
SECURITY ESCORT

Architect/Engineer Specifications

<i>Part 1 - General</i>	2
1.1. Work Included	2
1.2. Qualifications	2
1.3. System Make	2
1.4. Submittals	2
1.5. System Overview	2
<i>Part 2 - Products</i>	5
2.1. Transmitters	5
2.2. Multiplex Receivers	7
2.3. Alert Units	9
2.4. Transponders	10
2.5. Enclosures	11
2.6. Central Console	12
2.7. Application Software	16
2.8. Display Screens	17
2.9. RS485 Data Bus Cabling	54
<i>Part 3 - Execution</i>	54
3.1. Installation	55
3.2. Testing	55
3.3. Warranty	55



Part 1 - General

1.1. Work Included

- 1.1.A. All labor, materials, equipment, engineering, installation supervision, calibration, adjustment and checkout necessary for a completely installed and fully operational microprocessor and radio based Electronic Security Escort(R) System, and related Work as required in the Contract Documents.
- 1.1.B. All computer software and hardware, operator input/output devices, field devices, sensors, controls, wiring and piping required to perform the functions, intent and performance described in this Document.
- 1.1.C. All devices required for proper system operation including any special electrical switches, transformers, disconnect switches, circuit breaker protection, etc., required for proper and continuous electrical operation of this system.

1.2. Qualifications

- 1.2.A. Model numbers and model designations, which appear herein, indicate design, quality and type of material as well as operating characteristics.
- 1.2.B. The Electronic Security Escort(R) System products shall be built modular in construction for ease of expansion and servicing. Functions shall be on replaceable panels, modules or circuit boards to accommodate functional changes when required. All field enclosures shall be supervised so as to give a trouble signal if tampered, and receiving devices will contain jamming detection circuits. All units shall be of solid state design.
- 1.2.C. The Electronic Security Escort(R) System (hereafter called the System) shall be designed for, and in compliance with, all applicable FCC Rules and Regulations.

1.3. System Make

Transmitting, receiving, transponding, multiplex signaling and audio/visual components of the System shall be manufactured by Bosch Security Systems, or unless specified otherwise within this document.

1.4. Submittals

- 1.4.A. Detailed wiring diagrams and system description.
- 1.4.B. Detailed layout of all field receivers, transponders and audio/visual components of the System.
- 1.4.C. A complete set of Installation Instructions for all components of the System.
- 1.4.D. A complete set of User Instructions and Manuals.

1.5. System Overview

- 1.5.A. The System shall be described as a Personal Safety System consisting of a network of transmitters, receivers, and redundant computers including proprietary software designed to provide users with a means of alerting security personnel when faced with an emergency situation.
- 1.5.B. The System shall consist of six basic components:
 - 1.5.B.1. Transmitters
 - 1.5.B.2. Multiplex Receivers
 - 1.5.B.3. Alert Units
 - 1.5.B.4. Transponders
 - 1.5.B.5. Central Console
 - 1.5.B.6. Proprietary Application Software

- 1.5.C. The System shall be activated by use of hand-held miniature radio transmitters, which shall be specifically designed for that purpose.
- 1.5.D. The term "Subscriber" shall refer to any Transmitter known to the system.
- 1.5.E. There shall be three types of System activation; Alarm, Test, and Supervision.
 - 1.5.E.1. An Alarm activation of the System shall cause:
 - 1.5.E.1.a. a distinct warbling sound to be emitted from the activated Subscriber or Maintenance Transmitter to confirm that an alarm signal has been sent. For Silent Alarm purposes, there shall be no sound emitted from a Security Transmitter when activated, and
 - 1.5.E.1.b. within three seconds, if enabled within the Application Software, nearby Alert Unit strobes [with integral sirens] along with sounders in any nearby Multiplex Receivers to be activated, and
 - 1.5.E.1.c. typically an auto-tracking feature to begin sending signals periodically to the Central Console to allow location tracking events (refer to Transmitter models for details), and
 - 1.5.E.1.c. the Central Console to display:
 - 1.5.E.1.c.1. the name of the individual to whom the Transmitter is assigned, and
 - 1.5.E.1.c.2. a map showing the calculated location from which the transmission was made, and
 - 1.5.E.1.c.3. any other pertinent information such as related medical information of the individual to whom the Transmitter is assigned, and
 - 1.5.E.1.d. an alarm entry to be made in the Central Console's computer database.
 - 1.5.E.2. A Test activation of the System shall cause full System operation verification. Visual feedback of a successful Test shall include:
 - 1.5.E.2.a. a small green light to flash on a nearby interior Multiplex Receiver, and/or
 - 1.5.E.2.b. the strobe to flash on a nearby exterior Alert Unit.
 - 1.5.E.3. Specific transmitter types will automatically transmit supervision messages periodically. These messages allow the system to verify the transmitter is functioning normally, the battery level is adequate and to locate a transmitter that is not in an alarm state.
- 1.5.F. Activated sirens and sounders shall be silenced and reset only by command from the Central Console.
- 1.5.G. Multiplex Receivers shall be located [on the grounds to be protected] [and] [within any buildings to be protected].
 - 1.5.G.1. To assure transmitted signal reception redundancy, Receivers shall be spaced close enough to assure activation of three or more Receivers on any alarm or test transmission within the protected area. For proper location, receivers must be spaced [300 feet outdoors] [91.5 meters outdoors] [or] [80 feet indoors] [24.5 meters indoors] from adjacent receivers.
 - 1.5.G.2. Specific mounting locations will be determined using sound engineering judgement and through the use of the manufacturer's Installation Guides.
- 1.5.H. Alert Units shall consist of two sections; a self-contained Strobe/Siren section and an Electronic Driver section.
 - 1.5.H.1. The Strobe/Siren section shall always be installed in outdoor locations.
 - 1.5.H.2. Specific mounting locations will be determined using sound engineering judgment and through the use of the manufacturer's Installation Guides.
- 1.5.I. Transponders shall be designed as device controllers for up to 64 devices, which shall be any combination of Multiplex Receivers and Alert Units.

- 1.5.I.1. Devices shall be connected to Transponders by means of eight Multiplex Busses. Each bus uses four wires, two for power and two for data. Each bus shall be capable of supporting up to eight devices.
- 1.5.I.2. Each Transponder shall communicate with the Central Console via [SE485 Data Bus] [or] [Spread Spectrum radio transmissions in the 902-928 MHz radio range].
- 1.5.I.3. The System shall support up to 255 Transponders.
- 1.5.J. The Central Console shall consist of one or more IBM [compatible] computers running the Security Escort(R) proprietary Application Software within a Microsoft Windows environment. One computer shall serve as the Main Controller for the entire System while the others shall serve as backup and remote workstations. The computers shall continually exchange information so that the backup computers are kept current.
- 1.5.K. The Application Software shall have provisions to automatically send pager messages containing the necessary Alarm information to roaming security personnel, and to send pager messages containing the necessary System trouble information to maintenance personnel.
- 1.5.L. The Application Software shall support remote computer communications permitting off-site System and Factory maintenance technicians to monitor problems, run System diagnostics, and modify System operating parameters.
- 1.5.M. The Contractor shall provide all power supplies, computers, peripheral devices and equipment required for a complete and operational System.

Part 2 - Products

2.1. Transmitters

Depending on the applications, there shall be three types of Transmitters available; Basic Duress Transmitter, Enhanced Duress Transmitter, and Point-Tracking Transmitter.

2.1.A. All Transmitters shall:

2.1.A.1. Upon activation, generate an Alarm transmission.

2.1.A.1.a. Each Alarm transmission shall consist of eight redundant packets, each packet to be 15 to 20 milli-seconds in length.

2.1.A.1.b. Each Alarm transmission shall consist of a unique digital code, which contains a User ID and battery status information.

2.1.A.2. Be capable of a minimum of 16 million different User Identification (ID) codes, one of which shall be programmed into the transmitter's digital code by the manufacturer. The digital code shall differentiate the specific transmitter as assigned to a User, Security or Maintenance personnel, or asset.

2.1.B. Basic Duress Transmitter.

2.1.B.1. Each Basic Duress Transmitter shall be a miniature, battery operated, hand-held radio transmitter designed for the purpose of transmitting both a Distress Alarm and a Test Signal. Radio transmissions shall occur in the 304Mhz band reserved for security applications.

2.1.B.2. Basic Duress Transmitters shall be packaged in a conveniently sized key-retainer type enclosure to encourage users to carry it on their person at all times. The enclosure shall be produced from U.L. Component Recognized material "Cyclac ABS" and shall measure approximately [2.7 inches long, by 1.5 inches wide, by 0.7 inches deep.] [6.8 cm long, by 3.8 cm wide, by 1.8 cm deep.] With transmitter circuitry and battery included, the package shall weigh approximately [1 ounce] [28 grams].

2.1.B.3. Basic Duress Transmitters shall be available in three types as follows:

2.1.B.3.a. User – designated with a "U" in the model number.

2.1.B.3.b. Security personnel – designated with an "S" in the model number.

2.1.B.3.c. System Maintenance personnel – designated with an "M" in the model number.

2.1.B.4. The Basic Duress Transmitter enclosure shall contain two activation buttons, one on either side of the enclosure.

2.1.B.4.a. The buttons shall be recessed to prevent accidental usage.

2.1.B.4.b. A digitally coded Alarm transmission shall be generated when the two buttons are pushed simultaneously. The Basic Duress Transmitter shall automatically repeat the Alarm transmissions every 8 seconds for 15 minutes after it is activated by the User.

2.1.B.4.c. A digitally coded Test transmission shall be generated when the two buttons are pressed in sequence.

2.1.B.4.c.1. The Basic Duress Transmitter shall be designed such that the user may press either button, release, then press the remaining button to activate a test transmission.

2.1.B.4.c.2. This transmission shall consist of four redundant packets.

2.1.B.5. The Basic Duress Transmitter shall produce a nominal 100 microwatt of power when activated, and shall require no special agency ([FCC] or [ACA]) radio license to operate.

- 2.1.B.6. The Basic Duress Transmitter shall be powered from a customer-replaceable Lithium battery.
 - 2.1.B.6.a. The design of the Basic Duress Transmitter shall assure a nominal battery life of four years including four test transmissions by the User each day.
- 2.1.B.7. The Transmitter shall be designed to operate within the temperature range of [-22 degrees F to +145 degrees F.] [-30 degrees C to +65 degrees C.]
- 2.1.B.8. MAKE: Bosch Security Systems [SE3U-304 User Transmitter] [SE3M-304 Maintenance Transmitter] [SE3S-304 Security Transmitter].
- 2.1.C. Enhanced Duress Transmitter.
 - 2.1.C.1. Each Enhanced Duress Transmitter shall be a miniature, battery operated, hand-held radio transmitter designed for the purpose of transmitting both a Distress Alarm and a Test Signal. Radio transmissions shall occur in the 304Mhz band reserved for security applications.
 - 2.1.C.2. Enhanced Duress Transmitters shall be packaged in a conveniently sized enclosure allowing users to carry it on a utility belt at all times. The enclosure shall be produced from U.L. Component Recognized material "Cyclocac ABS" and shall measure approximately [4 inches long, by 1.6 inches wide, by 0.8 inches deep.] [8.03 cm long, by 4.55 cm wide, by 1.70 cm deep.] With transmitter circuitry and battery included, the package shall weigh approximately [2.4 ounces] [68 grams].
 - 2.1.C.3. Enhanced Duress Transmitters shall be available in three types as follows:
 - 2.1.C.3.a. User – designated with a "U" in the model number.
 - 2.1.C.3.b. Security personnel – designated with an "S" in the model number.
 - 2.1.C.3.c. System Maintenance personnel – designated with an "M" in the model number.
 - 2.1.C.4. The Enhanced Duress Transmitter enclosure shall contain two activation buttons (alarm and test), one pull-switch (optional), supervision circuit, and tilt circuit.
 - 2.1.C.4.a. The buttons shall be recessed to prevent accidental usage.
 - 2.1.C.4.b. A digitally coded Alarm transmission shall be generated when the alarm button is pushed. The Enhanced Duress Transmitter shall automatically repeat the Alarm transmissions every 8 seconds for 15 minutes after it is activated by the User.
 - 2.1.C.4.c. A digitally coded Test transmission shall be generated when the test button and alarm button are simultaneously pressed.
 - 2.1.C.4.c.1. This transmission shall consist of four redundant packets.
 - 2.1.C.4.d. A digitally coded Alarm transmission shall be generated when the pull-switch is activated (optional/feature selectable).
 - 2.1.C.4.d.1. This shall consist of eight redundant packets.
 - 2.1.C.4.d.2. The Enhanced Duress Transmitter shall automatically repeat the Alarm transmissions every 8 seconds until corrected and then auto-tracks for 15 minutes.
 - 2.1.C.4.e. A Man-Down Alarm transmission shall be generated when Transmitter is tipped 60° from upright (feature selectable).
 - 2.1.C.4.e.1. This shall consist of eight redundant packets.
 - 2.1.C.4.e.2. The Enhanced Duress Transmitter shall automatically repeat the Alarm transmissions every 8 seconds until corrected and then auto-tracks for 15 minutes after last activated by the User.
 - 2.1.C.4.f. A supervision transmission shall be generated automatically (feature selectable).
 - 2.1.C.4.f.1. This transmission shall be silent.

- 2.1.C.4.f.2. Each transmission shall occur at a lower RF power than an Alarm transmission and shall consist of a unique digital code with contains a User ID and battery status information.
- 2.1.C.5. The Enhanced Duress Transmitter shall produce a nominal 100 microwatt of power when activated, and shall require no special agency ([FCC] or [ACA]) radio license to operate.
- 2.1.C.6. The Enhanced Duress Transmitter shall be powered from a customer replaceable Lithium battery.
 - 2.1.C.6.a. The design of the Enhanced Duress Transmitter shall assure a nominal battery life of four years including four test transmissions by the User each day.
- 2.1.C.7. The Enhanced Duress Transmitter shall be designed to operate within the temperature range of [-22 degrees F to +145 degrees F.] [-30 degrees C to +65 degrees C.]
- 2.1.C.8 MAKE: Bosch Security Systems [SE2U-304 User] [SE2M-304 Maintenance Transmitter] [SE2S-304 Security Transmitter] [SE2U-SN-304 Subscriber Man-Down Transmitter] [SE2S-SN-304 Security Man-Down Transmitter].
- 2.1.D. Point-Tracking Transmitter.
 - 2.1.D.1. Each Point Tracking Transmitter shall be a miniature, battery operated radio transmitter designed for the purpose of transmitting an Alarm Signal when moved away from its base. Radio transmissions shall occur in the 304Mhz band reserved for security applications.
 - 2.1.D.2. Point Tracking Transmitters shall be packaged in a conveniently sized enclosure that allows it to be attached to objects of almost any size. The enclosure shall be produced from U.L. Component Recognized material "Cycloc ABS" and shall measure approximately [3.25 inches long, by 1.4 inches wide, by 0.87 inches deep.] [8.25 cm long, by 3.5 cm wide, by 2.2 cm deep.] with mounting plate.
 - 2.1.D.3. The Point Tracking Transmitter shall provide two methods of activation (magnetic and/or supervised dry contacts).
 - 2.1.D.3.a. A digitally coded Alarm transmission shall be generated when the transmitter is moved away from its magnetic base, or if the dry contacts are separated.
 - 2.1.D.3.b. A digitally coded tamper transmission shall be generated when the transmitter's cover is opened (tamper switch). The Point Tracking Transmitter shall automatically repeat the Alarm transmissions every 8 seconds for 15 minutes after it is activated.
 - 2.1.D.3.c. A digitally coded Supervision transmission shall be generated every 65 minutes to provide location information and battery status.
 - 2.1.D.4. The Point Tracking Transmitter shall produce a nominal 100 micro-watt of peak power when activated, and shall require no special agency ([FCC] or [ACA]) radio license to operate.
 - 2.1.D.5. The Point Tracking Transmitter shall be powered from a customer replaceable Lithium battery.
 - 2.1.D.5.a. The design of the Point Tracking Transmitter shall assure a nominal battery life of four years including four sets of alarm and auto-tracking transmissions per day.
 - 2.1.D.6. The Point Tracking Transmitter shall be designed to operate within the temperature range of [-22 degrees F to +145 degrees F.] [-30 degrees C to +65 degrees C.]
 - 2.1.D.7 MAKE: Bosch Security Systems SE3401 Transmitter.

2.2. Multiplex Receivers

- 2.2.A. Multiplex Receivers shall be designed to detect and receive Alarm, Test, and supervisory transmissions from Personal Transmitters, and relay the information to the Transponders.
- 2.2.B. There shall be two versions of the Multiplex Receiver, indoors and outdoors. The Receivers shall differ only in the product housing, ability to display colored status lights, sounder operation and radio reception range.

- 2.2.B.1. The indoor enclosure shall be vandal resistant. The enclosure shall consist of a base plus screw mounted cover manufactured from General Electric Noryl, Grade FN-215, with dimensions of [9.0 inches high, by 7.0 inches wide, by 1.8 inches deep.] [22.9 cm high, by 17.8 cm wide, by 4.6 cm deep.] The cover shall mount to the base with four tamper-resistant screws held captive in the cover, and the cover shall contain two clear lenses for the exhibition of status lights, and a circular opening to permit an internal sounder to be heard.
- 2.2.B.2. The outdoor enclosure shall be weatherproof when assembled and shall consist of a base plus screw mounted cover manufactured from industrial-gray colored Structural Foam. Overall dimensions when assembled shall be [11.5 inches high, by 7.0 inches wide, by 4.4 inches deep.] [29.2 cm high, by 17.8 cm wide, by 11.2 cm deep.] The cover shall contain a weatherproofing gasket and mount to the base with four screws held captive in the cover.
- 2.2.C. Electronic circuitry for the Multiplex Receiver shall be constructed on a single piece, U. L. Component Recognized circuit board. Components on the circuit board shall include a red colored alarm status light, a green colored test-successful status light, a piezo-electric sounder capable of a minimum 85 dB output, and provisions to disable these components when installed in an outdoor enclosure. Status lights shall be Light Emitting Diodes (LEDs).
- 2.2.D. Each Multiplex Receiver circuit board shall also contain a tamper switch to detect the removal of the cover.
- 2.2.E. Each Multiplex Receiver shall be connected to a Transponder via an 18 AWG, fire rated 4-conductor cable.
 - 2.2.E.1. Solid, rather than stranded, conductor cabling shall be used.
 - 2.2.E.2. Outdoor cabling shall be [in conduit] [or] [direct burial], and shall not be strung overhead.
 - 2.2.E.3. There shall be a maximum of [3,000 feet] [900 meters] of cabling between each receiver and transponder.
 - 2.2.E.4. The cable shall act as a Multiplex Bus with two conductors dedicated to power, and two conductors dedicated to data exchange.
 - 2.2.E.5. Multiplex Receivers shall operate on 12 VDC, and draw a nominal 30 mADC in standby mode, and 60 mADC when the sounder and one status light are activated. Receivers shall draw all necessary power from the Transponder to which they are connected.
- 2.2.F. Each Multiplex Receiver shall identify itself to its Transponder through use of a binary Multiplex Address, which shall be set during installation using a multi-position switch installed on the Receiver's circuit board.
- 2.2.G. Each Multiplex Receiver shall contain radio receiver circuitry and two diversity antennas with auto-switching to detect the transmissions from Personal Transmitters, and microcomputers to decode and interpret the Test and Alarm signals. In addition, the microcomputers shall perform self-diagnostics and use an algorithm to perform error checking, and shall monitor the cover tamper switches. All events shall be reported to the Transponder over the data exchange bus.
- 2.2.H. Each Multiplex Receiver shall contain a test transmitter similar to a Personal Transmitter for maintenance purposes. The Central Console shall automatically activate the test transmitter several times a day to transmit a "Buddy Check" Test to nearby Multiplex Receivers to verify that the radio receiver sections of all Multiplex Receivers are functioning properly.
- 2.2.I. If enabled within the Application Software, any Multiplex Receiver installed in an indoor enclosure and receiving a radio transmission shall activate its sounder and turn on its red alarm status light within two seconds of a verified Subscriber Alarm transmission. Lights and sounders shall remain in operation until commanded off/silent by the Central Console.
- 2.2.J. Within two seconds of a verified Subscriber Test transmission, any Multiplex Receiver installed in an indoor enclosure and receiving the transmission shall flash its green indicator light for five seconds.
- 2.2.K. Multiplex Receivers shall be designed to operate within the temperature range of [-40 degrees F to +149 degrees F.] [-40 degrees C to +65 degrees C.]

- 2.2.L. MAKE: Bosch Security Systems EA102A-304 (receive electronics) [AE100 (Indoor housing)] [AE101 (Outdoor housing)].

2.3. Alert Units

- 2.3.A. Alert Units shall be designed to provide visual and audio indications of an emergency situation, and visual indications of a successful test of a Personal Transmitter.
- 2.3.B. Each Alert Unit shall consist of two parts, a self-contained Strobe/Siren section and an Electronic Driver section.
- 2.3.C. The Strobe/Siren section of the Alert Unit shall be designed for outdoor applications, and shall only be installed outdoors.
- 2.3.C.1. All circuitry and components shall be mounted in weatherproof enclosures.
- 2.3.C.2. A Xenon flash tube rated at 60,000 candlepower, and enclosed with a clear polycarbonate cover, shall provide the strobe effect. The flash rate shall be between 60 and 100 flashes per minute.
- 2.3.C.3. An audible "warble" tone shall be provided by a horn rated at a minimum of 105 dB at [10 feet] [3 meters].
- 2.3.C.4. The Strobe/Siren section shall draw all power from the Electronic Driver section.
- 2.3.C.5. The Strobe/Siren section shall be connected to the Electronic Driver section via an 18 AWG, fire rated 4-conductor cable.
- 2.3.C.5.a. Solid, rather than stranded, conductor cabling shall be used.
- 2.3.C.5.b. Outdoor cabling shall be [in conduit] [or] [direct burial] and shall not be strung overhead.
- 2.3.C.5.c. There shall be a maximum of [50 feet] [15 meters] of cabling between the Strobe/Siren and Electronic Driver sections.
- 2.3.C.6. The Strobe/Siren section shall be designed to operate within the temperature range of [-22 degrees F to +158 degrees F.] [-30 degrees C to +70 degrees C.]
- 2.3.D. Electronic circuitry for the Alert Unit shall be constructed on a single piece, U. L. Component Recognized circuit board.
- 2.3.E. The Alert Unit shall be connected to a Transponder via an 18 AWG, fire rated 4-conductor cable.
- 2.3.E.1. Solid, rather than stranded, conductor cabling shall be used.
- 2.3.E.2. Outdoor cabling shall be [in conduit] [or] [direct burial] and shall not be strung overhead.
- 2.3.E.3. There shall be a maximum of [3,000 feet] [900 meters] of cabling between each alert unit and transponder.
- 2.3.E.4. The cable shall act as a Multiplex Bus with two conductors dedicated to power, and two conductors dedicated to data exchange.
- 2.3.F. Each Alert Unit shall identify itself to its Transponder through use of a binary Multiplex Address, which shall be set during installation using a multi-position switch installed on the Driver's circuit board.
- 2.3.G. Power for the Alert Unit shall be provided by an 18 VAC, 50 VA transformer. The transformer shall be a UL Listed, Class 2, plug-in device. The Alert Unit shall provide all operating power for the complete Alert Unit.
- 2.3.H. The Alert Unit shall be designed to operate within the temperature range of [-40 degrees F to +149 degrees F.] [-40 degrees C to +65 degrees C.]
- 2.3.I. MAKE: Bosch Security Systems [EA120B and TR1850 transformer].

2.4. Transponders

- 2.4.A. Transponders shall be designed to monitor and control Multiplex Receivers and Alert Units, and to communicate Alarm, Test and Trouble information back to the Central Console.
- 2.4.B. There shall be two versions of Transponders, one that supports eight buses and one that supports one bus.
- 2.4.C. Electronic circuitry for the Transponder shall be constructed on a single-piece, UL Component Recognized circuit board.
- 2.4.D. There shall be a maximum of 255 Transponders in the System, and each Transponder shall be identified with a number from 1 to 255, which shall be set during installation using an 8-position switch installed on the circuit board.
- 2.4.E. Transponders shall be connected to Alert Units and Multiplex Receivers via an 18 AWG, fire rated 4-conductor cable.
 - 2.4.E.1. Each Multiplex Bus shall be capable of supporting up to eight Alert Units and/or Multiplex Receivers in any combination.
 - 2.4.E.2. Transponders shall be capable of supporting up to eight Multiplex Busses for a total of 64 Alert Units and/or Multiplex Receivers or one Multiplex Bus for a total of eight Alert Units and/or Multiplex Receivers in any combination.
 - 2.4.E.3. Each bus shall be automatically numbered from 0 to 7 depending on the bus terminals on the circuit board to which they are connected.
- 2.4.F. Transponders shall communicate on the data exchange wiring with individual Alert Units and Multiplex Receivers by issuing commands, which contain the Receiver or Unit's binary Multiplex Address. As a given Transponder may have up to eight devices connected to it with the same binary Multiplex Address, the complete identification of a particular device shall include the Transponder Identification number, the bus number, and its binary Multiplex Address.
- 2.4.G. Transponders shall poll each connected Alert Unit and Multiplex Receiver for a status check ten times each second.
 - 2.4.G.1. In the event one or more Multiplex Receivers receive an Alarm transmission, the Transponder shall collect the Transmitter Identification code and signal strength information from each affected Receiver and shall verify data validity by utilizing error-checking algorithms.
 - 2.4.G.1.a. Any Alarm data messages failing the error-checking algorithm tests shall be ignored.
 - 2.4.G.1.a.1. If the data is valid and is a User Alarm, the Transponder shall select up to 15 Receivers based on signal strength, and command those Receivers to activate their sounders and red alarm status lights.
 - 2.4.G.1.a.2. If the data is valid and is a Maintenance Alarm, the Transponder shall select up to 15 Receivers based on signal strength and turn on a red alarm light for a short time.
 - 2.4.G.1.a.3. If the data is valid and is a Security Alarm, the Transponder shall select up to 15 Receivers based on signal strength.
 - 2.4.G.1.b. The Transponder shall then relay to the Central Console the Transmitter Identification code, the transmitter's battery condition, and the signal strength information and Address of each selected Receiver.
 - 2.4.G.2. In the event one or more Multiplex Receivers receive a Test transmission, the Transponder shall collect signal strength information from each affected Receiver and shall verify data validity by utilizing error-checking algorithms.
 - 2.4.G.2.a. Any Test data messages failing the error-checking algorithm tests shall be ignored.
 - 2.4.G.2.b. If the data is valid, the Transponder shall select up to 15 Receivers based on signal strength.

- 2.4.G.2.c. The Transponder shall then relay to the Central Console the Transmitter Identification code, the transmitter's battery condition, and the signal strength information and Address of each selected Receiver.
- 2.4.G.3. The Transponder shall also relay to the Central Console any Trouble events such as a tamper Alarm, loss of AC power, receiver jamming or not responding, bus fault, or low battery.
- 2.4.H. Transponders shall communicate with the Central Console via [SE485 Data Bus cabling] [or] [a 2-Way Spread Spectrum Radio Data Link]. [The SE485 Data Bus shall be set up for 9600 baud, full-duplex transmission.]
 - 2.4.H.1. Transponders shall send a message to the Central Console at least every minute.
 - 2.4.H.2. If there is no Test, Alarm or Trouble message sent within a minute, the Transponder shall automatically send an "I'M OK" message, which shall be acknowledged by the Central Console's computer.
 - 2.4.H.3. If a Transponder determines that it has lost communications with the Central Console because its messages are not being acknowledged, it shall assume control of the sounders and lights of the Multiplex Receivers and Alert Units connected to it, and shall begin to send "I'M OK" messages every minute until acknowledged by the Central Console.
 - 2.4.H.4. If the Transponder receives an Alarm message from one or more of its Receivers during a loss of communications with the Central Console, it shall treat all such alarms as valid alarms. Further, the Transponder shall activate all Alert Units attached to it, and shall activate the sounders and red alarm status lights of all connected Receivers that detected the Alarm transmission, for four minutes.
 - 2.4.H.5. Transponders shall retain control of their Receivers and Alert Units until communications with the Central Console has been established, and the Transponder has received a "Release Control" command from the Central Console. On receipt of the command, the Transponder shall send any Alarm and Trouble messages to the Central Console that were stored during the loss of communications, and shall relinquish control of its Alert Units, and the sounders and red alarm status lights of its Receivers, to the Central Control.
- 2.4.I. Power for the Transponder section shall be provided by an 18 VAC, 50 VA transformer. The transformer shall be a UL Listed, Class 2, plug-in device.
- 2.4.J. Transponders shall be designed to operate within the temperature range of [-40 degrees F to +149 degrees F.] [-40 degrees C to +65 degrees C.]
- 2.4.K. MAKE: Bosch Security Systems [EA500B (8-bus, 64 points), EA501B (1-bus, 8 points), and TR1850 transformer].

2.5. Enclosures

- 2.5.A. The electronic components shall be housed in two types of indoor enclosures, large and small.
 - 2.5.A.1. The small indoor enclosure and cover shall be manufactured from painted 20 Ga., cold-rolled steel and shall measure [12.5 inches wide, by 14.5 inches high, by 3.375 inches deep] [32.0 cm wide, by 37.3 cm high, by 8.8 cm deep] when the cover is closed.
 - 2.5.A.1.a. The cover shall secure to the enclosure using a keyed lock.
 - 2.5.A.1.b. The enclosure shall allow an optional tamper switch to detect the opening of the cover or its removal from a wall.
 - 2.5.A.1.c. The enclosure shall have provisions for housing one or two 12 volt, 7 amp-hour batteries as needed. If two batteries are used, they shall be wired in parallel to provide 14 amp-hours of standby battery capacity.
 - 2.5.A.2. The large indoor enclosure shall be manufactured from painted 20 Ga., cold-rolled steel and shall measure [15 inches wide, by 4.25 inches deep, by 14.5 inches high] [38 cm wide, by 10.8 cm deep, by 36.8 cm high].
 - 2.5.A.2.a. The cover shall secure to the enclosure using a keyed lock.

- 2.5.A.1.b. The enclosure shall allow an optional tamper switch to detect the opening of the cover or its removal from a wall.
- 2.5.A.2.c. The enclosure shall have provisions for housing one or two 12 volt, [7 amp-hour] [17 amp-hour] batteries as needed. If two batteries are used, they shall be wired in parallel to provide [14 amp-hours] [34 amp-hours] of standby battery capacity.
- 2.5.B. MAKE: Bosch Security Systems [AE1 (Small), AE3 (Large)]

2.6. Central Console

- 2.6.A. The Central Console shall be the primary human interface to the System, shall be located indoors in a climate controlled environment, and shall be manned 24 hours a day by qualified Operators [of the Security Department].
- 2.6.B. The Console shall consist of one or more desktop computers and monitors, a printer, and backup power.
- 2.6.C. The computers shall be IBM [compatible].
 - 2.6.C.1. Minimum requirements for each computer shall be:
 - 2.6.C.1.a. Pentium or Pentium II class processor, 200MHz or faster
 - 2.6.C.1.b. Microsoft Windows 95, Windows 98 or Windows NT
 - 2.6.C.1.c. Any Windows compatible sound system. One set of computer speakers per computer.
 - 2.6.C.1.d. 16 Megabytes of RAM minimum, 32 Megabytes preferred, in Windows 95 or Windows 98. Windows NT systems should have 32 Megabytes of Ram.
 - 2.6.C.1.e. 1 Gigabyte of Hard Disk Space should be available to allow collection of historical data.
 - 2.6.C.1.f. External backup drive, such as a Iomega or SyQuest Cartridge Hard Disk for backup and history storage.
 - 2.6.C.1.g. VGA (640x480) at 256 colors minimum, 800x600 High color (16 bits) recommended, 1024x768 High color supported. True color (24 bits) is also supported. If displaying subscriber images, High color (16 bits) or true color (24 bits) should be used.
 - 2.6.C.1.h. Modem: Optional V.32bis (14.4), V.34 (33.8), or V.90 (56.6) modem for remote access and pager dial-out. If modem is external an additional serial port is required.
 - 2.6.C.2. Each computer shall be powered from a 120 VAC power source, and each shall be connected to its own 900 VA (minimum) Uninterruptable Power Source (UPS) for backup power. [Each UPS shall be backed up by an emergency 120 VAC generator supplied by the Owner and which may be shared with other equipment.]
 - 2.6.C.3. One computer shall be designated as the Main Controller for the entire System, and the other computers shall serve as real-time backups and remote workstations.
 - 2.6.C.3.a. The designation of "master" and "slave" shall be accomplished by the manual positioning of "A/B" data transfer switches.
 - 2.6.C.3.a.1. Up to a total of four sets of incoming/out-going [RS485 Data Bus cabling] [plus] [2-Way Radio Data Link cabling] shall be connected to the common pole of an "A/B" switch with one set of cabling per switch.
 - 2.6.C.3.a.2. The Serial Ports of one computer shall all be connected to the "A" side set of contacts, and the Serial Ports of the other computer shall all be connected to the "B" side set of contacts.
 - 2.6.C.3.a.3. With all of the switches set to the "A" position, the "A" computer is connected to the incoming/outgoing cabling and becomes the Main Controller, and the "B" computer becomes the backup. The reverse shall happen when all of the switches are set to the "B" position.

- 2.6.C.3.b. Cabling shall also be installed between the two computers for real-time data exchange.
 - 2.6.C.3.c. The Security Escort(R) Application Software shall differentiate which computer has been designated as the Main Controller and is exchanging data with the Transponders.
 - 2.6.C.3.d. After data exchange between the Main Controller and transponders has been completed, the software shall cause the backup computer to be updated.
 - 2.6.C.3.e. The Application Software shall also cause the computers to continually exchange information to test that their records are current. This shall be done as a background task.
- 2.6.D. The computers shall contain the primary databases for the System.
- 2.6.D.1. A Subscriber Database linking the name of the User, User Classification (i.e., Maintenance, Student, Resident, Security, Employee, etc.), Personal Transmitter Identification Number assigned to the User, [campus] [work area] [department] and home addresses, emergency phone numbers, current status, Personal Transmitter battery status, last Test date and time, and any special text information associated with the User such as a handicap or special needs.
 - 2.6.D.2. An Operator Database linking passwords and the names of those individuals authorized to work on, add, delete, change and/or otherwise modify the System in any way, with their Authority Level to do so.
 - 2.6.D.3. A Transponder, Multiplex Receiver, and Alert Unit Database linking each device with its location and identification number.
 - 2.6.D.4. A Reports Database containing all of the Alarm reports created within the System [and completed by Security personnel].
 - 2.6.D.4.a. Each Alarm shall be saved as a Record within the database.
 - 2.6.D.4.b. Each Record shall contain the identity of the person the Personal Transmitter was issued to, Transmitter ID number, time and date of the Alarm, time and date of the Acknowledge, time and date of the Silence, the responding [officer] [security officer], the action taken, the ID of the Operator acknowledging the Alarm, the ID of the last Operator to modify the Report, and information that will allow a re-construction of the Alarm Screen including Alarm location.
 - 2.6.D.5. A History Database of all System actions, tests and alarms showing the time and date of each event.
- 2.6.E. The Main Controller shall be responsible for receiving Alarm messages from the Transponders, and recording Alarm events on a printer.
- 2.6.E.1. On receiving an Alarm message, the Main Controller shall search the Subscriber Database for a match to the Transmitter's ID number, and shall activate the Central Console's sounder to alert the Central Console's Operator of an Alarm transmission.
 - 2.6.E.2. If the Transmitter ID number has not been recorded or has been disabled by prior selection of this option in the Subscriber Database, the Main Controller shall acknowledge the Alarm message and, if selected within the Application Software, shall display a popup "Unauthorized transmitter" Alert on the Central Console monitor and/or shall command the Transponder to turn off any activated Multiplex Receiver sounders and red alarm status lights.
 - 2.6.E.3. If the Transmitter ID number is valid and enabled, the Main Controller shall acknowledge the message and command the Transponder as follows:
 - 2.6.E.3.a. Subscriber Alarm - turn on the appropriate Alert Units if selected within the Application Software.
 - 2.6.E.3.b. Maintenance Alarm - issue no commands.

- 2.6.E.3.c. Security Alarm - turn on any activated Multiplex Receiver sounders and red alarm status lights if selected within the Application Software.
- 2.6.E.4. The Main Controller shall compute the most probable location of the Alarm by analyzing the Multiplex Receiver locations and relative signal strengths as reported by the Transponders involved in the event.
- 2.6.E.5. The Main Controller shall revise a present Alarm Screen or replace any other displayed screen with an Alarm Screen on the computer's monitor showing the words "Active Alarm" across the top of the screen followed by the real-time time and date, and shall display a graphical map of the protected [grounds] [or] [building] on the computer's monitor, centered on the computed location, and shall display the Alarm conditions.
 - 2.6.E.5.a. The map shall occupy the top half of the monitor screen and the computer shall graphically indicate the computed location of the Alarm on the map with a yellow circle, and a circle containing a number indicating the floor of the building.
 - 2.6.E.5.b. The Alarm conditions shall occupy the lower half of the monitor screen and shall display the following:
 - 2.6.E.5.b.1. The message, "Alarms are Sounding" if the alarms are not Silent Alarms.
 - 2.6.E.5.b.2. The Subscriber or Security Officer's name or object description.
 - 2.6.E.5.b.3. [Local address.] [Department.] [Work area.]
 - 2.6.E.5.b.4. Emergency phone number.
 - 2.6.E.5.b.5. User ID number.
 - 2.6.E.5.b.6. Handicap, medical or other special needs.
 - 2.6.E.5.b.7. User Classification.
 - 2.6.E.5.b.8. A text-based description of the computed Alarm location. This information shall be displayed against a white background except it shall be displayed against a yellow background for Security Alarms.
 - 2.6.E.5.b.9. An Active Alarm box showing a list of all current Active Alarms.
 - 2.6.E.5.b.9.a. Each Active Alarm shall be identified by the Subscriber's and/or Security Officer's name or object description.
 - 2.6.E.5.b.9.b. To identify the Alarm conditions showing on the screen, the corresponding name in the Active Alarm box shall be highlighted in yellow.
 - 2.6.E.5.b.9.c. The Operator shall be able to view and monitor the Alarm conditions of each active Alarm by "clicking" on the name in the Active Alarm box using a mouse-driven cursor and, thereby, highlighting the name.
 - 2.6.E.5.c. In the event the user of the Personal Transmitter moves and re-transmits another Alarm, or when the Personal Transmitter automatically re-transmits the Alarm, the Alarm Screen shall re-refresh to show the new location and Alarm conditions.
 - 2.6.E.5.d. The Alarm Screen shall provide the Operator with an "Acknowledge" option which shall turn off the Central Console's local sounder, but shall not affect any other sounder, siren or strobe in the System.
 - 2.6.E.5.e. The Alarm Screen shall then permit the Operator to manually silence the Alarm.
 - 2.6.E.5.e.1. The action shall require the Operator to enter a password for a record of who silenced the alarm and making sure only authorized individuals can silence alarms.
 - 2.6.E.5.e.2. If the Operator fails to manually silence the alarm, the alarm shall be automatically silenced after the time period set in the Application Software within the range of 0 to 9,999 seconds.

- 2.6.E.5.e.3. Upon activating the silence command, the Main Screen's message of "Alarms are Sounding", if displayed, shall change to "Alarms have been Silenced", and the Central Console's Main Controller shall command the affected Transponders to turn off all sounders, sirens and strobes in the system.
- 2.6.E.5.f. The Alarm Screen shall then provide the Operator with a "Reset" option when there is no longer a need to display present Alarm information.
 - 2.6.E.5.f.1. Upon activation of the Reset, the Alarm Screen shall be replaced with a Normal Operating Screen if there are no other on-going alarms, or the Alarm Screen shall be revised to show the information only from any other on-going alarms, and
 - 2.6.E.5.f.2. if selected within the Application Software, the Operator shall be prompted to enter Alarm response data into the Reports database, and
 - 2.6.E.5.f.3. if selected within the Application Software, a complete Alarm Report as configured within the Application Software shall be sent to the printer.
- 2.6.F. The Main Controller shall be responsible for receiving Personal Transmitter Test messages from the Transponders.
 - 2.6.F.1. On receiving a Test message, the Main Controller shall search the Subscriber Database for a match to the Transmitter's ID number.
 - 2.6.F.2. The Main Controller shall then verify that the battery condition is within acceptable limits.
 - 2.6.F.3. If the Transmitter ID number has not been recorded or has been disabled by prior selection of this option in the Subscriber Database, the Main Controller shall acknowledge the Test message, but shall issue no commands to activate any visual indicators. The Test transmission shall be considered as failed.
 - 2.6.F.4. If the Transmitter ID number is enabled and valid, the main controller shall acknowledge the message and command the Transponder to flash enabled green test-successful status lights of any affected Multiplex Receivers and the strobes of any affected Alert Units for a time period selected in the Application Software. The Test transmission shall be considered successful.
 - 2.6.F.5. The Main Controller shall remove any previous Test icons showing on a Normal Operating Screen, and shall display Test icons of the present Test indicating the location of the Receivers that detected the Test transmission.
 - 2.6.F.5.a. The Test icons shall only display on a Normal Operating Screen, and shall affect no other screens.
 - 2.6.F.5.b. If the Test was successful, green "OK" icons will be displayed.
 - 2.6.F.5.c. If the Test failed, purple "fail" icons will be displayed.
 - 2.6.F.5.d. The icons shall remain on the screen until replaced by the next Test.
 - 2.6.F.5.e. The Screen shall not show the identity of the person conducting the Test.
 - 2.6.F.6. The Main Controller shall record each successful Subscriber Test transmission in the Subscriber database along with the time and date of the Test, and the battery condition.
 - 2.6.F.7. There shall be an option in the Application Software to send information on Test transmissions to the printer, which shall include the identity of the person the Transmitter was assigned to, along with the date and time of the Test.
 - 2.6.F.8. The Main Controller shall also be capable of receiving a daily "Guard's Tour" by sending information to a disk file on the identity of the person the Transmitter was assigned to, along with the date, time and location of the closest Multiplex Receiver.
- 2.6.G. The Main Controller shall be responsible for receiving Trouble messages from the Transponders. Typical of these messages shall be tamper alarm, loss of power, low battery, bus faults, output device errors, bad checksum, and receiver jamming.

- 2.6.G.1. On receiving a Trouble message, the Main Controller shall momentarily activate the Central Console's local sounder, and then display an appropriate pop-up Trouble Alert on its monitor.
- 2.6.G.2. Trouble Alerts shall display on all screens except Alarm screens.
- 2.6.G.3. These Alerts shall provide a brief description of the trouble, the identity and type of equipment involved, the time and date the trouble occurred, response instructions, and emergency contact information. The trouble description shall be displayed against a white background.
- 2.6.G.4. Each Trouble Alert shall provide the Operator with a Cancel option, which shall remove the Trouble Alert from the monitor and replace it with a one-line, reminder banner message.
 - 2.6.G.4.a. The reminder shall be black lettering on a yellow background.
 - 2.6.G.4.b. The reminder shall remain on the Normal Operating Screen until the problem has been resolved.
- 2.6.G.5. During the time the Trouble Alert is on the screen, the Main Controller shall momentarily activate the Central Console's local sounder once a minute.
- 2.6.G.6. When the problem has been resolved, the Main Controller shall display a pop-up Restored Alert
 - 2.6.G.6.a. The Restored Alert shall be the same as the Trouble Alert except the trouble description against a yellow background shall be replaced with a restore message against a green background
 - 2.6.G.6.b. Each Restored Alert shall provide the Operator with a Cancel option which, when selected, shall remove both the Restored Alert and trouble reminder from the screen.
- 2.6.H. If the Central Console receives no message from a Transponder after a one-minute time period, the Central Console shall command the Transponder to send a message.
 - 2.6.H.1. The Central Console shall send this command every ten seconds for a total of seven times, or until it receives a message from the Transponder.
 - 2.6.H.2. If there is no reply from the Transponder after the seventh command, the Central Console shall display a "Communications Failure" warning on its monitor, and shall continue to command a message from the Transponder.
 - 2.6.H.3. When the Central Console detects a valid response from a Transponder after a loss of communications, the Central Console shall send a "Release Control" command to the Transponder and resume control of the Transponder's Alert Units and its Receivers' status lights and sounders.
- 2.6.I. The Application Software shall assure that the Backup computer is kept up-to-date in real time so that the Backup computer is available to assume System control without delay.
- 2.6.J. The Application Software shall permit the Main Controller, Backup and Remote computers to be used for Administrative functions such as adding, deleting, changing or otherwise modifying databases, or performing routine system tests.

2.7. Application Software

- 2.7.A. The System's Application Software shall be proprietary software specifically written for the System, and shall be written and designed to require little or no computer literacy on the part of the Operator.
- 2.7.B. The Software shall allow the Operator to perform all of the functions necessary to dispatch aid in the event of an Alarm transmission, and to monitor the progress of Alarms and Tests.
- 2.7.C. The Software shall present the Operator with a Graphical User's Interface (GUI) at all times, and shall permit the use of a "Mouse" for on-screen cursor control.
- 2.7.D. The Software shall, wherever possible, permit the Operator to issue a computer command by "clicking" on a GUI generated "button", or by using a single specified key on the keyboard.

- 2.7.E. The Application Software shall automatically write to the appropriate databases any Alarm and Test times, dates, Transmitter ID numbers, and any other data as called for by the particular database.
- 2.7.F. The Software shall allow access to the databases for the purposes of viewing, adding, deleting, changing or otherwise modifying the data contained in the database.
 - 2.7.F.1. Database access shall be restricted to personnel contained in the Operator's database.
 - 2.7.F.2. Database access shall further be restricted by the Authority Level assigned to the personnel in the Operator's database.
 - 2.7.F.3. Authority Levels shall be controlled only by [the Director of Security] [and] [the Chief Security Officer] [and] [the Key Operator].
- 2.7.G. MAKE: Security Escort(R) System Application Software, Revision level 2.00 or later.

2.8. Display Screens

- 2.8.A. The Software, through the construction and display of Screens on the Central Console's computer monitor, shall allow the Operator and Application Software Maintenance personnel to interact with and/or modify the Software and related databases. Screens not elsewhere detailed in this Document are detailed in this section.
- 2.8.B. A "No Alarms Screen" shall provide the Operator with a [portion of the] map of the System's coverage area.
 - 2.8.B.1. The Screen may also be referred to as a "Normal Operating Screen."
 - 2.8.B.2. The Screen shall only display when there are no active Alarms in the System.
 - 2.8.B.3. If not fully contained on the screen, the map shall be scrollable to show any region of the System's total coverage area. The Software shall allow the Operator to place the mouse-driven cursor anywhere on the map display and, by pressing a button on the mouse, cause that point on the map to be centered on the screen.
 - 2.8.B.4. The words, "No alarms" shall be displayed across the top of the screen followed by the current time and date.
 - 2.8.B.5. If so selected in "Security Preferences", icons labeled "OK" and "fail" shall display on the screen representing Receivers that have received a Test transmission from an authorized Personal Transmitter. These icons shall clear and be replaced on the next Personal Transmitter test.
- 2.8.C. A Menu Bar across the top of the Normal Operating Screen shall permit the operator to access all computer system functions by use of drop-down menus titled, "File", "Utilities", "Logout", "Setup", "About", "Printer", and "Network".
 - 2.8.C.1. Higher Authority Levels shall be required to access some of the functions. Functions not available to the Operator due to an insufficient Authority Level shall be shown in gray printing.
 - 2.8.C.2. When an Operator enters his or her password in a pop-up "Password" dialog box (logs in), any Central Console activities subsequently performed shall be associated with that Operator in the System history files until the Operator logs out using the "Logout" menu from the Menu Bar.
 - 2.8.C.3. The "File" menu from the Menu Bar shall provide the Operator with access to the main databases for the System, and shall permit Personal Transmitter information to be viewed and/or modified.
 - 2.8.C.3.a. When "Locate Transmitters" is chosen from the File menu, a "Locate Transmitters" screen shall be displayed over the top portion of the Normal Operating Screen.
 - 2.8.C.3.a.1. The Locate Transmitters screen shall have a scrollable box listing the supervised transmitters by subscriber name.

- 2.8.C.3.a.2. Selecting a subscriber name will display the last reported position of that subscriber and display the time the last supervision message was received.
- 2.8.C.3.b. When "Maintenance alarm database" is chosen from the File menu, a "Display Maintenance Alarms" screen shall be displayed over the top portion of the Normal Operating Screen.
 - 2.8.C.3.b.1. The Display Maintenance Alarms screen shall have a scrollable Alarm box listing the most recent 50 Maintenance Alarms by Transmitter ID number, the time of the Alarm in 24 hour HH:MM:SS format, and the day of the week.
 - 2.8.C.3.b.2. The exposed portion of the Normal Operating Screen shall display icons representing the location of all of the Multiplex Receivers that reported the Alarm, up to a total of 15 per Transponder, based on signal strength. The icons shall include [a numerical indication of the signal strength at that location on a scale of 0 - 15] [or] [the building's floor number].
 - 2.8.C.3.b.3. To identify the Maintenance Alarm conditions showing on the screen, the corresponding Alarm in the scrollable Alarm box shall be highlighted.
 - 2.8.C.3.b.4. The Operator shall be able to view the conditions of each Alarm by using the up and down arrow keys or "clicking" on the Alarm in the Alarm box using a mouse-driven cursor and, thereby, highlighting the Alarm. When a new Alarm is highlighted, the Normal Operating Screen will refresh to show the locations and related signal strengths of the Receivers involved in the newly chosen Alarm
 - 2.8.C.3.b.5. The Display Maintenance Alarms screen shall also text-list the location of the Alarm.
 - 2.8.C.3.b.6. The Display Maintenance Alarms screen shall provide a button labeled "Cancel" which, when selected, shall remove the Display Maintenance Alarms screen from the display, and refresh and display the Normal Operating Screen
- 2.8.C.3.c. When "Operator database" is chosen from the File menu, a "Find Operator" screen shall be displayed. This screen shall be used to view data in the Operator Database for each Central Console Operator assigned to the System
 - 2.8.C.3.c.1. The Find Operator screen shall list the Authority Level, Operator ID number, Name, Home Address, Home Phone, the initial date the operator's data was entered in the database, the last date the data for the operator was modified in the database, the Operator ID number of the Operator who modified the data, and any special Notes particular to the selected operator, for one operator at a time
 - 2.8.C.3.c.2. The Find Operator screen shall permit the Operator to scroll through the Operator Database by "clicking" on a GUI generated "button", or by using a single specified key on the keyboard
 - 2.8.C.3.c.2.a. A button labeled "Beginning" shall, if selected, allow the Operator to view the data of the first operator in the primary or sorted database
 - 2.8.C.3.c.2.b. A button labeled "Previous" shall, if selected, allow the Operator to view the data of the operator that exists just prior to one presently being viewed
 - 2.8.C.3.c.2.c. A button labeled "Next" shall, if selected, allow the Operator to view the data of the operator that exists just after the one presently being viewed
 - 2.8.C.3.c.2.d. A button labeled "End of File" shall, if selected, allow the Operator to view the data of the last operator in the primary or sorted database
 - 2.8.C.3.c.3. The Find Operator screen shall permit the Operator to search, sort, add, delete and/or otherwise modify data within the database by "clicking" on a "button"

- 2.8.C.3.c.3.a. A button labeled "Insert New" shall, if elected, display a blank "Edit Operator Information" screen which shall allow the Operator to enter the Password, Authority Level, Operator ID number, Name, Home Address, Home Phone, and any special Notes particular to a new operator. The Edit Operator screen shall provide the Operator with a "Save" button which, if selected, shall store all of the information in the Operator Database along with the date the data was entered and the Operator ID of the Operator making the change, and return the display to the Find Operator screen. The Edit Operator screen shall also provide the Operator with a "Cancel" button which, if selected, shall cause a pop-up Caution alert requiring the Operator to verify that the information is to be entered into the Operator Database, and the display to return to the Find Operator screen, by choosing a "Yes" option, or; the Operator Database is to remain unchanged, and the display to return to the Find Operator screen, by choosing a "No" option, or; the Operator Database is to remain unchanged, and the display to return to the Edit Operator Information screen by choosing a "Cancel" option
- 2.8.C.3.c.3.b. A button labeled "Edit Data" shall, if selected, display a completed "Edit Operator Information" screen for the operator selected in the Operator Database. All of the data for the selected operator shall appear on the screen except for the operator's Password and Password Verify, which shall show as asterisks. The Operator, if he/she has the Authority to do so, shall be able to make changes to any of the data shown. To eliminate chance of error, the Password and Password Verify entries must be keystroke identical before the computer will accept them. The Edit Operator screen shall provide the Operator with "Cancel" and "Save" buttons as previously explained.
- 2.8.C.3.c.3.c. A button labeled "Delete" shall, if selected, allow the Operator to delete all of the selected operator's data from the Operator Database. Choosing the Delete button shall cause a pop-up Caution alert requiring the Operator to verify that the information is to be deleted from the Operator Database, and the display to return to the Find Operator screen, by choosing a "Yes" option, or; the Operator Database is to remain unchanged, and the display to return to the Find Operator screen, by choosing a "No" option.
- 2.8.C.3.c.3.d. A button labeled "Locate Key" shall, if selected, provide the Operator with a "Locate Operator" dialog box permitting the Operator to quickly locate an operator and display the operator's data by entering the operator's Name, Authority Level, User ID number, or Password. The Locate Operator screen shall also contain a "Find" button, and a "Cancel" button. Choosing the Find button shall cause the database to be searched for the selected entry, and the display to return to the Find Operator screen with the selected operator's data displayed or, if an exact match cannot be found, the operator's data of the closest match shall be displayed. Choosing the Cancel button shall cause the display to return to the Find Operator screen.

- 2.8.C.3.c.3.e. A "Key Select" button shall provide the Operator with a means of temporarily sorting the database. Choosing the Key Select button shall cause a pop-up "Select Search Key" screen allowing the Operator the choice of sorting the database by operator Name, Authority Level, or Operator ID. The Select Search Key screen shall also contain a "Select" button, and a "Cancel" button. Choosing the Select button shall cause the database to be sorted by the selected choice, and the display to return to the Find Operator screen with the selected database field highlighted in yellow. Choosing the Cancel button shall have no effect on the database, and the display shall return to the Find Operator screen.
- 2.8.C.3.c.3.f. A "Print" button shall allow the Operator to send the entire operator database to the System printer.
- 2.8.C.3.c.3.g. A "Cancel" button shall replace the Find Operator Screen with a Normal Operating Screen
- 2.8.C.3.d. When "Reports database" is chosen from the File menu, a "Find Alarm Report" screen shall be displayed. This screen shall be used to view data for each Alarm Report in the Reports database
 - 2.8.C.3.d.1. The Find Alarm Report screen shall list the name, address, phone, and the Subscriber ID number and classification of the Subscriber or Security Officer to whom the Transmitter was assigned. The screen shall also include the Alarm time and date to the closest second, the Acknowledge time and date to the closest second, the Silence time and date to the closest second, and the Operator ID numbers of the Operator making the last change to the Report, and the Operator silencing the Alarm.
 - 2.8.C.3.d.2. The Find Alarm Report screen shall also show the name of the officer responding to the Alarm, the type of problem, a description of the problem, and any action taken.
 - 2.8.C.3.d.3. The Find Alarm Report screen shall permit the Operator to scroll through the Reports Database by "clicking" on a GUI generated "button", or by using a single specified key on the keyboard.
 - 2.8.C.3.d.3.a. A button labeled "Beginning" shall allow the Operator to view the data of the first Alarm report in the primary or sorted database.
 - 2.8.C.3.d.3.b. A button labeled "Previous" shall allow the Operator to view the data of the Alarm report that exists just prior to one presently being viewed.
 - 2.8.C.3.d.3.c. A button labeled "Incomplete" shall allow the Operator to view any incomplete Alarm reports.
 - 2.8.C.3.d.3.d. A button labeled "Next" shall allow the Operator to view the data of the Alarm report that exists just after the one presently being viewed.
 - 2.8.C.3.d.3.e. A button labeled "End of File" shall allow the Operator to view the data of the last Alarm report in the primary or sorted database.
 - 2.8.C.3.d.4. The Find Alarm Report screen shall permit the Operator to search, sort, add, delete and/or otherwise modify data within the database by selecting a "button."

- 2.8.C.3.d.4.a. A button labeled "Map" shall replace the present screen with a copy of the Alarm Screen map captured and stored in the Reports database at the time of the Alarm. The map shall occupy the top half of the monitor screen and the basic Alarm conditions shall occupy the bottom half of the monitor screen. The Alarm conditions listed shall be the Subscriber's or Security Officer's name, address, phone number, ID number, and classification. A text-based description of the computed Alarm location is included, as well as the date and time of the Alarm. A "Cancel" button shall also be provided which shall replace the Alarm Screen with Find Alarm Report screen.
- 2.8.C.3.d.4.b. A button labeled "Edit Data" shall display a completed "Edit Alarm Report Information" screen for the Alarm report selected in the Reports database. All of the data for the selected report shall appear on the screen. The Operator, if he/she has the authority to do so, shall be able to make changes to any of the data shown. The Edit Alarm Report screen shall provide the Operator with "Save" and "Cancel" buttons. Choosing the Save button shall cause any changes to be saved to the database, and the monitor to return to the Find Alarm Report screen. Choosing the Cancel button shall cause a pop-up Caution alert requiring the Operator to verify that changes are to be entered into the Reports database, and the display to return to the Find Alarm Report screen, by choosing a "Yes" option, or; the Reports database is to remain unchanged, and the display to return to the Find Alarm Report screen, by choosing a "No" option, or; the Reports database is to remain unchanged, and the display to return to the Edit Alarm Report Information screen by choosing a "Cancel" option.
- 2.8.C.3.d.4.c. A button labeled "Delete" shall allow the Operator to delete all of the selected Alarm report's data from the Reports Database. Choosing the Delete button shall cause a pop-up Caution alert requiring the Operator to verify that the information is to be deleted from the Reports database, and the display to return to the Find Alarm Report screen, by choosing a "Yes" option, or; the Reports database is to remain unchanged, and the display to return to the Find Alarm Report screen, by choosing a "No" option.
- 2.8.C.3.d.4.d. A button labeled "Locate Key" shall provide the Operator with a "Locate Alarm" dialog box permitting the Operator to quickly locate an Alarm report and display the report's data by entering the Subscriber's or Security Officer's Name, Transmitter ID number, Subscriber's or Security Officer's ID number, Subscriber's classification, the time and date of the Alarm, or the type of Alarm. The Locate Alarm screen shall also contain a "Find" button, and a "Cancel" button. Choosing the Find button shall cause the database to be searched for the selected entry, and the display to return to the Find Alarm Report screen with the selected report's data displayed or, if an exact match cannot be found, the data of the report of the closest match shall be displayed. Choosing the Cancel button shall cause the display to return to the Find Alarm Report screen.

- 2.8.C.3.d.4.e. A button labeled "Key Select" shall provide the Operator with a means of temporarily sorting the database. Choosing the Key Select button shall cause a pop-up "Select Search Key" screen allowing the Operator the choice of sorting the database by Alarm Time, Transmitter ID, Subscriber ID, Subscriber Name, Problem Type, or Subscriber Type. The Select Search Key screen shall also contain a "Select" button, and a "Cancel" button. Choosing the Select button shall cause the database to be sorted by the selected choice, and the display to return to the Find Alarm Report screen. Choosing the Cancel button shall have no effect on the database, and the display shall return to the Find Alarm Report screen.
 - 2.8.C.3.d.4.f. A "Print" button shall allow the Operator to send this Alarm Report to the System printer.
 - 2.8.C.3.d.4.g. A button labeled "Cancel" shall replace the Find Alarm Report screen with a Normal Operating Screen.
- 2.8.C.3.e. When "Subscriber database" is chosen from the File menu, a "Locate Subscriber" Screen shall be displayed which shall allow the Operator to search the Subscriber database for a Subscriber or Security Officer by Name, Subscriber ID number, Transmitter ID number, Address Items, Phone Numbers, Info Fields, Pager Items, or Pager Group. The Locate Subscriber screen shall also contain a "Find" button, and a "Cancel" button. If search information has been added to the Locate Subscriber screen, choosing the Find button shall cause the application software to search the Subscriber database for a match. If found, the Locate Subscriber screen shall be replaced with a "Find Subscriber" Screen showing the data for the found Subscriber. If no match is found, the Locate Subscriber screen shall be replaced with a "Find Subscriber For Transmitter Change" Screen showing the data for a Subscriber that closest matches the search information. If no search information was added to the Locate Subscriber screen and the Find button or the Cancel button is chosen, the Locate Subscriber screen shall be replaced with a "Find Subscriber For Transmitter Change" Screen showing the data from the first Subscriber in the database.
- 2.8.C.3.e.1. The Find Subscriber screen shall list the Subscriber's name and ID number, [School] [Work] [Department] [Work Area] and [Home] [Personal] addresses and telephone numbers, Subscriber classification, Medical Handicap status, Transmitter ID number and Transmitter Enabled or Disabled status, total number of Transmitter Tests since the last Reset, the time and date of the last Transmitter Test, the time and date of the last "Failure to Test" notification was sent to the Subscriber, the time and date the Subscriber information was first added to the database, the time and date the database was last modified for the Subscriber along with the type of change and the ID number of the Operator who was logged on at the time of the change, the time and date the Transmitter was placed in service, and any related notes.
 - 2.8.C.3.e.2. The Find Subscriber screen shall permit the Operator to scroll through the Subscriber database by selecting a "button", or by using a single specified key on the keyboard.
 - 2.8.C.3.e.2.a. A "Beginning" button shall allow the Operator to view the data of the first Subscriber in the primary or sorted database.
 - 2.8.C.3.e.2.b. A "Previous" button shall allow the Operator to view the data of the Subscriber that exists just prior to one presently being viewed.
 - 2.8.C.3.e.2.c. A "Next" button shall allow the Operator to view the data of the Subscriber that exists just after the one presently being viewed.
 - 2.8.C.3.e.2.d. An "End of File" button shall allow the Operator to view the data of the last Subscriber in the primary or sorted database.

- 2.8.C.3.e.3. The Find Subscriber screen shall permit the Operator to search, sort, add, delete and/or otherwise modify data within the database by selecting a "button."
- 2.8.C.3.e.3.a. A "Reset" button, which permits the Operator to reset the Total Tests counter to zero (0).
- 2.8.C.3.e.3.b. A "Statistics" button will display the total number of subscribers in each subscriber class.
- 2.8.C.3.e.3.c. A "Merge Data" button allows subscriber database information to be imported from another source.
- 2.8.C.3.e.3.d. An "Insert New" button shall display a blank "Edit Subscriber Information" screen which shall allow the Operator to enter the Subscriber's name and ID number, [School] [Work] [Department] [Work Area] and [Billing] [Home] [Billing/Home] [Personal] addresses and telephone numbers, Subscriber classification, Medical Handicap status, Transmitter ID number and Transmitter Enabled or Disabled status, and any special Notes particular to the new Subscriber. The Edit Subscriber Information screen shall also allow entry of the Subscriber's basic personal data such as gender, height, build, and hair and eye color. To assist the Operator and standardize on terms, the categories of Classification, Medical Handicap, Personal Build, Hair Color and Eye Color shall be chosen from pull-down menus. The Edit Subscriber Information screen shall provide the Operator with an "Advanced" button and an "Information" button. Choosing the Advanced button allows the subscribers pager information, fixed location information or special transmitter characteristics to be programmed. Choosing the Information button allows arbitrary subscriber information to be entered into 4 fields for customer use. The Edit Subscriber Information screen shall provide the Operator with a "Save" button and a "Cancel" button. Choosing the Save button shall cause all of the information to be stored in the Subscriber Database along with the date the data was entered and the ID number of the Operator making the change, and return the display to the Find Subscriber screen. Choosing the Cancel button shall cause a pop-up Caution alert requiring the Operator to verify that the information is to be entered into the Subscriber database, and the display to return to the Find Subscriber screen, by choosing a "Yes" option, or; the Subscriber database is to remain unchanged, and the display to return to the Find Subscriber screen, by choosing a "No" option, or; the Subscriber database is to remain unchanged, and the display to return to the Edit Subscriber Information screen by choosing a "Cancel" option.
- 2.8.C.3.e.3.e. An "Edit Data" button shall display a completed "Edit Subscriber Information" screen for the Subscriber selected in the Subscriber database. All of the data for the selected Subscriber shall appear on the screen. The Operator, if he/she has the authority to do so, shall be able to make changes to any of the data shown. The Edit Operator screen shall provide the Operator with "Save" and "Cancel" buttons as previously explained.
- 2.8.C.3.e.3.f. A "Delete" button shall allow the Operator to delete all of the selected Subscriber's data from the Subscriber database. Choosing the Delete button shall cause a pop-up Caution alert requiring the Operator to verify that the information is to be deleted from the Subscriber database, and the display to return to the Find Operator screen, by choosing a "Yes" option, or; the Subscriber database is to remain unchanged, and the display to return to the Find Subscriber screen, by choosing a "No" option.

- 2.8.C.3.e.3.g. A "Locate Key" button shall provide the Operator with a "Locate Subscriber" dialog box permitting the Operator to quickly locate a Subscriber and display the Subscriber's data by entering the Subscriber's Name or ID number, a Transmitter ID number, Address Items, Phone Number, Info Field, Pager, Items, or Pager Group. The Locate Subscriber screen shall also contain a "Find" button, and a "Cancel" button. Choosing the Find button shall cause the database to be searched for the selected entry, and the display to return to the Find Subscriber screen with the selected Subscriber's data displayed or, if an exact match cannot be found, the data of the Subscriber of the closest match shall be displayed. Choosing the Cancel button shall cause the display to return to the Find Subscriber screen.
- 2.8.C.3.e.3.h. A "Key Select" button shall provide the Operator with a means of temporarily sorting the database. Choosing the Key Select button shall cause a pop-up "Select Search Key" screen allowing the Operator the choice of sorting the database by Subscriber Name, or Subscriber or Transmitter ID number, or the last Transmitter test, or for Low Battery, or for a Disabled Transmitter. The Select Search Key screen shall also contain a "Select" button, and a "Cancel" button. Choosing the Select button shall cause the database to be sorted by the selected choice, and the display to return to the Find Subscriber screen. Choosing the Cancel button shall have no effect on the database, and the display shall return to the Find Subscriber screen.
- 2.8.C.3.e.3.i. A "Print" button shall allow the Operator to send Subscriber data to the System printer. Selecting the Print option shall cause the screen to display a dialog box to permit the Operator to select which Subscriber information is to be printed, and to sort the order. The dialog box also permit the Operator to Save the Subscriber Database to a file that can then be imported to Microsoft Excel.
- 2.8.C.3.e.3.j. A "Cancel" button which shall replace the Find Subscriber screen with a Normal Operating Screen.
- 2.8.C.3.f. When "Transponder database" is chosen from the File menu, a "Find Transponder" Screen shall be displayed. This screen shall be used to view data for each Transponder in the Transponder database.

- 2.8.C.3.f.1. The Find Transponder screen shall list the Transponder's ID number and physical location, the Communication Port Index assigned to the selected Transponder, the Radio Interface Unit ID number if Transponder to Central Console communication is via radio, the time and date the Transponder information was first added to the database, and the time and date the Transponder information in the database was last modified along with the ID number of the Operator who was logged on at the time of the change. Each Transponder in the database shall be available for quick selection using a pull-down menu next to the current Transponder's name. The Find Transponder screen shall also contain a check box to indicate if the Transponder is to power down its communications radio (if installed) between communications, and a check box to indicate if the Central Console is to ignore "Communications Failures" from this Transponder. The Find Transponder screen shall also show the Multiplex Point data for each of the devices controlled by the Transponder along with "buttons" that will allow the Operator to select the Controlled Device for data viewing. Controlled Device data shall include the Point Type and description of location, a Point Number and the corresponding Controlled Device's Multiplex Address and Bus Number, X & Y Map position coordinates on the Alarm Screen map if the Controlled Device is a Multiplex Receiver, the map number to be displayed, a description of the Alarm icon that is to appear as the location of this device on the Alarm Screen map, and the location and Point Numbers of up to three Alarm Alert Units and one Test Alert Unit assigned to the receiver if a Multiplex Receiver's data is displayed.
- 2.8.C.3.f.2. The Find Transponder screen shall permit the Operator to scroll through the Transponder database by selecting a "button" on the screen, or by using a single specified key on the keyboard.
- 2.8.C.3.f.2.a. A "Beginning" button shall allow the Operator to view the data of the first Transponder in the primary or sorted database.
- 2.8.C.3.f.2.b. A "Previous" button shall allow the Operator to view the data of the Transponder that exists just prior to one presently being viewed.
- 2.8.C.3.f.2.c. A "Next" button shall allow the Operator to view the data of the Transponder that exists just after the one presently being viewed.
- 2.8.C.3.f.2.d. An "End of File" button shall allow the Operator to view the data of the last Transponder in the primary or sorted database.
- 2.8.C.3.f.3. The Find Transponder screen shall permit the Operator to search, sort, add, delete and/or otherwise modify data within the database by selecting a "button" on the screen.

- 2.8.C.3.f.3.a. An "Insert New" button shall display a blank "Edit Transponder Information" screen, which shall allow the Operator to enter the data for a newly added Transponder and its Controlled Devices. Pull-down menus shall be used to assist the Operator in assigning Point Types, Alarm Icons, and the Transponders of the designated Alert Units. The Edit Transponder screen shall provide the Operator with a "Locate" button, a "Cut Point" button, a "Copy Point" button, a "Paste Point" button, a "Save" button and a "Cancel" button. Choosing the Locate button shall hide the current dialog allowing the operator click on the main map to indicate the location of this receiver. Choosing the Cut Point button shall remove the presently displayed Point data from the display and copy it to a holding buffer within the computer, but shall not remove the data from the database unless the Save button is later chosen. Choosing the Copy Point button shall copy the presently displayed Point data to a holding buffer within the computer, but shall not change the displayed data. Choosing the Paste button shall cause the data in the buffer to be written to the appropriate boxes on the display, and shall overwrite any presently displayed data, but this change shall not be permanent unless the Save button is later chosen. A selection of "Show points" or "Show areas" can be made allowing the operator to see and program all of the data specific to a point or location area. Choosing the Save button shall cause all of the changes to be stored in the Transponder database along with the time and date the data was entered and the ID number of the Operator making the change, and return the display to the Find Transponder screen. Choosing the Cancel button shall cause a pop-up Caution alert requiring the Operator to verify that the information is to be entered into the Transponder database, and the display to return to the Find Transponder screen, by choosing a "Yes" option, or; the Transponder database is to remain unchanged, and the display to return to the Find Transponder screen, by choosing a "No" option, or; the Transponder database is to remain unchanged, and the display to return to the Edit Transponder Information screen by choosing a "Cancel" option.
- 2.8.C.3.f.3.b. An "Edit Data" button shall display a completed "Edit Transponder Information" screen for the Transponder selected in the Transponder database. All of the data for the selected Transponder shall appear on the screen. The Operator, if he/she has the authority to do so, shall be able to make changes to any of the data shown. The Edit Transponder screen shall provide the Operator with "Locate", "Cut Point", "Copy Point", "Paste Point", "Save" and "Cancel" buttons as previously explained.
- 2.8.C.3.f.3.c. A "Kill Transponder" button shall allow the Operator to delete from the Transponder database all of the data associated with the Transponder presently displayed, including all associated Controlled Device data. Choosing the Kill Transponder button shall cause a pop-up Caution alert requiring the Operator to verify that the information is to be deleted from the database, and the display to return to the Find Transponder screen showing the data from the Transponder with the next highest Transponder ID, by choosing a "Yes" option, or; the database is to remain unchanged, and the display to return to the same Find Transponder screen, by choosing a "No" option.

- 2.8.C.3.f.3.d. A "Delete Point" button shall allow the Operator to delete all of the selected Transponder's presently displayed Point data from the Transponder database. Choosing the Delete Point button shall cause a pop-up Caution alert requiring the Operator to verify that the information is to be deleted from the database, and the display to return to the Find Operator screen showing no Point data, by choosing a "Yes" option, or; the database is to remain unchanged, and the display to return to the same Find Transponder screen, by choosing a "No" option.
- 2.8.C.3.f.3.e. A "Copy" button shall allow the Operator to copy all of the data associated with the presently displayed Transponder, including all Controlled Device data but excluding the Transponder ID number, for use in quickly creating a new Transponder database entry. When the Copy button is chosen, an Edit Transponder Information screen shall be displayed showing all of the copied Transponder and associated Controlled Device data, and a blank Transponder ID number which shall be filled in by the Operator prior to saving the data to the Transponder database.
- 2.8.C.3.f.3.f. A "Print" button shall allow the Operator to send the Transponder data, presently showing on the display, to the System printer.
- 2.8.C.3.f.3.g. A "Cancel" button which shall replace the Find Transponder screen with a Normal Operating Screen.
- 2.8.C.3.g. When "Transmitter change" is chosen from the File menu, a "Locate Subscriber" Screen shall be displayed which shall allow the Operator to quickly search the Subscriber database for a User by Name, Subscriber ID number, Transmitter ID number, Address Items, Phone Number, Info Field, Pager Items, or Pager Group. The Locate Subscriber screen shall also contain a "Find" button, a "Cancel" button, and the message, "Test near the receiver in the [Security] [Dispatch] office to automatically fill in the Transmitter ID field."
 - 2.8.C.3.g.1. If search information has been added to the Locate Subscriber screen, choosing the Find button shall cause the application software to search the Subscriber database for a match.
 - 2.8.C.3.g.1.a. If a match is found, the Locate Subscriber screen shall be replaced with a "Find Subscriber For Transmitter Change" Screen showing the data for the found Subscriber.
 - 2.8.C.3.g.1.b. If no match is found, the Locate Subscriber screen shall be replaced with a "Find Subscriber For Transmitter Change" Screen showing the data for a Subscriber that closest matches the search information.
 - 2.8.C.3.g.1.c. If no search information was added to the Locate Subscriber screen and the Find button or the Cancel button is chosen, the Locate Subscriber screen shall be replaced with a "Find Subscriber For Transmitter Change" Screen showing the data from the first Subscriber in the database.
 - 2.8.C.3.g.2. The Find Subscriber For Transmitter Change screen shall list the Subscriber's name and ID number, [School] [Work] [Department] [Work Area] and [Home] [Personal] addresses and telephone numbers, Subscriber classification, Medical Handicap status, present Transmitter ID number and Transmitter Enabled or Disabled status, and the message, "After correct subscriber is found, press Change button." within a message box.
 - 2.8.C.3.g.3. The Find Subscriber For Transmitter Change screen shall permit the Operator to scroll through the Subscriber database by selecting a "button", or by using a single specified key on the keyboard.

- 2.8.C.3.g.3.a. A "Beginning" button shall allow the Operator to view the data of the first Subscriber in the database.
- 2.8.C.3.g.3.b. A "Previous" button shall allow the Operator to view the data of the Subscriber that exists just prior to one presently being viewed.
- 2.8.C.3.g.3.c. A "Next" button shall allow the Operator to view the data of the Subscriber that exists just after the one presently being viewed.
- 2.8.C.3.g.3.d. An "End of File" button shall allow the Operator to view the data of the last Subscriber in the database.
- 2.8.C.3.g.4. The Find Subscriber For Transmitter Change screen shall contain a "Locate Key" button which, when chosen, shall allow the Operator to quickly search the Subscriber database for a Subscriber or Security Officer by Name, Subscriber ID number, or Transmitter ID number. The Locate Subscriber screen shall also contain a "Find" button, and a "Cancel" button. If search information has been added to the Locate Subscriber screen, choosing the Find button shall cause the application software to search the Subscriber database for a match.
 - 2.8.C.3.g.4.a. If a match is found, the Locate Subscriber screen shall be replaced with a "Find Subscriber For Transmitter Change" Screen showing the data for the found Subscriber.
 - 2.8.C.3.g.4.b. If no match is found, the Locate Subscriber screen shall be replaced with a "Find Subscriber For Transmitter Change" Screen showing the data for a Subscriber that closest matches the search information.
 - 2.8.C.3.g.4.c. If no search information was added to the Locate Subscriber screen and the Find button or the Cancel button is chosen, the Locate Subscriber screen shall be replaced with a "Find Subscriber For Transmitter Change" Screen showing the data from the first Subscriber in the database.
- 2.8.C.3.g.5. The Find Subscriber for Transmitter Change screen shall contain a "Change" button which, when chosen, shall remove the "Beginning", "Previous", "Next", "End of File", "Locate Key" and "Change" buttons from the Find Subscriber for Transmitter screen, and display a "Now test the subscriber's new transmitter." message in the message box. If the Transmitter test is successful, the message in the message box shall change to, "Change has been made. Now test transmitter one more time." If the second test is successful and the Transmitter ID matches the Transmitter ID of the first test, the Subscriber database will be updated, and the display shall return to the Normal Operating Screen.
- 2.8.C.3.g.6. The Find Subscriber For Transmitter Change shall contain a "Cancel" button which, when chosen, shall cause the display to return to the Normal Operating Screen.
- 2.8.C.3.h. When "Quit" is chosen from the File menu, a pop-up "Password" dialog box shall be displayed requiring the Operator to enter his/her password.
 - 2.8.C.3.h.1. If the password is correct, the Operator's Authority Level is high enough, and the displayed "OK" button is chosen, the Application Software shall cease running and the computer shall return to the Windows level of operation.
 - 2.8.C.3.h.2. If the password is incorrect, the Authority Level is too low, or no password is entered, and the displayed "OK" button is chosen, an "Invalid user's code entered" Alert shall be displayed. The Alert shall contain both a "Retry" button, and a "Cancel" button.
 - 2.8.C.3.h.2.a. If the Retry button is chosen, the pop-up "Password" dialog box shall again be displayed.
 - 2.8.C.3.h.2.b. If the Cancel button is chosen, the display shall return to the Normal Operating Screen.

2.8.C.4. The "Utilities" menu shall permit Key Operators to backup or restore the databases for the System, or to set the options for the operation of the System, or to clear the screen of dated or undesired information.

2.8.C.4.a. To permit data recovery if the computer memory should become corrupted, weekly backups shall be employed using the "Backup" option from the "Utilities" menu. When Backup is chosen, a "Backup The Selected Databases" screen shall be displayed.

2.8.C.4.a.1. The screen shall provide the Operator the option of backing up database information from the computer to the Database Drive, Local Escort Drive, Cartridge Disk Drive, or a Floppy Drive. Options not available to the Operator shall be dimmed out.

2.8.C.4.a.2. The screen shall contain a "Backup" button which, when chosen, shall permit the backup operation to commence. When the backup operation has been completed, the display shall return to the Normal Operating Screen.

2.8.C.4.a.3. The screen shall also contain a "Cancel" button which, when chosen, shall return the display to the Normal Operating Screen.

2.8.C.4.b. When "Restore" is chosen from the Utilities menu, a "Restore Which File?" Screen shall be displayed.

2.8.C.4.b.1. The Restore Which File? screen shall contain a warning that restoring a database file will overwrite all existing data and that the overwritten data will be lost forever.

2.8.C.4.b.2. The screen shall permit the Operator the choice of which database to restore from the backup media to the computer. As a precautionary measure, the Restore function shall allow restoration of only one database at a time.

2.8.C.4.b.3. The screen shall further allow the Operator the choice of backing up from the Database Drive, Local Escort Drive, Cartridge Disk Drive, or a Floppy Drive, depending on where the backup files are kept. Options not available to the Operator shall be dimmed out.

2.8.C.4.b.4. The screen shall contain a "Restore" button which, when chosen, shall permit the restore operation to commence. When restoration of the database has been completed, the display shall return to the Normal Operating Screen.

2.8.C.4.b.5. The screen shall also contain a "Cancel" button which, when chosen, shall return the display to the Normal Operating Screen.

2.8.C.4.c. When "Security Preferences" is chosen from the Utilities menu, a "Set Security Preferences" Screen shall be displayed which shall be used to make important settings that govern the way in which the System reacts in the event of an Alarm or Test transmission.

2.8.C.4.c.1. The "Set Security Preferences" Screen shall be available only to [the Director of Security] [and] [the Chief Security Officer] [and] [the Key Operator].

2.8.C.4.c.2. Unless indicated otherwise, each Security Preference option shall be a simple check box wherein a check mark within the box shall indicate that the option is enabled. The Operator shall be able to place or remove a check mark by simply placing the mouse-driven cursor over the box and clicking a button on the mouse.

2.8.C.4.c.3. Where options require a numerical value, the operator shall be permitted to simply enter the value in the appropriate box by placing the mouse-driven cursor over the box, clicking a button on the mouse, and typing in the value.

2.8.C.4.c.4. A "Turn on outside sounders" option shall govern if the Alert Unit sounders activate in the event of an Alarm.

- 2.8.C.4.c.5. A "Turn on alarm strobes" option shall govern if the Alert Unit strobes activate in the event of an Alarm.
- 2.8.C.4.c.6. A "Display unauthorized alarms" option shall govern if Alarm transmissions from Personal Transmitters, not registered in the Subscriber database, are to be displayed on the Central Console monitor.
- 2.8.C.4.c.7. A "Sound Unauthorized Alarms" option shall govern if indoor Receiver sounders and outdoor Alert Unit sirens are to activate on Alarm transmissions from Personal Transmitters not registered in the Subscriber database.
- 2.8.C.4.c.8. A "No point text if area text" option shall suppress the alarm text specific to a receiver if there is an active area with alarm text.
- 2.8.C.4.c.9. An "Output includes subscriber ID" option shall include the subscriber's ID anytime the subscriber's name is output to the printer or disk file.
- 2.8.C.4.c.10. An "Output includes transmitter ID" option shall include the subscriber's transmitter ID anytime the subscriber's name is output to the printer or disk file.
- 2.8.C.4.c.11. A "Limit alarms to 1 transponder" option shall limit the alarm location information to a single transponders data for locations with widely spaced buildings.
- 2.8.C.4.c.12. A "Require alarm report" option shall govern if the Operator is to be prompted to complete an Alarm Report at the time an Alarm is reset.
- 2.8.C.4.c.13. A "Security alarms silent" option shall govern if outdoor Alert Unit sirens are to activate on Alarm transmissions from Security Transmitters. This choice shall not affect Security Transmitter Alarm displays or alerts at the Central Console.
- 2.8.C.4.c.14. An "Installer alarms silent" option shall govern if indoor Receiver sounders and outdoor Alert Unit sirens are to activate on Alarm transmissions from any authorized Transmitters that have been assigned as "Security Escort" or "Visitor" in the Subscriber database. This choice shall not affect Security Transmitter Alarm displays or alerts at the Central Console.
- 2.8.C.4.c.15. An "Alarm voice output" option shall govern if voice recordings are to be played at the Central Console indicating the type of Alarm, and/or any special messages associated with the Alarm such as Silent Alarm, Handicapped, Wheel Chair, Blind, Deaf, and/or Demo Alarms.
- 2.8.C.4.c.16. A "Show personal data" option shall govern if personal data including sex, hair color, eye color, build and height shall be shown on the alarm screen.
- 2.8.C.4.c.17. A "No receiver icons" option shall govern if receiver icons shall be shown in addition to the normal alarm location icons on the alarm screen.
- 2.8.C.4.c.18. A "Show tests on the map" option shall govern if the Test Icons of "OK" or "fail" are displayed on a Normal Operating Screen when a Test transmission is received from a Personal Transmitter.
- 2.8.C.4.c.19. An "Auto silence alarm" text box shall permit a numerical value between 0 and 9999 seconds to be entered as the length of time that System sounders and sirens will remain active before being automatically silenced by command from the Central Console. If the time period has expired and the command has been issued, the Central Console shall continue in the Alarm mode until reset by the Operator.
- 2.8.C.4.c.20. A "Recall operator" text box shall permit a numerical value between 0 and 240 seconds to be entered as the length of time before a "Recall" command activates the Central Console's sounder to alert the Operator that no mouse or keyboard activity has occurred within the specified time period while the Central Console is in an Alarm mode. The sounder sound shall be the same as that associated with an Alarm.

- 2.8.C.4.c.21. A "Flash strobe on outside tests" text box shall permit a numerical value between 0 and 15 seconds to be entered as the length of time that the Alert Unit strobes shall flash to indicate a successful Test transmission.
- 2.8.C.4.c.22. A "Man down delay timer"...
- 2.8.C.4.c.23. An "End of shift reminder" option shall cause a pop-up prompt to display on the Central Console monitor if there are Alarm Reports to be completed before the end of a work shift.
 - 2.8.C.4.c.23.a. There shall be provisions for three work shifts, and a time in 24 hour HH:MM format that is 30 minutes before the shift ends.
 - 2.8.C.4.c.23.b. The prompt shall only display if required by other options in the Software and one or more Alarm Reports have not been completed.
 - 2.8.C.4.c.23.c. The prompt shall have provisions for a "Cancel" button which shall remove the prompt from the display, but the prompt shall reappear every five minutes for six times or until all reports are completed.
- 2.8.C.4.c.24. A "Database find level" option shall set the minimum receive level that must be received before a test near a computer will automatically select a data record.
- 2.8.C.4.c.25. A "Locate test level" option shall set the minimum receive level that must be received before a test will print the location of the transmitter.
- 2.8.C.4.c.26. A "Guard tour level" option shall set the minimum receive level that must be received before a test from a security transmitter will be recorded in the guard tour report.
- 2.8.C.4.c.27. A "Guard tour minutes" option will set the desired time period between location reports when the guard has not moved to another area.
- 2.8.C.4.c.28. A "Pop up trouble box contact information" text box shall be used to contain instructions for display on the Central Console monitor whenever a System problem occurs that requires prompt attention.
- 2.8.C.4.c.29. The Set Security Preferences screen shall contain a "Save" button which, when chosen, shall save all changes, permitting them to become the new System response preferences. At the conclusion of the Save operation, the display shall return to the Normal Operating Screen.
- 2.8.C.4.c.30. The Set Security Preferences screen shall contain a "Cancel" button. Choosing the Cancel button shall cause the display to return to the Normal Operating Screen if no changes have been made. If changes have been made, a pop-up Caution alert shall require the Operator to verify that the changes are to be saved, and the display to return to the Normal Operating Screen, by choosing a "Yes" option, or; the Security Preferences are to remain unchanged, and the display to return to the Normal Operating Screen, by choosing a "No" option, or; the display to return to the Set Security Preferences screen by choosing a "Cancel" option.
- 2.8.C.4.d. When "System Defaults" is chosen from the "Utilities" menu, the System Defaults screen is displayed allowing the operator to change the displayed name of the subscriber classes, the name of the subscriber information fields and subscriber titles.
- 2.8.C.4.e. When "System Labels" is chosen from the "Utilities" menu, the System Labels screen is displayed allowing the operator to change the displayed name of the problem types shown in the alarm reports database.
- 2.8.C.4.f. When "Print System Reports" is chosen from the "Utilities" menu, the Print System Reports screen is displayed allowing the operator to print any system reports or change the reports to be automatically printed each night or weekly.

- 2.8.C.4.g. When "Output Verification" is chosen from the "Utilities" menu, the system will scan all system outputs to verify that they are in the correct state. Any outputs found in the wrong state will be corrected.
- 2.8.C.4.h. When "Clear screen" is chosen from the "Utilities" menu, the Screen shall clear of any outdated or unwanted data, and shall automatically reset to a "Normal Operating Screen."
- 2.8.C.5. A "Logout" menu on the Menu Bar shall allow the current Operator to log-out or sign off from the System.
 - 2.8.C.5.a. When the "Logout" option is selected, the currently logged-in Operator shall be logged-out and the "Password" dialog box shall be displayed on the monitor, allowing another operator to log-in.
 - 2.8.C.5.b. All log-in and log-out activity shall be recorded in the System History database, and shall be printed by the Central Console printer.
 - 2.8.C.5.c. If an Alarm transmission is received by the Central Console when no operator is logged-in, the System shall behave the same as if an operator was logged-in.
 - 2.8.C.5.c.1. An Alarm Screen shall be displayed, and the Central Console sounder shall activate.
 - 2.8.C.5.c.2. When an operator's password is entered to acknowledge and silence the alarm, that operator shall then be automatically logged-in.
- 2.8.C.6. A "Setup" Menu shall be available from the Menu Bar. The options contained in this menu shall be accessible only to Security Escort(R) service and maintenance personnel for System diagnostics and maintenance.
 - 2.8.C.6.a. When "Show history" is chosen from the Setup menu, a listing of the last 100 events as selected in the "History filter" shall be displayed in ascending chronological order.
 - 2.8.C.6.a.1. The listing shall be a scrollable screen allowing the Operator to scroll through the complete list.
 - 2.8.C.6.a.2. The listing shall continually refresh in real-time.
 - 2.8.C.6.a.3. On selection of the "Show history" choice, "Show history" shall change to "Show map." When "Show map" is chosen, the display shall return to the Normal Operating Screen.
 - 2.8.C.6.b. When "History filter" is chosen from the Setup menu, a "Select history events for output to the selected destination" screen shall be displayed. The screen shall be divided into three main sections; "Select destination", "Transponder restriction", and "Check to output the event."
 - 2.8.C.6.b.1. The "Transponder restriction" section shall contain a pull-down list of the System's transponders for selection of a transponder by the Operator. The Operator shall be given the choice of outputting all selected history events from all transponders without any restrictions by choosing "No restriction", or with the restriction that the selected history events must be from only the transponder chosen from the pull-down list by choosing "Only from Transponder selected", or that outputting selected history events shall be permitted from all transponders except the selected transponder - which shall have all the history events outputted regardless if enabled or disabled - by choosing "All from Transponder selected."
 - 2.8.C.6.b.2. The "Select destination" section shall present the Operator with a choice of outputting each selected event to a History Screen, to the System printer, to History file A, to History file B, to System Serial Port 1, or System Serial Port 2.

- 2.8.C.6.b.3. In the "Check to output the event" section, each event option shall be a simple check box wherein a check mark within the box shall indicate that the option is enabled. The Operator shall be able to place or remove a check mark by simply placing the mouse-driven cursor over the box and clicking a button on the mouse.
- 2.8.C.6.b.4. From within the "Check to output the event" section, the Operator shall be able to enable/disable outputting the following events:
 - 2.8.C.6.b.4.a. Alarms and/or points reporting alarms.
 - 2.8.C.6.b.4.b. Tests, single line and/or including point information.
 - 2.8.C.6.b.4.c. Transmitter low battery.
 - 2.8.C.6.b.4.d. Operator activity log.
 - 2.8.C.6.b.4.e. Preference changes.
 - 2.8.C.6.b.4.f. Database backup and restore.
 - 2.8.C.6.b.4.g. Operator, Subscriber, Transponder, History, and/or Report database changes.
 - 2.8.C.6.b.4.h. Communications failure.
 - 2.8.C.6.b.4.i. Transponder communication, "I'm OK" messages, acknowledges, troubles and/or maps.
 - 2.8.C.6.b.4.j. Receive level maps.
 - 2.8.C.6.b.4.k. Database errors.
 - 2.8.C.6.b.4.l. Point troubles.
 - 2.8.C.6.b.4.m. Login changes.
 - 2.8.C.6.b.4.n. Network and/or modem communications.
 - 2.8.C.6.b.4.o. Master computer switch
 - 2.8.C.6.b.4.p. Transponder data view
 - 2.8.C.6.b.4.q. Printer output.
- 2.8.C.6.b.5. The Select History Events screen shall contain a "Save" button which, when chosen, shall save all changes. At the conclusion of the Save operation, the display shall return to the Normal Operating Screen.
- 2.8.C.6.b.6. The Select History Events screen shall contain a "Cancel" button. Choosing the Cancel button shall cause the display to return to the Normal Operating Screen if no changes have been made. If changes have been made, a pop-up Caution alert shall require the Operator to verify that the changes are to be saved, and the display to return to the Normal Operating Screen, by choosing a "Yes" option, or; nothing is to change, and the display to return to the Normal Operating Screen, by choosing a "No" option, or; the display to return to the Select History Events screen by choosing a "Cancel" option.
- 2.8.C.6.c. When "Popup trouble filter" is chosen from the Setup menu, a "Select troubles to display as popup dialogs and to print" screen shall be displayed.
 - 2.8.C.6.c.1. Within the Select Troubles to Display screen, each Transponder and Multiplex Bus Point trouble option shall be a simple check box wherein a check mark within the box shall indicate that the option is enabled. The Operator shall be able to place or remove a check mark by simply placing the mouse-driven cursor over the box and clicking a button on the mouse.
 - 2.8.C.6.c.2. The Operator shall have the choice of the trouble appearing as a popup alert and/or being sent as a Pager message.

- 2.8.C.6.c.3. Transponder troubles shall include AC loss, Communications failure, Low battery, Tamper trouble, Remote key activation, Remote key tamper, Transponder startup, and Bus faults.
- 2.8.C.6.c.4. Multiplex Bus Point troubles shall include AC loss, Low battery, Tamper, No response, Jamming, Output device error, and Bad checksum.
- 2.8.C.6.c.5. Transmitter Supervision Monitor enables the system to monitor a transmitter's supervision transmissions to report when a transmitter starts reporting and stops reporting to the system.
 - 2.8.C.6.c.5.a. Known transmitters enable the Transmitter Supervision Monitor to generate reports for transmitters that are in the database.
 - 2.8.C.6.c.5.b. Unknown transmitters enables the Transmitter Supervision Monitor to generate reports for transmitters that are not in the database.
- 2.8.C.6.c.6. Comm port overload allows an abnormal volume of communications traffic to appear as a popup alert and/or a Pager message.
- 2.8.C.6.c.7. Network comm failure allows a network communications trouble to appear as a popup alert and/or a Pager message.
- 2.8.C.6.c.8. All troubles to history will allow all troubles to be recorded to the history file even if they are not enabled to cause a popup alert or pager message.
- 2.8.C.6.c.9. A "Popup trouble and pager delay" text box shall permit a numerical value between 0 and 99 seconds to be entered by the Operator as the length of time that the trouble must be recognized by the Central Console computer before a popup alert or pager message is activated.
- 2.8.C.6.c.10. The Select Troubles to Display screen shall contain a "Save" button which, when chosen, shall save all changes. At the conclusion of the Save operation, the display shall return to the Normal Operating Screen.
- 2.8.C.6.c.11. The Select Troubles to Display screen shall contain a "Cancel" button. Choosing the Cancel button shall cause the display to return to the Normal Operating Screen if no changes have been made. If changes have been made, a pop-up Caution alert shall require the Operator to verify that the changes are to be saved, and the display to return to the Normal Operating Screen, by choosing a "Yes" option, or; nothing is to change, and the display to return to the Normal Operating Screen, by choosing a "No" option, or; the display to return to the Select Troubles to Display screen by choosing a "Cancel" option.
- 2.8.C.6.d. When "Transponder communications" is chosen from the Setup menu, the "Show History" list screen shall first display on the monitor. The right half of the Show History list shall then be covered by a "Click button to send message" screen. This setup shall allow the Operator to request numerical "Maps" to show on the History list indicating the status of each Controlled Device connected to a selected Transponder, as well as send commands to control each device, while viewing the History list to observe the results of the issued commands.
 - 2.8.C.6.d.1. The Click Button to Send Message screen shall permit the Operator to select a Transponder from a pull-down menu showing all of the active System Transponders.
 - 2.8.C.6.d.2. The History list shall only show the selected Transponder's communications.
 - 2.8.C.6.d.3. The Click Button to Send Message screen shall permit the Operator to directly select a Controlled Device of the selected Transponder by entering the Controlled Device's Multiplex (MUX) Bus Point Number into a text box, or by the use of buttons designed to step forward or backward through the database until the proper device is selected.
 - 2.8.C.6.d.4. The Click Button to Send Message screen shall contain command buttons accessible by the Operator.

- 2.8.C.6.d.4.a. To determine if a Transponder has taken control of its outputs, an "I'm OK Check" button which, when selected, shall command the Transponder to send an "I'm OK" message to the Central Console.
- 2.8.C.6.d.4.b. An "I'm OK Release Control" button which, when selected, shall command the Transponder to release Transponder output control back to the Central Console.
- 2.8.C.6.d.4.c. A "Received Trans Map" button which, when selected, shall produce a numerical map on the History list displaying the number 1 in the locations corresponding to Multiplex Receivers which have received Alarm or Test transmissions since the last reset. A zero (0) shall indicate no received transmissions since the last reset.
- 2.8.C.6.d.4.d. An "Out of Service Map" button which, when selected, shall produce a numerical map on the History list displaying the number 1 in the locations corresponding to Controlled Devices which are currently out of service. A zero (0) shall indicate Controlled Devices that are in service.
- 2.8.C.6.d.4.e. A "Point Out of Service" button which, when selected, shall electronically remove the selected Controlled Device from service.
- 2.8.C.6.d.4.f. A "Point In Service" button which, when selected, shall electronically restore the selected Controlled Device to service.
- 2.8.C.6.d.4.g. A "Device Type Map" button which, when selected, shall produce a numerical map with two-digits for each of the selected Transponder's Controlled Devices indicating type and state (Normal, Off Normal or non-communicating).
- 2.8.C.6.d.4.h. A "Not Responding Map" button which, when selected, shall produce a numerical map on the History list indicating those selected Transponder's Controlled Devices which are not communicating. The location of each device shall be indicated with two digits indicating the type of device, and that it is in trouble.
- 2.8.C.6.d.4.i. A "Strobe-Red LED Map" button which, when selected, shall produce a numerical map on the History list displaying the number 1 in the locations corresponding to Multiplex Receiver red LEDs - and the letter Y corresponding to Alert Unit strobes - of the selected Transponder which have been enabled. A zero (0) shall indicate that the red LED - or the letter N, that the strobe - is disabled.
- 2.8.C.6.d.4.j. A "Horn-Siren Map" button which, when selected, shall produce a numerical map on the History list displaying the number 1 in the locations corresponding to Multiplex Receiver sounders and Alert Unit sirens of the selected Transponder which have been enabled. A zero (0) shall indicate that the sounder or siren is disabled.
- 2.8.C.6.d.4.k. A "Green LED Map" button which, when selected, shall produce a numerical map on the History list displaying the number 1 in the locations corresponding to Multiplex Receiver green LEDs of the selected Transponder which have been enabled. A zero (0) shall indicate that the green LED is disabled.
- 2.8.C.6.d.4.l. A "Jamming Map" button which, when selected, shall produce a numerical map on the History list displaying the number 1 in the locations corresponding to Multiplex Receivers of the selected Transponder which are being jammed by radio interference. A zero (0) shall indicate that any jamming is beneath the factory pre-set level and is acceptable.

- 2.8.C.6.d.4.m. A "Tamper Map" button which, when selected, shall produce a numerical map on the History list displaying the number 1 in the locations corresponding to Controlled Devices of the selected Transponder which have an open tamper switch. A zero (0) shall indicate that the tamper switch is closed.
- 2.8.C.6.d.4.n. An "AC Loss Map" button which, when selected, shall produce a numerical map on the History list displaying the number 1 in the locations corresponding to Controlled Devices of the selected Transponder which have lost AC power. A zero (0) shall indicate that AC power is applied.
- 2.8.C.6.d.4.o. A "Restarted" map button which, when selected, shall produce a numerical map on the History list displaying the number 1 in the locations corresponding to all Transponders which have restarted due to being turned back on or a watchdog failure. A zero (0) shall indicate that the transponder has not restarted.
- 2.8.C.6.d.4.p. A "Dropped" map button which, when selected, shall produce a numerical map on the History list displaying the number 1 in the locations corresponding to Multiplex Receivers than have failed to receive at least one transmission due to peak traffic loads greater than its capacity. A zero (0) shall indicate Multiplex Receivers than have not failed to receive a transmission.
- 2.8.C.6.d.4.q. A "Spare" map button which, when selected, shall produce a numerical map on the History list displaying a zero (0) at all locations currently as it is to support a future undefined function.
- 2.8.C.6.d.4.r. A "Low Battery Map" button which, when selected, shall produce a numerical map on the History list displaying the number 1 in the locations corresponding to Controlled Devices experiencing a low battery voltage condition. A zero (0) shall indicate that no battery problems exist.
- 2.8.C.6.d.4.s. A "Reset Transponder" button which, when selected, shall cause the selected Transponder to perform a soft reset and initialize its E-squared memory.
- 2.8.C.6.d.4.t. The Click Button to Send Message screen shall contain "Off" and "On output command" buttons which, when used in conjunction with "Horn - Siren", "Red LED - Strobe" and "Green LED" check boxes, shall permit the Operator to turn the selected Controlled Device's sounder or indicator LED lights on or off as desired.
- 2.8.C.6.e. When "Transponder current status" is chosen from the Setup menu, a "Current transponder status" screen shall be displayed. This screen shall provide a history of communications involving a selected Transponder, and shall also provide "buttons" for use in diagnosing problems with the Transponder or its Controlled Devices.
 - 2.8.C.6.e.1. The Transponder Current Status screen shall permit the Operator to select a Transponder from a pull-down menu showing all of the System Transponders.
 - 2.8.C.6.e.2. The Transponder Current Status screen shall show the Total Alarms Received, the Total Tests Received, the Total Troubles Processed, and the Total Troubles Shed by the selected Transponder since the last reset. The Total Troubles Shed shall indicate the number of Trouble messages that were not processed since the last reset.

- 2.8.C.6.e.3. To measure the quality of the communication link between the Transponder and the Central Console, the screen shall show the total number of messages successfully received by the Central Console from the Transponder, the total number that contained format errors, and the total number of messages that the Transponder tried to send but without success since the last reset. The screen shall also show the total number of messages sent by the Central Console to the Transponder, the total number of messages that the Central Console tried to send but without success, and the total number of messages considered failures after six retries, since the last reset.
- 2.8.C.6.e.4. The screen shall contain "buttons" to issue commands that the Operator may use to assist in diagnosing problems.
- 2.8.C.6.e.4.a. A "Not Responding Map" button which, when selected, shall provide a numerical "Map" indicating the locations corresponding to Controlled Devices of the selected Transponder which are not responding to commands.
 - 2.8.C.6.e.4.b. An "Out of Service Map" button which, when selected, shall provide a numerical "Map" indicating the locations corresponding to Controlled Devices of the selected Transponder which are out of service.
 - 2.8.C.6.e.4.c. A "Jamming Map" button which, when selected, shall produce a numerical "Map" indicating the locations corresponding to Multiplex Receivers of the selected Transponder which are being jammed by radio interference.
 - 2.8.C.6.e.4.d. A "Tamper Map" button which, when selected, shall produce a numerical "Map" indicating the locations corresponding to Controlled Devices of the selected Transponder which are showing a tamper alarm.
 - 2.8.C.6.e.4.e. An "AC Loss Map" button which, when selected, shall produce a numerical "Map" indicating the locations corresponding to Controlled Devices of the selected Transponder which have lost power.
 - 2.8.C.6.e.4.f. A "Low Battery Map" button which, when selected, shall produce a numerical "Map" indicating the locations corresponding to Controlled Devices of the selected Transponder which have missing, dead or otherwise malfunctioning batteries.
 - 2.8.C.6.e.4.g. A "Reset Transponders Troubles" button which, when selected, shall clear the history of Transponder troubles and reset the data on the screen to zero (0).
 - 2.8.C.6.e.4.h. A "Refresh Data" button which, when selected, shall cause the computer to issue a command to clear the history of Transponder troubles for the selected Transponder, but shall not reset the data on the screen.
 - 2.8.C.6.e.4.i. An "Acknowledge" button which, when selected, shall acknowledge any trouble restorals that appear on the screen should a Transponder go into trouble and restore while the Current Transponder Status screen is being displayed.
 - 2.8.C.6.e.4.j. A "Previous" button which, when selected, shall display the status of the Transponder previous to the present Transponder in the Transponder database.
 - 2.8.C.6.e.4.k. A "Next" button which, when selected, shall display the status of the next Transponder in the Transponder database.
 - 2.8.C.6.e.4.l. A "Cancel" button which, when selected, shall cause the display to return to the Normal Operating Screen.

- 2.8.C.6.e.5. To create artificially high traffic on the communication link without interfering with the processing of Alarms and Tests, the Current Transponder Status screen shall contain a "Stress test" check box.
 - 2.8.C.6.e.5.a. When selected by the Operator by "clicking" on the check box, a check mark shall appear in the check box indicating it is enabled, and the Central Console computer shall continually request numerical "Maps" from the selected Transponder.
 - 2.8.C.6.e.5.b. When the computer receives a Map, it shall immediately request another by rotating through the Map types.
 - 2.8.C.6.e.5.c. The Operator shall be able to abort the Stress Test at any time by clicking on the check box to stop the Stress Test and remove the check mark.
- 2.8.C.6.e.6. The Current Transponder Status screen shall also provide an "Auto scan" check box for use by the Operator.
 - 2.8.C.6.e.6.a. When selected by the Operator by "clicking" on the check box, a check mark shall appear in the check box indicating it is enabled, and the Central Console computer shall request numerical "Maps" from the selected Transponder.
 - 2.8.C.6.e.6.b. When all of the Maps have been received from the selected Transponder, the computer shall issue a "Refresh" command to update the history of Transponder troubles for the selected Transponder.
 - 2.8.C.6.e.6.c. When the Refresh command has been completed, the computer shall then automatically select the next Transponder in the database and shall request Maps from that Transponder.
 - 2.8.C.6.e.6.d. Auto Scan will continue to progress through each Transponder in the Transponder database until the Operator aborts the operation by clicking on the Auto Scan check box to stop the Auto Scan and remove the check mark.
- 2.8.C.6.e.7. The Current Transponder Status screen shall provide a text window displaying all of the current trouble conditions for the selected Transponder by type of trouble, Multiplex address, type of Controlled Device affected, and the device's name/location. The window shall also display a restoration to a normal condition when it occurs.
- 2.8.C.6.f. When "Transponder parameter change" is chosen from the Setup menu, a "Set Transponder EEPROM Configuration" screen shall be displayed. This screen shall be used by the Operator to view and/or change the parameters associated with the selected Transponder's EEPROM.
 - 2.8.C.6.f.1. The Set Transponder EEPROM Configuration screen shall permit the Operator to select a Transponder from a pull-down menu showing all of the System Transponders.
 - 2.8.C.6.f.2. The screen shall contain "Previous" and "Next" buttons which, when selected, shall permit the Operator to choose the previous or next Transponder from the presently selected Transponder in the Transponder database.
 - 2.8.C.6.f.3. Each of the Transponder's EEPROM's parameters shall be available to the Operator as a simple check box wherein a check mark within the box shall indicate the parameter being considered. The Operator shall be able to place or remove a check mark by simply placing the mouse-driven cursor over the box and clicking a button on the mouse.

- 2.8.C.6.f.4. The screen shall display a text box for each Byte of the selected parameter. The Operator shall be permitted to change the parameter by typing a number from 1 to 255, corresponding to the appropriate change, into the test box of any Byte.
- 2.8.C.6.f.5. The screen shall provide the Operator with a "Send change" button which, when selected, shall change the parameters of the selected Transponder to the new settings.
 - 2.8.C.6.f.5.a. Only the changes will be sent to the Transponder.
 - 2.8.C.6.f.5.b. The text boxes shall then blank while the computer requests the Transponder to resupply the status of its EEPROM parameters.
 - 2.8.C.6.f.5.c. The text boxes shall then refresh with the information from the Transponder for Operator verification.
- 2.8.C.6.f.6. The screen shall provide the Operator with a "Cancel" button which, when selected, shall cause the display to return to the Normal Operating Screen.
- 2.8.C.6.g. When "Transponder data view" is chosen from the Setup menu a screen is displayed to allow the transponders internal RAM and EEPROM data to be displayed. This screen is for engineering analysis only.
- 2.8.C.6.h. When "Receiver Configuration" is chosen from the Setup menu, the "Show History" list screen shall first display on the monitor. The right half of the Show History list shall then be covered by a "Receiver Setup and Test" screen. This setup shall allow the Operator to verify that each Multiplex Receiver is working and properly addressed in the database, to identify errors in the address switch settings of Multiplex Receivers and Alert Units, to identify data entry errors in the Transponder database, and to view the results of issued commands on the History list.
 - 2.8.C.6.h.1. The Receiver Configuration screen shall permit the Operator to select a Transponder from a pull-down menu showing all of the active System Transponders.
 - 2.8.C.6.h.2. The History list shall show only receive level numerical "Maps" from the selected Transponder.
 - 2.8.C.6.h.3. The Receiver Configuration screen shall permit the Operator to directly select a Controlled Device of the selected Transponder by entering the Controlled Device's Multiplex (MUX) Bus Point Number into a text box, or by the use of buttons designed to step forward or backward through the database until the proper device is selected.
 - 2.8.C.6.h.4. The location/name of the selected Controlled Device shall also be displayed on the screen for verification.
 - 2.8.C.6.h.5. The Operator shall be permitted to put a selected Multiplex Receiver into a Setup mode by selecting a "Put this receiver in setup mode" button.
 - 2.8.C.6.h.5.a. This button, when selected, shall initiate the Setup process and allow visual verification by commanding the selected Receiver's green LED to flash, and the red LED to turn on continuously.
 - 2.8.C.6.h.5.b. After the button is selected, the "Put MUX point in setup mode" button shall change to "Abort setup for this MUX point" button, which, if selected, shall abort the setup process, and the display shall return to the initial Transponder MUX Point Setup screen.

- 2.8.C.6.h.5.c. If the Abort button is not selected, a Maintenance Transmitter sending an Alarm transmission from a location near the Receiver shall, if the Receiver's address is correct and its received signal is the strongest of all Receivers hearing the transmission, cause the Receiver's sounder to beep briefly, and the LEDs to turn off, and cause a numerical "Map" on the History list showing the Receivers from the selected Transponder which received the Maintenance Alarm transmission.
- 2.8.C.6.h.5.d. Upon successful completion of the test, the "Abort setup for this MUX point" button shall be replaced with a "Test on this MUX point SUCCESSFUL" button, which, if selected, shall conclude the setup process for the selected Receiver and cause the Transponder MUX Point Setup screen to be displayed.
- 2.8.C.6.h.5.e. The Receiver Configuration screen shall contain "Off" and "On output command" buttons which, when used in conjunction with "Horn - Siren", "Red LED - Strobe" and "Green LED" check boxes, shall permit the Operator to turn the selected Controlled Device's sounder or indicator LED lights on or off as desired.
- 2.8.C.6.h.5.f. The T Receiver Configuration screen shall contain an "Automatic Advance" check box which, when checked by the Operator, shall automatically select the Receiver with the next higher Multiplex Point Address, regardless of bus, for test setup after the present Receiver has been successfully tested.
- 2.8.C.6.h.5.g. The Receiver Configuration screen shall contain a "Cancel" button, which, if selected, shall cause the display to return to the Normal Operating Screen.
- 2.8.C.6.h.6. The Auto Advance box allows the Setup Mode to automatically advance to the next receiver when the test on the previous receiver is successful.
- 2.8.C.6.h.7. The Switching, Left, Right and Default selections display the current antenna switching mode for this receiver. They also allow the operator to select a different mode for this receiver.
- 2.8.C.6.h.8. The Antenna button will transfer the newly selected antenna switching mode to the indicated receiver.
- 2.8.C.6.h.9. The Ant map button will display a map of all the receiver antenna switching states for this transponder.
- 2.8.C.6.h.10. The Transmit button causes the transmitter on the selected receiver to transmit allowing the operator to verify the reception of adjacent receivers.
- 2.8.C.6.h.11. The Reset Point button will cause the selected point to go through a power up reset sequence.
- 2.8.C.6.h.12. The Ambient button will display a map of the ambient receive levels for all of the receivers of this transponder.
- 2.8.C.6.h.13. The Revision button will display a map of the software revision levels for all of the receivers of this transponder.
- 2.8.C.6.h.14. The Jamming Levels selections display the current jamming level threshold for this receiver. They also allow the operator to select a different jamming level threshold for this receiver.
- 2.8.C.6.h.15. The Jamming button will transfer the newly selected jamming level threshold to the indicated receiver.
- 2.8.C.6.h.16. The Jam map button will display a map of the jamming levels for all of the receivers of this transponder.

- 2.8.C.6.i. When "Receiver test" is chosen from the Setup menu, a "Setup Receiver Test Configuration" screen shall be displayed. This screen shall permit the Operator to run "Buddy Check" tests using the transmitter from a selected Multiplex Receiver while monitoring the results on up to four Multiplex Receivers selected for reception of the test transmissions.
- 2.8.C.6.i.1. The Setup Receiver Test Configuration screen shall contain a section titled, "Transmitting Point."
- 2.8.C.6.i.1.a. This section shall permit the Operator to select a Transponder from a pull-down menu showing all of the System Transponders, and to select the Point Number of the Transponder's Receiver that will be transmitting the tests.
- 2.8.C.6.i.1.b. The section shall provide a check box labeled, "Run test", wherein a check mark within the box shall indicate that the option is enabled. The Operator shall be able to place or remove a check mark by simply placing the mouse-driven cursor over the box and clicking a button on the mouse. If enabled, the computer shall command the selected Multiplex Receiver's "Buddy Check" transmitter to transmit a test and to periodically repeat the test transmission until the check mark is removed from the box, or a "Reset" button is selected.
- 2.8.C.6.i.1.c. The total number of test transmissions sent since the last reset shall be continually updated and displayed on the screen in a box labeled, "Total transmissions."
- 2.8.C.6.i.1.d. The total number of test transmissions since the last reset that were not received by any Receiver selected for reception shall be continually updated and displayed in a box labeled, "Missed all receivers."
- 2.8.C.6.i.2. The Setup Receiver Test Configuration screen shall contain four sections devoted to Receivers selected to receive "Buddy Check" test transmissions.
- 2.8.C.6.i.2.a. These four sections shall be labeled, "Receiver 1", "Receiver 2", "Receiver 3", and "Receiver 4", and each section shall be set up identically.
- 2.8.C.6.i.2.b. Each section shall permit the Operator to select a Transponder from a pull-down menu showing all of the System Transponders, and to select the Point Number of the Transponder's Receiver that will be monitored for test transmission receptions.
- 2.8.C.6.i.2.c. Each section shall contain a check box labeled "Enable", wherein a check mark within the box shall indicate that the option is enabled. The Operator shall be able to place or remove a check mark by simply placing the mouse-driven cursor over the box and clicking a button on the mouse. If enabled, the selected Receiver shall actively participate in the test and display appropriate data as described below. If not enabled, the selected Receiver shall not participate in the test.
- 2.8.C.6.i.2.d. Within each section, the total number of test transmissions received by the selected Receiver since the last reset shall be continually updated and displayed on the screen in a box labeled, "Hits."
- 2.8.C.6.i.2.e. Within each section, the total number of test transmissions that were not received by the selected Receiver since the last reset shall be continually updated and displayed in a box labeled, "Misses."
- 2.8.C.6.i.2.f. Within each section, the strongest signal strength received by the selected Receiver since the last reset shall be displayed in decimal figures, within the range of 00 to 255, in a box labeled, "Highest."

- 2.8.C.6.i.2.g. Within each section, the weakest signal strength received by the selected Receiver since the last reset shall be displayed in decimal figures, within the range of 00 to 255, in a box labeled, "Lowest."
- 2.8.C.6.i.2.h. The computer shall keep track of the strengths of the test signals received by each selected Receiver since the last reset, and shall display the computed average signal strength for each Receiver in a box labeled "Average" in each section.
- 2.8.C.6.i.2.i. In addition to the test signal strengths, the packet count, highest packet count, average packet count and lowest packet count is displayed for each receiver.
- 2.8.C.6.i.3. The Setup Receiver Test Configuration screen shall provide the Operator with a button labeled "Reset" which, when selected, shall cause all displayed counters - such as "Total transmissions", "Hits", "Misses", etc. - to reset to zero (0), and discontinue test transmissions by removing the check mark from the "Run test" check box.
- 2.8.C.6.i.4. The screen shall also provide the Operator with a "Cancel" button which, when selected, shall cause the display to return to the Normal Operating Screen.
- 2.8.C.6.j. When "Network status" is chosen from the Setup menu, a "Current network status" screen shall be displayed. This screen shall be used by the Operator to view how the Central Console has handled network and modem communications since the last reset. Any data indicating a system problem shall be shown against a yellow background.
 - 2.8.C.6.j.1. The Current Network Status screen shall show the total number of incoming messages successfully received from the network, the modem, and the serial ports.
 - 2.8.C.6.j.2. The screen shall also show the total number of outgoing messages successfully sent to the network, the modem, and the serial ports.
 - 2.8.C.6.j.3. The screen shall also show the total number of incoming messages from the network, the modem, and the serial ports, that were retried but were unsuccessfully received by the Central Console.
 - 2.8.C.6.j.4. The screen shall show the total number of outgoing messages to the network, the modem, and the serial ports, that were retried but were unsuccessfully sent by the Central Console.
 - 2.8.C.6.j.5. The screen shall show the total number of incoming messages from the network, the modem, and the serial ports, that contained communications errors.
 - 2.8.C.6.j.6. The screen shall show the amount of memory used in the Receive Buffer, and used in the Transmit Buffer, for the network, the modem, and the serial ports.
 - 2.8.C.6.j.7. The screen shall show if there is a Buffer Overflow for the network, the modem, and the serial ports, indicating that the capacity of the receive and/or transmit buffer has been exceeded.
 - 2.8.C.6.i.8. The screen shall show if there is a Hardware Overrun from the network, the modem, and the serial ports, indicating received communication traffic is exceeding what the Central Console computer can handle.
 - 2.8.C.6.j.9. The screen shall show the total number of successful connections of the Central Console's modem to a remote modem. Use of the modem for Pager messages shall not be included in the total number.
 - 2.8.C.6.j.10. The screen shall show the total number of unsuccessful connections to the Central Console's modem by a remote access modem that failed due to a wrong access code.

- 2.8.C.6.j.11. The screen shall show the last date and time that a successful connection to the modem by a remote access modem.
- 2.8.C.6.j.12. The screen shall also show the total number of successful Pager messages made, and the total number of failed Pager message attempted, by the modem.
- 2.8.C.6.j.13. The screen shall provide the Operator with a "Reset Status" button which, when selected, shall reset all of the data counters used by this screen to zero (0), and shall reset all of the data displayed on the screen to zero (0) or blank.
- 2.8.C.6.j.14. The screen shall provide the Operator with a "Refresh Data" button which, when selected, shall refresh the data shown on the screen.
- 2.8.C.6.j.15. The screen shall provide the Operator with a "Cancel" button which, when selected, shall cause the display to return to the Normal Operating Screen.
- 2.8.C.6.k. When "System status" is chosen from the Setup menu, a "Current system status" screen shall be displayed. This screen shall be used by the Operator to view critical benchmark data counters for use as a measure in determining if network communications are exceeding the capacity of the Central Console computer to handle the communications traffic. Any data indicating a system problem shall be shown against a yellow background.
 - 2.8.C.6.k.1. The Current System Status screen shall present the Operator with information on the maximum number of retried messages, Alarm messages, Trouble messages, Low Battery messages, strobe test messages, man-down monitors, and supervision monitors since the last reset.
 - 2.8.C.6.k.2. The screen shall also show traffic information for each of the active Communication Serial Ports.
 - 2.8.C.6.k.3. The screen shall provide the Operator with a "Reset Status" button which, when selected, shall reset all of the data counters used by this screen to zero (0), and shall reset all of the data displayed on the screen to zero (0) or blank.
 - 2.8.C.6.k.4. The screen shall provide the Operator with a "Refresh Data" button which, when selected, shall update the data shown on the screen.
 - 2.8.C.6.k.5. The screen shall provide the Operator with a "Cancel" button which, when selected, shall cause the display to return to the Normal Operating Screen.
- 2.8.C.6.l. When "System Preferences" is chosen from the Setup menu, a "Set System Preferences" screen shall be displayed. This screen shall contain settings to be used by the Operator to govern the behavior of the System.
 - 2.8.C.6.l.1. The Set System Preferences screen shall permit the Operator to select an "ID Capture Receiver" from a pull-down menu showing all of the System Transponders, and to choose the Point Number of the Receiver connected to the selected Transponder. This ID Capture Receiver shall be used by the Operator to electronically "capture" the Transmitter's ID number during a Test and enter it directly into the Subscriber database.
 - 2.8.C.6.l.2. Within the Set System Preferences screen, each System Preference shall be a simple check box wherein a check mark within the box shall indicate that the option is enabled. The Operator shall be able to place or remove a check mark by simply placing the mouse-driven cursor over the box and clicking a button on the mouse.
 - 2.8.C.6.l.2.a. A check mark in the "Run buddy check" box shall enable the "Buddy Check" feature of the System. When enabled, the Central Console shall periodically automatically issue a command via the Transponders to each Multiplex Receiver to activate its on-board transmitter.

- 2.8.C.6.1.2.b. A check mark in the "Day month format" box shall cause all dates to be presented in the international day first then month format.
- 2.8.C.6.1.2.c. A check mark in the "Show maintenance levels" box shall cause the Central Console to display the signal strength measured by each Receiver as a number (from 1 to 15) inside the Receiver Icons when Maintenance Alarms are displayed.
- 2.8.C.6.1.2.d. A check mark in the "Show test levels" box shall cause the Central Console to display the signal strength measured by each Receiver as a number (from 1 to 15) inside the Test Icons when Tests are displayed.
- 2.8.C.6.1.2.e. A check mark in the "Pager communications" box shall allow the Operator to monitor pager communications between the Central Console and the pager communications provider.
- 2.8.C.6.1.2.f. A check mark in the "Monitor communications" box shall allow the Operator to view login and logout communications between the Central Console and a remote access computer.
- 2.8.C.6.1.2.g. A check mark in the "Display maintenance alarm" box will cause the receiver receiving the highest level on a maintenance alarm, to light its red LED for several seconds.
- 2.8.C.6.1.2.h. A check mark in the "Sound maintenance alarm" box will cause the receiver receiving the highest level on a maintenance alarm, to sound its sounder for several seconds.
- 2.8.C.6.1.2.i. A check mark in the "No buddy check delay" box will allow a receiver to send more than one buddy check transmission per hour.
- 2.8.C.6.1.2.j. A check mark in the "No password to exit" box removes the requirement that a valid password must be entered before an operator may shut down the program.
- 2.8.C.6.1.2.k. A check mark in the "No password to reentry" box removes the requirement that a valid password must be entered before an operator may reenter the program after switching to another program.
- 2.8.C.6.1.2.l. A check mark in the "No password timeout" box removes the timeout that requires that a valid password must be entered before an operator may use this program after a period of inactivity.
- 2.8.C.6.1.2.m. A check mark in the "Bring to front on alarm" box causes this program to automatically come to the front if an alarm is received while another program is in the forefront.
- 2.8.C.6.1.2.n. A check mark in the "Bring to front on trouble" box causes this program to automatically come to the front if a trouble is received while another program is in the forefront.
- 2.8.C.6.1.2.o. A check mark in the "Control room output to siren" box causes the indicated alert unit's siren output to activate while an unacknowledged alarm is displayed on the computer.
- 2.8.C.6.1.2.p. A check mark in the "Control room output to strobe" box causes the indicated alert unit's strobe output to activate while an unacknowledged alarm is displayed on the computer.
- 2.8.C.6.1.2.q. A check mark in the "Control room output to spare" box causes the indicated alert unit's spare output to activate while an unacknowledged alarm is displayed on the computer.

- 2.8.C.6.l.2.r. A check mark in the "Not always top window" box allows this program to be replaced in the forefront by another while this program is still running.
- 2.8.C.6.l.2.s. A check mark in the "Excel test history files" box is intended for test purposes only. It records files of all received transmissions that may be imported into Microsoft Excel.
- 2.8.C.6.l.3. The ID Receiver and point which receiver in the system will receive the highest receive levels when a transmitter is tested near the computer.
- 2.8.C.6.l.4. The Control room output and point indicate which alert unit in the system will activate while an unacknowledged alarm is displayed on the computer.
- 2.8.C.6.l.5. The Set System Preferences screen shall contain a "Save" button which, when chosen, shall save all changes. At the conclusion of the Save operation, the display shall return to the Normal Operating Screen.
- 2.8.C.6.l.6. The screen shall also contain a "Cancel" button. Choosing the Cancel button shall cause the display to return to the Normal Operating Screen if no changes have been made. If changes have been made and not saved, a pop-up Caution alert shall require the Operator to verify that the changes are to be saved, and the display to return to the Normal Operating Screen, by choosing a "Yes" option, or; nothing is to change, and the display to return to the Normal Operating Screen, by choosing a "No" option, or; the display to return to the Set System Preferences screen by choosing a "Cancel" option.
- 2.8.C.6.m. When "Transponder comm port setup" is chosen from the Setup menu, an "Edit the Transponder Comm Port Assignments" screen shall be displayed. This screen shall be used by the Operator to set up communication links.
 - 2.8.C.6.m.1. Each Communication Port Index shall be displayed as a section on the screen. Within each section, there shall be nine GUI "radio buttons", one for each of the Central Console computer's eight communications ports, and one labeled "None."
 - 2.8.C.6.m.2. The Operator shall be able to assign a Communication Port Index to a computer communication port by "clicking" on the appropriate radio button using the mouse-driven cursor.
 - 2.8.C.6.m.2.a. When assigned, a dot will appear within the radio button.
 - 2.8.C.6.m.2.b. A dot within any other button in the section shall automatically be removed so that only one dot appears within each Comm Port Index section.
 - 2.8.C.6.m.2.c. A dot in the "None" button shall indicate that that Comm Port Index is not assigned to any communications port.
 - 2.8.C.6.m.3. Each Comm Port Index sections shall have a check box labeled "Monitor Carrier". When checked the system will not send any communications on this port if the carrier detect line is active.
 - 2.8.C.6.m.4. Each Comm Port Index section shall have a check box labeled "No CTS control." When checked the system will ignore the CTS (clear to send) line on this port.
 - 2.8.C.6.m.4.a. The Operator shall be able to place or remove a check mark within this box by simply placing the mouse-driven cursor over the box and clicking a button on the mouse.
 - 2.8.C.6.m.4.b. A check mark within this box shall cause the computer to disregard the Clear To Send protocol when a transmission is required.

- 2.8.C.6.m.4. Each Comm Port Index section shall have a check box labeled "Monitor Power" When checked the RI (ring indicator) line is monitored and if it becomes active a Comm power supply failure is reported. It is intended to monitor remote communications power supplies.
- 2.8.C.6.m.4. The Edit the transponder comm port assignments screen shall contain a "Save" button which, when chosen, shall save all changes if none are conflicting.
 - 2.8.C.6.m.4.a. If a communications port has been assigned to more than one Comm Port Index, a pop-up Caution alert shall advise the Operator that "Two Comm Port Indexes can't be assigned to the same COMM PORT", and to correct the assignment so that the assignments are to different ports. The alert shall contain an "OK" button that, when selected, shall cause the unsaved Set Comm Port Assignments screen to be displayed.
 - 2.8.C.6.m.4.b. At the conclusion of a successful Save operation, the display shall return to the Normal Operating Screen.
- 2.8.C.6.m.5. The screen shall also contain a "Cancel" button. Choosing the Cancel button shall cause the display to return to the Normal Operating Screen if no changes have been made. If changes have been made and not saved, a pop-up Caution alert shall require the Operator to verify that the changes are to be saved, and the display to return to the Normal Operating Screen, by choosing a "Yes" option, or; nothing is to change, and the display to return to the Normal Operating Screen, by choosing a "No" option, or; the display to return to the Set Comm Port Assignments screen by choosing a "Cancel" option.
- 2.8.C.6.n. When "Remote comm port setup" is chosen from the setup menu...
 - 2.8.C.6.n.1. A section of the screen labeled "Network Port" shall contain nine GUI "radio buttons", one for each of the selected slave or remote computer's eight communications ports, and one labeled "None."
 - 2.8.C.6.n.1.a. The Operator shall be able to assign a communications port of the computer to the network by "clicking" on the appropriate radio button using the mouse-driven cursor.
 - 2.8.C.6.n.1.b. When assigned, a dot will appear within the radio button.
 - 2.8.C.6.n.1.c. A dot within any other button in the section shall automatically be removed so that only one communications port or "None" is selected.
 - 2.8.C.6.n.1.d. A dot in the "None" button shall indicate that the network is not assigned to any communications port.
 - 2.8.C.6.n.1.e. The section shall also contain three radio buttons, one each labeled "9,600 baud", "19,200" and "38,400." The Operator shall be able to choose one of these buttons depending on the communication speed of the modem (or computer, if direct connect).
 - 2.8.C.6.n.2. A section of the screen labeled "Modem Port" shall contain nine GUI "radio buttons", one for each of the selected slave or remote computer's eight communications ports, and one labeled "None."
 - 2.8.C.6.n.2.a. The Operator shall be able to assign a communications port of the computer to the modem by "clicking" on the appropriate radio button using the mouse-driven cursor.
 - 2.8.C.6.n.2.b. When assigned, a dot will appear within the radio button.
 - 2.8.C.6.n.2.c. A dot within any other button in the section shall automatically be removed so that only one communications port or "None" is selected.
 - 2.8.C.6.n.2.d. A dot in the "None" button shall indicate that that modem is not assigned to any communications port.

- 2.8.C.6.n.2.e. The section shall also contain three radio buttons, one each labeled "9,600 baud", "19,200" and "38,400." The Operator shall be able to choose one of these buttons depending on the communication speed of the modem (or computer, if direct connect).
- 2.8.C.6.n.3. A section of the screen labeled " System Serial 1" shall contain nine GUI "radio buttons", one for each of the selected slave or remote computer's eight communications ports, and one labeled "None."
 - 2.8.C.6.n.3.a. The Operator shall be able to assign a communications port of the computer to the modem by "clicking" on the appropriate radio button using the mouse-driven cursor.
 - 2.8.C.6.n.3.b. When assigned, a dot will appear within the radio button.
 - 2.8.C.6.n.3.c. A dot within any other button in the section shall automatically be removed so that only one communications port or "None" is selected.
 - 2.8.C.6.n.3.d. A dot in the "None" button shall indicate that that modem is not assigned to any communications port.
 - 2.8.C.6.n.3.e. The section shall also contain three radio buttons, one each labeled "9,600 baud", "19,200" and "38,400." The Operator shall be able to choose one of these buttons depending on the communication speed of the modem (or computer, if direct connect).
- 2.8.C.6.n.4. A section of the screen labeled "System Serial 2" shall contain nine GUI "radio buttons", one for each of the selected slave or remote computer's eight communications ports, and one labeled "None."
 - 2.8.C.6.n.4.a. The Operator shall be able to assign a communications port of the computer to the modem by "clicking" on the appropriate radio button using the mouse-driven cursor.
 - 2.8.C.6.n.4.b. When assigned, a dot will appear within the radio button.
 - 2.8.C.6.n.4.c. A dot within any other button in the section shall automatically be removed so that only one communications port or "None" is selected.
 - 2.8.C.6.n.4.d. A dot in the "None" button shall indicate that that modem is not assigned to any communications port.
 - 2.8.C.6.n.4.e. The section shall also contain three radio buttons, one each labeled "9,600 baud", "19,200" and "38,400." The Operator shall be able to choose one of these buttons depending on the communication speed of the modem (or computer, if direct connect).
- 2.8.C.6.o. When "Remote setup" is chosen from the Setup menu, a "Set up slave and remote computer access" screen shall be displayed. This screen shall permit the Operator to set the default conditions of slave and remote computers and modems.
 - 2.8.C.6.o.1. The screen shall identify the computer presently being used as a default Master computer, a Slave computer, or a Remote computer, with a dot within a GUI "radio button" in front of one of the names.
 - 2.8.C.6.o.2. The Backup computer shall be considered a Slave computer, but the System may have more than one slave computer.
 - 2.8.C.6.o.3. The screen shall provide a check box labeled, "Escort alarms on slave"; wherein a check mark within the box shall indicate that the option is enabled. The Operator shall be able to place or remove a check mark by simply placing the mouse-driven cursor over the box and clicking a button on the mouse. When enabled, Alarms from System Software maintenance personnel and visitors shall display only on slave computers.

- 2.8.C.6.o.4. The screen shall permit the Operator to set up the computer's modem port for "Emergency answer only", "Master computer answers", "Slave computer answers", or "Direct connect port", with a dot within a GUI "radio button" in front of one of the names.
 - 2.8.C.6.o.4.a. If "Emergency answer only" is selected, the modem shall answer an incoming call after 10 rings at the Master computer. If the Master fails to answer, the Slave shall answer at 12 rings.
 - 2.8.C.6.o.4.b. If "Master computer answers" is selected, the Master computer's modem shall have responsibility for answering incoming calls at the selected number of rings. If the Master fails to answer, the Slave will answer at the (selected number plus two) rings.
 - 2.8.C.6.o.4.c. If "Slave computer answers" is selected, the Slave computer's modem shall have responsibility for answering incoming calls at the selected number of rings. If the Slave fails to answer, the Master will answer at the (selected number plus two) rings.
 - 2.8.C.6.o.4.d. If "Direct connect port" is selected, this shall be an indication that the modem port is directly connected to another computer.
- 2.8.C.6.o.5. The screen shall provide a check box labeled, "Answering machine override", wherein a check mark within the box shall indicate that the option is enabled. When enabled, and an answering machine has intercepted the incoming call, the modem shall be permitted to answer the next call after the first ring if the call is made within one minute of disconnecting from the answering machine.
- 2.8.C.6.o.6. The screen shall provide a check box labeled, "Pulse dial", wherein a check mark within the box shall indicate that the option is enabled. The Operator shall enable this option if the telephone system used uses pulse dialing. The Operator shall assure that this box is unchecked if the telephone system uses tone dialing.
- 2.8.C.6.o.7. The Operator shall be permitted to enter a number between 1 and 4 into a text box labeled, "Answer on ring" which will direct the modem to answer an incoming call after that number of rings.
- 2.8.C.6.o.8. The Operator shall be permitted to enter a "Dialing prefix" into the textboxes so labeled.
- 2.8.C.6.o.8. The Operator shall be permitted to enter a "Password" and a "Verify" password into text boxes so labeled.
 - 2.8.C.6.o.8.a. Both the Password and Password verification shall be identical keystrokes.
 - 2.8.C.6.o.8.b. For security reasons, both the Password and Password verification keystroke entries shall not echo back to the screen display.
 - 2.8.C.6.o.8.c. Passwords with five characters shall allow viewing of databases, only.
 - 2.8.C.6.o.8.d. Passwords with eight characters shall allow viewing and editing of databases.
 - 2.8.C.6.o.8.e. Passwords with twelve characters shall permit viewing and editing of databases and System parameters.
- 2.8.C.6.o.9. A section of the screen labeled "System serial ports" shall select the function of the system serial ports.
 - 2.8.C.6.o.10.a. The Disabled selection disables this system serial port.
 - 2.8.C.6.o.10.b. The History filter output selection sends the selected history filter output on this system serial port.

- 2.8.C.6.o.10.c. The Video switcher control selection sends the video switcher strings from the areas in alarm on this system serial port.
- 2.8.C.6.o.10.d. The Local service pages selection sends the local service paging output on this system serial port.
- 2.8.C.6.o.10.e. The Local security pages selection sends the local security paging output on this system serial port.
- 2.8.C.6.o.10.f. The All local pages selection sends all of the local paging output on this system serial port.
- 2.8.C.6.o.10. The Video switcher restore is the string that is sent to the video switcher output when the alarms are reset from the computer screen. It restores the video switcher to normal non-alarm operation.
- 2.8.C.6.o.11. The Set Up Slave and Remote Computer Access screen shall permit the Operator to enter modem initialization commands into a "Modem init" text box, and modem reset commands into a "Modem reset" text box.
- 2.8.C.6.o.12. The Set Up Slave and Remote Computer Access screen shall contain a "Save" button which, when chosen, shall save all changes. At the conclusion of the Save operation, the display shall return to the Normal Operating Screen.
- 2.8.C.6.o.13. The screen shall also contain a "Cancel" button. Choosing the Cancel button shall cause the display to return to the Normal Operating Screen if no changes have been made. If changes have been made and not saved, a pop-up Caution alert shall require the Operator to verify that the changes are to be saved, and the display to return to the Normal Operating Screen, by choosing a "Yes" option, or; nothing is to change, and the display to return to the Normal Operating Screen, by choosing a "No" option, or; the display to return to the Set Up Slave and Remote Computer Access screen by choosing a "Cancel" option.
- 2.8.C.6.p. When "Remote connection" is chosen from the Setup menu, a "Setup and monitor remote access" screen shall be displayed. This screen shall be used by the Operator to establish communications criteria between the Central Console's modem and a remote access modem.
 - 2.8.C.6.p.1. If no modem has been assigned to a computer port, the screen shall indicate that fact and shall provide only one "button" labeled "Cancel" which, when selected, shall return the display to the Normal Operating Screen.
 - 2.8.C.6.p.2. If a modem has been assigned to a computer port, the screen shall permit the Operator to select the system, that remote communications is to be established with, from a pull-down menu showing all of the established systems.
 - 2.8.C.6.p.3. An "Insert" button shall be provided on the screen which, when selected, shall cause a "Edit phone book record" screen to be displayed. This screen shall permit the Operator to insert modem communication information on a new system into the computer.
 - 2.8.C.6.p.3.a. Required information shall be the System Name, the Access Password, a second entry of the Access Password for verification, the phone number the other modem is connected to, and a 3 character System ID which the Operator shall enter into appropriate boxes on the screen.
 - 2.8.C.6.p.3.b. For security reasons, both the Password and Password verification keystroke entries shall not echo back to the screen display.
 - 2.8.C.6.p.3.c. The Edit Phone Book Record screen shall provide the Operator with a "Save" button which, when selected, shall add the information on the new system to the computer, and cause the Setup and Monitor Remote Access screen to be displayed.

- 2.8.C.6.p.3.d. The screen shall also provide the Operator with a "Cancel" button which, when selected, shall cause no changes to be made, and the Setup and Monitor Remote Access screen to be displayed.
- 2.8.C.6.p.4. An "Edit" button shall be provided on the screen which, when selected, shall cause a "Edit phone book record" screen to be displayed. This screen shall permit the Operator to change modem communication information on the selected system.
 - 2.8.C.6.p.4.a. The Edit Phone Book Record screen shall provide the Operator with a "Save" button which, when selected, shall save the changes to the computer, and cause the Setup and Monitor Remote Access screen to be displayed.
 - 2.8.C.6.p.4.b. The screen shall also provide the Operator with a "Cancel" button which, when selected, shall cause no changes to be made, and the Setup and Monitor Remote Access screen to be displayed.
- 2.8.C.6.p.5. A "Delete" button shall be provided on the screen which, when selected, shall cause a pop-up Caution alert requiring the Operator to verify that the information on the selected system is to be deleted from the computer, and the display to return to the Setup and Monitor Remote Access screen showing information on the next system, by choosing a "Yes" option, or; the computer is to remain unchanged, and the display to return to the same Edit Phone Book Record screen, by choosing a "No" option.
- 2.8.C.6.p.6. If the Operator is not at the Central Console or backup computer, the screen shall provide the Operator with a "Dial" button which, when selected, shall dial the phone number of the selected system. This button shall not be available to the Central Console or backup computer Operator.
- 2.8.C.6.p.7. If the Operator is at the Central Console or backup computer, the screen shall provide the Operator with an "Answer" button which, when selected, shall allow remote access to occur. This button shall not be available to the Operator of the remote modem's computer.
- 2.8.C.6.p.8. A "Disconnect" button shall be provided on the screen which, when selected, shall cause the modem to disconnect. If the modem is already disconnected, selecting the Disconnect button shall cause the modem to reset.
- 2.8.C.6.p.9. The screen shall also contain a "Cancel" button. Choosing the Cancel button shall cause the display to return to the Normal Operating Screen if no changes have been made. If changes have been made and not saved, a pop-up Caution alert shall require the Operator to verify that the changes are to be saved, and the display to return to the Normal Operating Screen, by choosing a "Yes" option, or; nothing is to change, and the display to return to the Normal Operating Screen, by choosing a "No" option, or; the display to return to the Setup and Monitor Remote Access screen by choosing a "Cancel" option.
- 2.8.C.6.q. When "Pager setup" is chosen from the Setup menu, a "Set up pager access - TAP or PET pager access protocol" screen shall be displayed. The Operator shall use this screen to set up messages to be sent to pagers worn by Security and Service personnel.
 - 2.8.C.6.q.1. One section of the screen shall be devoted to Service pager communications.
 - 2.8.C.6.q.1.a. The section shall provide a check box labeled, "Automatically send selected troubles", wherein a check mark within the box shall indicate that the option is enabled. The Operator shall be able to place or remove a check mark by simply placing the mouse-driven cursor over the box and clicking a button on the mouse. If enabled, the computer shall automatically send a message to the Service pager for any trouble selected in the Popup Trouble Filter under the Setup menu.

- 2.8.C.6.q.1.b. The section shall provide text boxes labeled "Phone number", "Password", and "Pager ID." The Operator shall use these boxes to enter the phone number of the Pager Service Company, any password required by the Pager Service Company, and the ID number of the Service pager.
 - 2.8.C.6.q.1.c. The section shall provide a text box labeled "Character limit" which the Operator shall use to enter a number representing the maximum number of characters permitted by the Pager Service Company to be in the message.
 - 2.8.C.6.q.1.d. The section shall provide a text box labeled "Pages per call" which the Operator shall use to enter a number representing the maximum number of messages to be sent in one call.
 - 2.8.C.6.q.1.e. The section shall provide a text box labeled "Pager group" which is the group of pagers that are to receive all service pages.
 - 2.8.C.6.q.1.f. The section shall also contain three radio buttons, one each labeled "300 baud", "1200 baud" and "9600 baud." The Operator shall be able to choose one of these buttons depending on the communication speed required by the Pager Service Company.
 - 2.8.C.6.q.1.g. The Service Pager section shall also contain text boxes labeled "System name", and "System phone" which the Operator shall use to enter a shortened or cryptic name of the System, and a telephone number for the Service person to call, which shall be part of the message sent.
- 2.8.C.6.q.2. One section of the screen shall be devoted to Security pager communications.
- 2.8.C.6.q.2.a. The section shall provide a check box labeled, "Send Security Escort demo alarms", wherein a check mark within the box shall indicate that the option is enabled. The Operator shall be able to place or remove a check mark by simply placing the mouse-driven cursor over the box and clicking a button on the mouse. If enabled, the computer shall automatically send information only on Alarms from demonstration transmitters to the Security pager, unless a check box labeled "Send all other alarms" is also checked which will then cause all Alarms to be sent.
 - 2.8.C.6.q.2.b. The section shall provide a check box labeled, "Send all other alarms"; wherein a check mark within the box shall indicate that the option is enabled. If enabled, the computer shall automatically send information on all Alarms except those from demonstration transmitters, unless a check box labeled "Send Security Escort demo alarms" is also checked which will then cause all Alarms to be sent.
 - 2.8.C.6.q.2.c. The section shall provide text boxes labeled "Phone number", "Password", and "Pager ID." The Operator shall use these boxes to enter the phone number of the Pager Service Company, any password required by the Pager Service Company, and the ID number of the Security pager.
 - 2.8.C.6.q.2.d. The section shall provide a text box labeled "Character limit" which the Operator shall use to enter a number representing the maximum number of characters permitted by the Pager Service Company to be in the message.
 - 2.8.C.6.q.2.e. The section shall provide a text box labeled "Pages per call" which the Operator shall use to enter a number representing the maximum number of messages to be sent in one call.
 - 2.8.C.6.q.2.f. The section shall provide a text box labeled "Pager group" which is the group of pagers that are to receive all security pages.

- 2.8.C.6.q.2.g. The section shall also contain three radio buttons, one each labeled "300 baud", "1200 baud" and "9600 baud." The Operator shall be able to choose one of these buttons depending on the communication speed required by the Pager Service Company.
- 2.8.C.6.q.2.h. The Security Pager section shall contain a check box labeled "Cancel page if alarm reset" which, if enabled with a check mark by the Operator, shall cancel the pager transmission if the Alarm is reset before the transmission is sent.
- 2.8.C.6.q.2.i. The section shall also contain a check box labeled "Send page a second time, 2 minute delay" which, if enabled with a check mark by the Operator, shall cause a second pager transmission of the same message to be sent two minutes after the initial pager transmission.
- 2.8.C.6.q.3. The Set Up Pager Access screen shall contain a text box labeled "Modem init" which shall permit the Operator to enter modem initialization commands for use prior to each pager transmission.
- 2.8.C.6.q.4. The screen shall also contain a "Save" button which, when chosen, shall save all changes. At the conclusion of the Save operation, the display shall return to the Normal Operating Screen.
- 2.8.C.6.q.5. The screen shall also contain a "Cancel" button. Choosing the Cancel button shall cause the display to return to the Normal Operating Screen if no changes have been made. If changes have been made and not saved, a pop-up Caution alert shall require the Operator to verify that the changes are to be saved, and the display to return to the Normal Operating Screen, by choosing a "Yes" option, or; nothing is to change, and the display to return to the Normal Operating Screen, by choosing a "No" option, or; the display to return to the Set Up Pager Access screen by choosing a "Cancel" option.
- 2.8.C.6.r. When "Send pager message" is chosen from the Setup menu, a "Send a pager text message" screen shall be displayed. This screen shall be used by the Operator to initiate a message to either a Service or Security pager.
 - 2.8.C.6.r.1. If no modem port has been assigned to a computer port, the screen shall indicate that fact and shall provide only one "button" labeled "Cancel" which, when selected, shall return the display to the Normal Operating Screen.
 - 2.8.C.6.r.2. If a modem port has been assigned to a computer port, the screen shall provide the Operator with a text box allowing the Operator to type a message to be sent to the pager.
 - 2.8.C.6.r.3. The screen shall provide the Operator with a button labeled "Send Service" which, if selected by the Operator, shall send the typed message to the Service pager.
 - 2.8.C.6.r.3.a. During the transmission process, until the modem receives a successful transmission from the Pager Service Company, the "Send Service" and "Send Security" buttons shall be removed from the screen and the screen shall continually update with messages showing the status of the pager transmission.
 - 2.8.C.6.r.3.b. Upon successful completion of the message transmission to the Pager Service Company, the display shall return to the "Send a pager text message" screen.
 - 2.8.C.6.r.4. The screen shall provide the Operator with a button labeled "Send Security" which, if selected by the Operator, shall send the typed message to the Security pager.

- 2.8.C.6.r.4.a. During the transmission process, until the modem receives a successful transmission from the Pager Service Company, the "Send Service" and "Send Security" buttons shall be removed from the screen and the screen shall continually update with messages showing the status of the pager transmission.
 - 2.8.C.6.r.4.b. Upon successful completion of the message transmission to the Pager Service Company, the display shall return to the "Send a pager text message" screen.
 - 2.8.C.6.r.5. The Pager group is the group of pagers that are to receive this page.
 - 2.8.C.6.r.6. The Send to group button will send this page to all pagers in the indicated pager group.
 - 2.8.C.6.r.7. A drop-down list of Individuals with pagers is provides so a single individual can be selected to receive this page.
 - 2.8.C.6.r.8. The Send to individual button will send this page to the selected individual.
 - 2.8.C.6.r.9. The screen shall provide the Operator with a button labeled "Stop all pages" which, if selected by the Operator, shall cancel the command to transmit the message and/or cause the modem to disconnect from the Pager Service Company, if on-line.
 - 2.8.C.6.r.10. The screen shall provide the Operator with a "Cancel" button which, when selected, shall cause the display to return to the Normal Operating Screen.
- 2.8.C.7. A "Printer" Menu shall be available from the Menu Bar.
- 2.8.C.7.a. The Select Alarm Printer screen allows a printer to be selected to receive all of the alarm, trouble and other real time output.
 - 2.8.C.7.b. The Select Report Printer screen allow a printer to be selected to receive all report output.
 - 2.8.C.7.c. The Print History Screen menu selection outputs the history screen to the report printer.
 - 2.8.C.7.d. The Print File selection allows any text file to be printed to the report printer.
- 2.8.C.8. A Network Menu shall be available from the Menu Bar to setup and monitor the network connections.
- 2.8.C.8.a. The System Directory and Network Address screen sets up the network directories and network addresses allowing the computers to communicate over a TCP/IP network and share the database files.
 - 2.8.C.8.a.1. The Set System Preferences screen shall show the "Database path" by indicating the local or network computer drive and sub-directory used.
 - 2.8.C.8.a.2. The screen shall also show the "Local Escort path" by indicating the local computer drive and sub-directory used by Escort.
 - 2.8.C.8.a.3. The screen shall also show the "Backup/ restore to disk cartridge path" by indicating the local or network computer drive and sub-directory used
 - 2.8.C.8.a.4. The screen shall also show the "Subscriber image file path" by indicating the local or network computer drive and sub-directory used
 - 2.8.C.8.b. The Network Socket Status screen allows monitoring the connection statistics for the TCP/IP network connection.
 - 2.8.C.8.c. The Get this Computer's Winsock Data menu selection displays the TCP/IP socket information for this computer.
 - 2.8.C.8.d. The Get this Computer's Name and Address menu selection displays the network name and IP address for this computer.

- 2.8.C.9. An "About" Menu shall be available from the Menu Bar which shall provide the Operator with information about the Central Console computer and the version of the Application Software currently installed.

2.9. RS485 Data Bus Cabling

- 2.9.A. Four conductor, unshielded, jacketed #22 A.W.G. solid-conductor cable shall be used as an RS485 Data Bus to connect up to 20 Transponders to the Central Console. The conductors shall be grouped into pairs with each pair twisted on its own axis.
- 2.9.B. The maximum length of each bus shall not exceed [15,000 feet] [4,500 meters].
- 2.9.C. The Transponders shall be daisy-chained to the bus, and the System design shall permit daisy-chaining in any order.
- 2.9.D. Outdoor cabling shall be [in conduit] [or] [direct burial], and shall not be strung overheadPart 3 - Execution

3.1. Installation

- 3.1.A. Installation shall be accomplished in a professional manner by qualified personnel regularly engaged in and experienced in this type of work.
- 3.1.B. Install necessary wiring in accordance with manufacturer's recommendations and this document.
- 3.1.C. All wiring shall be installed in accordance with NFPA 70, the National Electrical Code.
- 3.1.D. Provide a dedicated 120 volt, 20 ampere circuit in separate conduit as a source of primary power for the Central Console.
- 3.1.E. Install all Central Console hardware and software, initialize all databases, and assure real-time communication between the main and backup computers.
- 3.1.F. Perform walk tests and set up procedures for each receiver as specified by the manufacturer to insure that all boundaries of coverage are sufficient to detect alarm transmissions in each intended coverage area.
- 3.1.G. Installation Contractor shall provide complete wiring diagrams to the Electrical Contractor as part of the shop drawing submittal, and shall supervise the installation in order to insure a complete operating and trouble-free system.
- 3.1.H. Provide (___) sets of keys for all panels, stations and devices.

3.2. Testing

- 3.2.A. Installation Contractor shall submit a written test report that the system has been 100% tested and approved. Final test shall be witnessed by the [Owner,] [Engineer,] [Electrical Contractor,] [Chief Security Officer,] and performed by the Installation Contractor. Final test report must be received and acknowledged by the Owner prior to request for final payment.
- 3.2.B. Provide instruction to the Owner's satisfaction with regard to proper use and operation of the system.

3.3. Warranty

Entire system shall be warranted against equipment failure and installation defects for a period of (_____) from the date of acknowledged Owner acceptance of final test.

