NEC

UNIVERGE® SV9100

System Maintenance Manual

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Preface

Before Reading this Manual

This manual provides detailed information for diagnostic and maintenance information for the SV9100 system.

There are three parts to this manual:

Chapter 1 – Troubleshooting IP on an SV9100 System

This chapter provides some helpful tips for troubleshooting IP on the SV9100 system.

Chapter 2 – System Maintenance

The technician can use this chapter to troubleshoot and diagnose problems during and after SV9100 system installation. The troubleshooting flow charts and general test procedures help the technician identify possible causes of the problem by defining the problem area.

Chapter 2 – Diagnostics

This chapter provides a description of the SV9100 Diagnostic Interface Module (DIM) built into the GCD-CP10 blade. The DIM can monitor the activity of the system under the control of commands entered by the engineer.

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TABLE OF CONTENTS

LIST OF FIGURES

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Troubleshooting IP on an SV9100 System

SECTION 1 INTRODUCTION

This book provides some helpful tips for troubleshooting IP on the UNIVERGE® SV9100 system.

Chapter

1

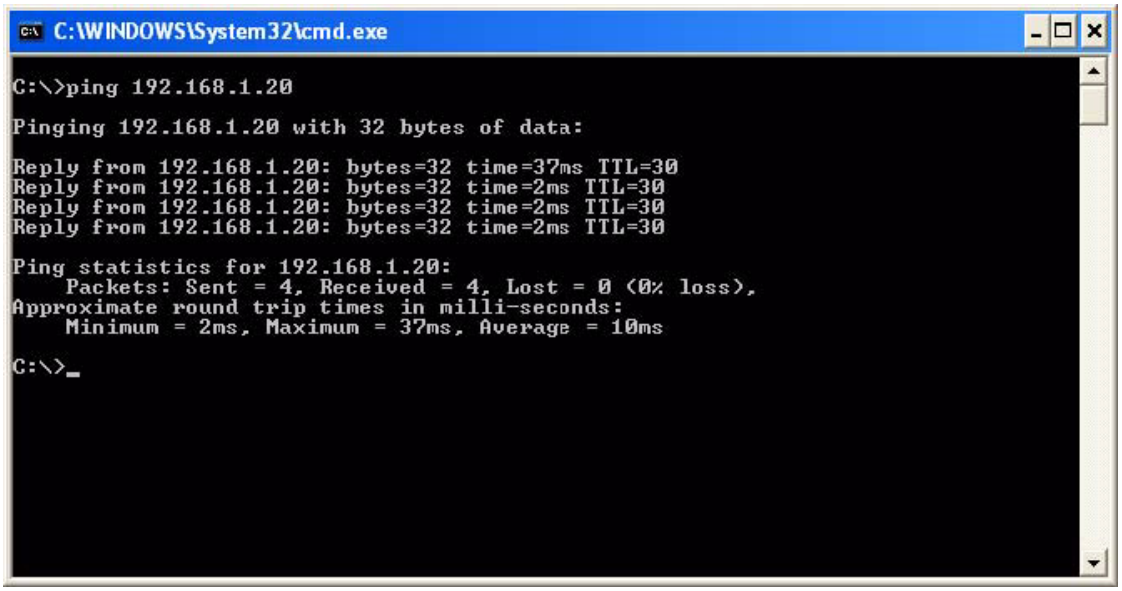
SECTION 2 PING

This is one of the most useful tools available to troubleshoot IP connectivity. PING is a standard component of Microsoft Windows® and is also implemented on the UNIVERGE SV9100 IP Phones. Ping sends a small IP packet to a specified destination and waits for a response back.

It should be possible to ping IP Phones, the GCD-CP10 (CPU), GPZ-IPLE and any other devices on the network. Send a ping and wait for a reply. If a reply is not received, the ping response “times out”. This indicates a connection problem.

Refer to Figure 1-1 Ping Traces on page 1-2 for examples of these two conditions.

Successful Ping Trace



Unsuccessful Ping Trace

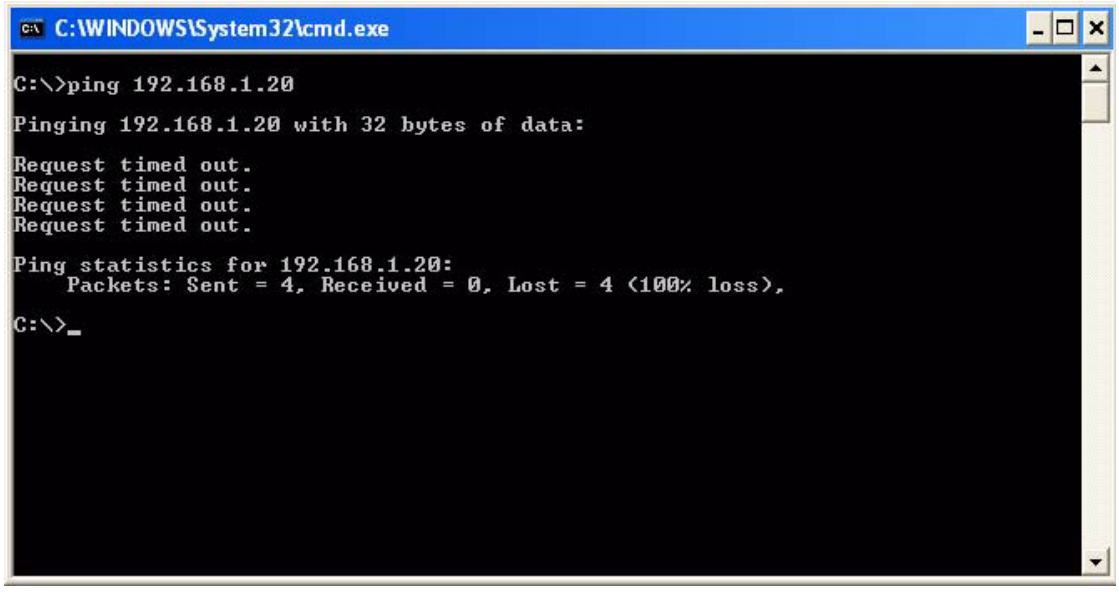


Figure 1-1 Ping Traces

If unable to ping a device, it may mean that either the source or destination device:

- ❑ is not configured correctly
- ❑ is not connected to the LAN (e.g., cable disconnected)
- ❑ has a developed a fault
- ❑ or any device in between the source or destination may be faulty (e.g., routers)

2.1 Pinging from a PC

The command syntax for ping is:

```
ping [-t] [-n count] [-l size] target

-t (optional)  continually sends PING requests until Ctrl-C is
pressed to cancel -n (optional) sends a specified number of PING
requests -l (optional) sends packets of a specified size (bytes)
target the destination IP address or host name
```

Note that there are other options available with the Microsoft Windows® implementation of ping. The most commonly used options are listed above.

Examples:

❍ ping 192.168.2.100 -t	Continually pings 192.168.2.100 until Ctrl-C pressed
❍ 192.168.2.100 -n 10 -l 40	Sends ten 40-byte packets to 192.168.2.100
❍ ping 192.168.2.100	Sends four 32-byte packets (default) to 192.168.2.100

2.2 Pinging from an UNIVERGE SV9100 IP Phone

The System IP Phone has a version of ping within the Maintenance Menu.

```
Hold down help button for 3 sec
Press 3 (Ping)
Enter address
Press OK
```

The following options are available:

1. Echo request start: Starts the ping process using the settings in options 2 and 3 below.
2. Destination address: The target destination IP Address
3. A successful ping results in: 1.OK 2.OK 3.OK 4.OK Complete
   A unsuccessful ping results in: 1.NG 2.NG 3.NG 4.NG Complete

An example of ping usage:

A UNIVERGE SV9100 IP Phone unsuccessfully attempts to connect to the UNIVERGE SV9100 system as shown in Figure 1-2 Ping Usage Example.

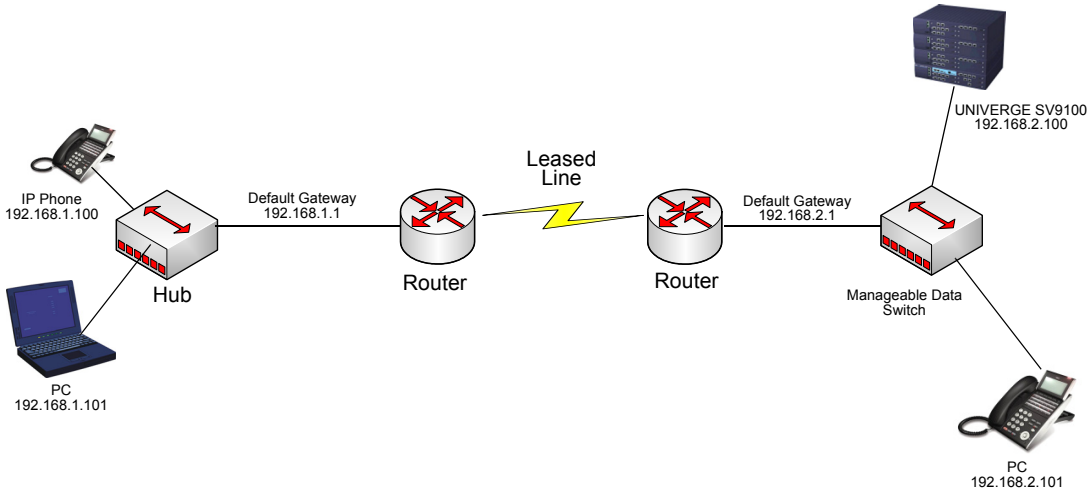


Figure 1-2 Ping Usage Example

As seen in Figure 1-2 Ping Usage Example, there are several devices that could cause a connection problem:

- UNIVERGE SV9100 IP Phone (192.168.1.100)
- Local Hub
- Local Router (192.168.1.1)
- Leased Line
- Remote Router (192.168.2.1)
- Manageable Data Switch
- UNIVERGE SV9100

You will see that by pinging from the System IP Phone and PCs, we can work out where the problem lies by process of elimination. We start by pinging the nearest device and working outward toward the intended destination.

Examples:

- The UNIVERGE SV9100 IP Phone can successfully ping all devices up to and including the local router. Anything beyond that point fails. This would suggest that the Leased Line or remote router has a problem.
- The local PC (192.l68.1.101) can ping all devices except the UNIVERGE SV9100 IP Phone. The UNIVERGE SV9100 IP Phone can not ping anywhere. This would suggest that there is a problem with the UNIVERGE SV9100 IP Phone or its connection to the switch/hub.

SECTION 3 PACKET TRACES

It is possible to use a packet trace utility (also known as “Sniffers”) to determine what data is being transmitted and received on an ethernet network. These can be particularly useful to determine the cause of connection issues or voice quality issues.

The packet trace utility has to run on a PC that is connected to a managed switch port that is capable of port mirroring. The technician will need to enable port mirroring on the Switch port the IPLE is connected to, and mirror to the port the PC that is running wireshark is connected to. A HUB may not be used in front of the SV9100, however a HUB may be used for wireshark captures in front of IP Telephones. The reason for this is the IPLE Network connection does NOT support half-duplex devices.

There are many utilities available that will allow packet trace to be run on a network. One such utility is Ethereal. This is a software application distributed under a GNU general public license (**www.wireshark.org**). This allows the files to be captured and saved in a standard format for analysis later.

A sample trace file is shown in Figure 1-3 Trace File Example on page 1-6.

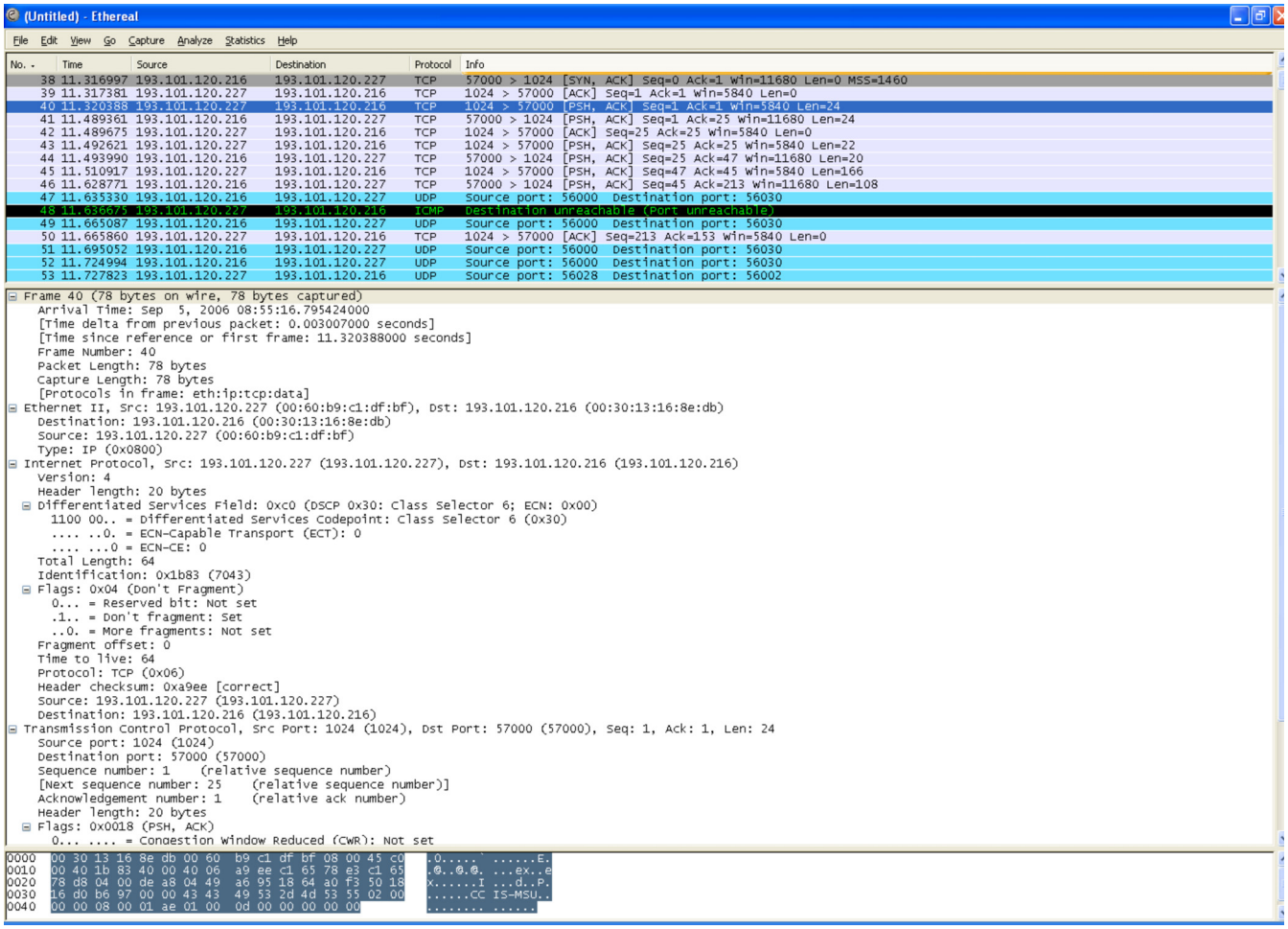


Figure 1-3 Trace File Example

System Maintenance

SECTION 1 INTRODUCTION

The technician can use this book to troubleshoot and diagnose problems during and after system installation. The troubleshooting flow charts and general test procedures help the technician identify possible causes of the problem by defining the problem area.

Using the System Data Upload/Download feature, all System Programming and Speed Dial data can be stored on disk for safe keeping. After all System Programming is completed, it should be downloaded to a disk for backup. When system memory fails, this data on the disk can be uploaded and the memory restored.

Chapter 2

SECTION 2 OPERATIONAL TEST PROCEDURES

2.1 General Information

When an UNIVERGE SV9100 system is first powered up, an initialization is performed. During this process the GCD-CP10 (CPU), located in the first chassis, scans each interface slot to determine the hardware configuration used. This information is stored in the resident system program memory with the system default values. This section provides test procedures that are used before, during, and after the initialization process.

2.2 Before Initializing

The technician must follow these steps before initializing the system.

2.2.1 Cable Connections

All wiring for power supplies or flat cable connectors should be checked for solid connections.

2.2.2 Initialization Check

To determine if the system is initializing correctly, only the first chassis, GCD-CP10, one GCD-8DLCA, and terminals should be installed on the system. After initialization, all the terminals assigned to the GCD-8DLCA can be used for internal calls to one another. (By default, these stations are assigned station numbers 101~108).

2.3 System Initialization

Before initialization is performed and verified, the entire system should be initialized.

With power OFF, all interface and option cards can be installed in the controlling chassis. The technician can then power up the system to perform a First Initialization. After the initialization, each station display shows default time and date indications.

For example: 12-2 FRI 10:47 AM

2.4 After Initialization

Ensure that the battery is installed in CN15 on the GCD-CP10.

Check all blade slots in software to ensure the initialization process scanned the installed hardware correctly.

A general system operation check should be performed using default values prior to system programming.

After all previous steps are performed and any problems corrected, system programming is complete.

After System Programming is finished, the technician should perform a Second Initialization. Performing the First Initialization a second time causes all programming memory to be lost. Second Initialization refreshes the system RAM without losing any memory.

This completes the installation procedure for the UNIVERGE SV9100 system. The technician should check the operation of each Multiline Terminal to ensure the system is working properly.

SECTION 3 TROUBLESHOOTING

3.1 Remote Administration and Maintenance

PCPro can remotely access the UNIVERGE SV9100 system for maintenance and diagnostics. The remote PC and the system are connected using a modem on the GCD-CP10 or using IP.

3.2 Problem Solving

To find the cause, consider all problem symptoms carefully. As each aspect of the problem is considered, the technician is guided to a probable solution. The problem must be defined as accurately as possible, so that the most efficient steps to the solution can be taken. Flowcharts in the next section help define the problem.

3.2.1 System Down

This term describes one of the following situations:

- ❒ No access to internal dial tone on any installed Multiline Terminal or Single Line Telephone.
- ❒ No LED or display indication on any installed Multiline Terminal.
- ❒ No system tones are generated.

3.2.2 Partial Operation

This term refers to any situation that cannot be completely described under the System Down conditions.

3.2.3 Reset

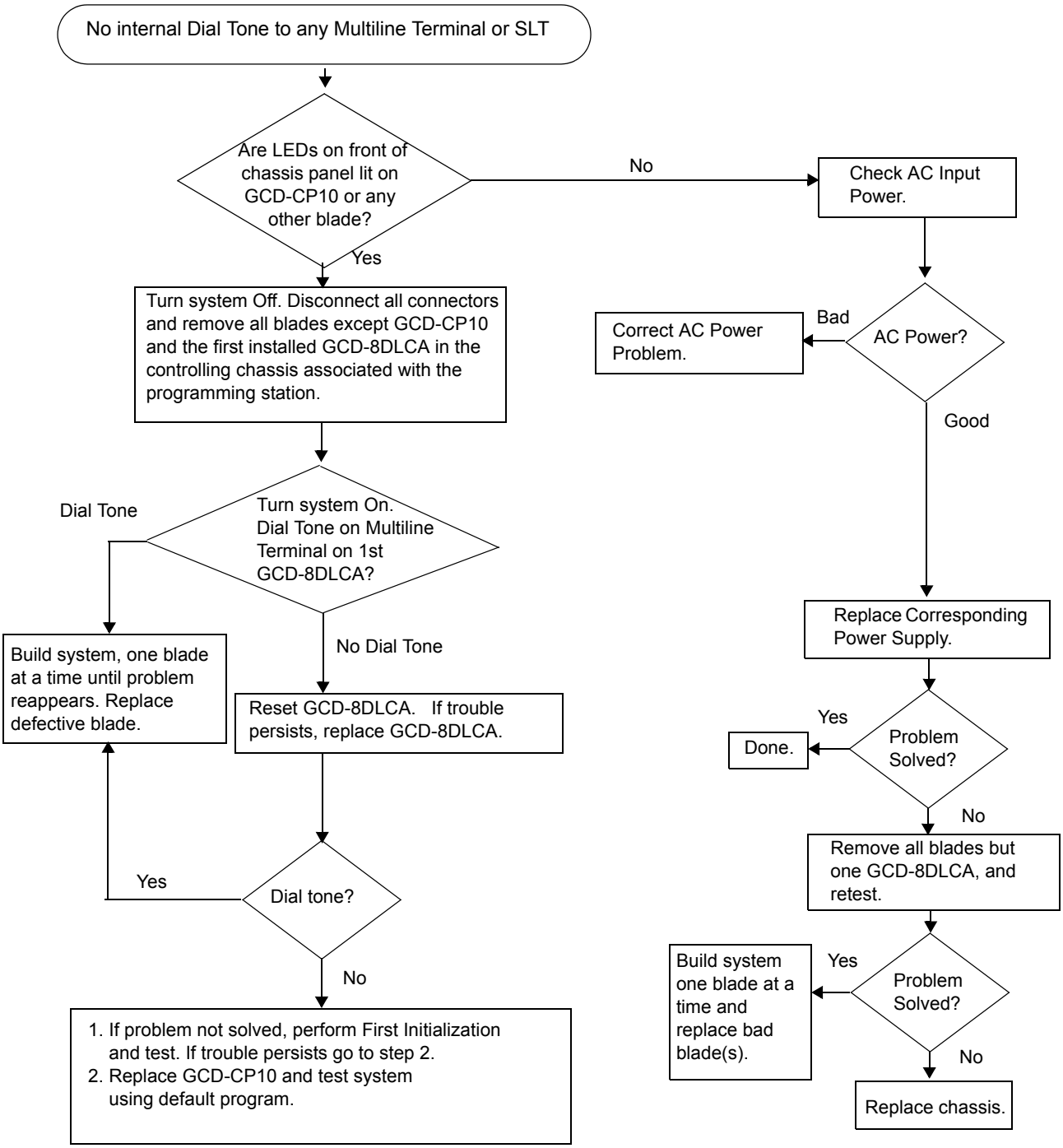
At times, the station and/or the blade must be reset. The following resets are used in the system:

- ❒ Terminal Reset – Unplug the station line cord from the station and then plug it back into the station.
- ❒ Blade Reset - Unseat the blade and reseat.

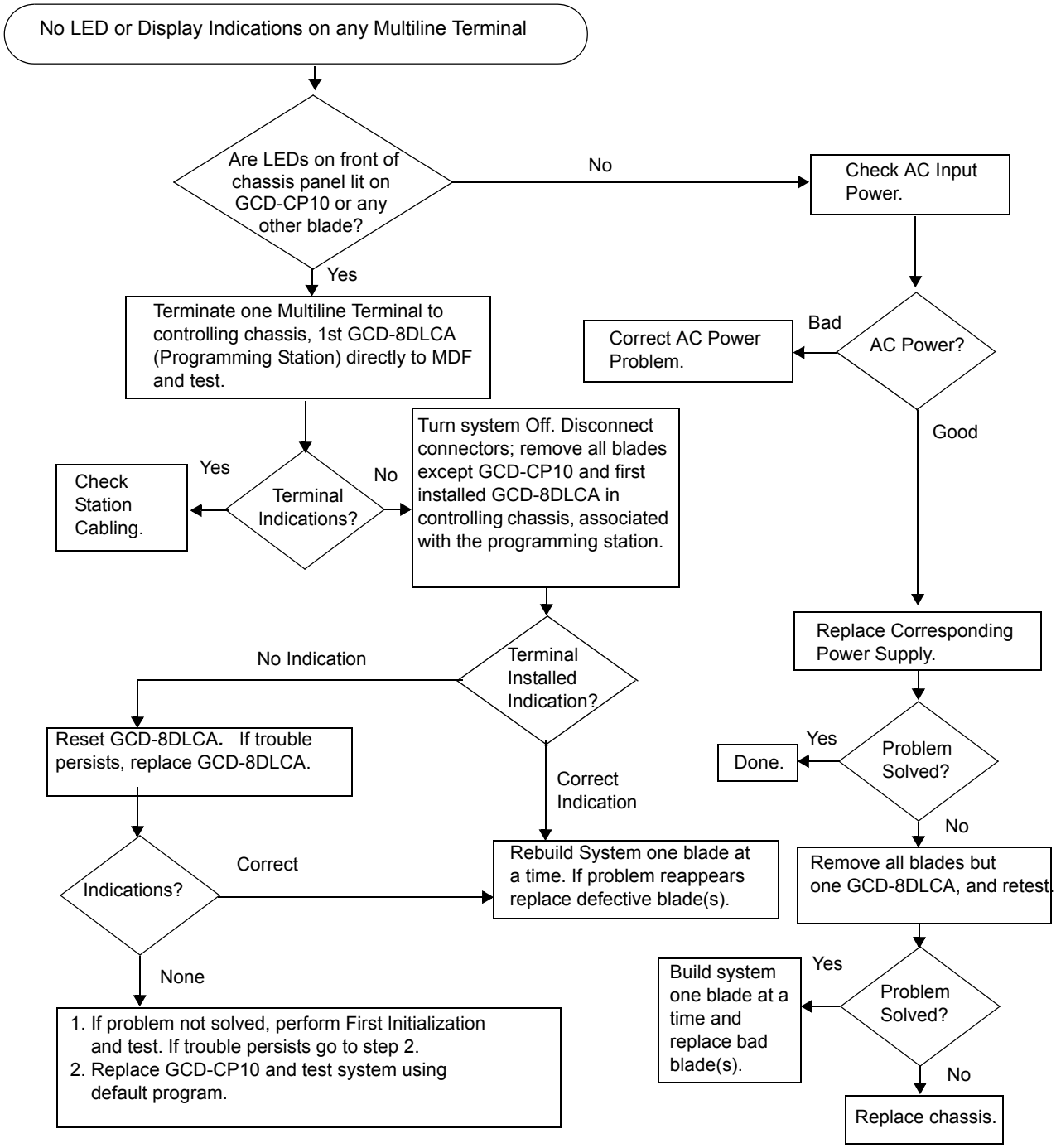
3.3 Flowcharts

Condition	Flowchart	Page
A. System Down		
1. No Internal Dial Tone to any Multiline Terminal or SLT	A1	2-5
2. No LED or Display Indications on any Multiline Terminal	A2	2-6
B. Partial Operations		
1. Frequency Interference	B1	2-7
2. No or Intermittent CO/PBX Ring	C1	2-8
3. Call Dropping	C2	2-9
4. No Outside Dial Tone Access	C3	2-10
5. CO/PBX Dialing Problem: Cannot Dial Out on CO	C4	2-11
C. Multiline Terminal Problems		
1. Multiline Terminal Function	D1	2-12
2. Multiline Terminal Ringing	D2	2-13
3. Multiline Terminal Dial Tone Access	D3	2-14
D. Single Line Telephone Problems		
1. No Dial Tone Access on SLT	E1	2-15
2. Ringing Problem on SLT	E2	2-16
3. No Dial Access to SLT Features	E3	2-17
E. Low Volume Problems	F1	2-18
F. External Paging Problems	G1	2-19
G. SMDR Output Problems No Call Accounting System	H1	2-20

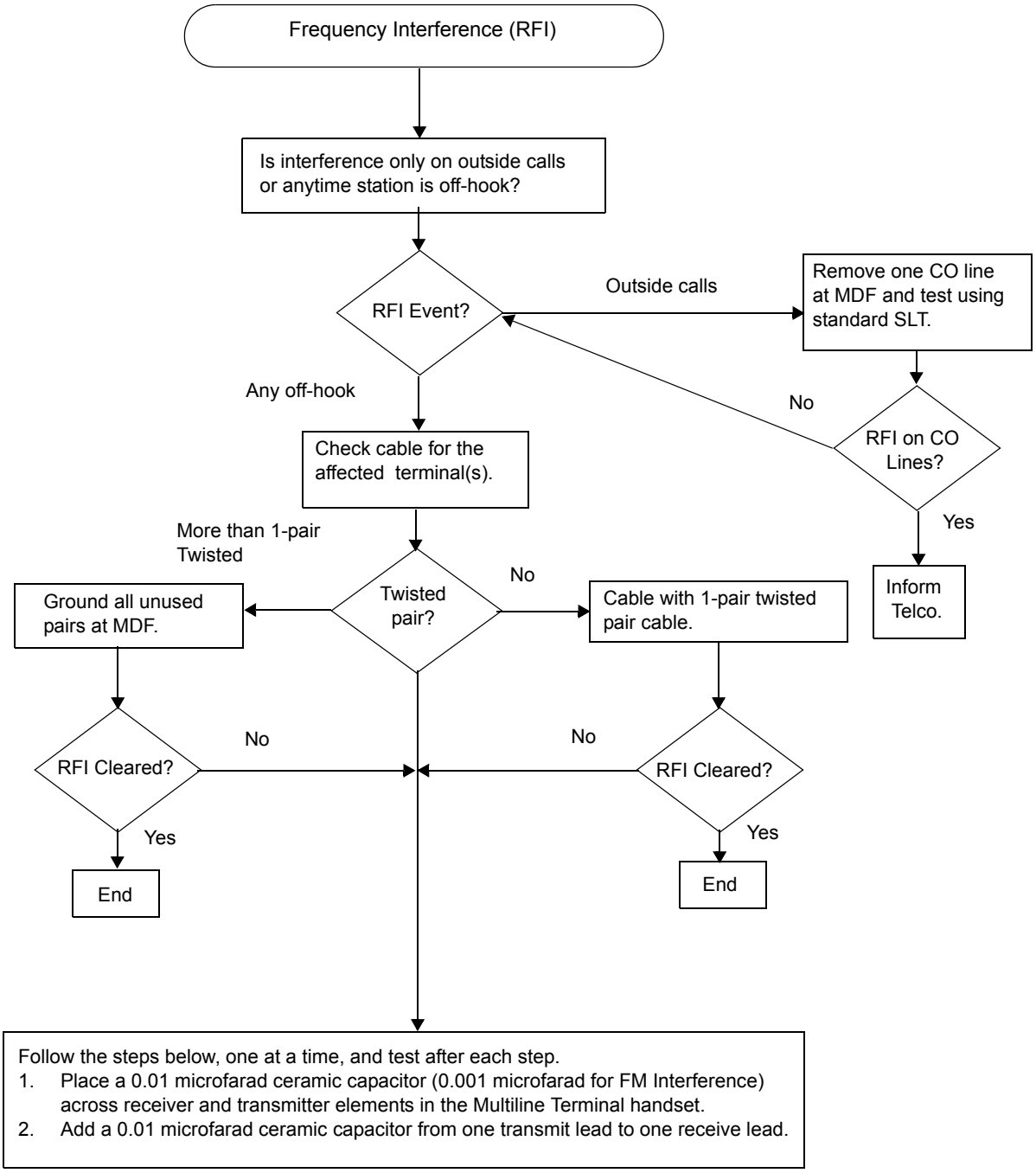
A1


No internal Dial Tone to any Multiline Terminal or SLT
Are LEDs on front of chassis panel lit on GCD-CP10 or any other blade?
No
Check AC Input Power.
Yes
Turn system Off. Disconnect all connectors and remove all blades except GCD-CP10 and the first installed GCD-8DLCA in the controlling chassis associated with the programming station.
Correct AC Power Problem.
Bad
AC Power?
Good
Dial Tone
Turn system On. Dial Tone on Multiline Terminal on 1st GCD-8DLCA?
Replace Corresponding Power Supply.
Build system, one blade at a time until problem reappears. Replace defective blade.
No Dial Tone
Reset GCD-8DLCA. If trouble persists, replace GCD-8DLCA.
Yes
Done.
Problem Solved?
No
Remove all blades but one GCD-8DLCA, and retest.
Yes
Dial tone?
Build system one blade at a time and replace bad blade(s).
Yes
Problem Solved?
No
No
1. If problem not solved, perform First Initialization and test. If trouble persists go to step 2.
2. Replace GCD-CP10 and test system using default program.
Replace chassis.

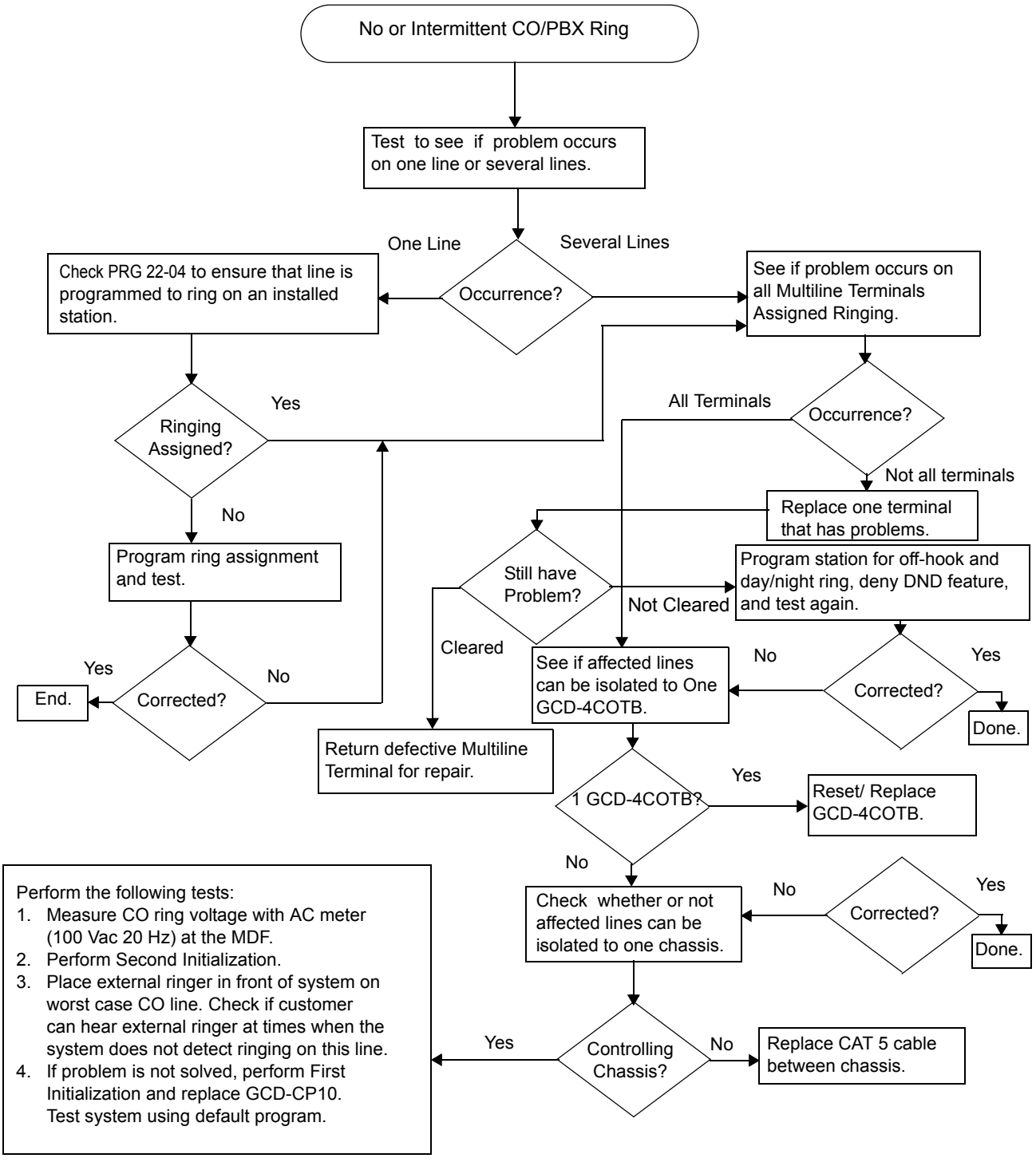
A2


No LED or Display Indications on any Multiline Terminal
Are LEDs on front of chassis panel lit on GCD-CP10 or any other blade?
No
Check AC Input Power.
Yes
Terminate one Multiline Terminal to controlling chassis, 1st GCD-8DLCA (Programming Station) directly to MDF and test.
Bad
AC Power?
Correct AC Power Problem.
Good
Yes
Terminal Indications?
No
Check Station Cabling.
Turn system Off. Disconnect connectors; remove all blades except GCD-CP10 and first installed GCD-8DLCA in controlling chassis, associated with the programming station.
Replace Corresponding Power Supply.
No Indication
Terminal Installed Indication?
Yes
Problem Solved?
Done.
Reset GCD-8DLCA. If trouble persists, replace GCD-8DLCA.
Correct Indication
No
Correct
Indications?
Rebuild System one blade at a time. If problem reappears replace defective blade(s).
Remove all blades but one GCD-8DLCA, and retest.
Yes
Problem Solved?
Build system one blade at a time and replace bad blade(s).
None
No
1. If problem not solved, perform First Initialization and test. If trouble persists go to step 2.
2. Replace GCD-CP10 and test system using default program.
Replace chassis.

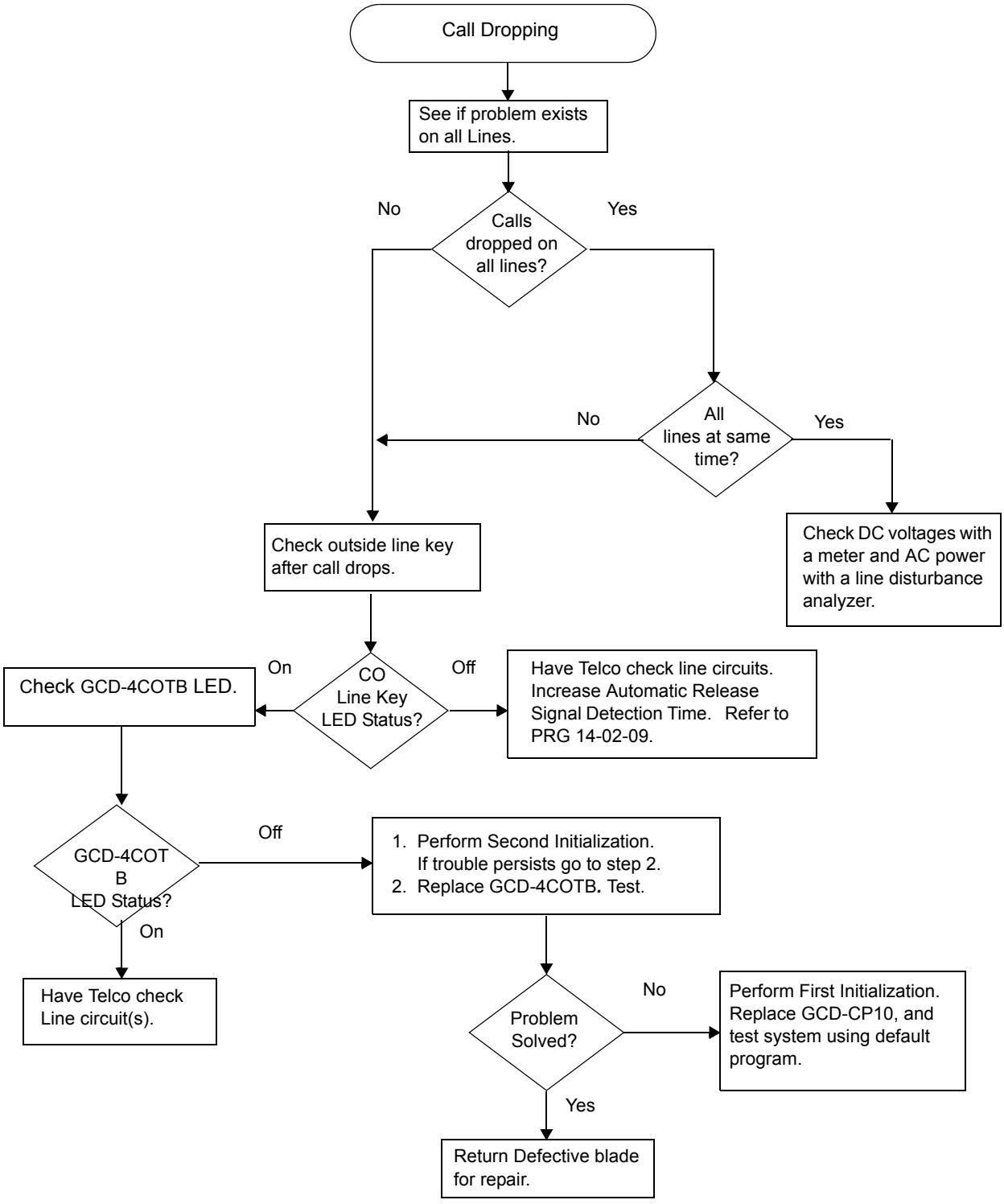
B1


Frequency Interference (RFI)
Is interference only on outside calls or anytime station is off-hook?
RFI Event?
Outside calls
Remove one CO line at MDF and test using standard SLT.
Any off-hook
No
RFI on CO Lines?
Yes
Inform Telco.
Check cable for the affected terminal(s).
More than 1-pair Twisted
Twisted pair?
No
Ground all unused pairs at MDF.
Cable with 1-pair twisted pair cable.
RFI Cleared?
No
Yes
End
RFI Cleared?
No
Yes
End
Follow the steps below, one at a time, and test after each step.
1. Place a 0.01 microfarad ceramic capacitor (0.001 microfarad for FM Interference) across receiver and transmitter elements in the Multiline Terminal handset.
2. Add a 0.01 microfarad ceramic capacitor from one transmit lead to one receive lead.

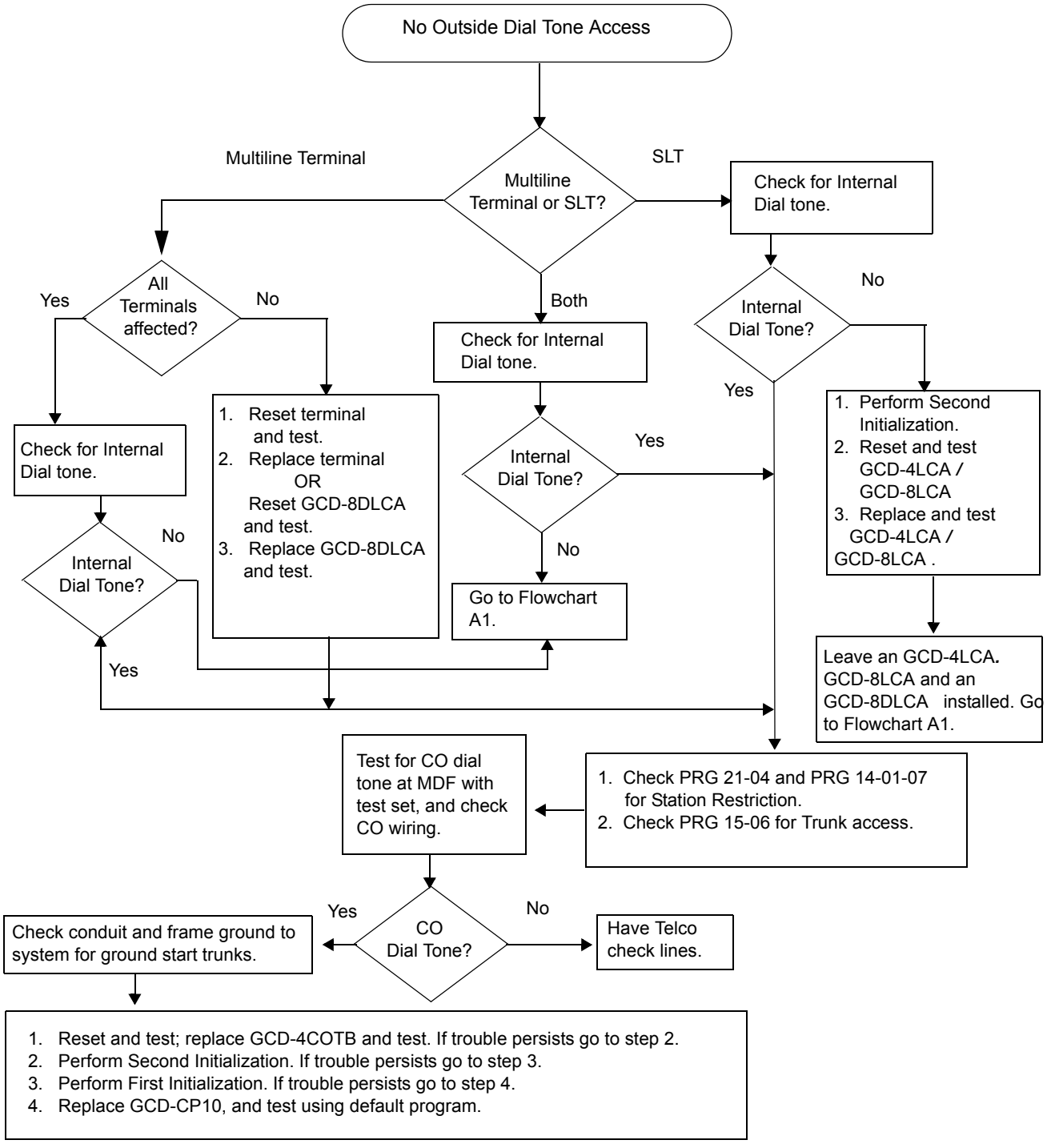
C1


No or Intermittent CO/PBX Ring
Test to see if problem occurs on one line or several lines.
One Line
Several Lines
Occurrence?
Check PRG 22-04 to ensure that line is programmed to ring on an installed station.
See if problem occurs on all Multiline Terminals Assigned Ringing.
Ringing Assigned?
Yes
No
All Terminals
Occurrence?
Not all terminals
Replace one terminal that has problems.
Program ring assignment and test.
Still have Problem?
Not Cleared
Program station for off-hook and day/night ring, deny DND feature, and test again.
Cleared
Yes
No
End.
Corrected?
No
Yes
Corrected?
See if affected lines can be isolated to One GCD-4COTB.
Done.
Return defective Multiline Terminal for repair.
1 GCD-4COTB?
Yes
Reset/ Replace GCD-4COTB.
No
Check whether or not affected lines can be isolated to one chassis.
No
Yes
Corrected?
Done.
Perform the following tests:
1. Measure CO ring voltage with AC meter (100 Vac 20 Hz) at the MDF.
2. Perform Second Initialization.
3. Place external ringer in front of system on worst case CO line. Check if customer can hear external ringer at times when the system does not detect ringing on this line.
4. If problem is not solved, perform First Initialization and replace GCD-CP10. Test system using default program.
Yes
Controlling Chassis?
No
Replace CAT 5 cable between chassis.

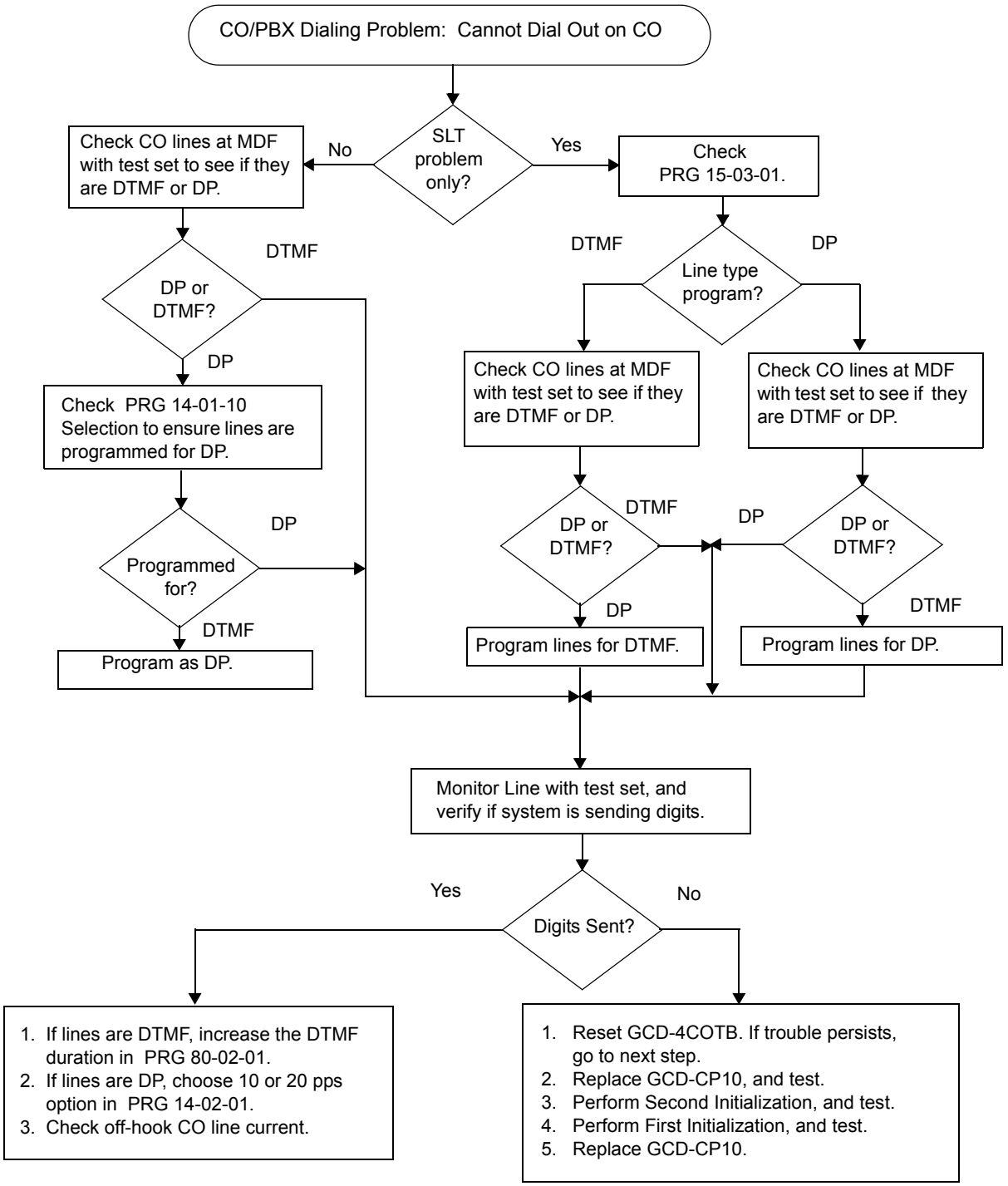
C2


Call Dropping
See if problem exists on all Lines.
Calls dropped on all lines?
No
Yes
All lines at same time?
No
Yes
Check outside line key after call drops.
Check DC voltages with a meter and AC power with a line disturbance analyzer.
CO Line Key LED Status?
On
Off
Check GCD-4COTB LED.
Have Telco check line circuits. Increase Automatic Release Signal Detection Time. Refer to PRG 14-02-09.
GCD-4COTB LED Status?
Off
On
1. Perform Second Initialization. If trouble persists go to step 2.
2. Replace GCD-4COTB. Test.
Have Telco check Line circuit(s).
Problem Solved?
No
Yes
Perform First Initialization. Replace GCD-CP10, and test system using default program.
Return Defective blade for repair.

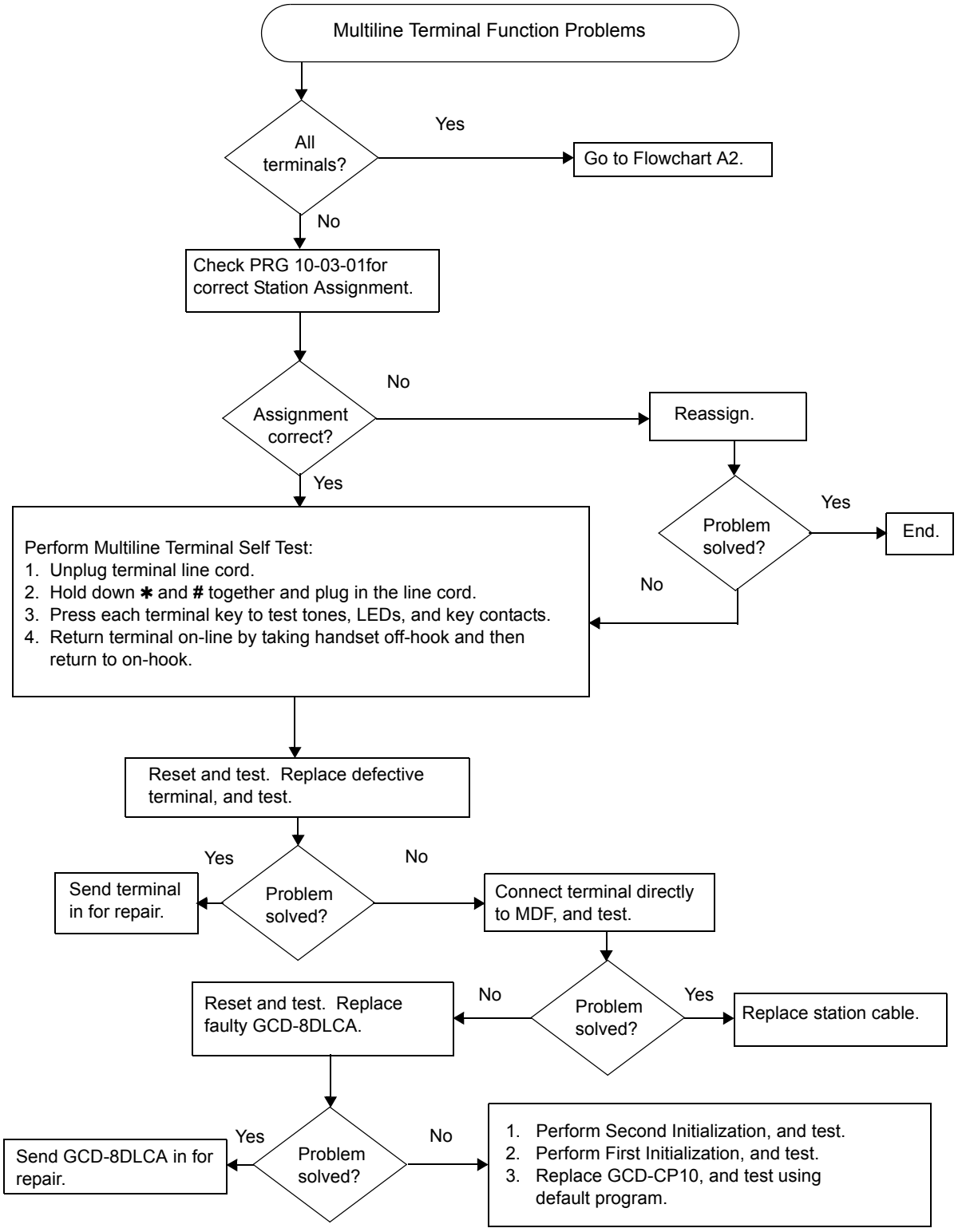
C3


No Outside Dial Tone Access
Multiline Terminal
Multiline Terminal or SLT?
SLT
Check for Internal Dial tone.
Yes
All Terminals affected?
No
Both
Internal Dial Tone?
No
Yes
Check for Internal Dial tone.
1. Reset terminal and test.
2. Replace terminal OR Reset GCD-8DLCA and test.
3. Replace GCD-8DLCA and test.
Check for Internal Dial tone.
Internal Dial Tone?
Yes
No
Go to Flowchart A1.
Internal Dial Tone?
No
Yes
1. Perform Second Initialization.
2. Reset and test GCD-4LCA / GCD-8LCA
3. Replace and test GCD-4LCA / GCD-8LCA .
Leave an GCD-4LCA. GCD-8LCA and an GCD-8DLCA installed. Go to Flowchart A1.
Yes
Test for CO dial tone at MDF with test set, and check CO wiring.
1. Check PRG 21-04 and PRG 14-01-07 for Station Restriction.
2. Check PRG 15-06 for Trunk access.
Yes
CO Dial Tone?
No
Check conduit and frame ground to system for ground start trunks.
Have Telco check lines.
1. Reset and test; replace GCD-4COTB and test. If trouble persists go to step 2.
2. Perform Second Initialization. If trouble persists go to step 3.
3. Perform First Initialization. If trouble persists go to step 4.
4. Replace GCD-CP10, and test using default program.

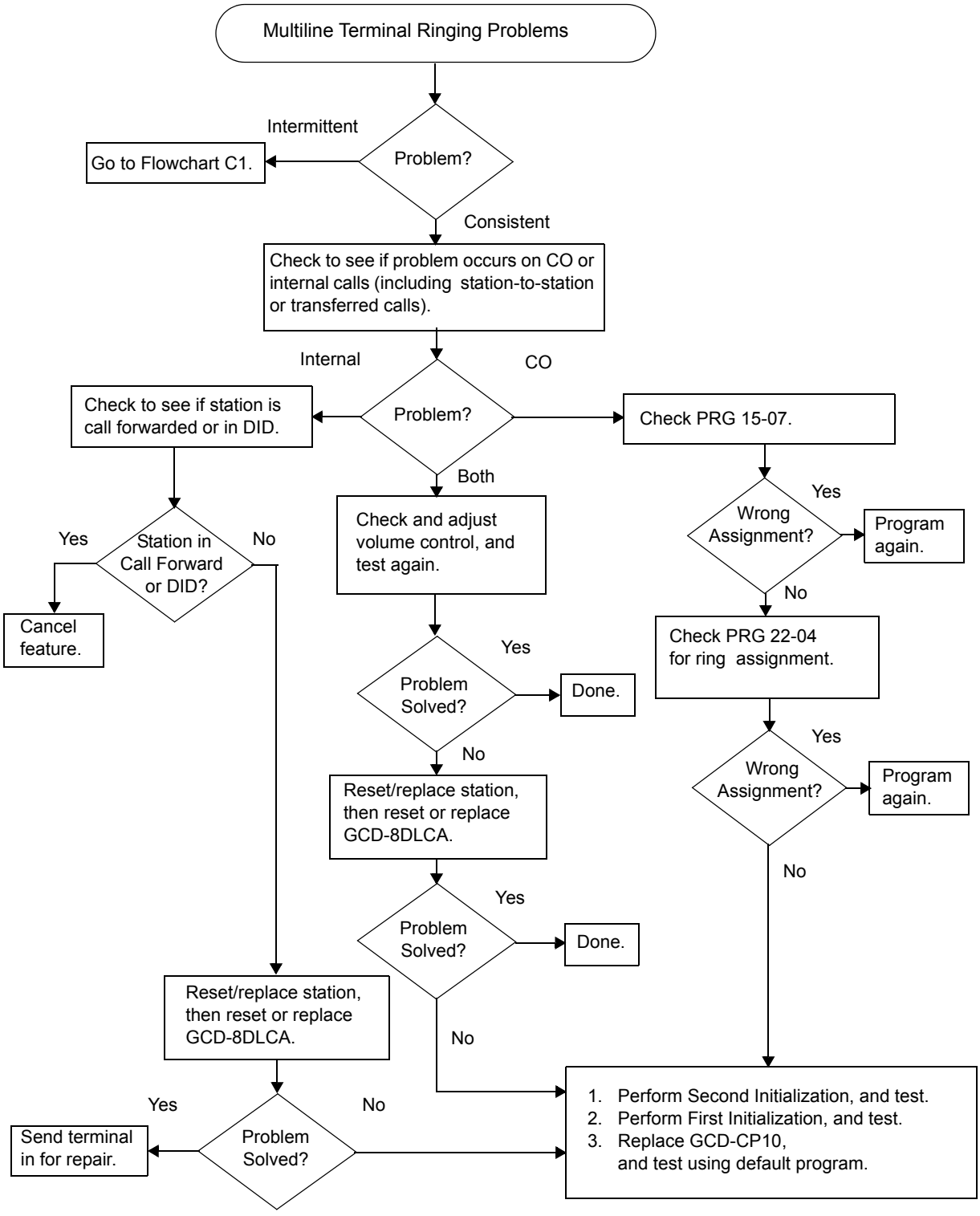
C4


CO/PBX Dialing Problem: Cannot Dial Out on CO
SLT problem only?
No
Yes
Check CO lines at MDF with test set to see if they are DTMF or DP.
Check PRG 15-03-01.
DP or DTMF?
DTMF
DP
Line type program?
DTMF
DP
Check PRG 14-01-10 Selection to ensure lines are programmed for DP.
Programmed for?
DP
DTMF
Program as DP.
Check CO lines at MDF with test set to see if they are DTMF or DP.
Check CO lines at MDF with test set to see if they are DTMF or DP.
DP or DTMF?
DTMF
DP
DP or DTMF?
DP
DTMF
Program lines for DTMF.
Program lines for DP.
Monitor Line with test set, and verify if system is sending digits.
Digits Sent?
Yes
No
1. If lines are DTMF, increase the DTMF duration in PRG 80-02-01.
2. If lines are DP, choose 10 or 20 pps option in PRG 14-02-01.
3. Check off-hook CO line current.
1. Reset GCD-4COTB. If trouble persists, go to next step.
2. Replace GCD-CP10, and test.
3. Perform Second Initialization, and test.
4. Perform First Initialization, and test.
5. Replace GCD-CP10.

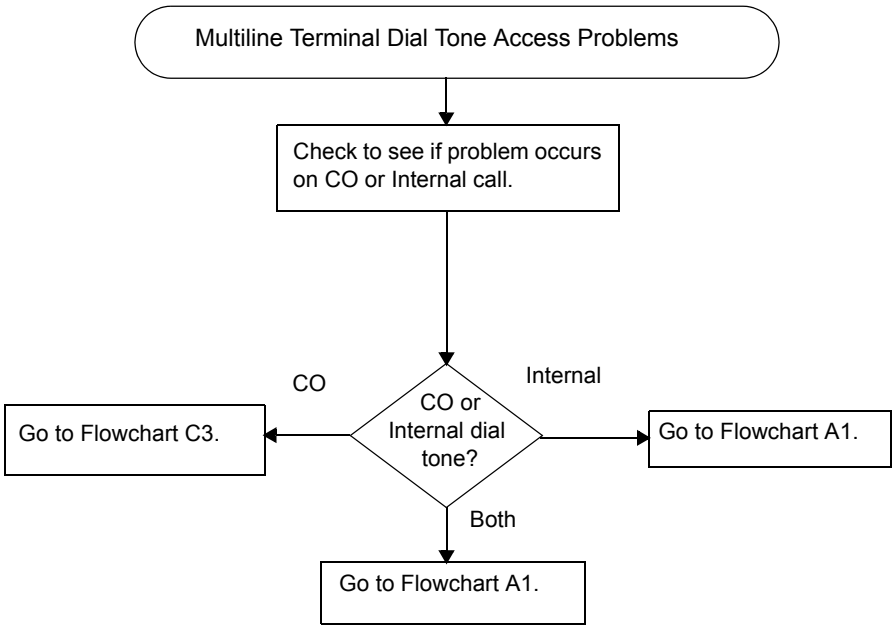
D1


Multiline Terminal Function Problems
All terminals?
Yes
Go to Flowchart A2.
No
Check PRG 10-03-01for correct Station Assignment.
Assignment correct?
No
Reassign.
Yes
Problem solved?
Yes
End.
No
Perform Multiline Terminal Self Test:
1. Unplug terminal line cord.
2. Hold down ✱ and # together and plug in the line cord.
3. Press each terminal key to test tones, LEDs, and key contacts.
4. Return terminal on-line by taking handset off-hook and then return to on-hook.
Reset and test. Replace defective terminal, and test.
Yes
Problem solved?
No
Send terminal in for repair.
Connect terminal directly to MDF, and test.
Reset and test. Replace faulty GCD-8DLCA.
No
Problem solved?
Yes
Replace station cable.
Yes
Problem solved?
No
Send GCD-8DLCA in for repair.
1. Perform Second Initialization, and test.
2. Perform First Initialization, and test.
3. Replace GCD-CP10, and test using default program.

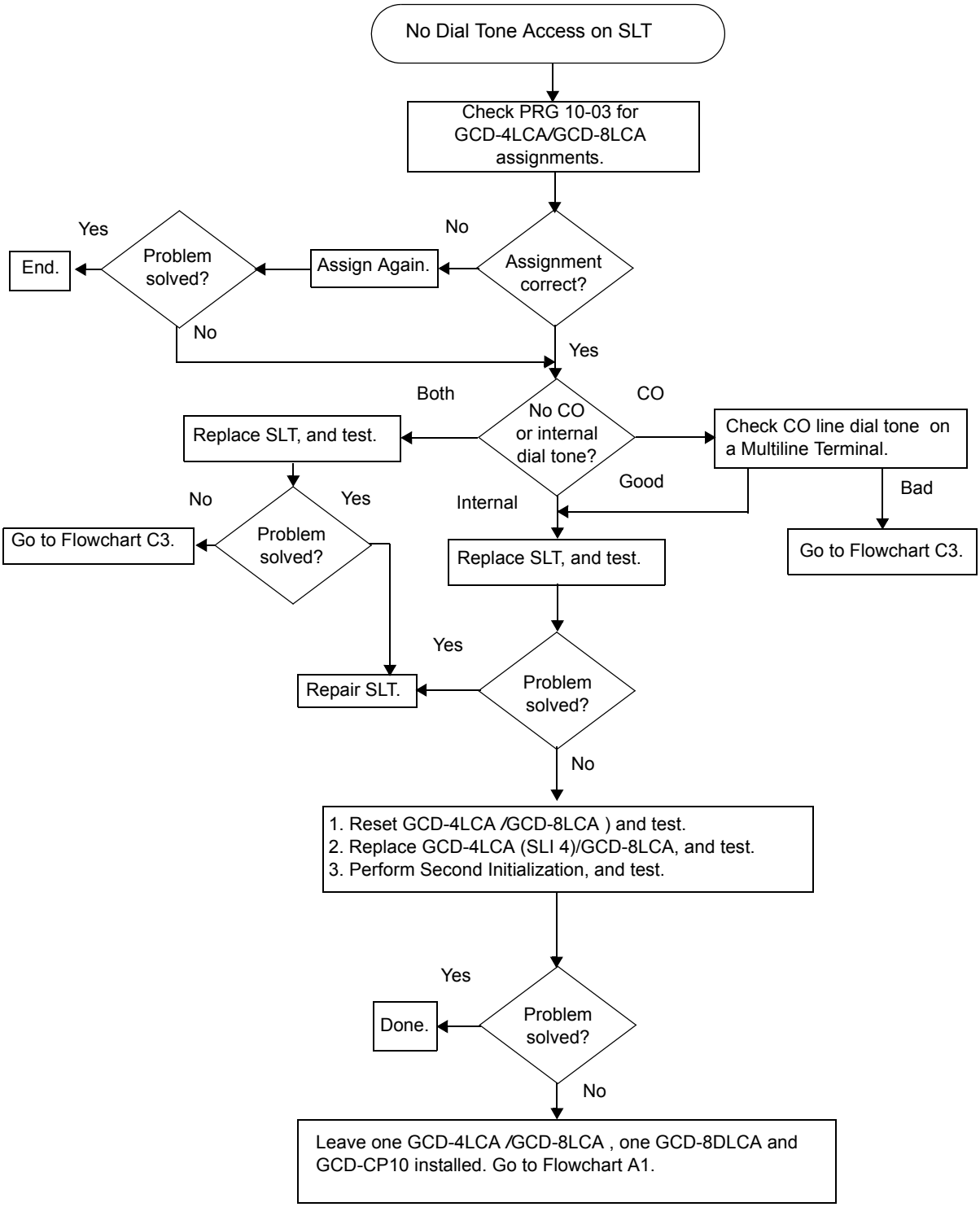
D2


Multiline Terminal Ringing Problems
Problem?
Intermittent
Go to Flowchart C1.
Consistent
Check to see if problem occurs on CO or internal calls (including station-to-station or transferred calls).
Problem?
Internal
CO
Check to see if station is call forwarded or in DID.
Check PRG 15-07.
Station in Call Forward or DID?
Yes
No
Cancel feature.
Both
Check and adjust volume control, and test again.
Wrong Assignment?
Yes
Program again.
No
Check PRG 22-04 for ring assignment.
Problem Solved?
Yes
Done.
No
Reset/replace station, then reset or replace GCD-8DLCA.
Wrong Assignment?
Yes
Program again.
No
Problem Solved?
Yes
Done.
No
Reset/replace station, then reset or replace GCD-8DLCA.
Problem Solved?
Yes
No
Send terminal in for repair.
1. Perform Second Initialization, and test.
2. Perform First Initialization, and test.
3. Replace GCD-CP10, and test using default program.

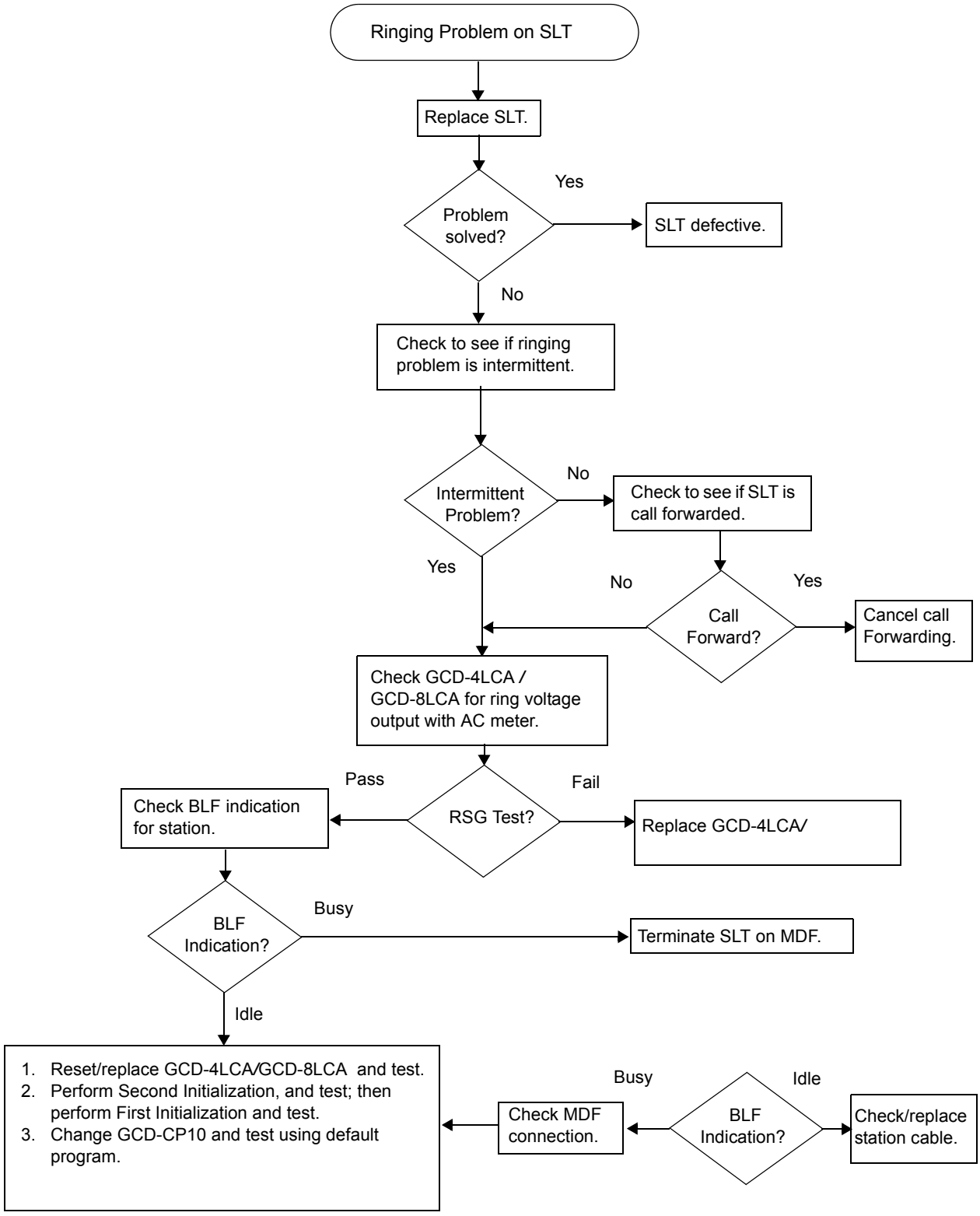
D3


Multiline Terminal Dial Tone Access Problems
Check to see if problem occurs on CO or Internal call.
CO
Internal
CO or Internal dial tone?
Go to Flowchart C3.
Go to Flowchart A1.
Both
Go to Flowchart A1.

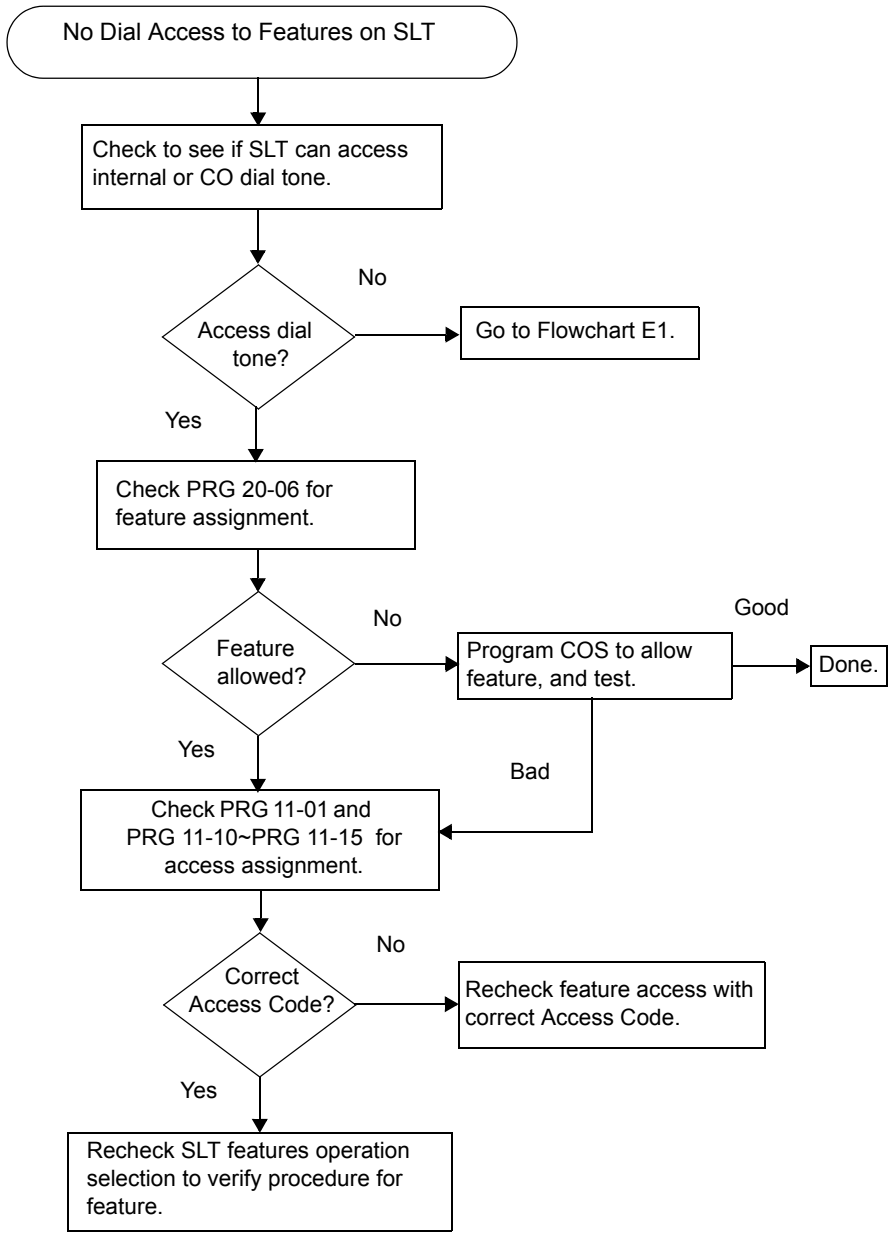
E1


No Dial Tone Access on SLT
Check PRG 10-03 for GCD-4LCA/GCD-8LCA assignments.
Assignment correct?
No
Assign Again.
Yes
Problem solved?
End.
No
Yes
No CO or internal dial tone?
Both
CO
Replace SLT, and test.
Check CO line dial tone on a Multiline Terminal.
Good
Bad
Internal
Problem solved?
No
Yes
Go to Flowchart C3.
Replace SLT, and test.
Go to Flowchart C3.
Problem solved?
Yes
Repair SLT.
No
1. Reset GCD-4LCA /GCD-8LCA) and test.
2. Replace GCD-4LCA (SLI 4)/GCD-8LCA, and test.
3. Perform Second Initialization, and test.
Problem solved?
Yes
Done.
No
Leave one GCD-4LCA /GCD-8LCA , one GCD-8DLCA and GCD-CP10 installed. Go to Flowchart A1.

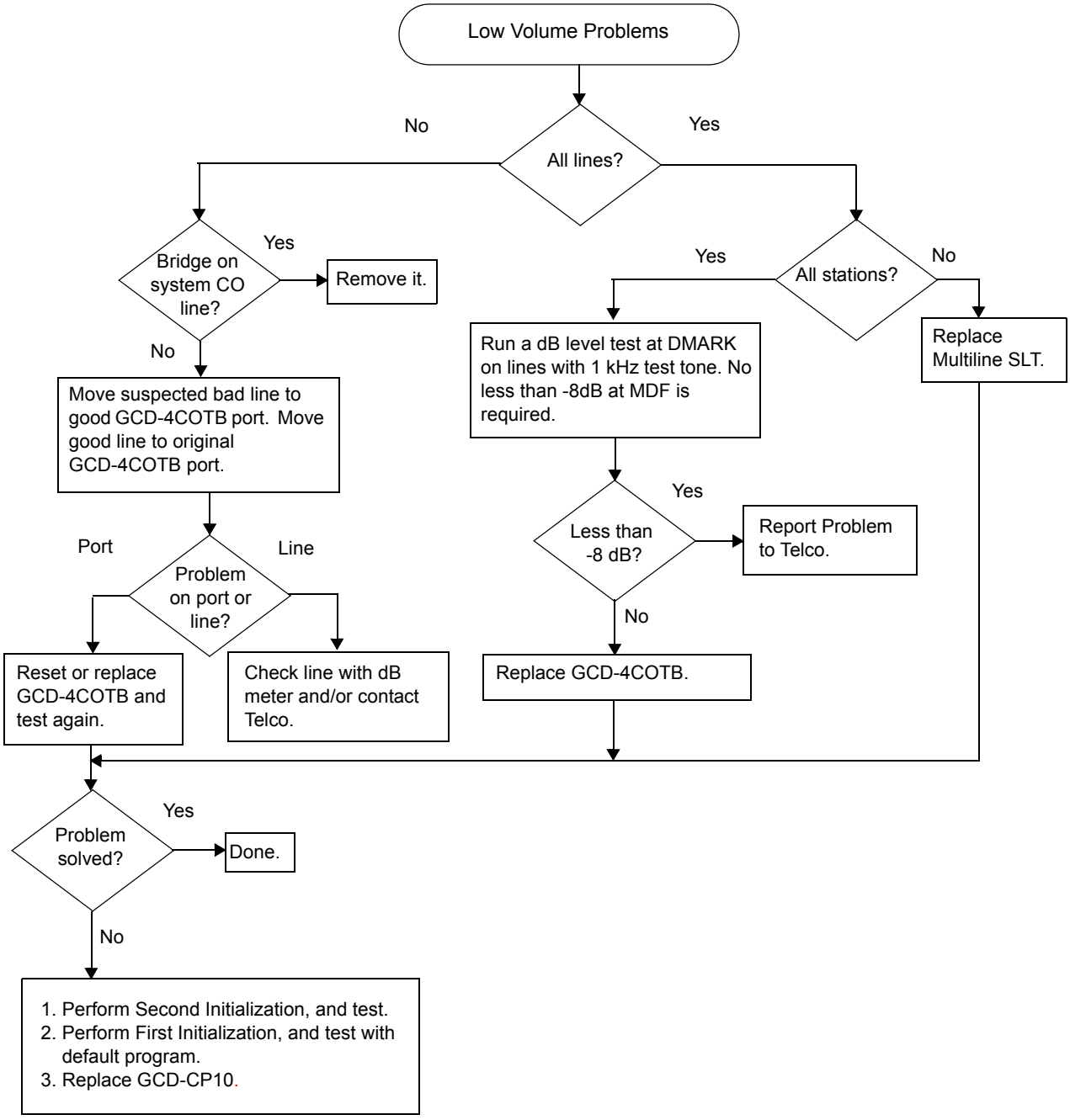
E2


Ringing Problem on SLT
Replace SLT.
Problem solved?
Yes
SLT defective.
No
Check to see if ringing problem is intermittent.
Intermittent Problem?
No
Check to see if SLT is call forwarded.
Yes
Call Forward?
No
Yes
Cancel call Forwarding.
Check GCD-4LCA / GCD-8LCA for ring voltage output with AC meter.
RSG Test?
Pass
Fail
Check BLF indication for station.
Replace GCD-4LCA/
BLF Indication?
Busy
Terminate SLT on MDF.
Idle
1. Reset/replace GCD-4LCA/GCD-8LCA and test.
2. Perform Second Initialization, and test; then perform First Initialization and test.
3. Change GCD-CP10 and test using default program.
Busy
Check MDF connection.
BLF Indication?
Idle
Check/replace station cable.

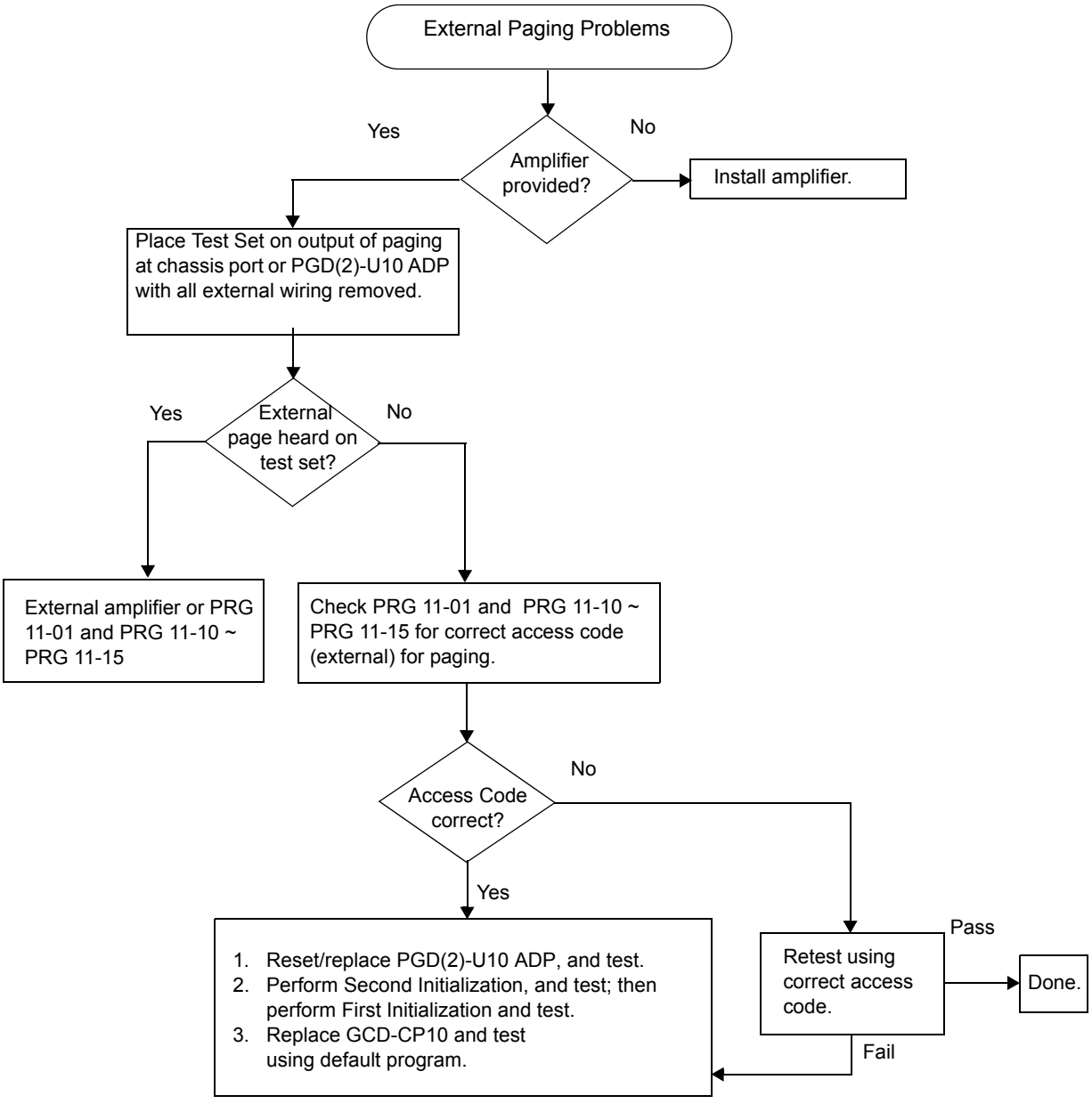
E3


No Dial Access to Features on SLT
Check to see if SLT can access internal or CO dial tone.
Access dial tone?
No
Go to Flowchart E1.
Yes
Check PRG 20-06 for feature assignment.
Feature allowed?
No
Program COS to allow feature, and test.
Good
Done.
Bad
Yes
Check PRG 11-01 and PRG 11-10~PRG 11-15 for access assignment.
Correct Access Code?
No
Recheck feature access with correct Access Code.
Yes
Recheck SLT features operation selection to verify procedure for feature.

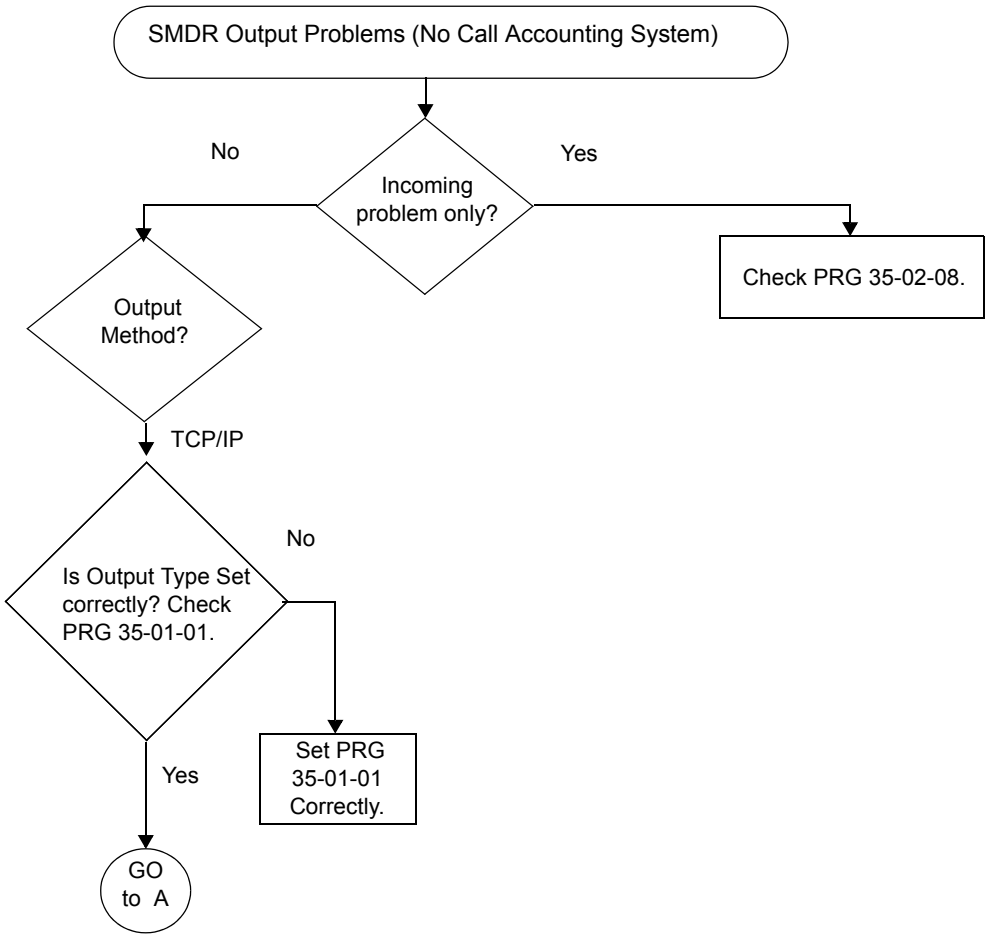
F1

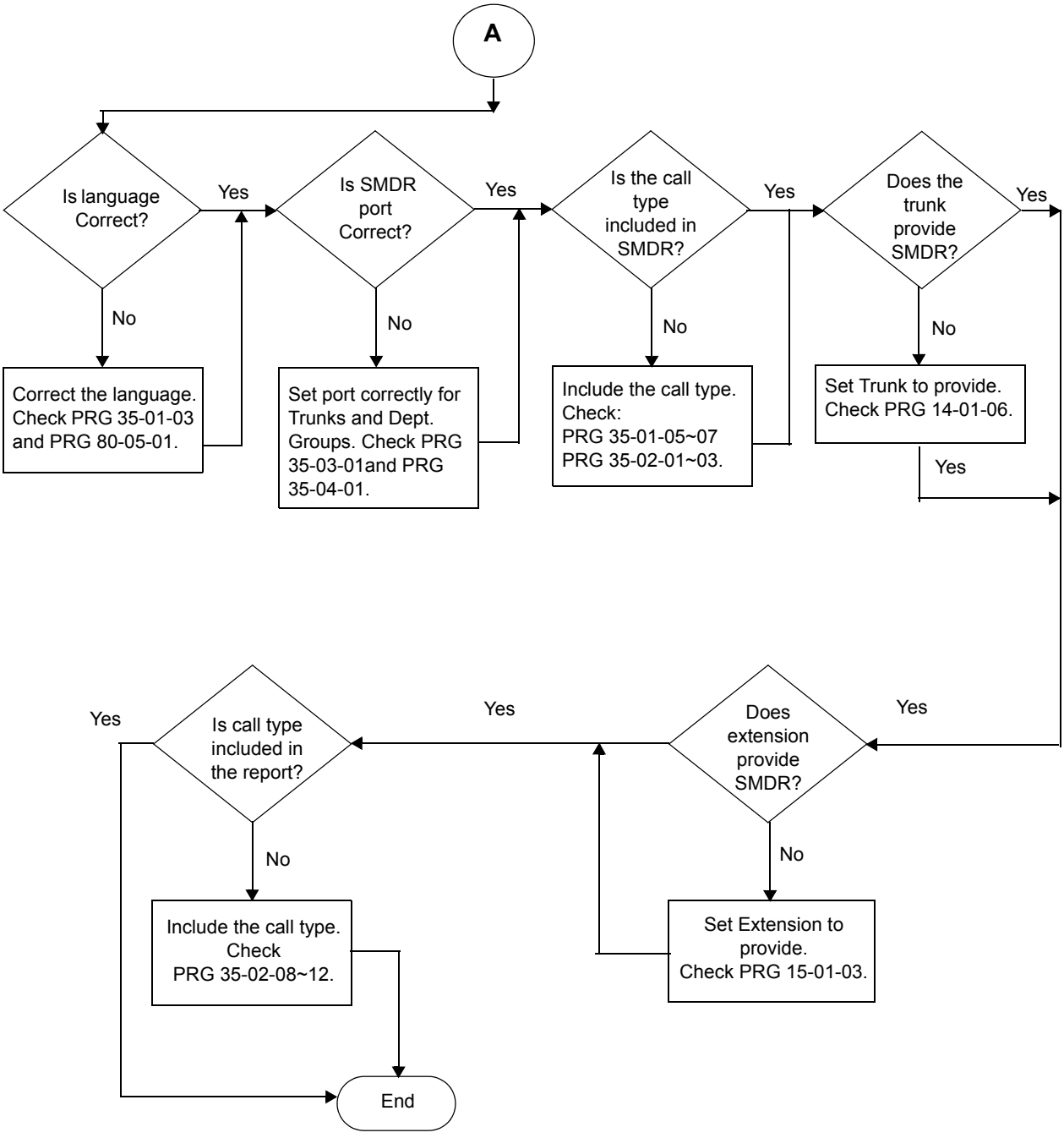

Low Volume Problems
All lines?
No
Yes
Bridge on system CO line?
Yes
Remove it.
No
Move suspected bad line to good GCD-4COTB port. Move good line to original GCD-4COTB port.
Port
Line
Problem on port or line?
Reset or replace GCD-4COTB and test again.
Check line with dB meter and/or contact Telco.
All stations?
Yes
No
Run a dB level test at DMARK on lines with 1 kHz test tone. No less than -8dB at MDF is required.
Replace Multiline SLT.
Less than -8 dB?
Yes
Report Problem to Telco.
No
Replace GCD-4COTB.
Problem solved?
Yes
Done.
No
1. Perform Second Initialization, and test.
2. Perform First Initialization, and test with default program.
3. Replace GCD-CP10.

G1


External Paging Problems
Yes
No
Amplifier provided?
Install amplifier.
Place Test Set on output of paging at chassis port or PGD(2)-U10 ADP with all external wiring removed.
Yes
External page heard on test set?
No
External amplifier or PRG 11-01 and PRG 11-10 ~ PRG 11-15
Check PRG 11-01 and PRG 11-10 ~ PRG 11-15 for correct access code (external) for paging.
No
Access Code correct?
Yes
1. Reset/replace PGD(2)-U10 ADP, and test.
2. Perform Second Initialization, and test; then perform First Initialization and test.
3. Replace GCD-CP10 and test using default program.
Pass
Retest using correct access code.
Done.
Fail

H1


SMDR Output Problems (No Call Accounting System)
Incoming problem only?
No
Yes
Check PRG 35-02-08.
Output Method?
TCP/IP
Is Output Type Set correctly? Check PRG 35-01-01.
No
Set PRG 35-01-01 Correctly.
Yes
GO to A


A
Is language Correct?
Yes
No
Correct the language. Check PRG 35-01-03 and PRG 80-05-01.
Is SMDR port Correct?
Yes
No
Set port correctly for Trunks and Dept. Groups. Check PRG 35-03-01and PRG 35-04-01.
Is the call type included in SMDR?
Yes
No
Include the call type. Check: PRG 35-01-05~07 PRG 35-02-01~03.
Does the trunk provide SMDR?
Yes
No
Set Trunk to provide. Check PRG 14-01-06.
Yes
Does extension provide SMDR?
Yes
No
Set Extension to provide. Check PRG 15-01-03.
Is call type included in the report?
Yes
No
Include the call type. Check PRG 35-02-08~12.
Yes
End

- - NOTES - -

Diagnostics

Chapter

3

SECTION 1 WHAT IS AVAILABLE?

The SV9100 has a Diagnostic Interface Module (DIM) built into the GCD-CP10 (CPU) blade. The DIM can monitor the activity of the system under the control of commands entered by the engineer. The DIM is accessed via ia the Ethernet interface of the GCD-CP10 blade.

SECTION 2 BEFORE YOU START

As well as monitoring the system, the DIM can also be used to change the operation of the system.

For this reason **DO NOT** enter the following commands, as they will cause a system restart:

- ❑ RESET
- ❑ RESTART
- ❑ SHUTDOWN
- ❑ or any other command that looks like a reset request.

Some DIM commands give a real time output when the command is entered, others will give an output until you enter the command that turns it off. You can turn on multiple DIM outputs by entering relevant commands one after the other.

The SV9100 will continue to operate normally with the DIM is running.

The SV9100 GCD-CP10 can slow down when the DIM is running on a busy SV9100 system. This is unavoidable, as the GCD-CP10 must process all system activity and output the corresponding information to the DIM.

Do not turn on any unnecessary DIM commands.

SECTION 3 TO LOG ON TO THE DIM LOCALLY VIA THE ETHERNET SOCKET OF THE GCD-CP10

Connect to GCD-CP10 Ethernet socket using a crossover cable or via a hub. Set the IP address of your NIC card within the range of the SV9100 GCD-CP10. The default IP address of the GCD-CP10 is **192.168.0.10** (Sub Net Mask = **255.255.255.0**)

Using a terminal application (e.g. Hyperterminal), set the connection to TCP/Winsock.

The Host IP address is set by Program 10-12-01 on the SV9100. The default is 192.168.0.10 as shown below.

At default the port number is not set and must be programmed in 10-20-06, it can be any unused network port other than 5963. For the example below port 2000 is used.

You must also enable remote access to the system by setting program 90-31-01 to 1 (Enable). The username is set in program 90-31-02 (Default = SV9100) and the password is set in program 90-31-03 (Default = 12345678).

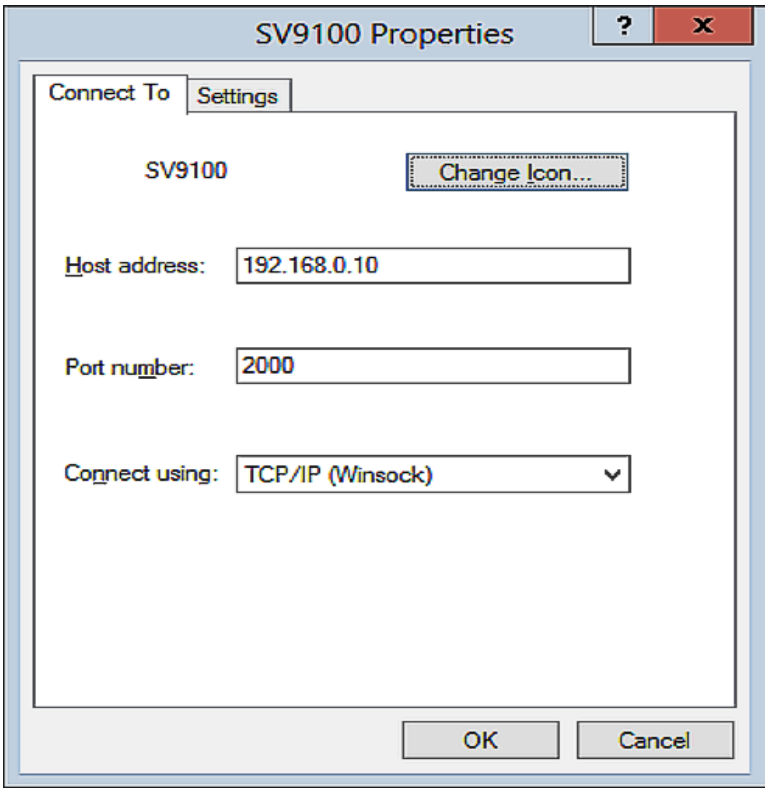


Figure 3-1 SV9100 Ethernet Properties

When the connection is made the following information is required:

- ❑ User ID: **SV9100**
- ❑ Password: **12345678**

Connection to the DIM is made and system activity is observed. Refer to Figure 3-2 SV9100 System Activity.

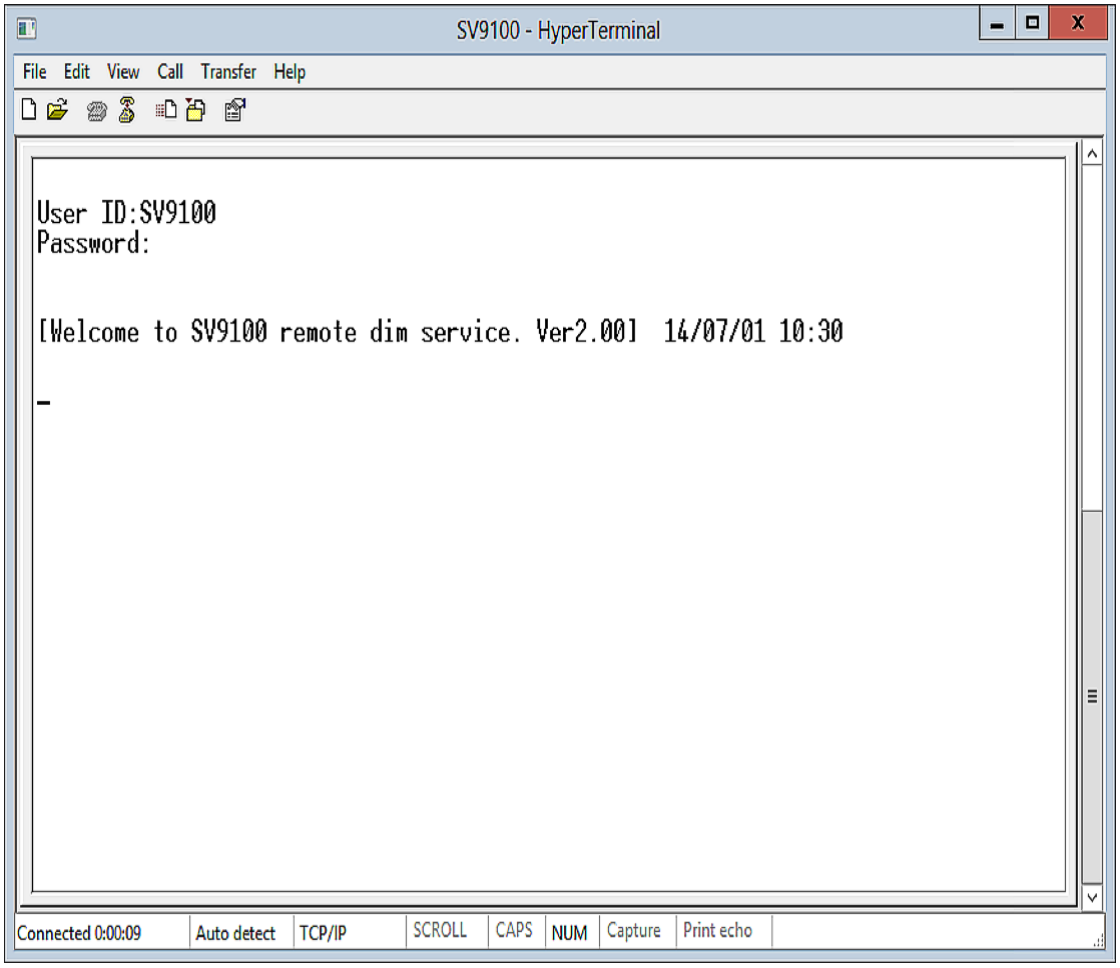


Figure 3-2 SV9100 System Activity

SECTION 4 TO DISCONNECT FROM THE DIM LOCALLY VIA THE ETHERNET SOCKET OF THE GCD-CP10

Turn off any DIM commands that you have enabled. Refer to Section 5 SV9100 DIM Commands on page 3-5.

Disconnect from the terminal session.

SECTION 5 SV9100 DIM COMMANDS

Once connected to the DIM, commands are entered by typing the command (with correct syntax), and pressing **Enter**.

To display the list of DIM commands available on the SV9100 type: **help**

Typed Command	Displayed Result
DATE	Date/Time
RB	Read 8bits
RW	Read 16bits
RD	Read 32bits
WB	Write 8bits
WW	Write 16bits
WD	Write 32bits
DUMP	Memory Dump
FILL	Memory Fill
MEMSET	Memory Fill
MEMCPY	Memory Copy
MEMCMP	Memory Compare
RESET	Self-restart
MAIL	Post a mail
SLOT	Slot control
INFO	Information
DEL	FILE DELETE
MKDIR	CREATE DIR
RMDIR	DELETE DIR
DIR	DIRECTORY
OPENDISK	OPEN DISK
CLOSEDISK	CLOSE DISK
FILEOPEN	FILE OPEN
FILECLOSE	FILE CLOSE
FILEWRITE	FILE WRITE
FILEREAD	FILE READ

Typed Command	Displayed Result
TYPE	FILE DISP
COPY	FILE COPY
FDUMP	FILE DUMP(Binary)
RENAME	FILE RENAME
DSP	DSP direct r/w
LCD	LCD Request
POWER	Power Management
CALLKEY	am::Callkey module
ESIU	ESIU control
SH3	SH3 control
HELP	This help display
SYSDT	System data
OFFLINE	OFFLINE
OPMS	OPMS info
IP	IP monitor
VOIPU	VOIPU
GKDEBUG	Simple GK Debug
VOIPCCDEBUG	VoIP CC Debug
TEXT	Text Message
CIM	Class No Edit
PHSSET	PHS Set
RESTART	Restart system
TMR	ctmr:: Module
DSPDBU	DSPDBU access
TRLOGOUT	Trillium Debug
NGTDEBUG	Ngt Debug
OPMSDEB	OPMS DEBUG
IOCSDEB	IOCS DEBUG
PKGSIZE	PKG SIZE
DTIP	DTIP DEBUG
FTEST	File test

Typed Command	Displayed Result
SHUTDOWN	Shutdown
EVNTCTRL	Event Controller
CIDTX	Caller ID sender
TONE	LOCAL TONE
IPPATH	IP JITTER & SW
P2PSTS	p2pStatus[] Disp
DTERMCTRL	Dterm Control
NWINFO	Networking Information
TRLHC	Trillium HC layer debug information
SENDTONE	SendTone
PRGINFO	PRGINFO
RL	Read LANC Register
STATUS	Show the Status
HEAP	Heap test
NDC	new/delete checker
PING	Ping Command
DETECTOR	Detector Assignment
BARGE	dump barge info

SECTION 6 COMMON DIM COMMANDS

Enter	Function	DIM Output
Mail in 0000	Output of all system activity is turned on. No ISDN information output.	Enter CAPS debug mode. The activity of all extensions and lines is output.
Mail in 0000	Output of all system activity is turned off.	Exit CAPS debug mode.

Enter	Function	DIM Output
Mail in 0012	Output of all ISDN activity on the system is turned on.	Enter ISDN debug mode. master current bid : xxH master current line : xxH The activity of all ISDN blades will be output.
Mail in 0012	Output of all ISDN activity on the system is turned off.	Exit ISDN debug mode.

✎ *When the ISDN output is turned on, the DIM will output the ISDN blade slot and circuit that is currently set as the master clock for the system.*

✎ *The slot number is shown by master current bid : xxH (xx is the slot number in hexadecimal).*

✎ *The circuit of the blade is shown by master current line : xxH (xx is the circuit number in hexadecimal).*

The output is shown similar to that of an ISDN Layer 3 analyzer:

SEND PORT = 4C1FH	
S ISDN : >>>>>>>>>>>>>>>>>>>	
11 A1 11 02 01 00	USL (3,2), SETUP ACK REQ
08 01 84 0D	Callref: DES (4), SETUP ACKNOWLEDGE
18 01 89	Channel identification [B1 channel (exclusive)]
1E 02 82 88	Progress indicator

Example shown above:

4C1FH

The logical port type and number of the ISDN circuit on the SV 8100.

4C indicates S-point port type (see reading traces later in this manual)

1F is the port number in hexadecimal

S ISDN : >>>>>>>>>>>>>>>>

The direction of the event. **S >>>** indicates Send, **R <<<** indicates Receive.

USL(3,2),

The slot and circuit number of the ISDN card that the event was sent/received on.

If you have more than one ISDN card in the system, the slot and circuit number can be identified by this information.

The first number is the slot number in decimal (**3** in this example).

The second number is the circuit in decimal (**2** in this example).

The remainder of the information is appropriate to the type of message and is similar to an ISDN analyzer.

SECTION 7 SV9100 NET DIM COMMANDS

Enter	Function	DIM Output		
NWINFO	Lists the commands available	NWINFO	DEBUG	Networking Debug Information [ON|OFF]
		NWINFO	RSRC	Netport Reosurce Controller
		NWINFO	BLF	Blf Memory Dump
		NWINFO	TCPINIT	Dummy CR data send Task refresh
		NWINFO	TCPDEBUG	Networking TCP Information Debug [ON|OFF]
		NWINFO	TCPSHOW	Networking TCP Information showing
		NWINFO	CALLINFO	Networking Call Status Information
		NWINFO	KEEPALIVE	Networking KeepAlive Information
		NWINFO	SYSTEM	Networking System Information
		NWINFO	OPCHG	Networking error operation change
		NWINFO	PARKHOLD	Parkhold debug information
		NWINFO	CALLID	Networking CallID mode selection
		NWINFO	CHSHOW	Show ch condition LED on Dterm
		NWINFO	ROAMING	PHS Roaming Debug
		NWINFO	TASKINIT	NwInfoSend task initialize
		NWINFO	TASKKP	Nwsend Task Keepalive setting
		NWINFO	VMI	Remote VMI information

To display the syntax for each command – type in the command.

Example:

nwinfo parkhold

NWINFO PARKHOLD DEL	Deletes the specified parkhold
NWINFO PARKHOLD SHOW	Shows the specified parkhold information
NWINFO PARKHOLD MODE	Changes Networking Parkhold mode [RUN|STOP]
NWINFO PARKHOLD DEBUG	Park Hold Trace Information [ON|OFF]
NWINFO PARKHOLD CLEAR	Park Hold Clear at All of systems

nwinfo parkhold del

NWINFO PARKHOLD DEL	<park group no> <park orbit>

(The values within the brackets are the specific number related to the command, the brackets are not entered.)

In the NWINFO PARKHOLD DEL command to delete park hold orbit 04 that is within park group 01 you would enter: **nwinfo parkhold del 01 04**

nwinfo debug on should only be used in the lab (or after normal working hours at a customer site), as it causes a large amount of information to be output and can slow the SV9100.

❑ **Date**

Enter	Function	DIM Output
date	Displays the current date / time and general system information including GCD-CP10 software version and PAL type.	Current date/time : 1-1-2002 (TUE) 0:17:41 System build date : Jul 16 2004 16:56:25 [Target is North America (Electra)] Main software version : 00.1u PAL TYPE : V-PALB FPGA version : 001FH CCPU-DSP version : 7628H DSPDBU version : 0000H MAC1 Address : 00-60-B9-01- MAC2 Address : 00-60-B9-01-FD-3B C/C++ library heap 112945388Bytes free [Total=118132660Bytes, Used=5187272Bytes] Maximum intervals): Drivers : 0.11sec. H levels : 0.11sec. B levels : 0.16sec. Mail tasks : 1.01sec. Idle tasks : 5.45sec.

❑ **Status**

Enter	Function	DIM Output
status	List the status commands available.	STATUS logical_port(HEX) STATUS [STA|TRK |VRS] <start_serial_port(HEX)><end_serial_port(HEX)> STATUS SET <logical_port(HEX)> <new_status (HEX)

❍ To display the status of one port:

status llnn
Where **ll** is the logical port type and nn is the port number in hexadecimal.
(example – to display the status of key telephone port 10 = **status 040a)**

❍ To display the status of a range of ports:

status sta/trk nn nn
Where **ll** is the logical port type and nn is the port number in hexadecimal.
(example – to display the status of extension ports 01 through to 16 = **status sta 01 0f)**

```
* PORT STATUS (0401 --> 000f)*
 PORT(PHYS)    STATUS          CALL   HOLD
 0401h(0001h) :     IDLE(   0h)  0000h  0000h
 0402h(0101h) :     IDLE(   0h)  0000h  0000h
 ----h(----h) :       (----h)  ----h  ----h   no station port is assigned
 ----h(----h) :       (----h)  ----h  ----h   no station port is assigned
 ----h(----h) :       (----h)  ----h  ----h   no station port is assigned
 ----h(----h) :       (----h)  ----h  ----h   no station port is assigned
 ----h(----h) :       (----h)  ----h  ----h   no station port is assigned
 ----h(----h) :       (----h)  ----h  ----h   no station port is assigned
 0009h(0002h) :     IDLE(   0h)  0000h  0000h
 000ah(0102h) :     IDLE(   0h)  0000h  0000h
 000bh(0202h) :     IDLE(   0h)  0000h  0000h
 000ch(0302h) :     IDLE(   0h)  0000h  0000h
 000dh(0402h) :     IDLE(   0h)  0000h  0000h
 000eh(0502h) :     IDLE(   0h)  0000h  0000h
 000fh(0602h) :     IDLE(   0h)  0000h  0000h
```

❍ To display the status of trunk ports 1 through to 10:

status trk 01 0a

❑ **Slot**

Enter	Function	DIM Output	
slot	List the slot commands available.	SLOT RX	Rx simulation
		SLOT TX	Tx a packet (DSP,64K)
		SLOT TXB	Tx a packet (128K)
		SLOT TXC	Tx a packet (LKTS C/0)
		SLOT TXK	Tx a packet (LKTS KTEL)
		SLOT TXS	Tx a packet (LKTS STA)
		SLOT RESET	Reset unit/slot
		SLOT INFO	Slot/Unit info
		SLOT DUMP	Dump Tx message
		SLOT KEEPALIVE	Keep alive control
		SLOT IF	Slot interface
		SLOT WATCHSUBME	(only PRI) watch SUBME

❍ To display the information related to the Blade installed into a slot:

slot info nn
Where **nn** is the slot number 01 to 24 in hexadecimal
(example – an ESIU in slot 1 will show the following):

slot info 01
Slot information)
Slot ID : 1
Status : RUNNING
Logical unit ID : ESIU
Dump down message : Disable
Number of Tx errors : 1
Slot started delay : 2.83sec.
Common unit driver information)
Slot ID : 1

Real unit ID : 12H
Version : 1.8 **Firmware loaded onto the Blade**
Lines / unit : 8 **Number of ports on the card (8ESIU)**
Block switch : RUN **Block switch set to RUN**
Timeslot : 000H-00FH (16)

slot info 03
Slot information)
Slot ID : 3
Status : RUNNING
Logical unit ID : BRIU
Dump down message : Disable
Number of Tx errors : 0
Slot started delay : 468.99sec.
Common unit driver information)
Slot ID : 3
Real unit ID : 60H
Version : 3.3 **Firmware loaded onto the blade**
Lines / unit : 2 **Number of ports on the card (2BRIU)**
Block switch : BLOCK **Block switch set to BLOCK**
Timeslot : 040H-043H (4)
BRIU driver information)

❍ To reset the Blade installed in a slot:

slot reset nn
Where nn is the slot number 01 to 10 in hexadecimal.
The Blade is reset, any calls in progress at the Blade are disconnected.
The Blade operates normally after the reset.
The reset has the same operation as removing and re-installing the Blade.
(example – to reset the Blade in slot 3 **= slot reset 03**)

❑ Detector

Enter	Function	DIM Output
Detector	List the status of the DTMF/Tone detectors on the GCD-CP10 (and DSPDB if installed).	Number of Channels = 64 CPRU = 32 , DSPDBU = 32 No Type Status Target 01(1401) DTMF ACTIVE 000d 02(0000) NOT USED READY 0000 03(0000) NOT USED READY 0000 04(0000) NOT USED READY 0000 05(0000) NOT USED READY 0000 : : : : 64(0000) NOT USED READY 0000

❑ Power

Enter	Function	DIM Output
Power	List the status of the power and backup battery.	Power off request : none Power source : AC(Normal) System battery : normal Backup battery : normal No power keep requests available

✎ *Power off request : The status of the power switch on the PSU*
none = powered on
guarding = waiting to power off

✎ *Power source : AC Power source*
AC(Normal) = AC power via PSU in use
None = DC power via battery cabinet in use (if installed)

✎ *Backup battery : GCD-CP10 memory backup battery*
Normal = GCD-CP10 memory backup battery
Alarm = GCD-CP10 memory backup battery failed

SECTION 8 IP RELATED COMMANDS

Enter	Function	DIM Output
IP INFO	Displays a list of IP information	Usage> ip info [para] [para] : 0(IP Version) : 2 (CAPS Call Info Table Dump) : 3 (IP Station Regist Table Dump) : 4 (VoIPU Reset Flag Dump) : 5 (Inter-Connection System Table Dump) : 6 (VOIPCC Current Number of Call Counter) : 7 (Trillium Alloc Backet Size Dump) : 8 (NTCPU IP Address) : 9 (VoIPU PKG IP Addres) : a (IP Trunk Registration Information) : b (IP Active Call Information) : c (IP Call Delete Command) Usage> ip info c [physicalport] : d (IP status change) : e (IP Disconnect Timer Show)

❑ **ip info**

IP INFO <option code>

The values within the brackets are the specific number related to the command, the brackets are not entered.

❑ **ip info 3**

This command shows a table of IP Extension registrations. The extension type will be shown as “DtermIP” for IP Keytelephones or “H.323” for H.323 extensions.

This table shows all extensions that are registered to the SV9100 – not those that are currently connected.

```
########## IP Phone Table ##########
--DtermIP----------------------------------------
Extension Number = 3203
SerialPort = 257
IP Address 192.168.1.131
Voice Path Port=4000
CALL SIG   Port=3458
Terminal Type=2
----------------------------------------
--DtermIP----------------------------------------
Extension Number = 3232
SerialPort = 258
IP Address 192.168.100.200
Voice Path Port=4000
CALL SIG   Port=3458
Terminal Type=2
----------------------------------------
--DtermIP----------------------------------------
Extension Number = 3290
SerialPort = 266
IP Address 192.168.102.200
Voice Path Port=4000
CALL SIG   Port=3458
Terminal Type=2
----------------------------------------
--H.323----------------------------------------
Extension Number = 3291
SerialPort = 270
IP Address 192.168.1.193
RAS Port=56782
Call SIG Port=1720
Terminal Type=1
----------------------------------------
Total = 4 IP Terminals
#####################################
```

❑ **ip info 5**

This table shows H.323 trunk registrations. An entry for each H.323 endpoint will be listed, along with the IP address and E.164 (telephone number) assignment. SV9100 Net IP destinations are not listed.

```
Example:
##### IP Inter-Connection TABLE #####
--1 system--  Registered
SYSTEM IP: 192.168.1.20
E164 ADDR:1
E164 Len :1

Total : 1 system
###################################
```

❑ **ip info 8**

This command shows the GCD-CP10 IP Address information entered in PRG10-12.

```
Example:
[ CCPU IP Info ]
      IP Addr       : 192.168.  1. 20
      Sub Net Mask  : 255.255.255.  0
      Default Gatway : 192.168.  1.254
      Time Zone     : 21
      NIC           : Auto Detect
```

❑ **ip info 9 <slot number>**

This command shows the VoIPU IP Address information entered in PRG84-05. The slot number should be entered in hex.

```
Example:
IP INFO 9 8

[ VoIPU PKG IP Address ]
slot08 IP Addr = 172. 16.  0. 27    NIC : Auto Detect
```

❑ **ip info a <slot number>**

This command shows the registration status of H.323/SIP trunks. This will show as “Registered” or “not Registered”.

```
-----------------------------------
 IP TRUNK REGISTRATION INFORMATION
-----------------------------------
H.323 TRUNK:
            not REGISTERED to GK (SD)
SIP TRUNK:
 [RegId0][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
 [RegId1][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
 [RegId2][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
 [RegId3][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
 [RegId4][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
 [RegId5][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
 [RegId6][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
 [RegId7][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
 [RegId8][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
 [RegId9][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
 [RegId10][UserId:]   not REGISTERED to SIP Server(1/30 8:50)
 [RegId11][UserId:]   not REGISTERED to SIP Server(1/30 8:50)
 [RegId12][UserId:]   not REGISTERED to SIP Server(1/30 8:50)
 [RegId13][UserId:]   not REGISTERED to SIP Server(1/30 8:50)
 [RegId14][UserId:]   not REGISTERED to SIP Server(1/30 8:50)
 [RegId15][UserId:]   not REGISTERED to SIP Server(1/30 8:50)
 [RegId16][UserId:]   not REGISTERED to SIP Server(1/30 8:50)
 [RegId17][UserId:]   not REGISTERED to SIP Server(1/30 8:50)
 [RegId18][UserId:]   not REGISTERED to SIP Server(1/30 8:50)
 [RegId19][UserId:]   not REGISTERED to SIP Server(1/30 8:50)
```

```
[RegId20][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
[RegId21][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
[RegId22][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
[RegId23][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
[RegId24][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
[RegId25][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
[RegId26][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
[RegId27][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
[RegId28][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
[RegId29][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
[RegId30][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
[RegId31][UserId:]    not REGISTERED to SIP Server(1/30 8:50)
-----------------------------------
```

Enter	Function	DIM Output
IP GW	Displays the SV9100 Default Gateway (PRG10-12-03)	[Default Gateway] : 192.168.1.254
IP ARP	Displays the SV9100 ARP (Address Resolution Protocol) cache. This is a table of MAC address to IP Address mappings.	See below
IP ROUTE	Displays the SV9100 routing table. Usually this will consist of just a few entries, as the default gateway is used for any traffic destined for a different IP subnet.	See below
IP DSP INFO	This shows how many DSP channels are in use at a particular moment in time.	See below.
IP DSP INFO 1	This shows how many DSP channels are in use at a particular moment in time for all device types.	See below.
Ping <ip address>	The commonly used “ping” utility has been implemented on the GCD-CP10. This is a very useful fault finding tool.	VoIPU >ping 192.168.11.200 Pinging 192.168.11.200 with 32 bytes of data: Reply from 192.168.11.200: Reply from 192.168.11.200: Reply from 192.168.11.200: Reply from 192.168.11.200: Ping statics for 192.168.11.200: Packets: Sent = 4, Received = 4, Lost = 0 (0% loss):

Enter	Function	DIM Output
voipccdebug 0 1 [switch on] **voipccdebug 0 0 [switch off]**	This displays the SIP messages that are output from the system.	

❑ ip arp

Internet Address	Physical Address	Time Information
127.000.000.001	00:00:00:00:00:00	8181
192.168.001.164	00:0A:E6:02:D4:AE	113788539
192.168.001.154	00:60:B9:C2:93:BB	113779299
192.168.100.200	00:60:B9:C4:48:11	81637340
192.168.001.254	00:30:13:16:E8:6F	113785925
192.168.001.030	00:60:B9:C1:B2:30	113749983
192.168.001.040	00:60:B9:C1:C3:BF	113749986
192.168.102.200	00:60:B9:C2:07:4F	82736183
192.168.001.131	00:60:B9:C1:71:AA	113776316
192.168.001.121	00:30:05:44:98:5D	113778849
192.168.001.144	00:30:13:B5:D2:27	441024
192.168.001.146	00:00:86:63:25:87	113800591
192.168.001.197	00:30:13:B5:E8:79	17550119

✎ *Any NEC Infrontia device has a MAC address beginning with 00:60:b9.*

❑ **ip route**

Network DestAddr	Netmask	Gateway	Next Hop	Metric
127.000.000.000	255.000.000.000	127.000.000.001	000.000.000.000	1
224.000.000.001	255.255.255.255	127.000.000.001	000.000.000.000	1
192.168.001.000	255.255.255.000	192.168.001.020	000.000.000.000	1
192.168.001.020	255.255.255.255	127.000.000.001	000.000.000.000	1

Default Route: 192.168.001.254

❑ **ip dsp info**

```
VoIPU Dsp Resource Management Table)
#Slot:01  Busy:-   -------
#Slot:02  Busy:-   -------
#Slot:03  Busy:-   -------
#Slot:04  Busy:-   -------
#Slot:05  Busy:-   -------
#Slot:06  Busy:-   -------
#Slot:07  Busy:-   -------
#Slot:08  Busy:-   -------
#Slot:09  Busy:-   -------
#Slot:10  Busy:-   -------
#Slot:11  Busy:-   -------
#Slot:12  Busy:-   -------
#Slot:13  Busy:-   -------
#Slot:14  Busy:-   -------
#Slot:15  Busy:-   -------
#Slot:16  Busy:02  16VoIPU
   [01-04] 0505 e001 ---- ----
   [05-08] ---- ---- ---- ----
   [09-12] ---- ---- ---- ----
   [13-16] ---- ---- ---- ----

VoIPU Active Flag Table)
12345678901234567890123456789012
xxxxxxxxxxxxxxxoxxxxxxxxxxxxxxxx

05xx    IP Keytelephone (DtermIP)
DCxx    IP Trunk (H.323)
E0xx    SV9100Net IP
```

The example above shows that there is a 16VoIPU in slot 16, and that DSP1 is in use by an extension, and DSP2 is in use by SV9100Net IP. This command can be useful to determine how many VoIPU resources (channels) are being used.

❑ ip dsp info 1

IP Station Physical Port Table

01-010] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[011-020] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[021-030] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[031-040] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[041-050] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[051-060] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[061-070] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[071-080] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[081-090] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[091-100] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[101-110] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[111-120] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[121-130] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[131-140] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[141-150] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[151-160] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[161-170] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[171-180] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[181-190] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[191-200] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[201-210] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[211-220] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[221-230] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[231-240] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[241-250] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[251-260] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[261-270] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[271-280] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[281-290] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[291-300] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[301-310] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[311-320] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[321-330] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[331-340] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[341-350] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[351-360] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[361-370] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[371-380] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[381-390] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[391-400] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[401-410] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[411-420] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[421-430] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[431-440] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[441-450] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[451-460] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[461-470] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[471-480] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[481-490] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[491-500] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[501-510] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[511-520] ---- ----

IP Trunk Physical Port Table

[001-010] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[011-020] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[021-030] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[031-040] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[041-050] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[051-060] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[061-070] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[071-080] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[081-090] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[091-100] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[101-110] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[111-120] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[121-130] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[131-140] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[141-150] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[151-160] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[161-170] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[171-180] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[181-190] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
[191-200] ---- ---- ---- ---- ---- ---- ---- ---- ---- ----

IP Networking Physical Port Table

[001-010] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[011-020] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[021-030] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[031-040] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[041-050] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[051-060] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[061-070] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[071-080] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[081-090] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[091-100] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[101-110] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[111-120] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[121-130] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[131-140] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[141-150] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[151-160] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[161-170] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[171-180] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[181-190] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[191-200] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[201-210] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[211-220] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[221-230] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[231-240] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[241-250] 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
[251-260] 0000 0000 0000 0000 0000 0000

VoIPU DSP Resource Management Table

#Slot:01 Busy:- -------
#Slot:02 Busy:- -------
#Slot:03 Busy:- -------
#Slot:04 Busy:- -------
#Slot:05 Busy:- -------
#Slot:06 Busy:- -------
#Slot:07 Busy:- -------
#Slot:08 Busy:- -------
#Slot:09 Busy:- -------
#Slot:10 Busy:- -------
#Slot:11 Busy:- -------
#Slot:12 Busy:- -------
#Slot:13 Busy:- -------
#Slot:14 Busy:- -------
#Slot:15 Busy:- -------
#Slot:16 Busy:- -------

VoIPU Active Flag Table

12345678901234567890123456789012
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

SECTION 9 READING SV9100 DIM TRACES

The DIM trace can be partly decoded by the engineer, but only a NEC Development Engineer can decode the full trace.

This section describes the basic decode to enable the engineer to identify the extension and trunk port number.

❑ Extensions

Each extension type has a unique logical port type as shown below.

Type	Logical ID
Key telephone	04
SLIU	00
S-Point	4c
DECT	e9

The port number is identified by the two digits (in hexadecimal) following the logical port type. The two digits are 00 to ff hexadecimal (00 to 255 in decimal).

(example: keytelephone port 1 will be 0401 as shown below.)

>>>> PORT : 0401H STATUS 0000H => 0002H

❑ Trunks

Each trunk type has a unique logical port type as shown below.

Type	Logical ID
COIU	0c
ISDN	34

The port number is identified by the two digits (in hexadecimal) following the logical port type. The two digits are 00 to ff hexadecimal (00 to 255 in decimal).

(example: ISDN port 17 will be 3411 as shown below.)

>>>> PORT : 3411H STATUS 00D0H => 00B1H

❑ **SV9100Net**

Each trunk type has a unique logical port type as shown below.

Type	Logical ID
ISDN	7c
IP	7c

The port number is identified by the two digits (in hexadecimal) following the logical port type. The two digits are 00 to ff hexadecimal (00 to 255 in decimal).

(example: SV9100Net port 01 is 7c01 as shown below.)

***(INTER),ID:7C01H,P1:0401H,P2:0000H,P3:0802H,P4:0000H,P5:0000H**

SECTION 10 ISDN LAYER 3 TRACE (MAIL IN 0 0 1 2)

A typical ISDN Layer 3 trace is shown:

```
9:56:48 >>
 9:56:48 >>mail in 0 0 1 2
 9:56:53 >>
Enter ISDN debug mode
master current bid  : 08H
master current line : 00H
ACD Data Size error. or socket close...caps_service():Returns NORMAL
caps_service():Returns NORMAL
ITR_NULL_P_STA: DES_ANSWER_FLAG CLEAR!
ITR_NULL_P_STA: TM_DES_ANSWER_WAIT_L SET!

ACD Data Size error. or socket close...** CLR_ISDN_FLAG IS CALLED **
** LPORT_W = 3415H **2
SET_CALL_REF CALLED!
PHYSICAL_W
=0108HSET_CALL_REF: PRI =8003H
*** set_call_ref resource# : 1H ***
<<< prgrd1501.cpp(38) read_s_sta_clip_enable >>> port : 0, data : 1

S ISDN : >>>>>>>>>>>>>>>>
F4 A1 04 01 01 00                USL(8,1),SETUP REQ
08 02 00 03 05                   Callref:ORG(3),SETUP
04 03 80 90 A3                   Bearer capability [speech]
18 03 A9 83 81                   Channel identification
6C 02 00 81                      Calling party number
7C 03 80 90 A3                   Low layer compatibility
7D 02 91 81                      High layer compatibility

R ISDN : <<<<<<<<<<<<<<<<
15 0B A1 0F 01 01 00             USL(8,1),MORE INFO IN
08 02 80 03 0D                   Callref:DES(3),SETUP
ACKNOWLEDGE
18 03 A9 83 81                   Channel identification
1E 02 82 88                      Progress indicator
PHYSICAL_W =0108H itr_cint_mrifind called

S ISDN : >>>>>>>>>>>>>>>>
F4 A1 0E 01 01 00                USL(8,1),INFO REQ
08 02 00 03 7B                   Callref:ORG(3),INFORMATION
70 02 81 32                      Called party number [2]

S ISDN : >>>>>>>>>>>>>>>>
F4 A1 0E 01 01 00                USL(8,1),INFO REQ
08 02 00 03 7B                   Callref:ORG(3),INFORMATION
70 02 81 30                      Called party number [0]

S ISDN : >>>>>>>>>>>>>>>>
F4 A1 0E 01 01 00                USL(8,1),INFO REQ
08 02 00 03 7B                   Callref:ORG(3),INFORMATION
70 02 81 30                      Called party number [0
```

Enter ISDN Debug Mode

ISDN trunk port 21

ISDN Setup Sent
Blade in Slot 8, CCT 1 used
Call Ref = 3
Speech call
No calling party number included.

Network returns Setup Acknowledge
Use the Call Ref to follow the call through.

User dials 200

```
R ISDN : <<<<<<<<<<<<<<<<
11 0B A1 02 01 01 00          USL(8,1),CALL PROCEEDING IND
08 02 80 03 02                Callref:DES(3),CALL PROCEEDING
18 03 A9 83 81                Channel identification
```

Network returns Call Proceeding.

```
PHYSICAL_W =0108HR ISDN : <<<<<<<<<<<<<<<<
15 0B A1 01 01 01 00          USL(8,1),ALERTING IND
08 02 80 03 01                Callref:DES(3),ALERTING
18 03 A9 83 81                Channel identification
1E 02 81 81                   Progress indicator
```

Network returns Alerting. Called party is now ringing.

```
PHYSICAL_W =0108HR ISDN : <<<<<<<<<<<<<<<<
13 0B A1 30 01 01 00          USL(8,1),SETUP CONF
08 02 80 03 07                Callref:DES(3),CONNECT
29 05 04 08 02 09 39          Date/Time [04. 8. 2  9:57]
ITR_CINT_STUPCNF: DES_ANSWER_FLAG SET!
ITR_CINT_STUPCNF: TM_DES_ANSWER_WAIT_L CANCEL!
```

Network returns Connect when called party answers. This may also include the date/time.

```
ACD Data Size error. or socket close...
9:57:07 >>R ISDN : <<<<<<<<<<<<<<<<
14 0B A1 09 01 01 00          USL(8,1),DISCONNECT IND
08 02 80 03 45
Callref:DES(3),DISCONNECT
08 02 80 90                   Cause (16)
1E 02 81 88                   Progress indicator
T305 TIMER CLEAR !!!
ACD Data Size error. or socket close..
HP_LCD_REQ(0401,0001,0000,0000,0000).
ACD Data Size error. or socket close...
```

Network returns Disconnect when called party hangs up. Cause 16 is 'Normal call clearing'.

```
S ISDN : >>>>>>>>>>>>>>>>
F4 A1 0C 01 01 00             USL(8,1),RELEASE REQ
08 02 00 03 4D                Callref:ORG(3),RELEASE
08 02 80 90                   Cause (16)
```

SV9100 sends release to indicate channel can be released.

```
R ISDN : <<<<<<<<<<<<<<<<
0C 0B A1 33 01 01 00          USL(8,1),RELEASE CONF
08 02 80 03 5A                Callref:DES(3),RELEASE COMPLETE
305 TIMER CLEAR !!!
 t310_timer_cancel()
hunt_que_del_allstg des_w[3415]
Tone information for port 0C15H
        Timeslot : 0138H
        Level    : Tx=20H, Rx=20H
        Current  : 00F2H Level=20H
        Sender   : Not opened
ACD Data Size error. or socket close...
```

Network returns Release Complete. Channel is now free.

SECTION 11 ISDN LAYER 3 TRACE (MAIL IN 0 0 1 2) WITH SV9100 MAIN ACTIVITY (MAIL IN 0 0 0 0)

If the same call is traced with both ISDN debug (mail in 0 0 1 2) and SV 8100 Main Activity (mail in 0 0 0 0) switched on the trace will be as shown below.

```
10:12:31 >>mail in 0 0 1 2
10:12:36 >>
Enter ISDN debug mode
master current bid  : 08H
master current line : 00H
mail in 0 0 0 0
10:12:40 >>Enter CAPS debug mode
== 1/JAN/2002, 10:12 ==

*(EVENT),ID:0000H,P1:0401H,P2:0013H,P3:000AH,P4:0000H,P5:0000H
>>>> PORT:0401H  STATUS 0000H => 0002H
ACD Data Size error. or socket
close...*(EVENT),ID:001FH,P1:1101H,P2:0000H,P3:0000H,P4:0000H,P5:0000H
*(EVENT),ID:001FH,P1:1101H,P2:0000H,P3:0000H,P4:0000H,P5:0000H
*(EVENT),ID:001FH,P1:1101H,P2:0000H,P3:0000H,P4:0000H,P5:0000H
*(EVENT),ID:0000H,P1:0401H,P2:0008H,P3:000AH,P4:0000H,P5:0000H
*(EVENT),ID:0000H,P1:0401H,P2:0000H,P3:0001H,P4:0000H,P5:0000H
>>>> PORT:0401H  STATUS 0002H => 000FH
*(EVENT),ID:0000H,P1:0401H,P2:0000H,P3:0001H,P4:0000H,P5:0000H
*(EVENT),ID:0000H,P1:0401H,P2:0008H,P3:000BH,P4:0000H,P5:0000H
*(EVENT),ID:0000H,P1:0401H,P2:000AH,P3:000AH,P4:0000H,P5:0000H
*(EVENT),ID:0000H,P1:0401H,P2:000AH,P3:000BH,P4:0000H,P5:0000H
== 1/JAN/2002, 10:12 ==
*(EVENT),ID:0000H,P1:0401H,P2:0005H,P3:000AH,P4:0000H,P5:0000H
*(EVENT),ID:0000H,P1:0401H,P2:0000H,P3:0001H,P4:0000H,P5:0000H
caps_service():Returns NORMAL
*(EVENT),ID:0000H,P1:0401H,P2:0005H,P3:000BH,P4:0000H,P5:0000H
== 1/JAN/2002, 10:12 ==
*(EVENT),ID:0000H,P1:0401H,P2:000AH,P3:000AH,P4:0000H,P5:0000H
*(EVENT),ID:0000H,P1:0401H,P2:000AH,P3:000BH,P4:0000H,P5:0000H
*(EVENT),ID:0000H,P1:0401H,P2:0002H,P3:000AH,P4:0000H,P5:0000H
*(EVENT),ID:0000H,P1:0401H,P2:0002H,P3:000BH,P4:0000H,P5:0000H
*(EVENT),ID:0000H,P1:0401H,P2:0001H,P3:000AH,P4:0000H,P5:0000H
*(EVENT),ID:0000H,P1:0401H,P2:0000H,P3:0001H,P4:0000H,P5:0000H
caps_service():Returns NORMAL
>>>> PORT:0401H  STATUS 000FH => 0043H
*(INTER),ID:0401H,P1:3415H,P2:0000H,P3:083FH,P4:0000H,P5:0000H
ITR_NULL_P_STA: DES_ANSWER_FLAG CLEAR!
ITR_NULL_P_STA: TM_DES_ANSWER_WAIT_L SET!
>>>> PORT:3415H  STATUS 0000H => 00D0H
*(INTER),ID:3415H,P1:0401H,P2:0000H,P3:0840H,P4:0000H,P5:0000H
>>>> PORT:0401H  STATUS 0043H => 0087H
ACD Data Size error. or socket close...
*(INTER),ID:0401H,P1:3415H,P2:0000H,P3:08E5H,P4:0000H,P5:0000H
** CLR_ISDN_FLAG IS CALLED **
** LPORT_W = 3415H **
```

Switch on ISDN and SV9100 Main Activity trace

Keyphone port 1 goes off-hook

Keyphone port 1 begins dialing

8
0
5
0
2
1

To seize trunk port 21

Keyphone port 1 uses ISDN trunk port 21.

Trunk port 21 goes from idle to 'reserved'.

```
SET_CALL_REF CALLED!
PHYSICAL_W =0108HSET_CALL_REF: PRI =8004H
*** set_call_ref resource# : 1H ***
<<< prgrd1501.cpp(38) read_s_sta_clip_enable >>> port : 0, data : 1
S ISDN : >>>>>>>>>>>>>>>>
F4 A1 04 01 01 00          USL(8,1),SETUP REQ
08 02 00 04 05             Callref:ORG(4),SETUP
04 03 80 90 A3             Bearer capability [speech]
18 03 A9 83 81             Channel identification
6C 02 00 81                Calling party number
7C 03 80 90 A3             Low layer compatibility
7D 02 91 81                High layer compatibility
>>>> PORT:3415H  STATUS 00D0H => 00B1H
*(EVENT),ID:0000H,P1:3415H,P2:0001H,P3:09F9H,P4:0000H,P5:0000H
*(EVENT),ID:0000H,P1:0401H,P2:0001H,P3:000BH,P4:0000H,P5:0000H
== 1/JAN/2002, 10:12 ==
*(EVENT),ID:0004H,P1:080BH,P2:0000H,P3:E07D4F8H,P4:0000H,P5:0000H
R ISDN : <<<<<<<<<<<<<<<<
15 0B A1 0F 01 01 00       USL(8,1),MORE INFO IND
08 02 80 04 0D             Callref:DES(4),SETUP ACKNOWLEDGE
18 03 A9 83 81             Channel identification
1E 02 82 88                Progress indicator
PHYSICAL_W =0108H..... 3415(00B1-0401) 098E
 itr_cint_mrifind called
>>>> PORT:3415H  STATUS 00B1H => 00B2H
*(INTER),ID:3415H,P1:0401H,P2:0000H,P3:08EAH,P4:0000H,P5:0000H
*(INTER),ID:3415H,P1:0401H,P2:0000H,P3:08EBH,P4:0000H,P5:0000H
== 1/JAN/2002, 10:12 ==
*(EVENT),ID:0000H,P1:0401H,P2:0002H,P3:000AH,P4:0000H,P5:0000H
*(EVENT),ID:0000H,P1:3415H,P2:0000H,P3:097FH,P4:0000H,P5:0000H
S ISDN : >>>>>>>>>>>>>>>>
F4 A1 0E 01 01 00          USL(8,1),INFO REQ
08 02 00 04 7B             Callref:ORG(4),INFORMATION
70 02 81 32                Called party number [2]
*(EVENT),ID:0000H,P1:0401H,P2:0000H,P3:08E6H,P4:0000H,P5:0000H
*(EVENT),ID:0000H,P1:0401H,P2:0000H,P3:08E6H,P4:0000H,P5:0000H
*(EVENT),ID:0000H,P1:0401H,P2:0002H,P3:000BH,P4:0000H,P5:0000H
*(EVENT),ID:0000H,P1:0401H,P2:000AH,P3:000AH,P4:0000H,P5:0000H
*(EVENT),ID:0000H,P1:3415H,P2:0000H,P3:097FH,P4:0000H,P5:0000H
S ISDN : >>>>>>>>>>>>>>>>
F4 A1 0E 01 01 00          USL(8,1),INFO REQ
08 02 00 04 7B             Callref:ORG(4),INFORMATION
70 02 81 30                Called party number [0]
*(EVENT),ID:0000H,P1:0401H,P2:000AH,P3:000BH,P4:0000H,P5:0000H
*(EVENT),ID:0000H,P1:0401H,P2:000AH,P3:000AH,P4:0000H,P5:0000H
*(EVENT),ID:0000H,P1:3415H,P2:0000H,P3:097FH,P4:0000H,P5:0000H
S ISDN : >>>>>>>>>>>>>>>>
F4 A1 0E 01 01 00          USL(8,1),INFO REQ
08 02 00 04 7B             Callref:ORG(4),INFORMATION
70 02 81 30                Called party number [0]
*(EVENT),ID:0000H,P1:0401H,P2:000AH,P3:000BH,P4:0000H,P5:0000H
*(EVENT),ID:0004H,P1:080BH,P2:0000H,P3:DF080F8H,P4:0000H,P5:0000H
```

The trace will be the same as the previous listing, but with additional information included related to the operation of the SV9100 system.

```
R ISDN : <<<<<<<<<<<<<<<<
11 0B A1 02 01 01 00                    USL(8,1),CALL PROCEEDING IND
08 02 80 04 02                          Callref:DES(4),CALL PROCEEDING
18 03 A9 83 81                          Channel identification
PHYSICAL_W =0108H..... 3415(00B2-0401) 0981
>>>> PORT:3415H  STATUS 00B2H => 00B3H
*(INTER),ID:3415H,P1:0401H,P2:0000H,P3:08EAH,P4:0000H,P5:0000H
*(INTER),ID:3415H,P1:0401H,P2:0000H,P3:08F1H,P4:0000H,P5:0000H
*(INTER),ID:3415H,P1:0401H,P2:0000H,P3:08EAH,P4:0000H,P5:0000H
*(INTER),ID:3415H,P1:0401H,P2:0000H,P3:08EBH,P4:0000H,P5:0000H
*(INTER),ID:3415H,P1:0401H,P2:0000H,P3:08FCH,P4:0000H,P5:0000H
*(EVENT),ID:0004H,P1:080BH,P2:0000H,P3:E07D4F8H,P4:0000H,P5:0000H
R ISDN : <<<<<<<<<<<<<<<<
15 0B A1 01 01 01 00                    USL(8,1),ALERTING IND
08 02 80 04 01                          Callref:DES(4),ALERTING
18 03 A9 83 81                          Channel identification
1E 02 81 81                             Progress indicator
PHYSICAL_W =0108H..... 3415(00B3-0401) 0980
>>>> PORT:3415H  STATUS 00B3H => 00B4H
*(INTER),ID:3415H,P1:0401H,P2:0000H,P3:08EAH,P4:0000H,P5:0000H
*(INTER),ID:3415H,P1:0401H,P2:0000H,P3:08EBH,P4:0000H,P5:0000H
*(INTER),ID:3415H,P1:7801H,P2:0401H,P3:0C76H,P4:0000H,P5:0000H
*(EVENT),ID:001FH,P1:1102H,P2:0000H,P3:0000H,P4:0000H,P5:0000H
== 1/JAN/2002, 10:12 ==
*(EVENT),ID:0004H,P1:080BH,P2:0000H,P3:DF080F8H,P4:0000H,P5:0000H
R ISDN : <<<<<<<<<<<<<<<<
13 0B A1 30 01 01 00    USL(8,1),SETUP CONF
08 02 80 04 07          Callref:DES(4),CONNECT
29 05 04 08 02 0A 0D    Date/Time [04. 8. 2 10:13]
..... 3415(00B4-0401) 0991
ITR_CINT_STUPCNF: DES_ANSWER_FLAG SET!
ITR_CINT_STUPCNF: TM_DES_ANSWER_WAIT_L CANCEL!
>>>> PORT:3415H  STATUS 00B4H => 0011H
*(INTER),ID:3415H,P1:0401H,P2:0000H,P3:0810H,P4:0000H,P5:0000H
>>>> PORT:0401H  STATUS 0087H => 0011H
ACD Data Size error. or socket
close...*(EVENT),ID:0000H,P1:0401H,P2:0703H,P3:093EH,P4:0000H,P5:0000H
== 1/JAN/2002, 10:12 ==
*(EVENT),ID:0004H,P1:080BH,P2:0000H,P3:DF080F8H,P4:0000H,P5:0000H
R ISDN : <<<<<<<<<<<<<<<<
14 0B A1 09 01 01 00                    USL(8,1),DISCONNECT IND
08 02 80 04 45                          Callref:DES(4),DISCONNECT
08 02 80 90                             Cause (16)
1E 02 81 88                             Progress indicator
..... 3415(0011-0401) 0988
T305 TIMER CLEAR !!!
>>>> PORT:3415H  STATUS 0011H => 00BCH
*(INTER),ID:3415H,P1:0401H,P2:0000H,P3:08BBH,P4:0000H,P5:0000H
>>>> PORT:0401H  STATUS 0011H => 0088H
ACD Data Size error. or socket
close...*(EVENT),ID:0000H,P1:0401H,P2:0013H,P3:000AH,P4:0000H,P5:0000H
HP_LCD_REQ(0401,0001,0000,0000,0000)
>>>> PORT:0401H  STATUS 0088H => 0000H
ACD Data Size error. or socket close...
```

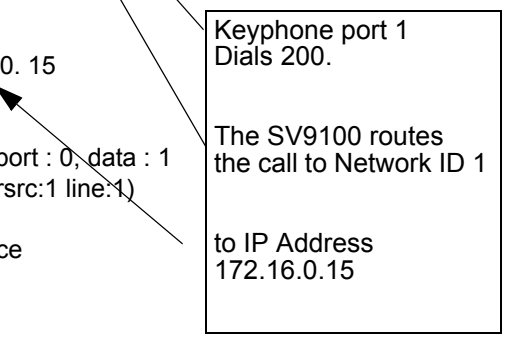
```
*(INTER),ID:0401H,P1:3415H,P2:0000H,P3:0804H,P4:0000H,P5:0000H
S ISDN : >>>>>>>>>>>>>>>>
F4 A1 0C 01 01 00                USL(8,1),RELEASE REQ
08 02 00 04 4D                   Callref:ORG(4),RELEASE
08 02 80 90                      Cause (16)
>>>> PORT:3415H  STATUS 00BCH => 00C3H
*(EVENT),ID:001FH,P1:1101H,P2:0000H,P3:0000H,P4:0000H,P5:0000H
== 1/JAN/2002, 10:12 ==
*(EVENT),ID:0004H,P1:080BH,P2:0000H,P3:DF08100H,P4:0000H,P5:0000H
R ISDN : <<<<<<<<<<<<<<<<
0C 0B A1 33 01 01 00    USL(8,1),RELEASE CONF
08 02 80 04 5A         Callref:DES(4),RELEASE COMPLETE.....
3415(00C3-0401) 0994
T305 TIMER CLEAR !!!
t310_timer_cancel()
hunt_que_del_allstg des_w[3415]
>>>> PORT:3415H  STATUS 00C3H => 0025H
Tone information for port 0C15H
                Timeslot : 0138H
                Level    : Tx=20H, Rx=20H
                Current  : 00F2H Level=20H
                Sender   : Not opened
*(EVENT),ID:001FH,P1:1401H,P2:0000H,P3:0000H,P4:0000H,P5:0000H
*(EVENT),ID:001FH,P1:1401H,P2:0000H,P3:0000H,P4:0000H,P5:0000H
*(EVENT),ID:001FH,P1:1401H,P2:0000H,P3:0000H,P4:0000H,P5:0000H
*(EVENT),ID:001FH,P1:1401H,P2:0000H,P3:0000H,P4:0000H,P5:0000H
*(EVENT),ID:001FH,P1:1401H,P2:0000H,P3:0000H,P4:0000H,P5:0000H
*(EVENT),ID:001FH,P1:1401H,P2:0000H,P3:0000H,P4:0000H,P5:0000H
*(EVENT),ID:001FH,P1:1401H,P2:0000H,P3:0000H,P4:0000H,P5:0000H
== 1/JAN/2002, 10:12 ==
*(EVENT),ID:0000H,P1:3415H,P2:GUARD   ,P3:0002H,P4:0000H,P5:0000H
>>>> PORT:3415H  STATUS 0025H => 0000H
ACD Data Size error. or socket
close...*(EVENT),ID:0000H,P1:3415H,P2:0000H,P3:09F9H,P4:0000H,P5:0000H
```

SECTION 12 SV9100NET TRACE (NWINFO DEBUG LIGHT)

The following trace shows an SV9100Net trace of a call from extension port 01 that dials a remote extension: 200. It is useful to monitor the Network ID and IP Address used for SV9100Net calls.

You will find that the SV9100 activity can also be monitored with the ISDN debug trace (mail in 0 0 1 2). Refer to Section 13 SV9100Net Trace Using the ISDN Debug Trace (Mail in 0012) on page 3-35.

```
10:41:26 >>nwinfo debug light
** Networking Light Weight debug flag is turned ON **
10:41:32 >>ACD Data Size error. or socket close...
<<< KAN : sta_org_target_dial_set >>> sta_port:0401h, dial:0000h
* NwInfo> Call is generated as 1
<<< KAN : sta_org_target_dial_set >>> sta_port:0401h, dial:0aa2h
* NwInfo> CNETWORK_MAIN is called.[7c01]
* NwInfo> Search Free Resource...* NwInfo> [00000aa2] -> Networking System ID :
[1]
* NwInfo> IP Address: 0f0010ac
* NwInfo> Port:  1730
* NwInfo> We can use RSRC No. 1 !
* NwInfo> Choose VoIP Networking ! target:172. 16.  0. 15
* NwInfo> Free RsrcID is found port #01.
* NwInfo> cnetwork_pro00 is called
<<< prgrd1501.cpp(38) read_s_sta_clip_enable >>> port : 0, data : 1
* NwInfo> create_network_packet( rsrc_id_w:1 bid:7 rsrc:1 line:1)
* NwInfo> **<!>** Caller ID Œä“ú'²®!! **<!>**
* NwInfo> Networking Resource type is H.323 Interface
* NwInfo> IP Address: 0f0010ac
* NwInfo> Port:  1730
* NwInfo> Status is changed...(7c01) 0000 -> 00b6
cnetmain  src:7c01 oldSrcPort:0401->src_port_w:0401 rsrc:1(H323)
      status 0000 -> 00b6
Tone information for port E001H
                  Timeslot : 0101H
                  Level    : Tx=20H, Rx=20H
                  Current  : 0000H Level=20H
                  Sender   : Not opened
* NwInfo> CNETWORK_MAIN is called.[7c01]
* NwInfo> cnetwork_pro06 is called
* NwInfo> Status is changed...(7c01) 00b6 -> 00b9
cnetmain  src:7c01 oldSrcPort:0401->src_port_w:0401 rsrc:1(H323)
      status 00b6 -> 00b9
* NwInfo> CNETWORK_MAIN is called.[7c01]
* NwInfo> cnetwork_pro09 is called
* NwInfo> get_inter_signal_target( 0802H ) called
* NwInfo> send_internal_signal : target=0401 third=0000
response_while_frouting Selfport = 7c01 Target = 401 signal = 802
* NwInfo> Status is changed...(7c01) 00b9 -> 0024
cnetmain  src:7c01 oldSrcPort:0401->src_port_w:0401 rsrc:1(H323)
      status 00b9 -> 0024
```



```
* NwInfo> CNETWORK_MAIN is called.[7c01]
* NwInfo> cnetwork_pro07 is called
* NwInfo> Process comes to exception procedure. (event:0990)
cnetmain  src:7c01 oldSrcPort:0401->src_port_w:0401 rsrc:1(H323)
      status 0024 -> 0024
* NwInfo> CNETWORK_MAIN is called.[7c01]
* NwInfo> Process comes to exception procedure. (event:001c)
* NwInfo> create_network_packet( rsrc_id_w:1 bid:7 rsrc:1 line:1)
* NwInfo> Networking Resource type is H.323 Interface
* NwInfo> send user to user information message... CR:6
cnetmain  src:7c01 oldSrcPort:0401->src_port_w:0401 rsrc:1(H323)
      status 0024 -> 0024
* NwInfo> IP Address: 0f0010ac
* NwInfo> Port:  1730
* NwInfo> CNETWORK_MAIN is called.[7c01]
* NwInfo> cnetwork_pro07 is called
* NwInfo> get_inter_signal_target( 0810H ) called
* NwInfo> send_internal_signal : target=0401 third=0000
response_while_frouting Selfport = 7c01 Target = 401 signal = 810
* NwInfo> create_network_packet( rsrc_id_w:1 bid:7 rsrc:1 line:1)
* NwInfo> Networking Resource type is H.323 Interface
* NwInfo> Status is changed...(7c01) 0024 -> 0011
cnetmain  src:7c01 oldSrcPort:0401->src_port_w:0401 rsrc:1(H323)
      status 0024 -> 0011
* NwInfo> CNETWORK_MAIN is called.[7c01]
* NwInfo> T305 TIMER CLEAR !!!
* NwInfo> cnetwork_pro10 is called
* NwInfo> get_inter_signal_target( 0804H ) called
* NwInfo> send_internal_signal : target=0401 third=0000
response_while_frouting Selfport = 7c01 Target = 401 signal = 804
* NwInfo> create_network_packet( rsrc_id_w:1 bid:7 rsrc:1 line:1)
* NwInfo> Networking Resource type is H.323 Interface
* NwInfo> Status is changed...(7c01) 0011 -> 00c3
cnetmain  src:7c01 oldSrcPort:0401->src_port_w:0401 rsrc:1(H323)
      status 0011 -> 00c3
* NwInfo> IP Address: 0f0010ac
* NwInfo> Port:  1730
* NwInfo> CNETWORK_MAIN is called.[7c01]
* NwInfo> T305 TIMER CLEAR !!!
* NwInfo> cnetwork_pro19 is called
* NwInfo> -- network(0) VMI mode=0
* NwInfo> -- network(0) VMI port=0000h
* NwInfo> -- network(0) VMI third=0000h
* NwInfo> *** atrk_release_req : target_port_w = 0401H
* NwInfo> Release resource information : 1(01h)CALLED
clr_conf_system_id_on_cnetport() src_port=7c01
* NwInfo> *=* Call Information Clearing Complete.[7c01] *=*
* NwInfo> Status is changed...(7c01) 00c3 -> 0000
* NwInfo> Invalid parameter [netport_rsrc_type_read]
cnetmain  src:7c01 oldSrcPort:0401->src_port_w:0000 rsrc:0(ISDN)
      status 00c3 -> 0000
HP_LCD_REQ(0401,0001,0000,0000,0000)
ACD Data Size error. or socket close...
* NwInfo> CNETWORK_MAIN is called.[7c01]
```

* NwInfo> Search Free Resource...
* NwInfo> Free resource searching abort...!!
signal:0804
* NwInfo> cnetwork_pro00 is called
Networking procedure was not executed.

SECTION 13 SV9100NET TRACE USING THE ISDN DEBUG TRACE (MAIL IN 0012)

```
10:53:20 >>mail in 0 0 1 2
10:53:23 >>
Enter ISDN debug mode
master current bid  : 08H
master current line : 00H
ACD Data Size error. or socket close...
<<< KAN : sta_org_target_dial_set >>> sta_port:0401h, dial:0000h
<<< KAN : sta_org_target_dial_set >>> sta_port:0401h, dial:0aa2h
<<< prgrd1501.cpp(38) read_s_sta_clip_enable >>> port : 0, data : 1
S ISDN : >>>>>>>>>>>>>>>>
74 A1 04 01 01 00          USL(7,1),SETUP REQ
08 02 00 08 05             Callref:ORG(8),SETUP
04 03 80 90 A3             Bearer capability [speech]
18 03 A9 83 81             Channel identification
6C 05 00 83 35 30 30       Calling party number [500]
70 04 81 32 30 30          Called party number [200]
7C 03 80 90 A3             Low layer compatibility
7D 02 91 81                High layer compatibility
7E 46 00 03 04 01 08 00    User-user [70 octets]
+00 04 0C 45 58 54 20 35
+30 30 20 20 20 20 20 1A
+01 00 05 01 01 13 01 01
+21 01 00 2E 01 00 3B 04
+01 04 00 00 07 01 01 02
+01 01 24 01 02 2B 11 11
+00 00 00 00 00 00 00 00
+00 00 00 00 00 00 00 00
A1                         Sending complete
Tone information for port E001H
        Timeslot : 0101H
        Level    : Tx=20H, Rx=20H
        Current  : 0000H Level=20H
        Sender   : Not opened
R ISDN : <<<<<<<<<<<<<<<<
54 0B A1 02 01 01 00       USL(0,0),CALL PROCEEDING IND
08 02 80 08 02             Callref:DES(8),CALL PROCEEDING
7E 46 00 25 01 02 04 0C    User-user [70 octets]
+45 58 54 20 32 30 30 20
+20 20 20 20 1A 01 00 05
+01 01 13 01 01 21 01 00
+2E 01 00 3B 04 01 04 00
+00 07 01 01 02 01 01 24
+01 02 2B 11 11 00 00 00
+00 00 00 00 00 00 00 00
+00 00 00 00 00 02 01 01
R ISDN : <<<<<<<<<<<<<<<<
42 0B A1 01 01 01 00       USL(0,0),ALERTING IND
08 02 80 08 01             Callref:DES(8),ALERTING
1E 02 81 82                Progress indicator
7E 30 00 0A 04 A2 0A 00    User-user [48 octets]
```

Keyphone port 01 dials 200.

Call sent using VOIPU blade in slot 7 circuit 1.

Setup message contains calling party name (ASCII HEX):
45 58 54 20 35 30 30 = EXTN 500

This is shown on the LCD display.

Received SV9100Net events always use USL 0,0

Remote SV9100 returns the called party name (ASCII HEX):
45 58 54 20 32 30 30 = EXTN 200

This is shown on the LCD display.

```
+00 03 04 02 08 00 00 04
+0C 45 58 54 20 32 30 30
+20 20 20 20 20 1A 01 00
+05 01 01 13 01 01 21 01
+00 2E 01 00 3B 04 01 04
+00 00
response_while_frouting Selfport = 7c01 Target = 401 signal = 802
R ISDN : <<<<<<<<<<<<<<<<
16 0B A1 1F 01 01 00                    USL(0,0),MESSAGE RECEIVED IND
08 02 80 08 20                          Callref:DES(8),USER INFORMATION
A0                                      More data
7E 07 00 03 04 1B 00 00                 User-user [7 octets]
+00
S ISDN : >>>>>>>>>>>>>>>>
14 A1 1F 01 01 00                       USL(7,1),MESSAGE SEND REQ
08 02 00 08 20                          Callref:ORG(8),USER INFORMATION
7E 07 00 03 04 1C 00 00                 User-user [7 octets]
+00
R ISDN : <<<<<<<<<<<<<<<<
5A 0B A1 30 01 01 00                    USL(0,0),SETUP CONF
08 02 80 08 07                          Callref:DES(8),CONNECT
7E 4C 00 04 0C 45 58 54                 User-user [76 octets]
+20 32 30 30 20 20 20 20
+20 1A 01 00 05 01 01 13
+01 01 21 01 00 2E 01 00
+3B 04 01 04 00 00 07 01
+01 02 01 01 24 01 02 2B
+11 11 00 00 00 00 00 00
+00 00 00 00 00 00 00 00
+00 00 0A 04 A2 0A 00 00
+03 04 10 08 00 00
response_while_frouting Selfport = 7c01 Target = 401 signal = 810
S ISDN : >>>>>>>>>>>>>>>>
0B A1 05 01 01 00                       USL(7,1),SETUP COMPLETE REQ
08 02 00 08 0F                          Callref:ORG(8),CONNECT ACKNOWLEDGE
R ISDN : <<<<<<<<<<<<<<<<
1D 0B A1 09 01 01 00                    USL(0,0),DISCONNECT IND
08 02 80 08 45                          Callref:DES(8),DISCONNECT
08 02 80 90                             Cause (16)
1E 02 81 82                             Progress indicator
7E 07 00 03 04 04 08 00                 User-user [7 octets]
+00
response_while_frouting Selfport = 7c01 Target = 401 signal = 804
S ISDN : >>>>>>>>>>>>>>>>
0F A1 0C 01 01 00                       USL(7,1),RELEASE REQ
08 02 00 08 4D                          Callref:ORG(8),RELEASE
08 02 80 90                             Cause (16)
R ISDN : <<<<<<<<<<<<<<<<
0C 0B A1 33 01 01 00                    USL(0,0),RELEASE CONF
08 02 80 08 5A                          Callref:DES(8),RELEASE COMPLETE
CALLED clr_conf_system_id_on_cnetport() src_port=7c01
HP_LCD_REQ(0401,0001,0000,0000,0000)
ACD Data Size error. or socket close...
Networking procedure was not executed.
```

- - NOTES - -

UNIVERGE® SV9100

System Maintenance Manual

NEC Corporation of America
Issue 1.0