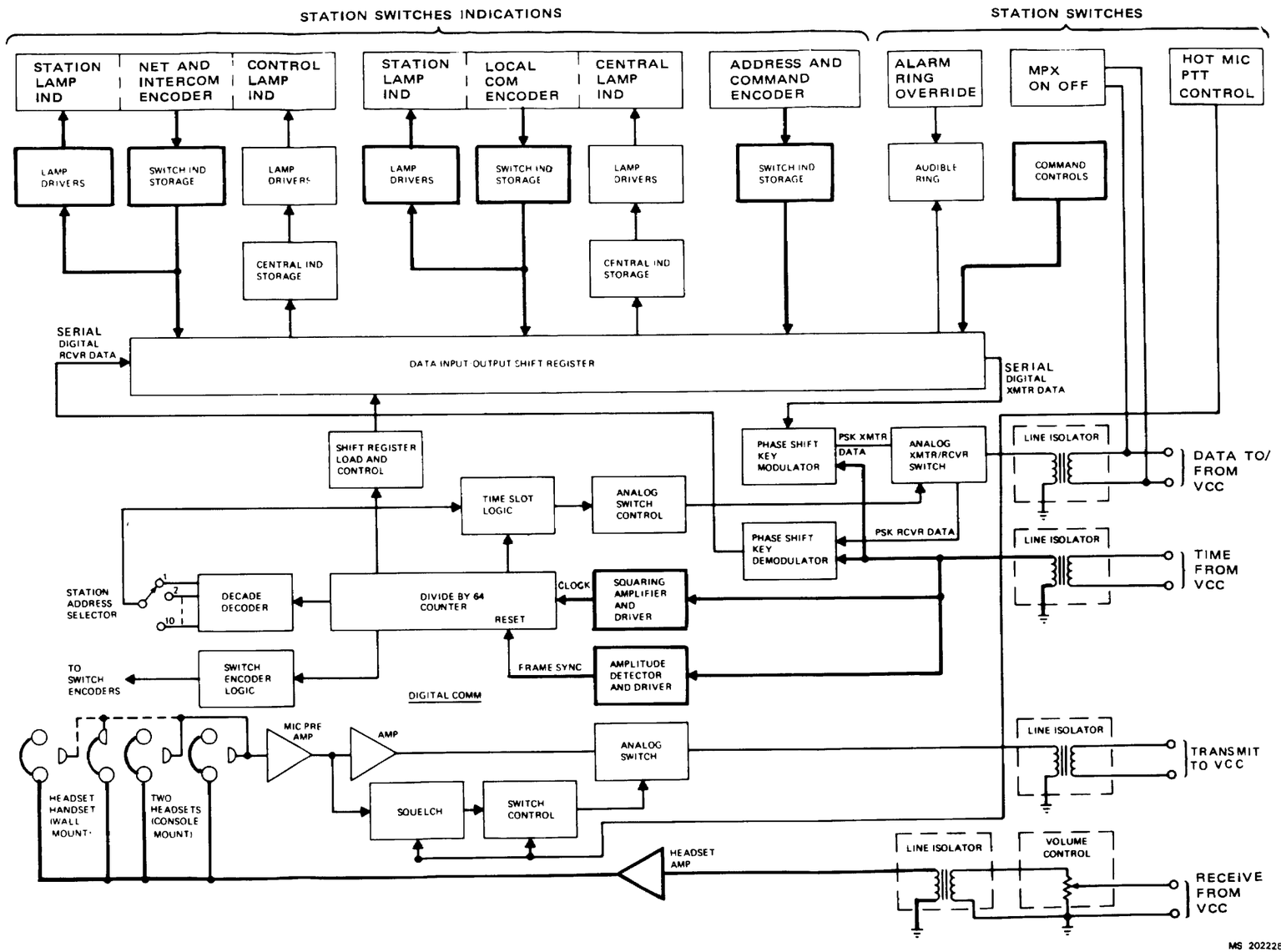


Figure 6-68. VCS Block Diagram.

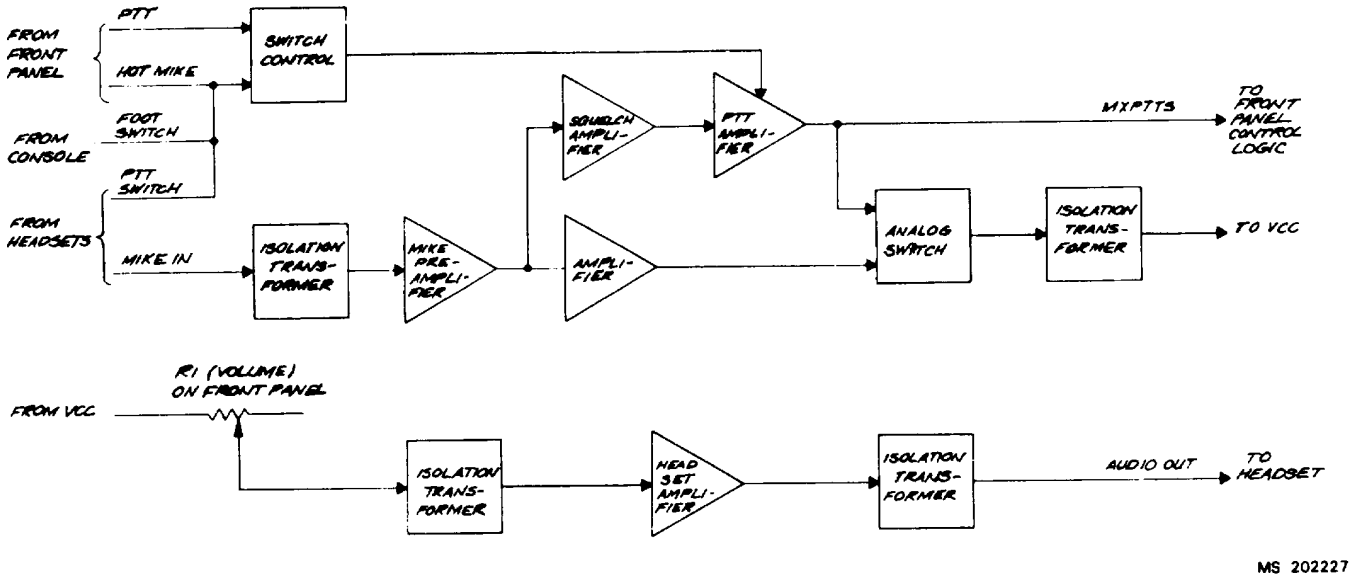


Figure 6-69. VCS Audio Circuits Block Diagram.

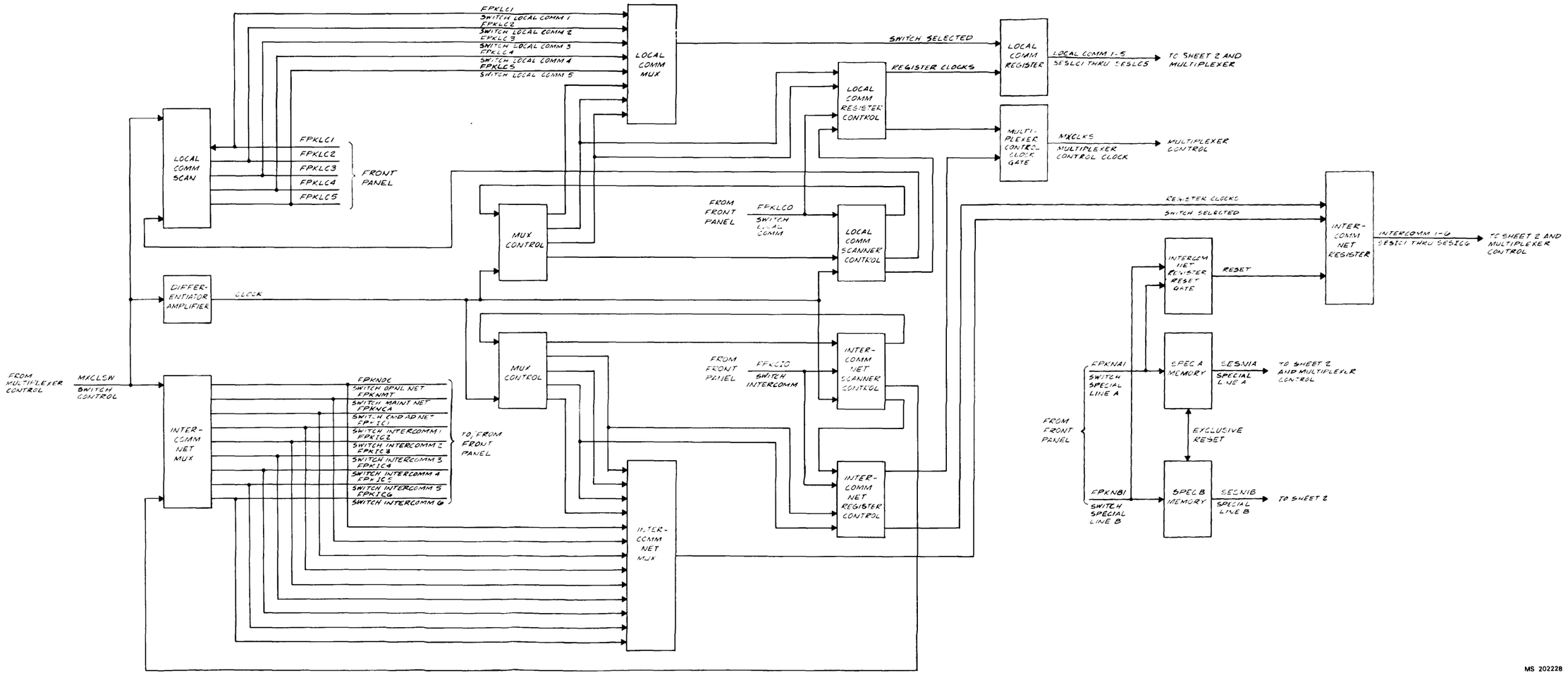
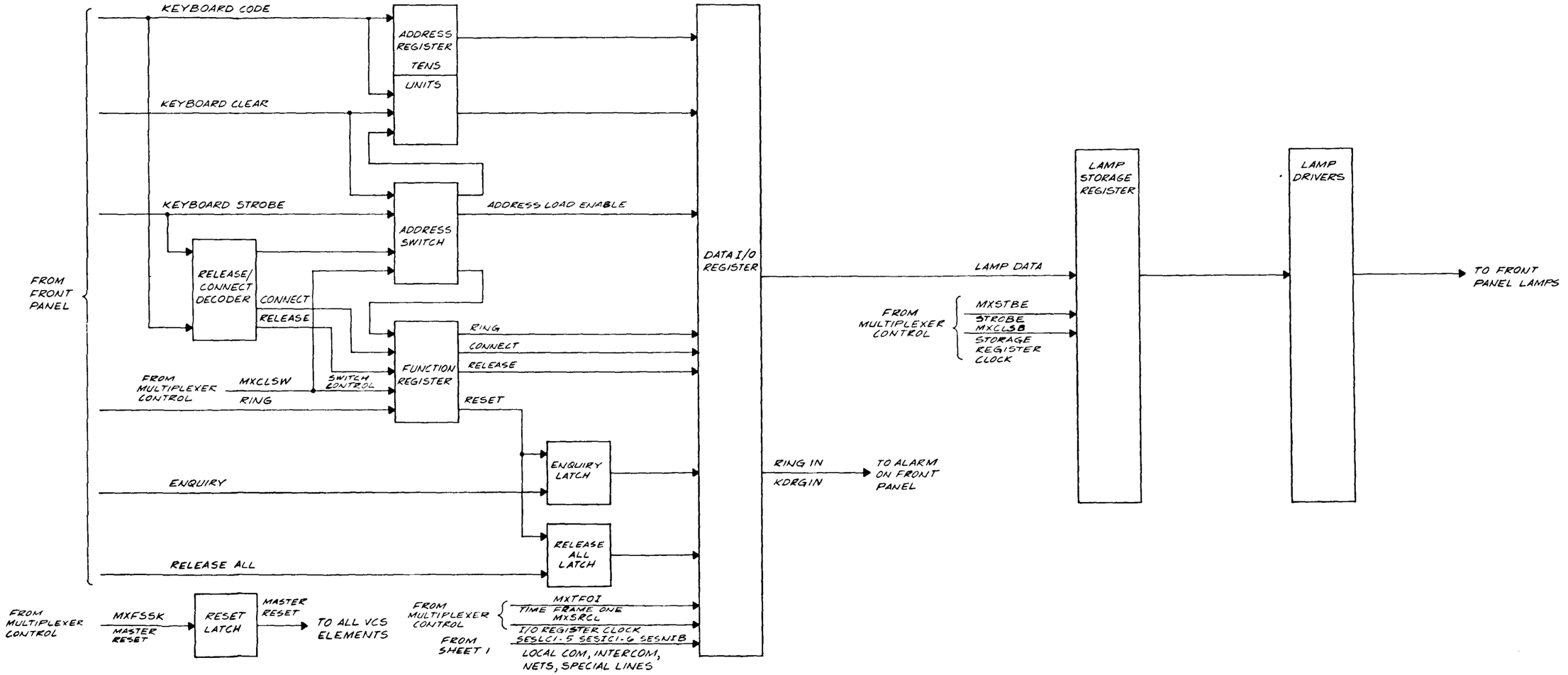


Figure 6-70. Front Panel Control Logic Block Diagram (Sheet 1 of 2).



MS 202229

Figure 6-70. Front Panel Control Logic Block Diagram (Sheet 2 of 2).

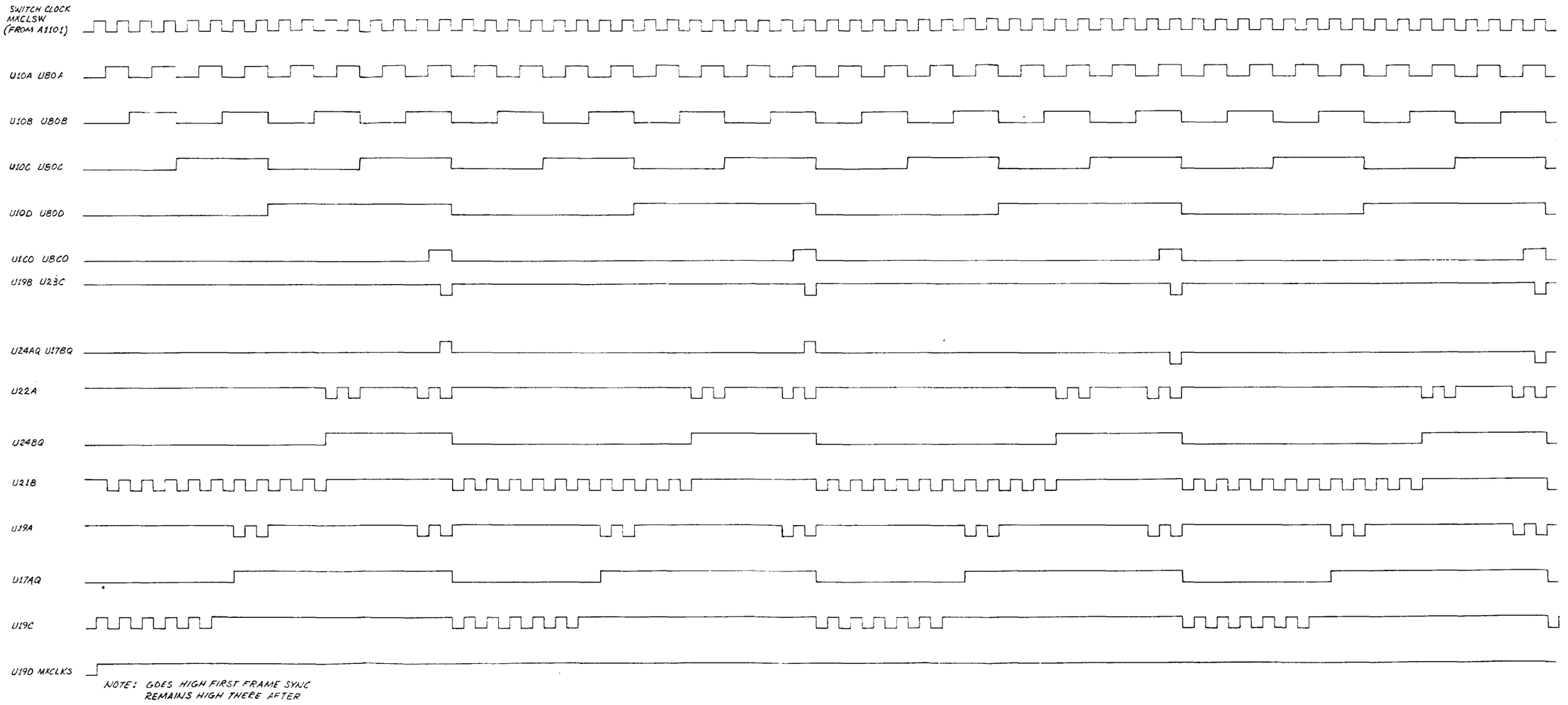


Figure 6-71. Switch Encoder Timing Diagram.

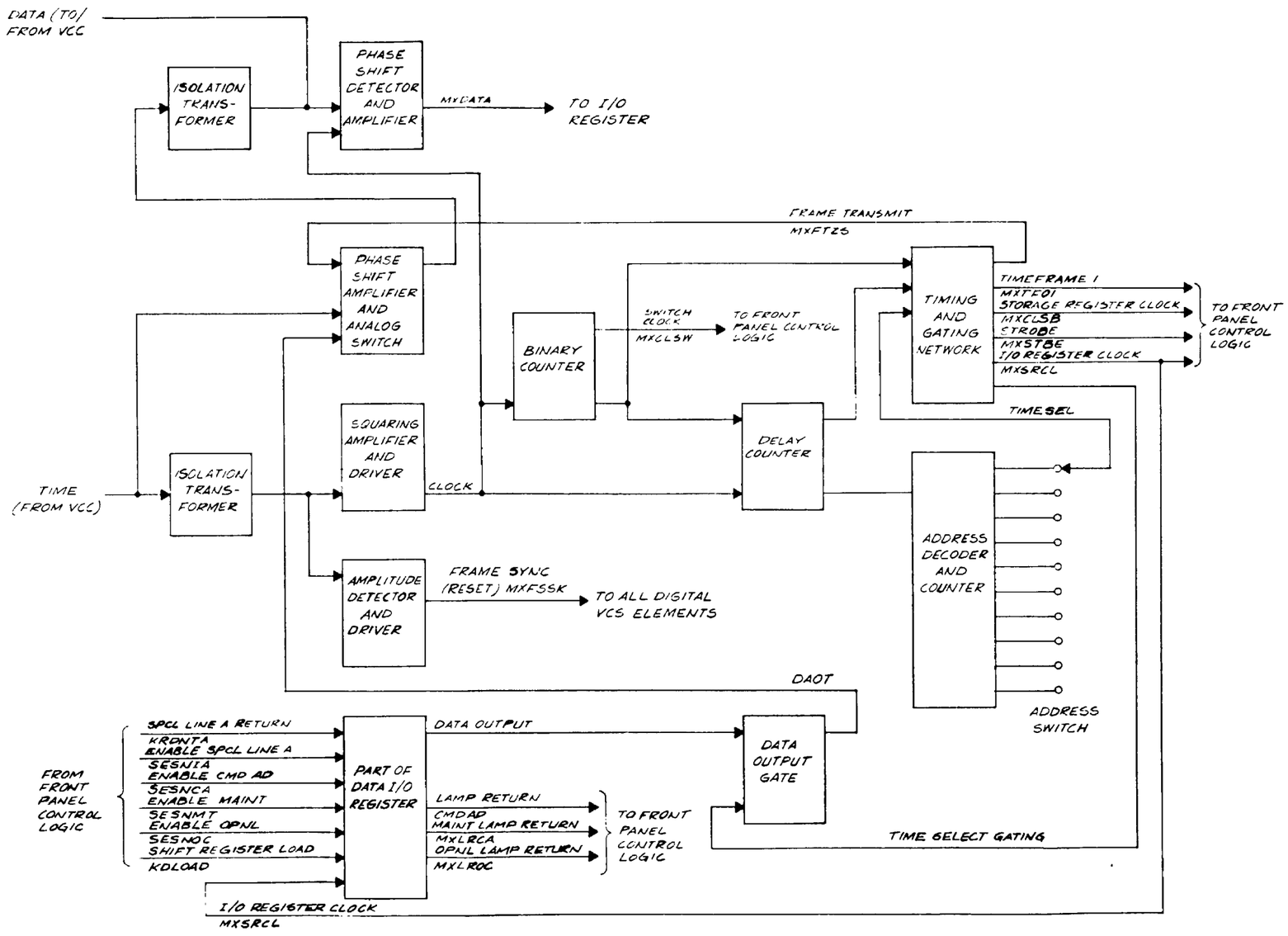


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Figure 6-72. Multiplexer Control Block Diagram).

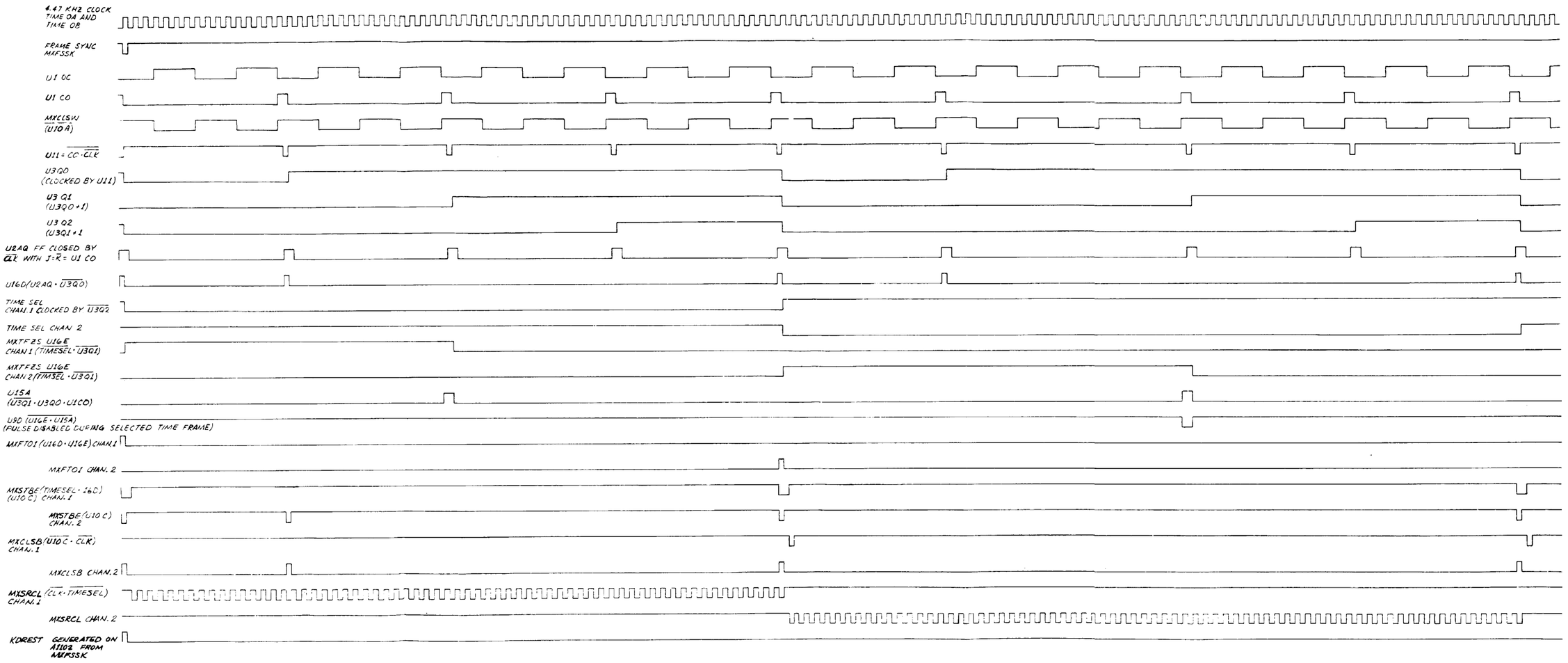

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Figure 6-73. Multiplexer Control Timing Diagram).

Section V. EXTERNAL SUBSCRIBER PATCH AND VCS-TO-VCC INTERFACE

6-46. VCS-to-VCC Interface (FO-32). The VCS-to-VCC interface is a two-pair, or four-wire, telephone interchange system. Three connectors are provided on the VCC for VCS interfaces. One is dedicated to each wall mounted station and the third is for the console mounted stations. Connectors J9 and J10 provide the audio and control signals for each of the wall mounted stations. Each connector cable consists of 44 wires which supply headset audio, microphone audio, multiplex controls and multiplex timing and sync. Connector J2 supplies the same signals as stated above for connectors J9 and J10 to the console mounted stations.

6-47. External Subscriber Patch Interface (FO-33). The external subscriber patch interface allows a single VCC to accommodate from one to 32 subscribers using a communications patching panel and communications demarcation panel. The transmit and receive audio signals are connected to a subscriber on two-pair, fourwire telephone lines. All four-wire groups of audio from each net (operation control, command administration, and maintenance test) that are assigned to the same address are interconnected to the addressee subscriber on the same cable.

a. *Communications Patching Panel*. The communications patching panel has facilities for making three-patch connections for each transmit and receive pair: internal (INT), external (EXT), and monitoring (MON). The EXT jack, when a phone plug is inserted, allows audio signals to be sent to subscriber receive circuits using an external device. This action disconnects the VCC transmit input to the subscriber. The INT jack, when a phone plug is inserted, allows monitoring of VCC audio on the transmit pair, while the VCC is disconnected from the subscriber. The MON jack, when a phone plug is inserted, allows connections to be made in parallel with the transmit pair without any disconnect.

b. *Communications Demarcation Panel*. The communications demarcation panel provides the common access for all voice communications to external subscribers and remote subscribers. All interconnections are applied through RFI filters, which provide EMI suppression and surge protection against lighting induced transients.

Section VI. POWER DISTRIBUTION

6-48. Voice Communications Power Distribution (FO-34). Voice communications power distribution circuits provide power for the voice communications central (VCC) and for wall-mounted voice communication stations (VCS) 1A9 and 1A10. Power distribution circuits include primary power, low voltage distribution, power fault monitoring, MTS interface card, and logic high/low sources.

a. *Primary Power*. Primary power for voice communications is provided by the system power cabinet. Primary power consists of complementary +135v and -135v referenced to dc center-tap (common). Both normal and emergency power is supplied by the power cabinet (refer to TM 9-1430-655-20-8 for detailed power circuits); emergency power is supplied during system power failures to permit continued voice communications. The +135v and -135v are applied to dc/dc converters PS1 and PS2 and 20-Hz bell ringer power source PS3. Local turn-on and turn-off control is provided by the power ON-OFF switch located on the VCC control panel.

b. *Low Voltage Distribution*. Low voltage distribution consists of low voltage output from the dc/dc converters; output from the 20-Hz bell ringer power source are part of VCC ring circuits. Refer to the detailed power distribution diagram (FO-34) for power interconnections. For card cage distribution, +5v and +5v common (digital and analog ground) are shown as common buses; these buses are insulated voltage and ground planes which form the backplane. PSI and PS2 are identical and contain five independent power supplies and a logic control circuit.

(1) The dc/dc converters contain transformer coupled floating power sources which may be used for positive or negative voltage supplies. These voltage supplies include 5. Ov, 8. Ov, two 15v, and 34.5 sources. PS1 provides +5v, +15v, and -15v outputs; PS2 provides +5v and -15v outputs; PS2 provides +5v and -15v outputs.

(2) The +5v and ground buses for both PSI and PS2 are electrically common through the VCC card cage backplane. For the VCC control panel, +5v is provided from the auxiliary power output of PS1 logic control circuit and +5v from PS2 applied through the MTS interface card. Resistor power (+05RES) is also applied through the MTS interface card and provides +5v for pull-up resistors required for TTL logic elements.

(3) The -15v output from PS1 is applied as a reference voltage through the MTS interface card to the 16-bit shift register cards contained in the VCC card cage.

(4) Power for wall-mounted VCS, lA9 and lA10, is applied through VCC control panel RIGHT STATION and LEFT STATION circuit breakers, CB1 and CB2, respectively. Power applied to the VCS includes +5v, +15v, and -15v sources supplied in part by both PS1 and PS2.

c. *Power Fault Monitoring*. Power status is monitored on the VCC front panel as part of the front panel logic described in this manual (refer to paragraph 6-41).

(1) The power ON-FAULT indicator on the VCC control panel provides local power supply status for PS1 and PS2. The ON indicator lights when power is applied and power logic is correct. The FAULT indicator lights with loss of power or from PS1 or PS2 fault signals (NFAULD1).

(2) The LAMP TEST switch on the VCC control panel permits testing lamp status of the ON-FAULT indicator and the INT and EXT lamps on PS1 and PS2.

d. *MTS Interface Card*. The MTS interface card is installed in card slot A1510. When the MTS interface card is installed, +5v pullup resistor voltages, +5v power for controls and indicators, and -15v for 16-bit shift register cards are provided. In addition, the device drive inhibit (WMSTRO), timing (paragraph 6-41), and MTS logic override signals are routed through the MTS interface. When the module test set (MTS) is used for an in-system test, the MTS interface card is removed and the MTS umbilical cable W210 is inserted in the card slot. This allows the MTS to provide isolated power, and timing and control for test purposes.

e. *Logic High/Low Sources*. Logic high (+5v) and low (Ov) sources are provided for implementation of transistor-transistor logic (TTL) and for establishing preset logic conditions.

(1) Logic high sources SPI001 through SPI025 are established from the +5v resistor pullup voltage applied through resistor cards A1124 and A1322. Other pullup resistors are used in the VCC card cage and are associated with the particular logic signals. (These are depicted in the functional logic diagrams where applicable.)

(2) Logic sources NGDO1D1 through NGD24D1 are Ov logic levels. These sources are established by lamp driver card A1125. The lamp drivers are twoinput NAND gates which are forced to the low state by logic high sources connected to the inputs.

Section VII. CABLING AND FRONT PANEL SCHEMATIC DIAGRAMS

6-49. Cabling Diagram (FO-35). A VCS cabling diagram is furnished to provide a means of identifying all elements of the equipment and to show how they are electrically related. The VCC cabling, due to the mechanical configuration, is shown in section V. Included on the VCS cabling diagram are reference designators, part numbers, drawing (wire list) numbers, and references to wiring diagrams.

6-50. Front Panel Schematics (FO-36, FO-37). The VCC and VCS schematic diagrams are provided to identify controls and indicators and their electrical details. The primary purpose of the schematic diagrams is to illustrate pin arrangements and identify signal mnemonics associated with a particular control function.

Section VIII. GLOSSARY OF TERMS

6-51. General. This glossary provides a convenient reference to the unique terminology utilized in the data communications theory. No attempt is made to define standard electronic terms used in this manual. Terms that may vary in context (e.g., parity, master reset) and terms peculiar to voice communications (e.g., connect, release) are included. Terms that are sufficiently described in the text (e.g., OC, CA, MN nets) are also omitted.

Audio frame time	The 28-usec sampling interval during which the addressed subscribers are multiplexed on a common bus.
Audio time slot	The 875-nsec interval reserved for a particular subscriber during each audio frame time.
Built-in-test (BIT)	Off-line logic incorporated into a device to simulate normal data processing and provide indications of device status for use as aids for fault isolation.
Communications Net (e.g., OC, AC, MN)	Provides a matrix of addressable audio paths by which one or more station operators can communicate with any one or a combination of active channels in the particular net.
Comm Patching Panel	Provides monitoring and patching capabilities for all communications between the VCC and the comm demarcation panel for maintenance and test functions.
Connect	Permits the VCS audio access to a net subscriber or an intercom or local comm link.
Control Signal (VCS) Time Slot	The 224-usec intervals during the VCS control signal frame reserved for particular VCS and VCC select, control and indicator information.
Enquiry	Permits VCS operator to verify connect status of particular subscriber.
Master reset	Function occurring due to power-on or external test equipment initiation that resets are pertinent VCC logic.
Hot microphone	Permits the VCS operator to communicate by voice operated squelch transmission.
Mnemonic	A five- to seven-bit alphanumeric designation, unique to each logic signal line, that describes the signal source, logic function and logic state.
Multiplexer	A logic element that provides a designed selection matrix (one of ten, four of eight, etc.).
Parity	The last bit of the 32-bit receive control word which causes the word to reflect an odd number of ONES.
Push-to-talk	Requires the VCS operator to enable audio transmission by footswitch or microphone button.
Release All	Permits VCS operator to simultaneously release all connected subscribers for a particular net.
Release	Permits the VCS to remove a net subscriber or an intercom or local comm link from audio access.
Ring	Permits VCS operator to audibly alert any connected subscriber.
Special lines (A and B)	Permit private conversation to one or more subscribers connected to that operator on CA net.
Time Division Multiplexing	Simultaneous transmission of a number of intelligible signals on a common line.
VCS Control Signal	Provides programmed time 'slots permitting the VCS to select and control a subscriber and the VCC to indicate current subscriber status.
VCC Receive Time	The 7.16-msec interval during which the VCC receives select and control information from the VCS.
VCS Transmit Time	The 7.16-msec interval during which the VCC transmits indicator and control information to the VCS.

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The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 decagram = 10 grams = .35 ounce
1 hectogram = 10 decagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

PIN: 049672-001