

NATIONAL GUARDIAN CORPORATION
THE SILENT WATCHMAN DIVISION
TECHNICAL DATA

CONTROLPLEX DATA

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February 12, 1992

CONTROLPLEX

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I. OVERVIEW

- A. The Controlplex is a small to medium sized multiplex system consisting of two different units: BAA1548 which will handle up to 30 zones and 15 outputs. BAA1549 which will handle up to 100 zones and 50 outputs. Both systems allow many programmable features such as a 20 character description of each zone, up to 26 different zone types, 250 user access codes which can be programmed to limit to only certain features, and many more. Both systems require a dual input LEM (BA1550) for each 2 zones used and a output C-LEM (BA1551) for each remote output used.

II. FEATURES

- A. 30 or 100 zone inputs.
- B. 15 or 50 outputs.
- C. The 100 zone model is also available as a BAA1600 which includes the 100 zone Controlplex, desk top enclosure, power pack, printer, printer buffer, power strip, and surge suppressor.
- D. 13 programmed zone types (priorities), 10 spare.
- E. 20 character display for system status and zone description
- F. 1000 event memory of past events which can be recalled to the display for review or can be printed when using the optional printer.
- G. Printer output for connecting a serial printer.
- H. 250 user access codes and 1 service code.
- J. Keyboard built onto face of unit.
- K. User codes may be programmed and limited to the functions they can perform.
- L. .5 Amps of continuous current draw available for powering detectors.
- M. Built in sonalert for entry/exit tones and annunciation of alarm messages.
- N. Keyboard contains a "HELP" key for when the customer needs assistance performing a certain function.

III. SPECIFICATIONS

- A. Power requirements = 16-17VAC, 25VA Transformer
- B. Back-up power requirements = 12VDC, 6.5AH Battery
- C. Auxilliary Power available = 12VDC, .5A Continuous
- D. Fuses= Both Battery fuse (F1) and Aux. 12VDC (F2) = 2A
- E. Printer Port = Serial 1200 BAUD, 7 data bits, odd parity, one stop bit, X-on X-off protocall.
- F. Relay dry contacts of panel and C-LEMs = 1.5 amps.
- G. Transistor driver outputs of panel = 50 milliamps.

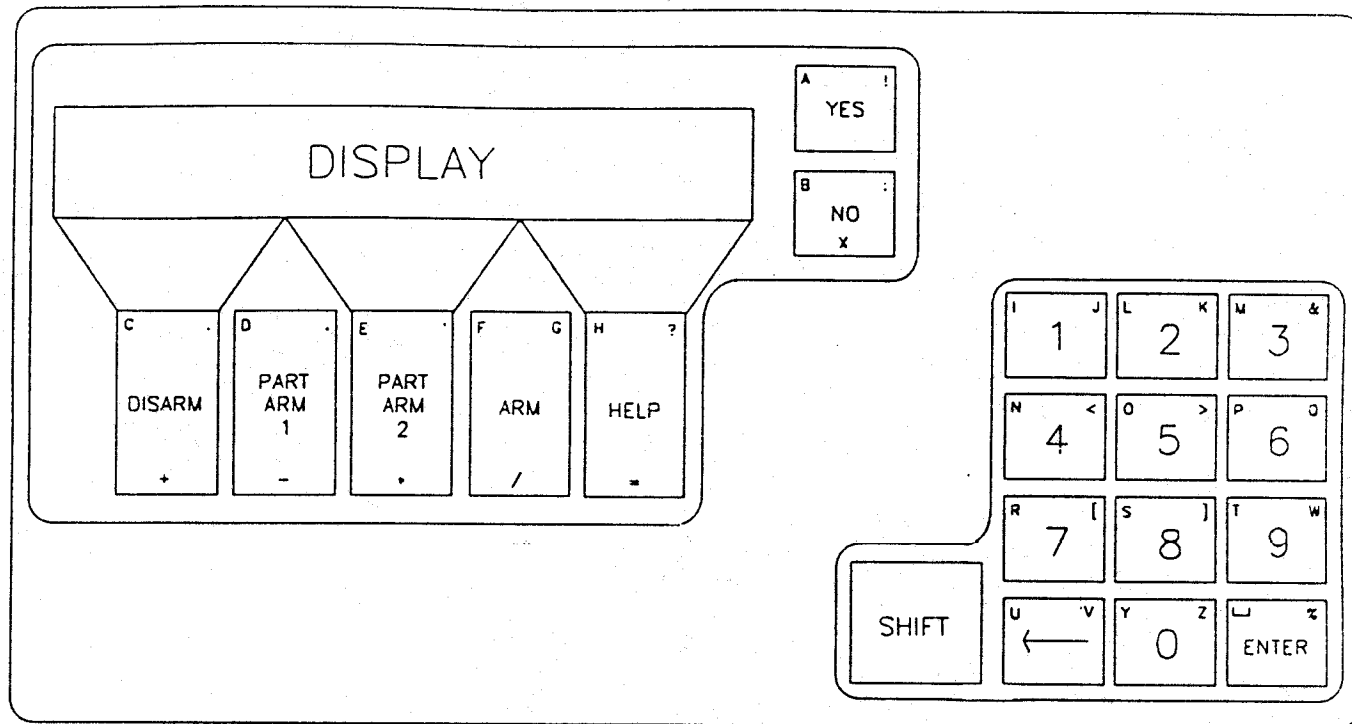
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IV. KEYBOARD



CONTROLPLEX KEYPAD LAYOUT

- A. KEYBOARD - The keyboard consists of flat membrane switches which provide no tactical feedback, therefore an audible feedback is provided in the form of a short 'blip' from the P.C board mounted buzzer to confirm operation of the key. If a key is depressed for longer than a second, that key function will auto-repeat at a rate of 8 characters per second. The keyboard consists of all numeric keys (0 - 9), a full set of alphabet keys (A - Z), and some certain special symbol keys (Example: *, [,], ,, %, / and so on).
- B. FUNCTION KEYS - Also provided are special function keys which consist of a YES key - represents "YES" or "ACCEPT", NO key - represents "NO" or "EXIT", DISARM key - represents "DAY" or "STANDBY" mode, PART ARM 1 key - represents "WALKTEST SETUP" mode, PART ARM 2 key - represents "MAINTENANCE" mode, ARM key - represents "NIGHT" or "FULLY ARMED" mode, HELP key represents "HELP" mode, <-- key represents the back-space function, and the ENTER key represents the ENTER function.
- C. SHIFT FUNCTION - All keys represent the 3 functions which are indicated on each key by a character in the upper left side of each key, a character in the upper right side of each key, and a character in the center or middle bottom of each key. The different functions of each key are

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obtained by utilizing the "SHIFT" key which is standing alone on the left side of the numeric keypad. Under normal circumstances the flashing cursor is represented by a flashing "^" or up arrow. This indicates the center or lower middle character of each key is in operation. By pressing the shift key once the cursor will change to a "<" which indicates the upper left character of each key is in operation. By pressing the shift again the cursor will change to a ">" which indicates the upper right character of each key is in operation. By pressing the shift again the cursor will change back to a "^". The shift key is only used for special mode selections during normal operation but is used quite frequently when entering program information such as zone descriptions and names of access code holders which will be discussed later in this manual.

- D. ENTERING PROGRAM DATA - While entering program data certain function keys take on new functions, the Yes key while the cursor is a "^" character will now move the cursor to the right without deleting any character as the cursor passes over them, the back-space key will still move the cursor left without deleting any character as the cursor passes over them, the ENTER key while the cursor is a "<" character will generate empty spaces for spacing between words etc., the SHIFT key itself when held down for longer than a second will delete characters at a rate of 4 characters per second.
- E. ENTERING/EDITING DESCRIPTIONS - When entering new descriptions or adding to them, any character entered over another character will insert the character entered, and anything after the inserted character will move 1 space to the right. Thus any character may be inserted without re-entering all the characters that appeared after the insertion. In order to change a character, the new character may be entered then the old character deleted by holding the shift key down, or the old character may be deleted first and then the new character entered.

V. ZONE PROGRAMMING

- A. ZONE INFORMATION - All zones, no matter which type are protected against tamper and disconnection. This protection is 24 hours a day however it will not trip the night alarm outputs during the day mode but will during the night or maintenance modes. For any tamper or disconnection alarm, output #6 will trip.
- B. ZONE TYPES - Zones may be assigned to any one of 10 different types. Besides these 10 types there is room to create 16 other types for speciality purposes. The 10 types are listed below along with a description of their operation.
 - 1. ACCESS - These zones are only active in night mode. They behave like EXIT zones during exit and entry periods and like night zones otherwise. Use for motion detectors or doors on the exit entry route.

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- which may be triggered to provide access from the unit to the final entry exit door.
2. RECVNG - This zone type is for receiving doors. They provide a day local bell output when a C-LEM is used. The output C-LEM must be addressed to the same number as the input zone. The local bell will continue to sound until the zone is acknowledged at the panel. The panel will display "RECVNG DOOR OPENED" upon alarm. During night or maintenance mode they trip the night alarm outputs. Precaution: Recvng type zones must range between zones 11 to 50.
 3. MAINT (MAINTENANCE) - These zones are shunted during the day and maintenance modes, armed during the night. At night these zones trip the night alarm outputs.
 4. SAFE - This zone type is for connecting to a safe. They provide an output for a local bell during the day mode when using an output LEM (C-LEM). The output LEM must be addressed to the same number as the zone number. The local bell will continue to sound until the zone is acknowledged at the panel. During the night or maintenance modes these zones will cause an alarm. The message "SAFE DOOR OPENED" is displayed. Precaution: Safe type zones must range between zones 11 to 50.
 5. EXIT - This is the final exit detector, usually the main entrance door. Active in maintenance and night mode. In either night or maintenance modes they may be opened during the exit period to allow exit. After the exit if this zone is still open, the night alarms are activated and the message "EXIT TIMED OUT" is displayed. Upon entry this zone starts the entry timer. If the panel is not set to either day or maintenance mode before the entry time is expired the message "SLOW ENTRY ALARM" is displayed and the night alarm outputs will trip.
 6. FIRE - This zone type is for annunciating and logging zones of a fire panel. THE CONTROLPLEX IS NOT DESIGNED TO BE A FIRE PANEL BY ITSELF. No outputs are activated in any mode.
 7. SMOKE - This zone type is for annunciating and logging zones of a smoke panel. THE CONTROLPLEX IS NOT DESIGNED TO BE A SMOKE PANEL BY ITSELF. No outputs are activated in any mode.
 8. TAMPER - This zone type is for 24 zones. They do not trip the night alarm outputs in the day but do trip them in the night or maintenance modes. The panel will display "TAMPER ALARM". These are zones which should never open during the day or night.
 9. VAULT - This zone type is for connecting to a vault. It provides an output for a local bell during the day mode when using an output LEM (C-LEM). The output LEM must be addressed to the same number as the zone number. The local bell will continue to sound until the zone is acknowledged at the panel. During the

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- night or maintenance modes these zones will cause an alarm. The message "VAULT ALARM" is displayed. Precaution: Vault type zones must range between zones 11 to 50.
10. LOKSTK - This zone type is for connecting to interior lock stock rooms (rooms which remain locked during the day). It provides an output for a local bell during the day mode when using an output LEM (C-LEM). The output LEM must be addressed to the same number as the zone number. The local bell will continue to sound untill the the zone is acknowledged at the panel. During the night or maintenance modes these zones will cause an alarm. The message "LOCKSTOCK ALARM" is displayed. Precaution: Lockstock type zones must range between zones 11 to 50.
11. NIGHT - Normal alarm zone. No alarms during the day mode but will alarm during the night and maintenance modes. They will also trip the night alarm outputs during these modes.
12. SOAK - This zone type is testing troublesome detectors. Tamper and discon alarms are not affected but activity is logged only in night mode. No alarms are triggered in any mode. This zone type should not be assigned unless under the advisement of technical services.
13. FIRE X - This zone type is for fire exit doors. They provide a day local bell output when a C-LEM is used. The output C-LEM must be addressed to the same number as the input zone. The local bell will continue to sound untill the the zone is acknowledged at the panel. The panel will display "FIRE DOOR OPENED" upon alarm. During night or maintenance mode they trip the night alarm outputs. Precaution: Fire X type zones must range between zones 11 to 50.

VI. OUTPUTS

- A. OUTPUT DESIGNATION - There are seven individually controlled outputs at the control unit, 3 relays and 4 transistor drivers. All are also available as C-LEMs 1-7. In addition C-LEMs 8-15 (Or 8-50 for the 100 zone models) may be used. The designated outputs are as follows:

OUTPUT	FUNCTION
1 (RELAY)	Day / Night indication
2 (RELAY)	Maintenance and night alarm output, 1 time
3 (DRIVER)	Maintenance and night alarm output, on/off
4 (DRIVER)	(Not Assigned)
5 (DRIVER)	(Not Assigned)
6 (DRIVER)	TECHNICAL PROBLEM (TAMPER, MAINS, BATTERY)
7 (RELAY)	(Not Assigned)
8 (C-LEM)	Buzzer (Follows the buzzer on P.C. board)
9-10 (C-LEM)	(Not Assigned)
11-50 (C-LEM)	(USED FOR ZONE ANNUNCIATION DURING DAY

All outputs are reset on entry to DAY mode.

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- B. MULTIPLE INPUTS TRIPPING SAME OUTPUT - Outputs 11-50 may be used for day supervised zones which require outputs for day bells. Zone types which use day outputs are Recvng, Safe, Vault, Lokstk and Fire X. These outputs are addressed to the same number as the input zone it is to annunciate. The output will come on when the zone trips and will remain on until the alarm is acknowledged. No programming is required for this operation. In some cases it may be necessary to have one single output tripped by more than one zone. ~~To use this feature the inputs must be in succession and start with one of the following numbers: 11, 17, 23, 29, 35, and 41.~~ The single output must be addressed as the first zone of the sequence (11, 17, 23, 29, 35, and 41). Multiple inputs must be programmed to use this feature. This is programmed under the Variables (Vars) section. To program, enter <CODE><D>. Press <HELP> to select variables. Press <ENTER> to step through the options until the display shows "ZONE 11 TO? 12". This option is for output 11. The zones must start with the first zone shown (this case it's 11). The variable "12" is what can be re-programmed and is to be one higher than the last zone of the sequence. In default as shown, only zone 11 will trip output 11. The variable 12 means that all zones up to but not including itself will trip output 11. Example: if zones 11-14 are to trip output 11 the variable would be set to 15. Each of the other outputs (17, 23, 29, 35, and 41) are programmed each with their own variable entry.
- C. OUTPUT LOGGING - The outputs can be logged and printed when desired. This option is also a variable in the variable section. The option is "OUTPUT ON1/OFF0:0". The "0" after the colon indicates the status. A "0" indicates that output logging is turned off. A "1" would indicate that output logging is turned on. To change, enter the new value (0,1) and press <ENTER>. After exiting from the variable section, enter <CODE><DISARM> to select day mode again. This activates the new entry.

VII. SYSTEM OPTIONS

If keycodes have less than 4 digits, the sequence shown must be followed with <ENTER>.

- A. ACKNOWLEDGE - <CODE><0> - This option is used to accept warning messages created by the panel. Example: Message "ZONE TAMPER ALARM" is repeatedly displayed after a TAMPER or DISCON state on an "ON-LINE" input during DAY mode. The buzzer will also be activated and both indications will continue until the message is acknowledged. By entering <CODE><0> the alert messages will be displayed one at a time with a "?" following each one. By pressing the Yes key the alert message displayed is acknowledged and the panel will display "ACKNOWLEDGE". If several alert messages have been generated by the panel and the user does not wish to acknowledge all of these, press NO when the message is displayed. The panel will proceed to the next

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- alert message to be dealt with. On exit from this mode the message "FINISHED" is displayed briefly.
- B. DAY MODE - <CODE><DISARM> - This is the normal day time operating mode. The date and time together with any zones which are not in the closed state will be displayed alternately in this mode. Open zones will only cause the zone description to be displayed and not the zone state (Example: "NIGHT 1 OPEN"). A TAMPER or DISCON condition on any of the zones will cause an alarm which is logged in the system log and both the zone description and zone state are displayed. All alarm outputs are reset on entry to this mode.
- C. WALKTEST SETUP DONE - <CODE><PART ARM 1> - In this mode the local day bells are all reset every 5 seconds so the system can be walktested using the walktest mode. This mode keeps the bells from ringing during the entire walktest. This mode is automatically exited when the alarms are acknowledged after the walktest is finished.
- D. MAINTENANCE MODE - <CODE><PART ARM 2> - In this mode MAINT and ACCESS zones cause no alarm. The EXIT zone will follow the entry and exit delays but is armed. When selected, the unit will display "MAINTENANCE MODE". All zones other than Access, Maint., and Exit must be secure (or disabled) to enter this mode.
- E. NIGHT MODE - <CODE><ARM> - This is the night time / premises unoccupied operating mode. When in this mode the display will show "NIGHT MODE". All zones must be secure (or disabled) and the AC power must be on to enter this mode. If the AC is off see "ARMED WITH AC OFF". All zones will cause an alarm during this mode. The EXIT and ACCESS zones will follow the exit and entry delays.
- F. HELP - <CODE><HELP> - This option is available to all users with a valid user code who may have either forgotten the keys for the different commands or is not sure of which system options may be used. Having entered his/her user code the user would then press <HELP> (followed by the ENTER key if the code contains less than 4 digits). The panel will display "SELECT AN OPTION" followed by the first option available to that user. The option will have a "?" beside it and if the user wishes to select this option the YES key is pressed, otherwise, to continue to the next available option, the NO key is pressed. This routine will be repeated until an option is chosen by the user. The panel will only display options available to this user and options not available will not be displayed.
- G. ARMED WITH AC OFF - <CODE><6> - This mode allows the system to be fully armed in the event of an AC power failure. When selected the fully armed mode is entered if all other setting conditions are met.
- H. SET DATE/TIME - <CODE><T> - NOTE: to get the "T" you must use the shift key so cursor is pointing "<". On entry the unit will display the current date and time with a flashing curser at the far left side. The unit will display the date and time as MM/DD/YY HH/MM/SS with a flashing

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curser at the far left side. The curser indicates which digit to be changed. All entries are two digits so if the entry has only 1 digit then a 0 must precede the actual entry (example: 1/1/87 would be 01/01/87). After an entry has been made the curser will automatically move to the next position to the right. If a digit does not need to be changed, the YES key may be used to move the curser to the right. In addition, the back-space key may be used to move the curser to the left. When the date and time appear to be correct, press <ENTER>. After entry of the correct time in the correct format, the unit will display "ENTER DAY NO.". Enter the correct day number (SUN=1, MON=2,...SAT=7) then <ENTER>.

- J. SYSTEM LOG - <CODE><YES> - Upon selection of this mode, "PRINT LOG?" is displayed and provided a suitable printer is attached, a hard-copy record of the system log may be printed by pressing <YES>. "PRINTING SYSTEM LOG" is displayed while printing is in progress. If a printed copy is not required, press <NO> and the log will be displayed to the screen. To exit the log before it is finished, press <NO>, the display will momentarily display "FINISHED" then return to normal operation. The log will begin with the latest event and work backwards until all the previous 300 events have been displayed (or printed). The format shows the date and time for each event with two asterisks (**) between the date and time so the log may easily be distinguished from the normal date and time display. While the log is being displayed to the screen the log may be advanced to the next event by pressing any key other than NO (which causes the log to be exited) or the PART ARM 1 key. The PART ARM 1 key causes the display to "rewind" to the previous displayed event.

- K. INHIBIT MODE - <CODE><X> - This option allows the user to inhibit single or blocks of zones, clear existing inhibits or re-inhibit zones from previous memory. Zones which are inhibited will only report a tamper or discon state (open and closed states will be ignored). All Inhibits are automatically removed by the system when the system is set to either night or maintenance modes. Having entered the user code and then pressing <NO> (and enter if user code has less than 4 digits) the display will read "MEMORY INHIBIT CLEAR" which will continue to flash until a valid choice is made.
- TO INHIBIT press <PART ARM 1>. "INHIBIT FROM 1" is displayed. Enter the number of the first zone to be inhibited and then <ENTER>. The next displayed message is INHIBIT TO 1". Enter the number of the last zone in the block of zones to be inhibited. This will be the same as the first zone if only one zone is required. For example to inhibit zone 8 press <8> when the display shows "INHIBIT FROM 1". The display will respond with "INHIBIT TO 8". Eight will already be entered because that was your previous choice. Simple press <ENTER> and the display will respond with "1 INHIBITS" and the buzzer will sound

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briefly. "QUIT ?" is then displayed. Press <YES> to exit or <NO> to return to the three functions.
TO CLEAR INHIBITS press <HELP> when "MEMORY INHIBIT CLEAR" is displayed. "CLEAR FROM 1" will appear. Enter the choices as described in above for the inhibit feature. When finished the display will show the number of inhibits as above followed by "QUIT ?". Press <YES> to exit or <NO> to return to the three functions.

MEMORY FUNCTION - By pressing <DISARM> while "MEMORY INHIBIT CLEAR" is displayed, the number of inhibited zones from memory will be re-inhibited.

UPON EXIT - The number of inhibited zones, if any, is always displayed when any of the modes is entered (DAY, NIGHT, and MAINTENANCE).

INHIBIT LIMIT FUNCTION - The system may be set up so that only zones up to a certain zone number may be inhibited. In the section "Variables" one of the variables is the question of the "Inhibit Limit". When a number is entered in this position then only zones 1 to what ever the limit was set to, may be inhibited. Example: If the "Inhibit Limit" was set to 10 then only zones 1 through 10 may be inhibited or any part thereof. It does not mean that any zones up to 10 may be inhibited. It means only zones 1 through 10, any zone above 10 may not be inhibited.

L. SINGLE ZONE INHIBIT - <CODE><1> - This option allows a user to select inhibit for one zone with fewer keystrokes. To select enter <CODE> followed by <1>. The display will respond with "INHIBIT ZONE?". Enter the zone number you wished inhibited followed by <ENTER>. Display will respond with the total number of inhibited zones and then return to normal.

M. SERVICE MODE - <CODE><A> - NOTE: to get the "A" you must use the shift key so cursor is pointing < - Service mode offers 3 choices: ON LINE REPORT, WALKTEST MODE and SINGLE ZONE MONITOR. Enter service user code followed by shift key then <YES>. The display shows "REPORT TEST MONITOR".
ON LINE REPORT: The on-line report, selected with the DISARM key, displays all zones which are connected to the panel, whose state was not discon at the last LEM line initialization. The report starts with the zone which has the lowest number on the system and increases numerically until all the on-line zones have been reported. It also gives the option of having this report printed out, as before, providing a suitable printer is connected. The report will show what type of zone it is, the current status, the analog value, and description. Also while either observing the display or reading the print out if a "*" appears before the zone it indicates that the zone has been inhibited (accessed). Examples are shown below.

```
EXIT    1  CLOSED  [28] ASSOCIATE ENT DRS = ZONE NORMAL
*EXIT   1  CLOSED  [28] ASSOCIATE ENT DRS = NORMAL + INHIBITED
EXIT    1  OPEN    [42] ASSOCIATE ENT DRS = ZONE ALARM
*EXIT   1  OPEN    [42] ASSOCIATE ENT DRS = ALARM + INHIBITED
```

The NO key will abort the report

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WALKTEST: The walktest mode, selected with <PART ARM 2>, is designed to ensure that all zones and their associated detectors are working correctly (such as open and close conditions). Upon entering this mode the display will show "WALKTEST" followed by "TEST 1" (if 1 is on line). When zone 1 is activated the panel will report this by displaying "TEST 1 = 1 CLOSED", then it continues to the next zone on the system and will display "TEST 2 = 1 CLOSED" (assuming zone 2 is on-line). It will then wait until that zone is activated before going on to the next zone that is on-line. If zones other than the one requested are activated the system will note this and will not ask specifically for them when their turn comes. If a zone cannot be tested it may be skipped by hitting any key except NO which is used to exit the walktest mode. All zones which are skipped will be logged by the printer. When all zones have been tested or skipped, the printer will print how many zones were tested and how many zones were not tested. NOTE: Day zones which have a day bell for annunciation will still cause the bell to sound, therefore it is recommended to select "WALKTEST SETUP DONE" prior to selecting "WALKTEST" mode. This will automatically silence the bells every 5 seconds.

SINGLE ZONE MONITOR: The single zone monitor mode allows the user to look at any zone individually and will display its state and analog value. Once the user has entered the zone number and pressed Enter it is then possible to increment (DISARM key) or decrement (PART ARM 1 key) the zone number without having to exit and re-enter this mode.

The display will look as follows:

TYPE # STATE ANALOG VALUE
NIGHT 14 CLOSED [28] - if the input is on-line.
NIGHT 14 CLOSED *28* - if the input is not on-line.

The analog value displayed will increase on systems with long cable runs or cable with high capacitance. The buzzer is used in this mode to indicate the state of the lem input under test. The relationship between buzzer sound and the state of the input is as follows:

STATE OF INPUT	BUZZER STATE	ANALOG VALUE	
		MIN.	MAX.
CLOSED	OFF	24	37
OPEN	LONG BEEP	39	51
SHORT	FAST BEEP	0	14
DISCON	CONTINUOUS	64	89

N. DISABLE MODE - <CODE> - Similar format to INHIBIT MODE with the main difference being that inputs which are disabled are treated as if they were no longer on-line (no change in state is displayed). Zones which are disabled will stay disabled until cleared. On entry into this mode when there are some inputs already disabled the panel asks if you wish to clear these with the message "CLEAR DISABLES"

Star in front
of line on screen
means Pts in
inhibit mode
→ *

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- ?" which requires a <YES> or <NO> response. The number of disables, if any, is displayed each time the standby mode is entered. The number of the input at which the disable will start must be entered when "DISABLE FROM 1" is displayed, then press <ENTER>. The next message is "DISABLE TO 1" which requires the number at which the disable ends to be entered followed by <ENTER>. The panel then shows "n DISABLES" where n = number of zones disabled on the system. Exit is then automatic from this option.
- O. SET ALL USER ID'S/OPTIONS - <CODE><C> - On setting up the system initially, the master-user will wish to give codes to the general user and restrict certain users access to the system using this. The panel will display "ID.S OPTIONS NAMES".
- ID'S - To select "ID.S", simply press <DISARM>. The display will change to "ENTER USER NO 1". Enter the user number to be changed (from 1 to 18) followed by <ENTER>. The display will change go "ENTER CODE 1". Enter the new code from 1 to 4 digits in length followed by <ENTER>. The panel will display "ENTER USER NO 2", select the user code to change or press <NO> to exit this mode. NO TWO USER CODES MAY BE THE SAME.
- OPTIONS - To select "OPTIONS", press <PART ARM 2> when "ID.S OPTIONS NAMES" is displayed. "ENTER USER NO 1" is displayed. Enter the user number (1-18) followed by <ENTER>. The panel will display "DAY MODE NO" with the NO flashing. If this user number has had the ability to use this option before, then the display will show "DAY MODE YES" with the YES flashing. If this user number is to have the option of entering Day mode press <YES>. If this user number is not to have the option of entering Day mode press <NO>. The panel will then proceed through all the options waiting for a YES or NO response for each option. After all options have been answered, then the panel will respond with "ENTER USER NO 2". If another user code options are to be set then enter the next user code (1-18) and repeat the above process. When finished press <NO>.
- NAMES - To select "NAMES", press <HELP> when "ID.S OPTIONS NAMES" is displayed. "ENTER USER NO 1" is displayed. Enter the user number (1-18) followed by <ENTER>. The panel display will be blank with a flashing "^" cursor at the left hand side. The panel is now ready for you to enter the person's name that holds that user code. Enter the name (up to 20 characters) followed by <ENTER>. This name will then appear in the log and / or on the printer whenever this user code is used to perform an option. The panel will then display "ENTER USER NO 2". Enter the next user number (1-18) or <NO> to exit.
- P. SET DESCS/TYPES/VARS - <CODE><D> - This mode allows direct entry at the panel of the zone descriptions associated with each zone (such as "FRONT DOOR"), programming the type of zone and changing the system variables (exit time, entry time etc.). Upon entry to this mode the display will show "DESCS TYPES VARS".

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DESCRIPTIONS - To select DESCS (descriptions), press <DISARM>. The unit will display "ENTER ZONE NO. 1". Select the zone that you wish to give or change the description to. Input that number followed by <ENTER>. The display will then show the current description with the cursor flashing at the left hand side. If there is no current description then the display will be blank except for the flashing cursor at the left hand side. Enter the description, up to 20 characters maximum followed by <ENTER>. To exit this mode press <NO> when the display shows "ENTER ZONE NO.". Unit will then show "QUIT ?". Press <YES> to quit or <NO> to go back to "DESCS TYPES VARS".

TYPES - To select TYPES, press <PART ARM 2>. The unit will display "SET FROM 1". You can do either a block of zones or one zone at a time. Enter the first zone to be selected followed by <ENTER>. The display will show "SET TO #" (# = same value that was just entered for "Set From"). Enter the last zone to be selected, may be the same as the first. Unit will display the current zone type followed by a question mark. Press <YES> to select "YES" to this option or press <NO> to select "NO" to this option. There can be only one zone type per zone. After a selection of yes is made to one option the unit will ask you another zone. To exit this mode press <NO> when the display shows "SET FROM". Unit will then show "QUIT ?". Press <YES> to quit or <NO> to go back to "DESCS TYPES VARS".

VARIABLES - To select VARS (Variables), press <HELP>. Unit will show you the variables one at a time so you can make modifications. If no modification needs to be made to a specific variable then simply press <ENTER> to move to the next variable. After all variables have been passed through the display will show "QUIT ?". Press <YES> to quit or <NO> to go back to "DESCS TYPES VARS". The variables are as follows:

1. OUTPUT ON1/OFF0: 0 - Enables or disables the output logging feature. Default is "0" which disables the output logging. To enable, press <1><ENTER>. Upon exit from variables, select day mode again to activate the feature.
2. EXIT TIME 30 - (seconds) - This is the amount of time one is allowed to exit the premises via the ACCESS and EXIT zones from the moment the system is set to FULLY ARMED. Do not use 0.
3. ACCESS LIMIT 99 - This is the highest zone number that can be inhibited.
4. ZONE 11 TO? 12 - To have multiple inputs, starting with zone 11 to trip output 11. Default is 12. Zones up to but not including the variable will trip output 11. Example: 12 = only zone 11 trips 11, 15 = zones 11-14 will trip 11.
5. ZONE 17 TO? 18 - To have multiple inputs, starting with zone 17 to trip output 17. Default is 18. Zones up to but not including the variable will trip output

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17. Example: 18 = only zone 17 trips 17, 20 = zones 17-19 will trip 17.
6. ZONE 23 TO? 24 - To have multiple inputs, starting with zone 23 to trip output 23. Default is 24. Zones up to but not including the variable will trip output 23. Example: 24 = only zone 23 trips 23, 26 = zones 23-25 will trip 23.
7. ENTRY TIME 30 - (seconds) - This is the maximum time from the moment an EXIT door is opened that the user is allowed to disarm the panel.
8. DAY/NIGHT OUT? 0 - Allows output #1 to be programmed to be a day/night indicator. Can be used for open/close reports or to provide an LED at entrance door. No matter which output is selected, it will only activate output #1.
9. ENTRY OUTPUT? 0 - Allows any output to be programmed as an entry annunciator. When programmed, this output will come on during the entry delay and automatically turn off after the delay expires or the system is set to either DAY or MAINTENANCE modes.
10. BELL TIME 300 - (seconds) - The length of time the night outputs will stay tripped before an automatic shutdown.
11. EXIT OUTPUT? 0 - Allows any output to be programmed as an exit annunciator. When programmed, this output will come on during the exit delay and automatically turn off after the delay expires.
12. ZONE 29 TO? 30 - To have multiple inputs, starting with zone 29 to trip output 29. Default is 30. Zones up to but not including the variable will trip output 29. Example: 30 = only zone 29 trips 29, 33 = zones 29-32 will trip 29.
13. ZONE 35 TO? 36 - To have multiple inputs, starting with zone 35 to trip output 35. Default is 36. Zones up to but not including the variable will trip output 35. Example: 36 = only zone 35 trips 35, 38 = zones 35-37 will trip 35.
14. ZONE 41 TO? 42 - To have multiple inputs, starting with zone 41 to trip output 41. Default is 42. Zones up to but not including the variable will trip output 41. Example: 42 = only zone 41 trips 41, 44 = zones 41-43 will trip 41.
- Q. DIRECT OUTPUT CONTROL - <CODE><0> - This mode allows for direct control of outputs through the keyboard. To use, enter <CODE> followed by <0>. Display will show "OUTPUT 1 OFF". Off being the current status of the output. To toggle output #1 on, press <YES>. Display will show "OUTPUT 1 ON". To turn back off, press <YES> again. Use <DISARM/(+)> to advance to a higher output number or <PART ARM 1/(-)> to back up to a lower output number. Press NO to exit. Any code with Service mode capability can access this mode.

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- R. PRINTING REPORTS - <CODE><P> - This mode allows the printing of all or any part of the listed reports:
VARIABLES
OPTIONS/NAMES
LITS (LITERALS)
ON-L REPORT (ON-LINE)
LOG

To select this mode enter <CODE> followed by <P>. Display will show "PRINT ALL REPORTS?". To print reports press <YES> or press <NO> to exit. NOTE: Selected reports will give you a yes or no option and to print the users and options will require you to enter a usercode again. Exit of this mode is automatic upon finish of printing or answering all yes/no options.

VIII. ACCESS CODES

- A. The unit has the capability of up to 249 user access codes (1 - 16, and 18 - 250).
- B. Access code #17 is addressed as being the service code. Access code #17 will only work while the unit is set to Day Mode and should only be used for performing service.
- C. All codes may also be 1 - 4 digits in length but can be programmed to only allow them to perform certain functions (example: code #5 may be set to allow that person to arm the system only and can perform no other functions).
- D. The display shows asterisks when a user code is being entered rather than the actual code. The back-space key may be used if a wrong digit was entered to re-enter the digit.
- E. Upon start up all codes default to their number (Example: code 1 is a "1", code 2 is a "2", ...code 18 is a "1""8"). Codes 17 and 18 are the only codes that can perform any functions at power up. Between the two codes, any function may be selected. Both codes (17,18) may be used to program the other codes and their functions. Codes 1 - 16 will not perform any functions until code 17 and / or 18 programs the code for the functions desired.
- F. Codes shorter than 4 digits in length will have to use the "ENTER" key after the entry. Codes that are 4 digits in length do not need to use the "ENTER" key.
- G. When any code is used to program another code (If it has been programmed to do so), it can not program the other code to perform any functions that it itself can not perform.

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- H. Here is the option table showing what code can can perform what action at the time of power up.

<u>OPTION REQUIRED</u>	<u>VALID CODE</u>
<u>ACKNOWLEDGE</u>	18
<u>DAY MODE</u>	18
<u>WALKTEST SETUP DONE</u>	18
<u>MAINTENANCE MODE</u>	18
<u>NIGHT MODE</u>	18
<u>ARMED WITH AC OFF</u>	18
<u>SET DATE AND TIME</u>	17 18
<u>SYSTEM LOG</u>	17 18
<u>INHIBIT MODE</u>	18
<u>SERVICE MODE</u>	17
<u>DISABLE MODE</u>	17
<u>SET ID'S AND OPTIONS</u>	17 18
<u>SET DESCS/TYPES/VARS</u>	17
<u>LITERAL EDIT</u>	17

IX. INSTALLATION

- A. LOCATION - The unit can be mounted on a wall or used with the desk top enclosure (BA1552).
- B. MOUNTING - When mounting to a wall, another enclosure must be provided when additional power is required. When using the desk top enclosure, there is enough room in this enclosure for two additional power packs.
- C. AUX POWER - The Controlplex can provide up to .5 amps of continuous current to operate external devices such as Passive Infrareads, bells, sirens, etc....Remember that using this aux. current will depreciate the back up battery time. When using the full .5 amps plus the current draw of the unit which is .25 amps, a back up battery of 6 AH rating will last approximately 7.2 hours.
- D. DATA LINE WIRING - Wire the Controlplex as shown in details on pages 21-24. The data line consist of 5 conductors, 22 ga. to provide data connections and power to C-LEMS. The power in the data line is for C-LEMS only, DO NOT use to power devices or bells. Color code of the cable is as follows: GREEN = LMTC 0V (Term. 25 of Controlplex): BROWN = LMTC Control Line (Term. 26 of Controlplex): WHITE = LMTC Data Line (Term. 27 of Controlplex): RED = Positive of Controlplex Aux. (Term. 32): BLACK = Common of Controlplex (Term. 29). The part number of the data cable is CE022-1 (non teflon) or 725-5716 (teflon). For auxiliary power, an additional 18 ga. 2 conductor is run parrallel to data line. This power cable is used to power devices and supply power to bells. Color code for the power cable is as follows: RED = Positive of Power pack (BA0810 or BA1223): BLACK = Negative of Power pack (BA0810 or BA1223). The part number for the power cable is CE020-1 (non teflon) or CE106 (teflon).
- E. LEMS - Inputs are connected to the data line via the Input LEMs. See detail on page 22. Input LEMs are addressable as to what number they are. The LEM address determines the zone numbers that LEM will handle. Each input LEM has two

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(2) input zones. Terminals 6 & 7 = first zone of LEM, terminals 5 & 6 = second zone of LEM. Each LEM has a tamper switch which is part of the second zone of the LEM. The cover of the LEM must be installed prior to applying power to the Controlplex or the Controlplex will consider the second zone of the LEM disconnected. Disconnected zones at the time of power-up will be ignored. Use the Input LEM Address setting chart in section XI to determine switch settings. The address is set using 8 DIP (Dual Inline Package) switches located on the P.C. board. The switches are labeled 1 to 8 with an arrow indicating which way is "ON". All input LEMs MUST be connected to the data line and addressed before power is applied to the Controlplex. The input zones of the input LEMs are supervised using two (2) 2200 (2.2K) ohm 1/4 watt resistors. Color code, red, red, red. Connection of inputs and the data line to the input LEM is shown in drawing #B0098. At the very last LEM, the data line cable simply dead ends, it does not need to be returned to the Controlplex. The input LEMs may be connected to the data line in any order (example: 1 to 5 to 12 to 3, and so on).

F. C-LEMS - Output LEMs (C-LEMS) are connected to the data line in the same fashion as the input LEMs. See detail on page 23. Each C-LEM has a form C contact. Terminal 7 = Normal closed, terminal 8 = Common, and terminal X = Normal open. Output LEMs may also be connected anywhere along the data line and need not be in any order. Output LEMs are addressed the same as input LEMs but output LEMs have only 1 output per LEM. The address of the output LEM directly corresponds to the output number desired. Refer to the Output LEM Address setting chart in section XII. Unlike input LEMs the Controlplex does not care if output LEMs are connected or not, it simply controls the output LEMs as noted in the program.

G. PANEL OUTPUTS - The panel itself has 7 outputs available which are outputs 1 to 7. See detail on page 21 for terminal identification. Outputs 1, 2, and 7 are relay dry contacts and outputs 3, 4, 5, and 6 are transistor driver which supply a positive voltage on alarm. The relay outputs are rated at 1.5 amps and the transistor drivers are rated 50 milliamps. Refer to Output Section VI. for designation.

H. PRINTER HOOKUP - A printer may be connected to the Controlplex to provide an audit trail of all operations. The printer used is SW part number DPU411. Connect is shown in detail on page 24. The printer may be remoted up to 50 feet away from the Controlplex when using at least 18 gauge, twisted pair, non shielded cable.

X. POWER UP

(Numbers or words appearing between the "<>" brackets are entries to be made at the keypad when so indicated.

A. Ensure that all input and output LEMs are connected to the data line correctly and also properly addressed. Ensure

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- the data line is properly connected to the Controlplex. ALL INPUT LEM COVERS MUST BE INSTALLED. The tamper switch is part of the even numbered zones and if the tamper switch is not in the down position when the LEM line is initialized the unit will consider this zone to be disconnected and will ignore it.
- B. Ensure that all zone inputs have the End-Of-Line resistors installed as shown in detail on page 22.
 - C. Ensure that the "RAM PROTECT" switch (see detail on page 22 for location) is in the down position. Newer boards do not have a Ram protect switch, no precaution is necessary.
 - D. Apply power to the Controlplex, AC first and then battery.
 - E. The Controlplex will display "RAM PROTECTED". With the door of the Controlplex open slide the "RAM PROTECT" switch to the up position and then close the door (if applicable).
 - F. Unit will respond with the operation system version number and date (Example: "APLEX OS2.1 7/10/87") followed by the Europlex copyright message (Example: "(C) EUROPLEX 1986"). This will soon be replaced by the application program version and date (Example: "APLEX V2.1 07/10/87").
 - G. Unit will then display the type of start up which will be either "WARM START" or "HOT START". If any other type start up message is displayed, notify Technical Services of Silent Watchman.
 - H. This message will be replaced by "ENTER LOCATION" followed by the current location name in it's memory or a blank screen with the curser flashing in the left side of the display. If the current name is correct simply press <ENTER>. If the name is not correct, a new name may be entered following the instructions for the keyboard in the KEYBOARD section. After the name is correct, press <ENTER>.
 - J. Unit will then display "HIT RETURN". Press <ENTER>.
 - K. Unit will display "INITIALIZE LEM LINE?". Press <Yes>
 - L. Unit will display "ON LINE XX-->YY?". The "XX" indicates how many input zones were connected to the unit the last time the unit was operational and the "YY" indicates how many input zones are connected to the unit now. These numbers refer to the number of INPUT zones, not LEMs or output LEMs. Ensure the "YY" corresponds to the number of input zones that are installed. If the number is wrong then proceed with the power up and run an "ON-LINE" report. This will determine which zones are working and which are not. Correct any problems, slide the Ram Protect switch to the down position for 5 seconds then back up. This starts the start up procedure over. When the number is correct, press <YES>.
 - M. Unit will then display "BUSY.....RE-SCHEDULING" for about 5 seconds while it checks the program.
 - N. Unit will flash the start up messages and also any alarm messages. Press <1><8><0><ENTER>. This initiates the acknowledge procedure. 18 is one of the access codes. Access codes will be explained in section VI.

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- O. Unit will now display the messages, one at a time followed by a "?". The unit is simply asking you "Do you wish to acknowledge these alarms?". Press <YES> for each alarm message displayed.
- P. Unit will now display the date and time and/or any open zones.
- Q. If there are any zone bells sounding, press <1><8><SUN/(DISARM)><ENTER>.
- R. Unit will now momentarily display "DAY MODE" and then go back to the date and time. If this did not stop the bells; 1. Check the bell wiring, 2. Check the output LEM address setting.
- S. Set the Controlplex to the correct time by pressing <1><8><SHIFT><T><ENTER>. Unit will display the current date and time with a flashing curser at the far left side. The unit will display the date and time as MM/DD/YY HH/MM/SS with a flashing curser at the far left side. The curser indicates which digit to be changed. All entries are two digits so if the entry has only 1 digit then a 0 must preceed the actual entry (example: 1/1/87 would be 01/01/87). After an entry has been made the curser will automatically move to the next position to the right. If a digit does not need to be changed, the Yes key may be used to move the curser to the right. In addition the back-space key may be used to move the curser to the left. When date and time are correct, press <ENTER>. After entry of the correct time in the correct format, the unit will display "ENTER DAY NO.". Enter the correct day number (SUN=1, MON=2,...SAT=7) then <ENTER>. Unit will then display "BUSY.....RE-SCHEDULING" for about 5 seconds while it checks it's time functions.

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XI. INPUT LEM ADDRESSES

WHEN A "-" IS SHOWN, IT MEANS THE CORRESPONDING SWITCH SHOULD BE IN THE ON POSITION. WHEN A "#" IS SHOWN, IT MEANS THE CORRESPONDING SWITCH SHOULD BE IN THE OFF POSITION. EXAMPLE:
(-----8) INDICATES THAT SWITCHES 1-7 SHOULD BE IN THE ON POSITION AND SWITCH 8 SHOULD BE IN THE OFF POSITION.

LEM #	SWITCHES	1ST LOOP	2ND LOOP	LEM #	SWITCHES	1ST LOOP	2ND LOOP
	12345678	TERM 6&7	TERM 5&6		12345678	TERM 6&7	TERM 5&6
1	-----8	1	2	26	---45-7-	51	52
2	-----7-	3	4	27	---45-78	53	54
3	-----78	5	6	28	---456--	55	56
4	-----6--	7	8	29	---456-8	57	58
5	-----6-8	9	10	30	---4567-	59	60
6	-----67-	11	12	31	---45678	61	62
7	-----678	13	14	32	--3-----	63	64
8	----5----	15	16	33	--3----8	65	66
9	----5--8	17	18	34	--3---7-	67	68
10	----5-7-	19	20	35	--3---78	69	70
11	----5-78	21	22	36	--3--6--	71	72
12	----56--	23	24	37	--3--6-8	73	74
13	----56-8	25	26	38	--3--67-	75	76
14	----567-	27	28	39	--3--678	77	78
15	----5678	29	30	40	--3-5----	79	80
16	---4-----	31	32	41	--3-5--8	81	82
17	---4---8	33	34	42	--3-5-7-	83	84
18	---4--7-	35	36	43	--3-5-78	85	86
19	---4--78	37	38	44	--3-56--	87	88
20	---4-6--	39	40	45	--3-56-8	89	90
21	---4-6-8	41	42	46	--3-567-	91	92
22	---4-67-	43	44	47	--3-5678	93	94
23	---4-678	45	46	48	--34----	95	96
24	---45----	47	48	49	--34---8	97	98
25	---45--8	49	50	50	--34--7-	99	100

- = ON
= OFF

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XII. OUTPUT C-LEMS ADDRESSES

WHEN A "-" IS SHOWN, IT MEANS THE CORRESPONDING SWITCH SHOULD BE IN THE ON POSITION (TOWARD THE NUMBER, AWAY FROM EDGE OF PC BOARD). WHEN A "#" IS SHOWN, IT MEANS THE CORRESPONDING SWITCH SHOULD BE IN THE OFF POSITION (TOWARD THE LETTER, TOWARD EDGE OF PC BOARD). EXAMPLE: (-----8) INDICATES THAT SWITCHES 1-7 SHOULD BE IN THE ON POSITION AND SWITCH 8 SHOULD BE IN THE OFF POSITION.

OUTPUT # DESIRED	SWITCHES 12345678	OUTPUT # DESIRED	SWITCHES 12345678
1	-----8	26	---45-7-
2	-----7-	27	---45-78
3	-----78	28	---456--
4	-----6--	29	---456-8
5	-----6-8	30	---4567-
6	-----67-	31	---45678
7	-----678	32	--3-----
8	-----5---	33	--3----8
9	-----5--8	34	--3---7-
10	-----5-7-	35	--3---78
11	-----5-78	36	--3--6--
12	-----56--	37	--3--6-8
13	-----56-8	38	--3--67-
14	-----567-	39	--3--678
15	-----5678	40	--3-5---
16	----4----	41	--3-5--8
17	----4---8	42	--3-5-7-
18	----4--7-	43	--3-5-78
19	----4--78	44	--3-56--
20	----4-6--	45	--3-56-8
21	----4-6-8	46	--3-567-
22	----4-67-	47	--3-5678
23	----4-678	48	--34----
24	----45---	49	--34---8
25	----45--8	50	--34--7-

- = ON

= OFF

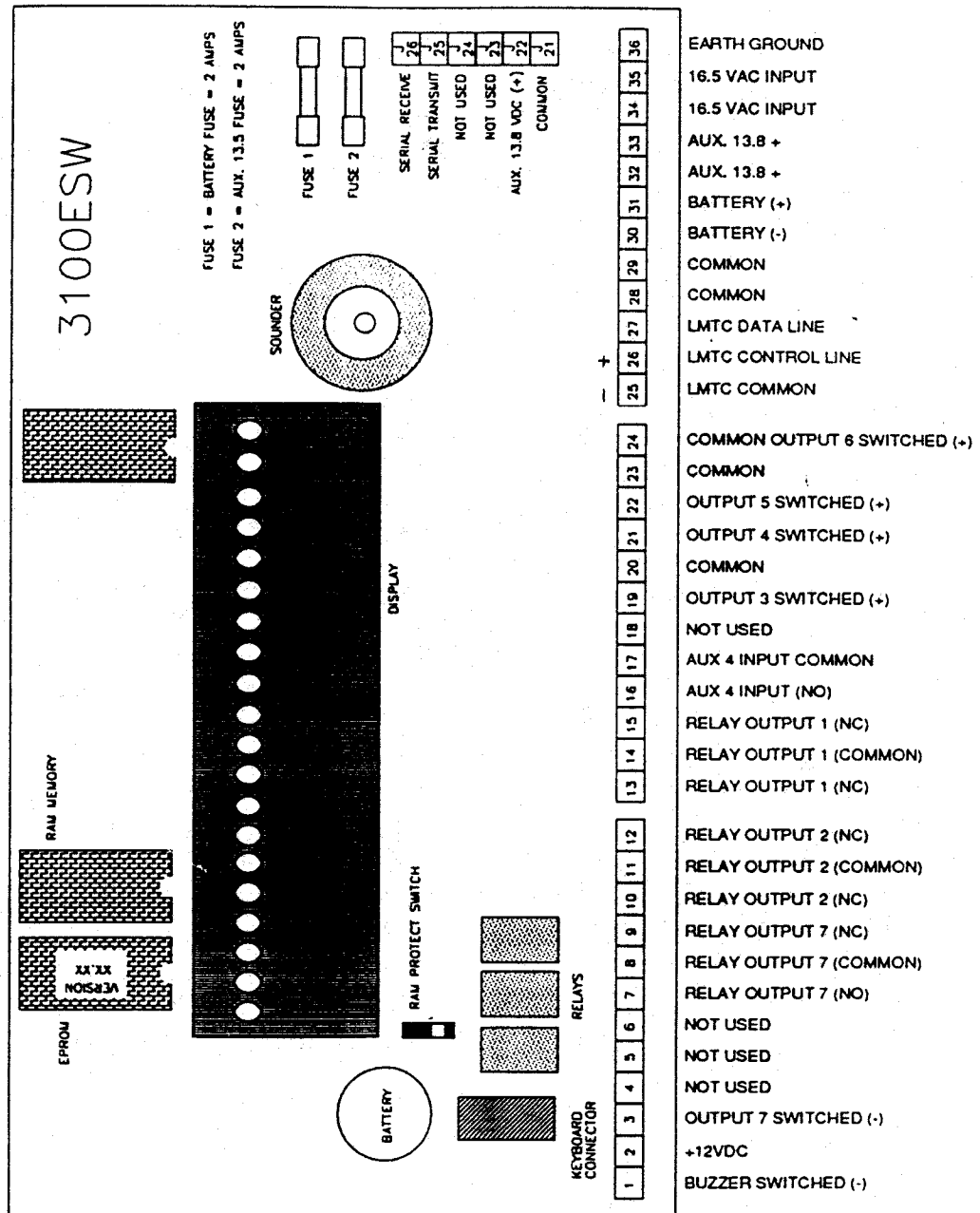
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CONTROLPLEX BOARD LAYOUT



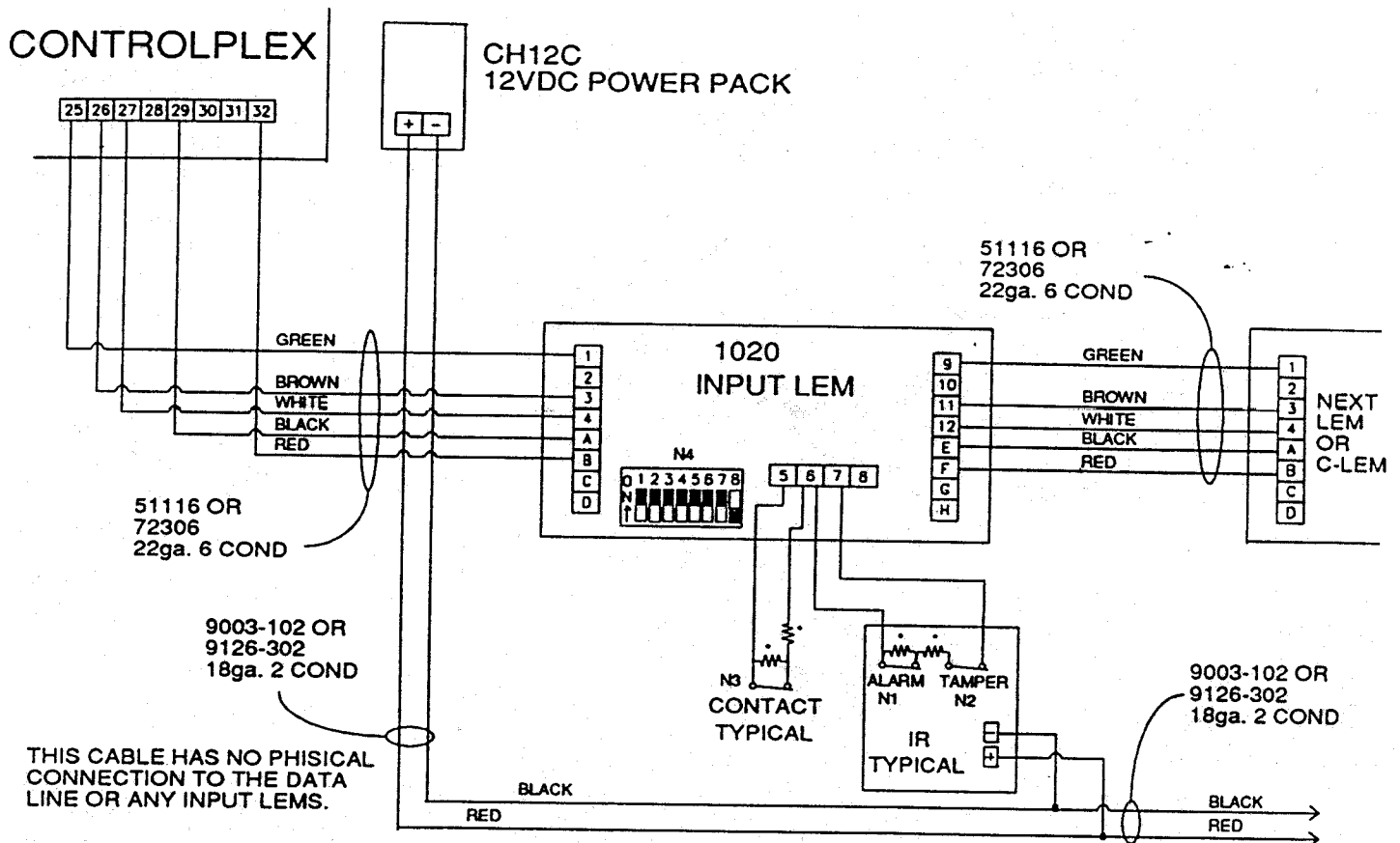
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DATA LINE AND INPUT LEM CONNECTIONS



NOTES

- N1 - ALARM CONTACTS - CLOSED WHEN SECURE, OPEN ON ALARM
- N2 - TAMPER CONTACTS - NORMAL CLOSED, OPEN ON ALARM
- N3 - MAGNETIC CONTACTS - CLOSED WHEN SECURE, OPEN ON ALARM
- N4 - SEE INPUT LEM ADDRESS SHEET FOR PROPER SETTING OF SWITCHES
- N5 - DATA LINE - 51116 (72306 TEFLON), 22GA. 6 CONDUCTOR
- GREEN = LEMTC 0V
- BROWN = LEMTC CONTROL LINE
- WHITE = LEMTC DATA LINE
- BLACK = CONTROLPLEX COMMON - FOR POWER TO C-LEMS ONLY
- RED = CONTROLPLEX POSITIVE - FOR POWER TO C-LEMS ONLY
- AUXILIARY POWER LINE - 9003-102 (9128-302 TEFLON), 18GA. 2 CONDUCTOR
- BLACK = NEGATIVE OF POWER PACK
- RED = POSITIVE OF POWER PACK
- * - ALL RESISTORS = 2.2K OHM 1/4 WATT (RED/RED/RED)
- LEMTC - LINE MODULE TRANSMISSION CABLE

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- N1 - TAMPER SWITCH OUTPUT IS NORMAL CLOSED WITH COVER ON. CAN BE WIRED IN SERIES WITH DEVICE TAMPER, DOES NOT REPORT UNLESS WIRED TO AN INPUT
- N2 - RELAY OUTPUT IS DRY CLOSURE ONLY. 7=NC, 8=C, X=NO.
- N3 - COMMON 1 AMP DIODE USED AS A KICKBACK DEVICE.
- N4 - SEE OUTPUT C-LEM ADDRESS SHEET FOR PROPER SETTING OF SWITCHES
- N5 - DATA LINE - 51116 (72306 TEFLON), 22GA. 6 CONDUCTOR
GREEN = LMTC 0V
BROWN = LMTC CONTROL LINE
WHITE = LMTC DATALINE
BLACK = CONTROLPLEX COMMON - FOR POWER TO C-LEMS ONLY
RED = CONTROLPLEX POSITIVE - FOR POWER TO C-LEMS ONLY
AUXILIARY POWER LINE - 9003-102 (9126-302 TEFLON), 18GA. 2 CONDUCTOR
BLACK = NEGATIVE OF POWER PACK
RED = POSITIVE OF POWER PACK
LMTC - LINE MODULE TRANSMISSION CABLE
- N6 - DRAWING SHOWS NEW OUTPUT C-LEM, REQUIRES NO RESISTOR OR JUMPER. OLD C-LEM NEEDS A 2.2K OHM RESISTOR WIRED FROM TERMINAL "A" TO "2" DIFFERENCE. NEW C-LEM HAS 5 TERMINALS AT BELL CONNECTOR, OLD C-LEM HAD ONLY 4

3-3-95 - New Software Version
 Do Shift 'S' To Turn printer on 1200 baud
 7 data bits

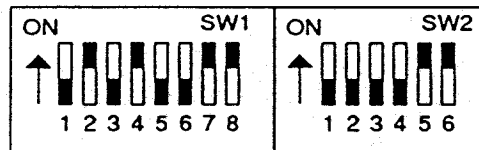
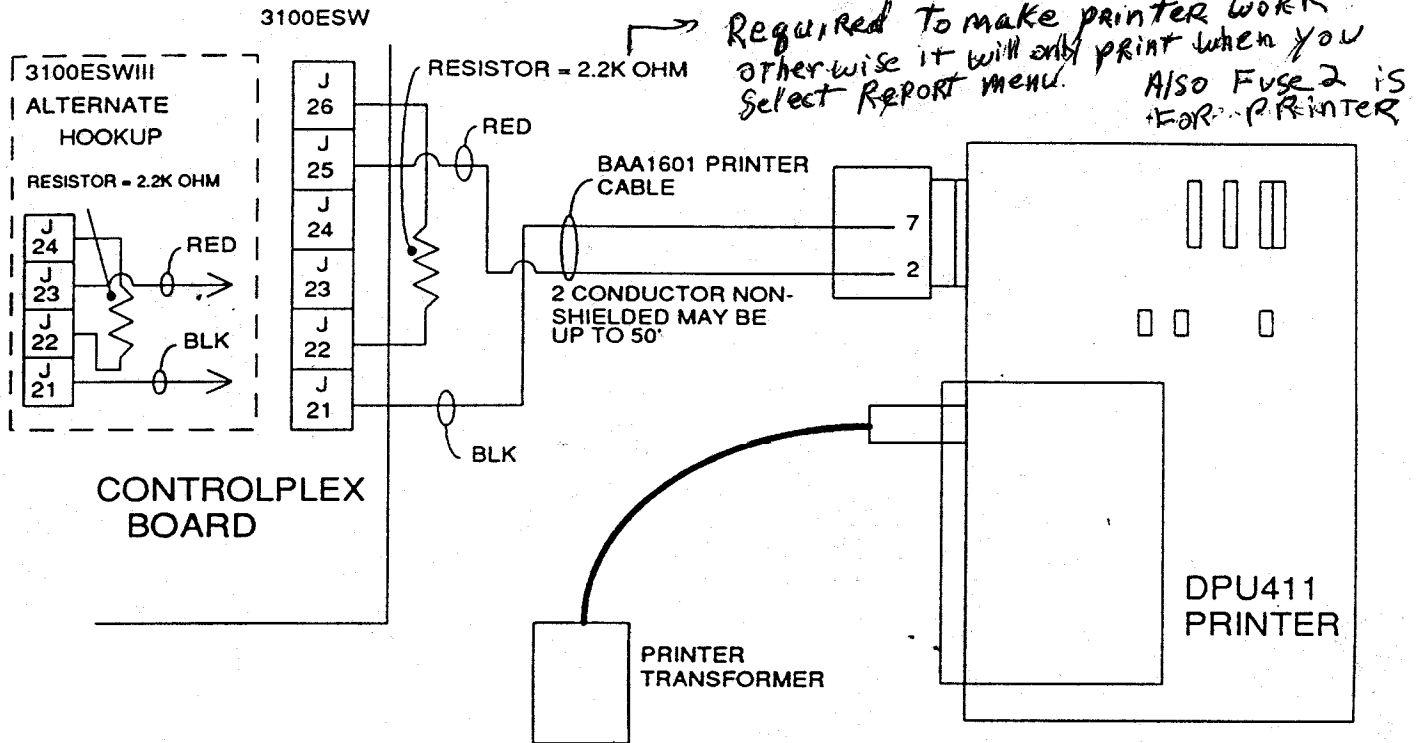
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DPU411 HOOKUP TO CONTROLPLEX



PRINTER SWITCHES PROPER SETTINGS

SW1-1 = OFF
 SW1-2 = ON
 SW1-3 = OFF
 SW1-4 = ON
 SW1-5 = OFF
 SW1-6 = OFF
 SW1-7 = ON
 SW1-8 = ON

SW2-1 = OFF
 SW2-2 = OFF
 SW2-3 = OFF
 SW2-4 = OFF
 SW2-5 = ON
 SW2-6 = ON