
Initializing, Programming, and Testing KI-1534G

Responder[®] System 3000



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1

General Information

Description



Before beginning the procedures, visually inspect the system to ensure that all stations and control equipment have been installed according to the applicable codes and the procedures provided in the system manuals (KI-1531), which includes manual KI-1532, *System Planning and Cable Installation*, and the appropriate station and equipment installation manuals provided by Rauland-Borg. No system components should be powered up until the guidelines and procedures in this manual have been followed.

The procedures in this manual are divided into four basic phases:

- ✓ Turning on the system
- ✓ Checking the Console
- ✓ Programming the room stations
- ✓ Testing the room stations

It is recommended that those who will initialize the system read the entire manual before beginning. Familiarity with the required procedures will expedite advanced planning (e.g., for room-station numbering) and ensure a smooth progression through all the procedures.



Important:

Under certain conditions, the static potential at an installation site could exceed 40,000 volts. Static potential of this magnitude could damage the system's CMOS devices.

In environments where the static potential exceeds 40,000 volts, take special precautions to protect the system equipment. Such precautions might include the use of grounding straps by system installers, the grounding of patient beds, and the installation of anti-static call cords.

Turning the System On

Preliminary Tests

After visually inspecting the system but before supplying power to it, complete the following preliminary test:

- ✓ Using a reliable ohmmeter, measure the resistance between the Area Control Unit's (ACU) power-supply terminals "+14 VDC" and "0 v." A reading of less than 20 Ω indicates a wiring problem (probably a short) that must be cleared before proceeding.
- ✓ Make sure that all the room-station receptacles have a call cord, a call push button, or a dummy plug.
- ✓ Make sure that all entertainment receptacles have a pillow speaker or a dummy plug.

Switches and LEDs

Step 1. At the ACU, turn on the AC circuit breaker.

Step 2. Check the LEDs on the power-supply board:

- ✓ +14 V, *Power On*, and *Batt Charge* LED's light steadily to indicate "power on." Make sure that this LED is not flickering or lighting intermittently. It is normal for the *Batt Charge* LED to be lit at half brilliance.
- ✓ *Flash* LED should flash approximately 1 second on and 1 second off. This LED is associated with the flash line for the corridor lights.

If the LEDs do not light as described, check the connections between the ACU and its AC power source.

Step 3. If the optional ACU battery is installed, turn on the battery circuit breaker.

Step 4. Using a reliable voltmeter, measure the voltage between the area control on its Power Supply Terminals “+14 v” and “0 v.” There should be +14 VDC, $\pm 1/2$ VDC.

Checking the Consoles

When the system is turned on, the Consoles are ready to operate according to their most recent programming (for a new system, the standard factory settings).

Step 1. Check that each Console’s display flashes at the rate of 1 Hz and reads “12.00.00” (“00:00:00” if the system is in the 24-hour mode). Press *Cancel* to stop the flashing.

Step 2. Before continuing, use each Console’s *Cancel* touch pad to clear any calls (see the operation manual, KI-1422 for the NCS3010, and KI-1727 for the NCS3096).

If the Console’s “Utility” screen displays “Error 1,” check the wiring connections between the Console and the ACU (a complete list of Error Messages is at the back of this manual).

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Programming

The following functions may be custom-programmed via the Console:

- ✓ Changing to the 12- or 24-hour clock mode (#5*).
- ✓ Setting the time (#1*).
- ✓ Assigning Console numbers for master-to-master intercom (#14*).
- ✓ Assigning unit Zones to each Console (#7*).
- ✓ Assigning each room station to one or more unit Zones (#6*).
- ✓ Assigning a number to each room station (#2*).
- ✓ Assigning a time-out interval for priority-service reminders (#8*).

NCS3048 Console: If the Responder 3000 system will have an NCS3048 Console, use either an NCS3096 or NCS3010 Console for the initial programming. Refer to KI-1719 for additional programming routines required to configure these Consoles.

Disabling Program Functions

There are two ways of limiting unauthorized or accidental programming changes. Both of these “locks” must be removed before many of the functions can be programmed. If a user plans to make frequent changes, leave the “locks” off; otherwise, install them after the system has been completely set up. Note that these locks must be set on or removed from each CTA Board.

RAM and EEPROM Storage

Programming can be stored temporarily or permanently. RAM (random-access memory) holds data until the system is turned off or reset. An EEPROM (electrically erasable programmable read-only memory) holds data, even while the system is turned off, until it is written over.



Important:

Even if both “locks” are set, the time, time-mode, and priority-key changes can still be made to RAM. If only the software “lock” is set, these changes will also be written in the EEPROM.

No Permanent Changes (Hardware Lockout): Before your programming can be permanently stored in the EEPROM, the sleeve jumper above *U47* (at the bottom center of the CTA Board) must be slipped over the *N* (“Normal”) and its neighboring pin. Slipping it over the *L* (“Locked”) and its neighboring pin allows all the functions to be reprogrammed in RAM; however, should the system be turned off or reset, these changes would be lost.

Attempting to program a Console or station whose CTA Board is “Locked” will cause an *Error 10* message, meaning that the changes will be made to RAM only.

Time and Priority Changes Only (Software Lockout): Connecting a jumper between CTA screw terminal “6” and “0V” prevents even temporary changes to most of the programming described in this manual. However, it does not disable the capability to set the clock (#1*) or the priority status of room stations (via the *Priority* key).

General Procedures

“Local” CTA Board: Most programming can be done from any Console, even in a multi-board system. However, each Console in a multi-board system must enter its own Console ID number and zoning.

Correcting Erroneous Entries: If you make a mistake while entering programming information (e.g., a Room or Zone Number), press *Cancel*, then enter the correct information. If you have already completed a programming sequence (and, thus, have stored the erroneous data in the system’s memory), start the sequence again and enter the correct information. In room-station programming, for example, you can “jump” to an individual station without going through all the stations with lower Annunciate Numbers or continuing through those with higher Annunciate Numbers.

Exiting a Programming Sequence: Simply enter #*. The older method (repeating the full opening code, #[number]*) may also be used.

Reprogramming the System to the Factory Settings (#19*)

This routine will initialize all of the data in the EEPROM. Once the initializing has begun, the process may take only a moment or may take several minutes, depending upon how much data was already in the initialized state.

The #19* routine only initializes the EEPROM at the CTA Board to which the Console being used is attached. Therefore, in multi-board systems, the following steps must be repeated at each CTA Board. Temporarily install a Console on any CTA Board without one.



Important:

The #19* routine will erase all previous programming. Be sure that all the room-number programming information has been recorded on the worksheets provided in the installation manuals *before* using this initializer routine.

Step 1. Check to make sure that the “L/N” (“Locked/ Normal”) jumper is in the “N” position.

Step 2. Enter #19* on the keypad.

- *The Console screen will display “ConF.” At this point, no initializing has been done. To exit now, touch Cancel, and the clock will return.*

Step 3. Enter * to begin the initialization.

The clock will return as soon as the initialization is completed.



Important:

Once the initializing process has begun, it cannot be canceled.

Switching to the 12- or 24-Hour Display (#5*)

When the Responder System 3000 is initialized, the Console’s clock display comes up in the 12-hour mode. The display may be changed between the 12- and 24-hour modes at any time. Note that the clock display must be reset to the correct time after this mode is changed.

Step 1. Using the Console’s touch pad, enter #5* .

- The display will read “12” or “24” to show which mode it is currently using.

Step 2. To change the mode, touch * (the display toggles between the two settings).

- The display will show the mode selected (“24” or “12”).

Step 3. When the desired mode is displayed, enter #* to exit the programming sequence.

If there are call-ins, the first will be shown. If there are no call-ins, the display will show “00:00:00” or “12:00:00,” depending upon the mode selected.



Important:

To reset the time, continue with the next programming sequence.

Setting the Clock (#1*)

Step 1. Enter #1* .

- The prompt “F A” will appear.

Step 2. Enter the desired time in hours, minutes, and seconds (be sure to set the time a minute or so ahead).

- The numbers dialed will be displayed.

Step 3. If the system is in the 12-hour mode, select “AM” or “PM” by touching *.

- The character in the right side of the display will toggle between “A” and “P.”

Step 4. When the actual time catches up to the time you entered in Step 2, enter #* to exit this programming sequence and start the clock.

- If there are current call-ins, the first one will appear on the display. If no call-ins are in progress, the time display will begin running.

Assigning Console Numbers for Master-to-Master Intercom (#14*)

Step 1. Enter #14* .

- The display will show “1C-,” followed by the current ID number for the Console connected to Port A (the factory settings are 901-912 for a fully expanded system). At the second Console on a CTA Board, “2C” will come up first.

Step 2. If you want a different number from that shown, enter the two- or three-digit number desired for the Console you are at. The number may not be shared by any other Console or any station.

- *The Console displays the digits as they are dialed.*

Step 3. When the desired number is displayed, enter *. If the system has only one CTA Board but two Consoles, go to Step 4; otherwise, go to Step 5.

- *On a single-CTA system with two Consoles, the display will read “2C-” followed by the current ID number for the Console connected to Port B. If you are at the second Console, “1C” will come up second.*



Important:

Since a Console can program these ID numbers only for the CTA Board to which it is connected, you must repeat Steps 1-5 for each Console that is attached to a separate CTA Board in the system.

Step 4. If you want a different number from that shown for the second Console, enter it.

- *The Console displays the digits as they are dialed.*

Step 5. To exit this sequence, dial #*.

- *If there is a call-in, it will appear on the display; otherwise, the current time will appear there.*

Assigning Zone Numbers to the Consoles (#7*)



Important:

Every station must be assigned at least one Zone, and every Zone must be assigned to at least one Console. Any station that does not have at least one Zone assigned to at least one Console will have its call-ins sent to all of the Consoles.

A “Zone” is an attribute that directs call-ins from one or more room stations to one or more Consoles. For example, every room station programmed for Zone 1 will have its call-ins directed to every Console that has been programmed to

receive Zone-1 call-ins, including Consoles on different CTA Boards in the same system or node.

There are eight Zones, and each station and Console can be assigned up to four selected Zones or all eight Zones. Thus, it is possible to direct all call-ins to every Console, to assign different room stations to each Console, or to have varying degrees of overlap.

The factory programs every Console to receive call-ins from all eight Zones. If only one Console is used in a system, it will automatically receive all call-ins. Thus, you need to program Consoles only when there is more than one and the customer wants different Consoles to handle different call-ins.

To Program a Console Not to Receive Call-ins: A customer might want a Console placed solely for paging and calling, not for answering call-ins. Assign it a Zone that is not used by any room stations, and be sure to assign all of the active Zones to other Consoles.

Step 1. Enter **#7***.

- *The display shows the Zones currently assigned to the Console, preceded by “U” (“Unit Zone”). If all the Zones have been assigned (the factory setting), the screen will read “U-ALL.”*

Step 2. To leave the assigned Zones unchanged, go to Step 3. To make changes, enter the number of each Zone whose call-ins should go to the Console. Be sure to enter every Zone desired (including those already programmed), because the numbers you enter will replace all those currently programmed for this function.

- *The numbers entered are displayed.*

Step 3. Exit the sequence by dialing **#***.

- *If call-ins are present, one will appear on the display; otherwise, the current time will appear.*

Room-Station Programming (#2*)

Room-station programming is easily accomplished with adequate planning, including the completion of the attached work sheets. There are six sub-sequences in which the following information is entered to identify each station for system operation:

- ✓ Annunciate-Point number
- ✓ Room Number
- ✓ Zone Numbers
- ✓ Bedside- or Staff-Station Type

- ✓ Bath-, Emergency-, or Code-Station Type
- ✓ Bath-, Emergency-, or Fire-Station Type (requires FAA1 Module)

To prepare the system for operation, enter the above information for each of its stations. Keeping accurate records of these entries is extremely important for ease of initial room-number programming, for making changes at a later time, and for efficiently servicing and maintaining the system.

An explanation of these six programming entries is provided in the following paragraphs. The instructions for room-number programming are at the end of this section.

Annunciate-Point Number: This number identifies the terminal on the CTA Board to which the home-run Annunciate Line for a room is connected. Each Annunciate Line can support **(1)** a Bedside, Staff, or Duty Station; **(2)** a Bath or Emergency Station; and **(3)** a Code or Fire Station; these station types can be used singly or in any combination. Since the Annunciate-Point Number enables the system to identify a station or group of stations, you must enter it before you can program a station. For this reason, it is essential that you maintain cable-installation records noting the Annunciate Point for each station.

Room Number: This number is used to call a station; typically, the station is given the same number as the room in which it is installed. Any two- to four-digit number may be used, subject to these restrictions: **(a)** all of the numbers must be of the same length, and **(b)** numbers 901 through 912 can only be used for Console Identification Numbers.

Rooms with Two Annunciate Points: It is possible to use two Annunciate Points for the same room and assign them the same Room Number. This is one way of providing a third call-in level; for example, having a Bedside Station and a Bath Station on one Annunciate Line, and an associated Emergency or Code Station on another Annunciate Line. To use the same Room Number for two Annunciate Points, you must observe these restrictions: **(a)** the Annunciate Points must be on the same CTA Board, and **(b)** there can be only one speaker-type Bedside Station in the group, and it must be connected to the lower-numbered Annunciate Point in the group.



Important:

An FAA1 Fire Alarm Adapter Module can add a third call-in type to the same Annunciate Point (see KI-1670).

Zone Numbers: These numbers are programmable attributes that group stations for paging and for the annunciation of call-ins at different Duty Stations and Consoles.

Up to eight Zones can be used in a system; each station can be placed in from one to four selected Zones or into all eight. These numbers are strictly software-dependent, and may be arbitrarily assigned without physical limitations. If a station is not assigned at least one Zone Number that, in turn, is assigned to a Console, the station's call-ins will go to all the Consoles in the system.



Important:

To change only the room Zone Numbers, use the shortcut (#6*) given in the next section.

Station Types: As noted previously, a room (associated with a single Annunciate Point) may have **(a)** a stand-alone Bedside or Duty Station, **(b)** a stand-alone Bath or Emergency Station, **(c)** a Code or Fire Station, or **(d)** any combination of the first three categories.

Station-Type Numbers are used by the system to identify the type of station placing a call-in so that the call-in can be processed correctly (for example, to distinguish between a Bath call-in and an Emergency call-in).

For each room, specify these Station-Type Numbers:

- ✓ Bedside-, Staff-, or Duty-Station Type (*d1*).
- ✓ Bath-, Emergency-, or Code-Station Type (*d2*).
- ✓ Bath-, Emergency-, or Fire-Station Type (*d3*). (This applies only to stations with a third call level supplied by an FAA1 Fire Alarm Adapter Module, as noted earlier.)

For each type number, the value assigned specifies not only the station type but also whether or not the station will receive paging announcements. Note that if any station type in a room is programmed to reject paging announcements, then the entire room will reject them. If a room has two Annunciate Points, only the settings for the lower-numbered one will affect paging.

Factory Settings

Annunciate-Point Numbers do not change during programming; the only way to change them is to change the wiring. Room-number programming begins with the first Annunciate Point on the CTA Board to which the Console being used is

connected (for example, Board #2 beings with A 49); it continues in numerical order unless you enter a specific Annunciate Point. It is recommended that you follow the numerical sequence during the initial programming to avoid confusion. When making specific changes at a later time, you can save time by skipping to specific Annunciate Points.

The factory sets the Room Numbers from “3001” for Annunciate Point 1 through “3144” for Annunciate Point 144 (in a fully expanded system). The 3000 series numbers were chosen because they are unlikely to be used in an actual working system and therefore are easily identified.

All of the stations are factory-set for All Zones (0) and identified as normal bedside stations with paging (0).

Programming Work Sheet

To simplify the programming, fill out a work sheet for each CTA Board (six sheets are attached to the end of this manual). For each Annunciate Point, enter the Room Number (the one to be programmed), the Zone Numbers, the Bedside- or Staff-Station Type Number, the Bath- (*d1*), Emergency-, or Code-Station-Type Number (*d2*), and the Bath-, Emergency-, or Fire-Station-Type Number (*d3*). It is recommended that the work sheet be completed in the numerical order of the Annunciate Points. In this way, the work sheet may easily be used in sequential Room-Number programming (remember that Annunciate Points are normally presented in numerical order during the programming).

After completing the work sheet (including appropriate notations for any unused Annunciate Points), make at least two copies: save the original work sheet for your records, and attach one copy to the inside front cover of the ACU wall box or cabinet (together with a copy of the Room-Number programming instructions given at the end of this section). The remaining copy may be used during the programming. Replace or update all copies of the work sheet whenever any programming changes are made.

Programming Procedure

To complete the Room-Number programming, perform the procedure provided at the end of this section. At each step, a prompt will indicate the type of information to be entered (Room Number, Station-Type Number, etc.) and give the current value. If you do not wish to change the displayed setting, touch *. The existing setting will be retained, and the program will advance to the next step.

Should you enter an error, touch *Cancel* once to clear the erroneous entry, then enter the proper value. To clear *all* the entries for the Annunciate Point currently

being programmed, touch *Cancel* twice to return to the Annunciate Point prompt. You must then enter all of the programming for that Annunciate Point.

You can exit this programming sequence at any time by entering *#**. If you do this *during* the program steps for an Annunciate Point, any new information that you entered for that point will *not* be saved (the pre-existing settings will be retained.) When you resume the Room-Number programming, you can dial that Annunciate Point first and then continue with the sequential programming.

Step 1. On a Console's digital touch pad, enter **#2***.

- *The display reads "A-" followed by the first Annunciate-Point number for that CTA Board (e.g., if the programming is being done at CTA number 2, the first Annunciate Line displayed will be "49.")*

Step 2. If the number you want is displayed, go to Step 3. To select a different Annunciate Point for programming, enter the desired number (in a fully-expanded system, the Annunciate Points are numbered from 1 to 144).

- *The Annunciate Point you entered is displayed in the "A-" prompt.*

Step 3. When the Annunciate Point you want is displayed, touch *****.

- *The next prompt, "r-" (for Room Number), appears.*

Step 4. Enter the desired Room Number.



Important:

Numbers 901 through 912 may not be used (unless you change the Console ID numbers).

- *The Console displays the Room Number entered.*

Step 5. Check the Console display to ensure that the correct Room Number was entered, then touch *****.

- *The next prompt, "U-" (for unit Zone Number), is displayed, followed by either the Zone Numbers currently assigned for that Annunciate Point or "ALL" for all Annunciate Points.*

Step 6. Enter the desired Zone Numbers. You may enter up to four numbers (1-8), or enter **0** for all Zones (the factory default setting).



Important:

Assign a Duty Station the Zones it is to cover. The Console displays the Zone Numbers entered.

Step 7. Make sure that the correct Zone Numbers are displayed, then touch *.

- The Console shows the prompt “d1-” followed by the Station-Type Number currently assigned to that Annunciate Point.

Step 8. Enter the desired Bedside- or Staff-Station-Type Number (the factory default setting is 0, for Normal call-ins). Valid entries are listed in the following table:

d1 Station Type	With Paging	No Paging
Normal	0	10
Staff	1	11
Duty	2	12
Door Alarm	3	13

- The Console displays the number you entered.

Step 9. Make sure the number is correct, then touch *.

- The Console displays the prompt “d2-” followed by the Bath-, Emergency-, or Code-Station-Type Number currently assigned to the Annunciate Point.

Step 10. Enter the desired Bath-, Emergency-, or Code-Station-Type Number. Valid entries are listed in the following table:

d2 Station Type	With Paging	No Paging
Bath	0	10
Emergency	1	11
Fire Alarm	2	12
Code	3	13

- The Console displays the number you entered.

Step 11. Make sure the entry is correct, then touch *.

- The Console displays the prompt “d3-” followed by the Bath-, Emergency-, or Fire-Station-Type Number currently assigned to the Annunciate Point.

Step 12. Enter the desired Bath-, Emergency-, or Fire-Type Number. Valid entries are listed in the following table:

d3 Station Type	With Paging	No Paging
Bath	0	10
Emergency	1	11
Fire Alarm	2	12

- The Console displays the number you entered.

Step 13. Make sure the entry is correct, then touch * .

- The Console displays the next sequential Annunciate-Point number and the prompt “A-.”

Step 14. Repeat Steps 2 through 13 for the rest of the Annunciate Points used in the system.

Step 15. When you have finished, exit by dialing #* on the Console touch pad.

- The display returns to showing the highest-priority call-in or, if there are no call-ins, the current time.

Changing the Room-Zone Numbers Only (#6*)

At times, it may be desirable to change only the Zone Numbers of a room station. This section tells how to review and change the Zones without going through the entire room-programming sequence.

Step 1. Enter #6* on the Console touch pad.

- The display reads “r-” followed by the Room Number assigned to the first Annunciate Point for that CTA Board.

Step 2. If the display shows the Room Number that you want, go to Step 3. To program a different station, enter its Room Number.

- The Room Number you entered is displayed.

Step 3. Check the Console display to ensure that the correct Room Number was entered, then touch *.

- The screen displays “U-” followed by the individual Zone Numbers (or “All” for all Zones) currently assigned to the station.

Step 4. To change the station's Zone Numbers, enter all the Zones desired (including those already programmed). Valid Zone Numbers are **1** through **8**. To place a station in one to four specific Zones, enter their numbers (e.g., "37" for Zones 3 and 7); to place it in all eight Zones, enter **0**.

- *The Console displays the Zone Numbers entered.*

Step 5. Make sure that the desired Zone Numbers are displayed, then touch *****.

- *The display shows the Room Number assigned to the next sequential Annunciate Point in the system, preceded by the letter "r-."*

Step 6. To review or change the Zones for any other station, repeat Steps 2 through 5. When you are finished, enter **#*** on the Console touch pad.

- *If there are current call-ins, the highest-priority one will appear on the display; otherwise, the display will show the time.*

Setting the Time-out Interval for Special Service Reminders (#8*)

Answering and canceling Priority, Bath, Emergency, Code, or other middle- and high-priority call-ins at the Console does not clear them from the system. Unless the call-in is canceled at the originating station within a specified period of time, it will reappear at the Console. (Conversely, answering and canceling Normal call-ins at the Console does clear them from the system, unless a latching station originates them.)

This time-out interval before call-ins return can be set within the range of 1 to 9 minutes. Specifying a "0" interval will cause special call-ins to continually display at the Console until they have been canceled at the originating station. Starting with Version 7.6 software, there are separate time-out settings for the three levels of call-ins: low-, middle-, and high-priority. The factory setting for the first two levels is 5 minutes; that for the third level is 0.

Step 1. Dial **#8***.

- *The display reads "o-" ("overtime") followed by the current time-out interval for low-priority call-ins (Staff, Duty, Normal, Service Request, and Alarm).*

Step 2. If no change in the displayed interval is desired, go to Step 3. Otherwise, enter any whole number from **1** to **9** to set a new interval (in minutes). For no time-out interval, enter **0** (this specifies that a low-priority call-in from a latching station cannot be removed from the Console display until it has been canceled at the originating station).

- *The value you entered is displayed.*

Step 3. Make sure that the number shown is correct, then enter *****.

- *The display reads “E-” (“Emergency”) followed by the current time-out interval for middle-priority call-ins (Priority, Bath, and Emergency).*

Step 4. If no change in the displayed interval is desired, go to Step 5. Otherwise, enter any whole number from **1** to **9** to set a new interval (in minutes). For no time-out interval, enter **0** (this specifies that a middle-priority call-in cannot be removed from the Console display until it has been canceled at the originating station).

- *The value you entered is displayed.*

Step 5. Make sure that the number shown is correct, then enter *****.

- *The display reads “C-” (“Code”) followed by the current time-out interval for high-priority call-ins (Fire and Code).*

Step 6. If no change in the displayed interval is desired, go to Step 7. Otherwise, enter any whole number from **1** to **9** to set a new interval (in minutes). For no time-out interval, enter **0** (this specifies that a high-priority call-in cannot be removed from the Console display until it has been canceled at the originating station).

- *The value you entered is displayed.*

Step 7. Enter **#*** to select the number shown and exit the routine.

- *The time-out intervals are stored, and the display shows the highest-priority current call-in or (if there are no call-ins) the current time.*

3

Room-Station Testing

This section provides installation test procedures for all station equipment: BS300 and BS800 Series Bedside Stations, and PBS300, PCS300, PBS113, and PCS113 Bath and Emergency Stations. Also provided is an audio adjustment procedure, which may be completed as part of the first Room-Station test. Two persons are required for these tests.

Bedside- and Staff-Station Tests

Complete the following procedure once for each BS300 Series station or combined BS800 Series station and RS505 speaker module.

Step 1. Place a call from the room station. Verify that the station LED lights and the white lamp in the associated Corridor Dome Light glows steadily.



Important:

Throughout these test procedures and during normal system operation, a pre-announce tone should sound at the bedside station whenever it is called, or its call-in is answered, by the Console.

Step 2. At the Console, verify that the calling station's number is displayed, followed by the letter "n" (for normal call priority). A normal-call tone should sound. Pick up the handset. Check that the two-way voice communications function properly.

Step 3. At the room station, verify that voice communications with the Console function properly.

Step 4. At the Console, replace the handset and verify that the display screen clears.

- Step 5.** At the room station, verify that the station LED and the Corridor Dome Light go off.
- Step 6.** Place a call from the room station, and verify that the station LED and the white corridor dome light both glow.
- Step 7.** Verify that the calling station is displayed correctly at the Console, then answer the call by touching *Push-to-Talk*. Verify that two-way voice communications are working properly.
- Step 8.** At the room station, verify that voice communications work properly.
- Step 9.** At the Console, terminate the call by touching *Cancel*. Verify that the display clears.
- Step 10.** At the room station, verify that the station LED and the corridor dome light go off.
- Step 11.** At the Console, enter the number of the room station, then touch *Priority*. Verify that the number is displayed as dialed, and that it is followed by the letter “P.” Touch *Cancel*. The display screen should clear and display the time.
- Step 12.** Place a call-in from the room station. Verify that the station LED and the white corridor lamp light.
- Step 13.** At the Console, verify that the calling station’s number appears in the display followed by the letter “P,” and that the priority-call tone sounds. Answer the call-in by touching *Push-to-Talk*.
- Step 14.** At the room, verify that the station LED and the corridor light remain lit when you answer the call-in.
- Step 15.** At the room station, press the *Reset* button. Verify that the corridor light and station LED go off.
- Step 16.** At the room station, pull the call cord from the station receptacle. Verify that the station LED and corridor lamp light to indicate that a call-in has been placed.
- Step 17.** Verify that the Console shows the Room Number, followed by “n” (normal priority), and that the normal call tone sounds. Answer the call by touching *Push-to-Talk*.
- Step 18.** At the room station, replace the call cord.



Important:

The call cord must be replaced in the station receptacle before the call-in can be canceled.

Step 19. At the Console, touch *Cancel* to end the call-in.

Step 20. At the room station, verify that the station LED and corridor lamp go out when the call-in is answered. Then, replace the call cord.

Bath and Emergency Station Tests

Perform the following procedure for each PBS300, PCS300, PBS113, and PCS113 Bath and Emergency Station.

Step 1. Place a call-in from the Bath or Emergency Station. Verify that the station LED lights and that the associated red corridor lamp flashes.

Step 2. Verify that the Console displays the calling room's number followed by the letter "b" (for Bath call-in) or "E" (for an Emergency call-in). A Bath-call tone should sound.

Step 3. At the Console, answer the call-in by touching *Push-to-Talk*.

Step 4. At the Bath or Emergency Station, verify that the station LED and the red corridor lamp remain lit when the call-in is answered.

Step 5. At the Console, touch *Cancel*. Verify that the display clears this call-in.



Important:

The call should not clear when the overtime is 0.

Step 6. At the Bath or Emergency Station, verify that the station LED and the corridor light remain lit after the Console has canceled the call-in.

Step 7. At the Bath or Emergency Station, press *Reset* to cancel the call-in. Verify that the station LED and the corridor light go out.

Code Station Tests

Perform the following procedure for each PBS300 and PBS113 Code Station:

- Step 1.** Place a call-in from the station. Verify that the station LED lights and that the associated red corridor lamp flashes.
- Step 2.** Verify that the Console displays the calling room's number followed by the letter "C" (for Code call-in). A Code-call tone should sound.
- Step 3.** At the Console, answer the call-in by touching *Push-to-Talk*.
- Step 4.** At the Code Station, verify that the station LED and the red corridor lamp remain lit when the call-in is answered.
- Step 5.** At the Console, touch *Cancel*. Verify that the display clears this call-in.



Important:

The call should not clear when the overtime is 0.

- Step 6.** At the Code Station, verify that the station LED and the corridor light remain lit after the Console has canceled the call-in.
- Step 7.** At the Code Station, press *Reset* (or *Cancel*) to cancel the call-in. Verify that the station LED and the corridor light go out.

Staff-Station Tests

Perform the following for each SS300 Staff Station.

- Step 1.** Place a call-in from the Staff Station. Verify that the station LED and the associated white corridor lamp both light steadily.
- Step 2.** At the Console, the calling room's number should be displayed, followed by the letter "S" (for staff call-in). Answer the call-in by touching *Push-to-Talk*.
- Step 3.** At the Staff Station, verify that the station LED and the corridor light go out when the call-in is answered at the Console. Verify that two-way voice communications function properly.
- Step 4.** At the Console verify that the two-way voice communications function properly.
- Step 5.** At the Console, end the call by touching *Cancel*.

Duty-Station Tests

Perform the following for each Duty Station:

Step 1. Place a call-in from the Duty Station. Verify that the station LED and the associated white corridor lamp both light steadily.

Step 2. At the Console, the calling room's number is displayed, followed by the letter "d" (for duty station call). Answer the call-in by touching *Push-to-Talk*.

Step 3. At the Duty Station, verify that the station LED and the corridor light go out when the call-in is answered at the Console. Verify that the two-way voice communications function properly.

Step 4. At the Console, verify that the two-way voice communications function properly.

Step 5. At the Console, end the call by touching *Cancel*.

Step 6. Check the Room-Number work sheet for the Zones assigned to the Duty Station. (Alternatively, enter the Zone-Number programming sequence (#6*) and display the Zone Numbers for the Duty Station. After noting the numbers, exit the programming sequence.)

Step 7. Select a sampling of room stations that are in the Duty Station's assigned Zones. Include Bedside Stations programmed for both normal and priority calls, Bath and Emergency Stations, Staff Stations, and any stations classed as Fire-Alarm or Code Stations. For each selected station, perform the following:

- ✓ Place a call-in to the Console.
- ✓ Verify that the appropriate call tone is heard at the Duty Station as well as at the Console.
- ✓ Push the Duty Station's Call push button once to turn off the tone at the station.
- ✓ End the call-in at the Console; if necessary (as for a higher-priority call-in), cancel it at the station.

Fire-Alarm Station Tests

Perform the following for each station using an FAA1 Fire-Alarm Adapter Module and a smoke detector or other signaling device:

Step 1. Activate the device. Verify that the associated red corridor lamp flashes.

Step 2. Verify that the Console displays the station's Room Number and "C" ("Code") or "F" ("Fire Alarm").

Step 3. At the Console, answer the call-in by pressing *Push-to-Talk*.

Step 4. At the station, verify that the red corridor lamp remains lit.

Step 5. At the Console, press *Cancel* and verify that the call-in clears from the display.



Important:

The call should not clear when the overtime is 0.

Step 6. At the station, verify that the red corridor lamp remains lit.

Step 7. At the station, reset the device. Verify that the corridor lamp has gone off.

Audio Adjustment

The following adjustments pertain to the revised CTA Board, which can be distinguished from its predecessors by these new components (see IL0266, in KI-1535, *NCS3000 Drawings*):

- ✓ *RP3*, on the upper-left corner of the board, above the screw terminals.
- ✓ *XFMR3*, a small white-and-silver transformer that is vertically centered, about one-and-a-half inches from the left edge of the board.
- ✓ Jumper *J2*, on the left side of the board, a little below *XFMR3*.
- ✓ Jumper *J4*, to the right of the large heat sinks.

Additional audio adjustments can be made on an NCS3048 or NCS3096 console (see KI-1719).

The revised CTA board has a separate adjustment for Console tones, *RP3*. On earlier CTA Boards, the "Listen Volume" pot in the Console had to be set to accommodate both the incoming audio level and the Console tones.

Four audio adjustments are needed: the listen volume at the Console (for incoming audio and the call-in tones), the talk level for audio going from the Console to the room stations, the loudness of tones at the room stations, and the loudness of tones at the Console.

Adjust the *Listen Volume* for both handset and Push-to-Talk communications for each Console.



Important:

- ✓ This adjustment also affects the level of the tones that announce call-ins, so you may need to adjust RP3 (Console tones) after setting the pot in each Console.
- ✓ If you have more than one Console connected to the same CTA Board, you may have to readjust the pot in one of the Consoles to find a balance between “listen” volume and “tone” volume at that Console.

To make the adjustment, leave the handset on-hook, dial a room, and touch *Push-to-Talk*. Release the touch pad to listen. Then, without allowing the handset to leave the cradle, turn the Console upside-down and remove the plastic cap in the base of the Console. Carefully insert a thin screwdriver into the potentiometer that is visible through the hole. Turning the potentiometer clockwise increases the volume level of the incoming audio. When the level is satisfactory, replace the plastic cap, right the Console, and end the call.

The *outgoing audio level* must be set on each CTA Board. Establish voice communications between the Console and a room station. While communications are in progress, adjust *RP1* on the CTA Board to which the room is connected. Turn the pot clockwise to increase the level.

Use *RP2* (Room-Station tone volume) to adjust *the loudness of the tones coming into a room* (pre-announce, supervisory, and staff-follow or duty-station tones). Adjust this in the same way that you adjusted *RP1*.

Use *RP3* Console tones to adjust the loudness of the call-in tones at the Console. Place a call-in; while the tones are sounding at the Console, adjust *RP3* (turning it clockwise increases the volume).

4

Special Considerations

Disabling the Supervisory Tones

While the Console operator is monitoring a room, a supervisory tone will sound in the room every ten seconds. This is to alert the patient to the monitoring function.

To disable this feature, connect a jumper between screw terminals 7 and -0V on the CTA Board.

Manual System Reset

The CTA Board normally resets automatically when it is turned on. If it does not, or if turning it off is undesirable, you can manually reset it by momentarily connecting CTA screw terminals *Reset* and -0V. Alternately, you can permanently install an SPST switch for manual resetting. It may be placed in the ACU cabinet or wall box, or within 50 feet of the ACU if #22 AWG wire is used.

Non-Cancelable Normal Calls

In standard operation, a Normal call from a Bedside or Staff station may be answered and canceled remotely from the Nurse Console. This operation may be modified so that a staff member can answer the call from the Nurse Console, but must go to the originating station in order to cancel the call. Each CTA board in the system must be modified according to the following instructions:

- ✓ Locate the 6-pin transformer connector.
- ✓ Cut wires from pins 3 and 4, black wire and black/red wire, respectively.

- ✓ Connect together wires 3 and 4 going to the transformer.
- ✓ Isolate and insulate wires 3 and 4 (black/white and black/red) going to the connector.

5

Error Messages

Error 1:	Loss of Serial Data to the Console (check the wiring and the CTA Board).	Err 11:	Attempt to specify an Annunciate Line for which there is no CTA Board (in #2*) or a non-existent Room Number (in #6*).
Error 6:	Syntax error within a # routine (press <i>Cancel</i> and enter the correct data).	Err 20:	EEPROM Room Number checksum error (enter #2*, which automatically jumps to the bad data, then reprogram that data).
Error 7†:	Attempt to capture a non-existent system (press <i>Cancel</i> and enter a valid number).	Err 21:	EEPROM Console ID or Console-zoning checksum error (enter #14* or #7*, which automatically jumps to the bad data, then reprogram that data).
Error 8†:	Attempt to capture a captured system (<i>Cancel</i> , then enter the number of a system that is in the Day Mode).	Err 22:	EEPROM pocket-page ID checksum error (enter #9*, which automatically jumps to the bad data, then reprogram that data).
Error 9†:	Attempt to capture a master system (<i>Cancel</i> , then enter the number of a system that is in the Day Mode).	Err24:	Indicates that there is no data communication with a Network Controller (if the NCS3000 is not connected to a Network Controller, make sure there is not a jumper between Terminals 4 and 8 on the CTA Board).
Err 10:	Attempt to write into a disabled EEPROM, or an EEPROM failure.	Err 25†:	The software versions in the Network Controller and the NCS3000 are not compatible.

†These error messages apply only to systems the are connected to an NCS6002 Network Controller

Appendix A: Programming Worksheets

Use the following worksheets as necessary.

Room-Number Programming Worksheet

Hospital Name: _____ Date: _____

System Description: _____

[illegible]

Station Type

d1 Station			d2 Station			d3 Station		
	With Page	Without Page		With Page	Without Page		With Page	Without Page
Normal	0	10	Bath	0	10	Bath	0	10
Staff	1	11	Emergency	1	11	Emergency	1	11
Duty	2	12	Fire Alarm	2	12	Fire	2	12
Door Alarm	3	13	Code Blue	3	13			

Room-Number Programming Worksheet

Hospital Name: _____ Date: _____

System Description: _____

[illegible]

Station Type

d1 Station			d2 Station			d3 Station		
	With Page	Without Page		With Page	Without Page		With Page	Without Page
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Hospital Name: _____ Date: _____

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[illegible]

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Staff	1	11	Emergency	1	11	Emergency	1	11
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Door Alarm	3	13	Code Blue	3	13			

Room-Number Programming Worksheet

Hospital Name: _____ Date: _____

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[illegible]

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Room-Number Programming Worksheet

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[illegible]

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[illegible]

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Door Alarm	3	13	Code Blue	3	13			

Room-Number Programming Worksheet

Hospital Name: _____ Date: _____

System Description: _____

[illegible]

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Staff	1	11	Emergency	1	11	Emergency	1	11
Duty	2	12	Fire Alarm	2	12	Fire	2	12
Door Alarm	3	13	Code Blue	3	13			