Controls
Diagnostics
Communications

Static Controls Corporation

1000 SERIES

NETWORK CONTROLLER

USERS MANUAL

Static Controls Corp.

Series 1000 Network

Users Manual

Static Controls Corporation

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MN-1000-010

Network Software Manual

Rev. B

Table of Contents

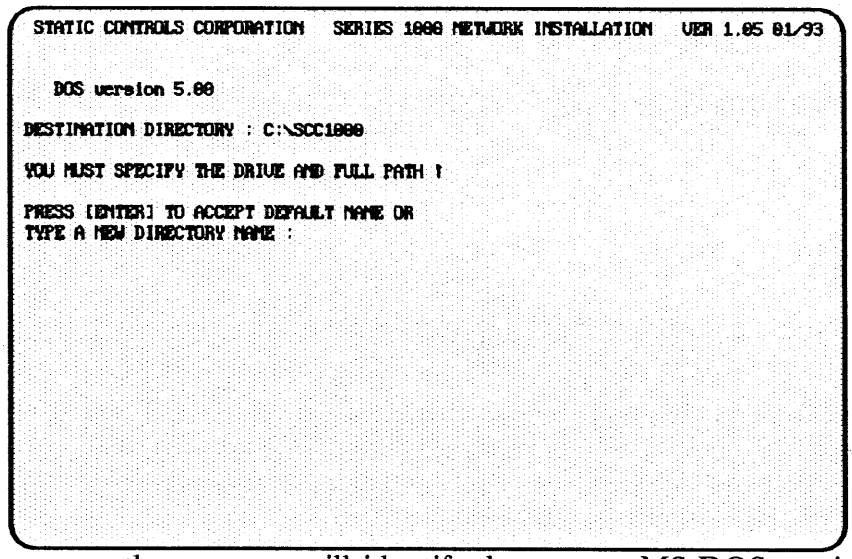
Network Software Installation Program

When installing the SCC1000 Network software, the installation process will install the Network operation files, and check the computers system for correct operating parameters.

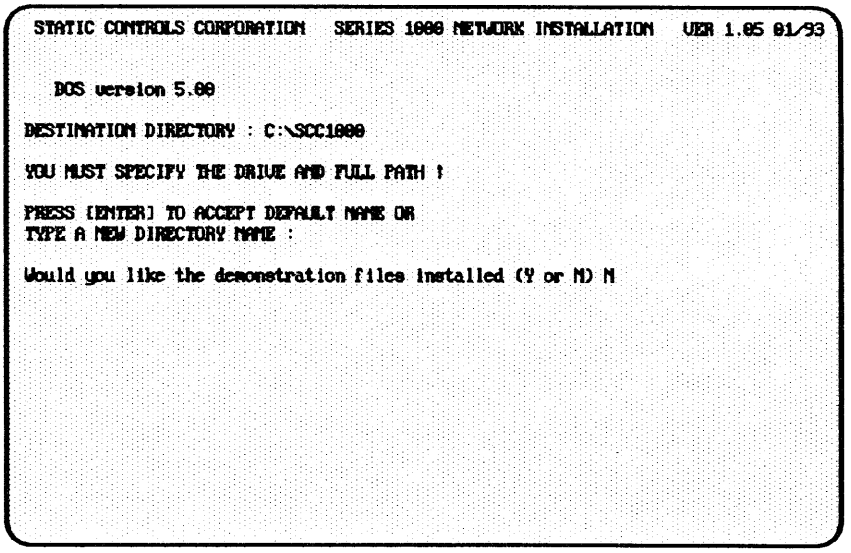
To install, insert the SCC1000 Disk #1 into a disk drive.

Change the current drive to the SCC1000 disk drive.

Type in the word **INSTALL** followed by a return.

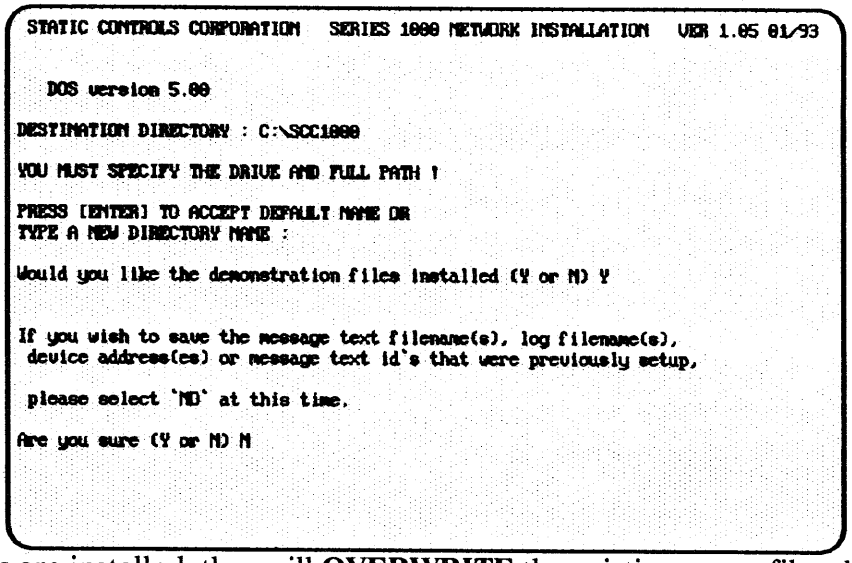


In the opening screen, the program will identify the current MS-DOS version running on the computer, and ask the operator for a directory path to load the network system files into. Press **ENTER** to accept the default directory of **C:\SCC1000**.



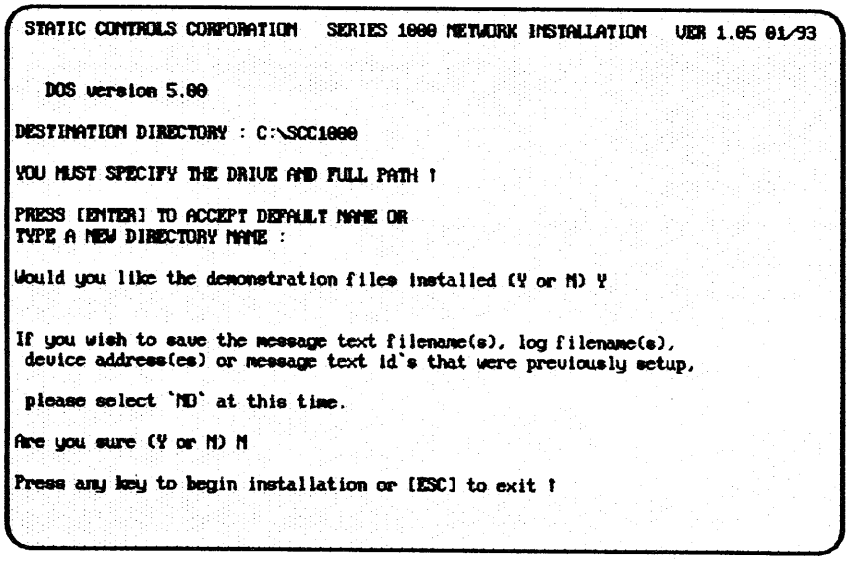
The program will now ask the operator if the demo files should be loaded onto the network computer. The demo files contain a complete set of files for use in running the network system

without having set up the network system. These are demo files only and are not required for proper system operation. If the operator does not wish to install these files, answer "N" to this question.If the demo files are to be installed, the network system will search to see that no files have been already been set up by the operator on the network computer. If previously set up by the operator, the install program will notify that set up files were located on the network computer, and confirm that the operator indeed wishes to install the demo files.

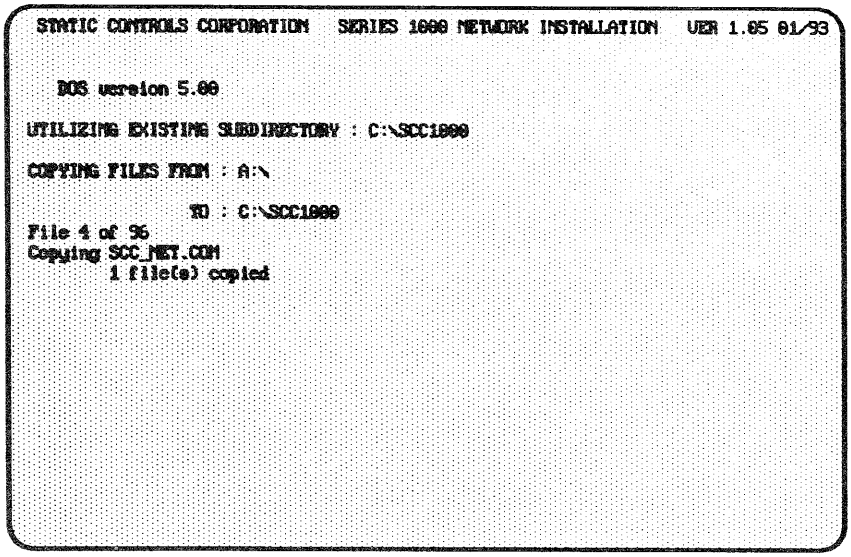


If the demo files are installed, they will **OVERWRITE** the existing set up files that were found on the network computer. If existing device names, message file names, device addresses and log file names are not to be deleted, **DO NOT** install the demo files onto the network computer. Answer "N" to the confirming question at this time. If the demo files were accidently installed, exit the installation program and call Static Controls for a recovery procedure to re-locate the old files and re-install those old files back on the network computer.

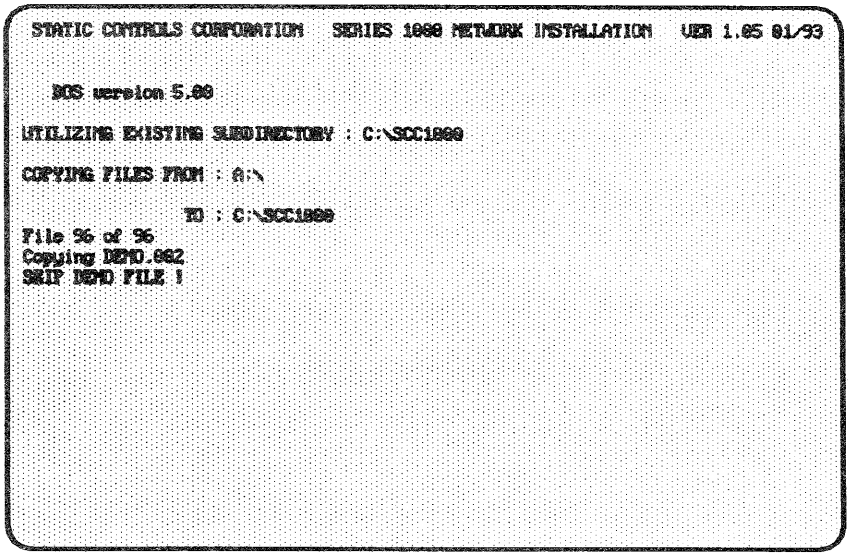
When this is completed, press **ENTER** to continue installation, or press **ESC** to quit the installation.



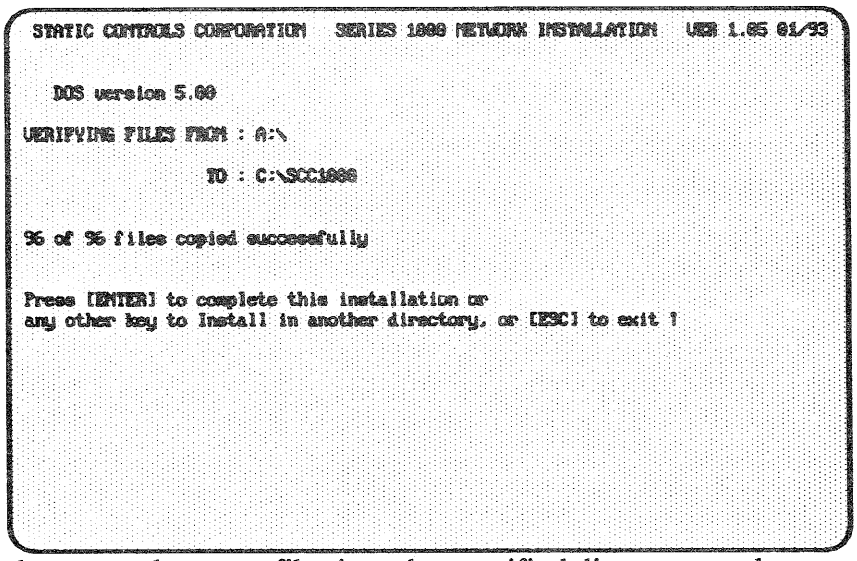
As the files are copied from the install disk to the network computer's hard disk, the file names and the quantity of the files will be displayed on the install screen.



If the demo files are not installed, the demo files are shown as being not copied on the screen.

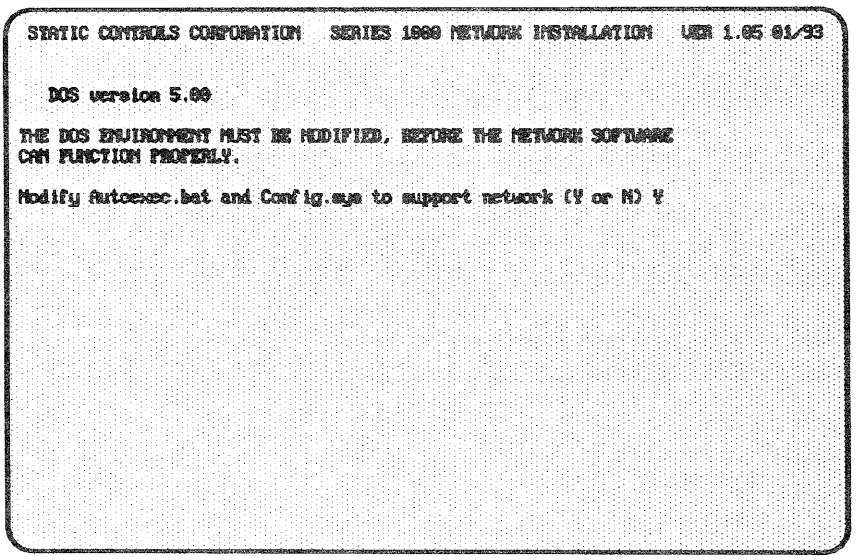


After all of the selected files are copied into the network computer, the files are checked and verified by the install program. If all of the network files are verified the install program will notify the operator that the installation was successfull. If the files did not verify for any reason the operator is notified that the installation was not successfull.



After installing the network system files into the specified directory on the network computer, the install program will allow the operator to install the files in another directory also, or continueing the installation process. To continue with the installation process, press the **ENTER** key. To install another network system in another directory, press any other key.

The install program will now check both the AUTOEXEC.BAT and CONFIG.SYS files on the network computer to determine if they need to be modified to allow the network system to operate properly. If they need to be modified, the install program will ask permission to modify those files.



If permission is granted to modify those files, the install program will rename the old files to be AUTOEXEC.OLD and CONFIG.OLD.

```
STATIC CONTROLS CORPORATION   SERIES 1000 NETWORK INSTALLATION   VER 1.05 01/93

   DOS version 5.00

THE DOS ENVIRONMENT MUST BE MODIFIED, BEFORE THE NETWORK SOFTWARE
CAN FUNCTION PROPERLY.

Modify Autoexec.bat and Config.sys to support network (Y or N) Y

Searching for Dos graphics driver ...
Renaming old autoexec.bat to autoexec.old !
LH C:\WINDOWS\SMARTDRV.EXE 1024 512 /L
```

Install modifying AUTOEXEC.BAT.

```
STATIC CONTROLS CORPORATION   SERIES 1000 NETWORK INSTALLATION   VER 1.05 01/93

   DOS version 5.00

THE DOS ENVIRONMENT MUST BE MODIFIED, BEFORE THE NETWORK SOFTWARE
CAN FUNCTION PROPERLY.

Modify Autoexec.bat and Config.sys to support network (Y or N) Y

Searching for Dos graphics driver ...
Renaming old autoexec.bat to autoexec.old !
* WIN/3
Reading old config.sys ...

Renaming old config.sys to config.old !

Writing new config.sys

DEVICEHIGH=C:\DOS\HIMEM.SYS
```

Install modifying CONFIG.SYS.

When the AUTOEXEC.BAT and the CONFIG.SYS files have been checked and / or changed the install program will ask the operator if one of three post installation processes are to be performed.

```
STATIC CONTROLS CORPORATION   SERIES 1000 NETWORK INSTALLATION   VER 1.05 01/93

   DOS version 5.00

THE DOS ENVIRONMENT MUST BE MODIFIED, BEFORE THE NETWORK SOFTWARE
CAN FUNCTION PROPERLY.

Modify Autoexec.bat and Config.sys to support network (Y or N) Y

Searching for Doe graphics driver ...
Renaming old autoexec.bat to autoexec.old !
- WIN/3
Reading old config.sys ...

Renaming old config.sys to config.old !

Writing new config.sys

BUFFERS=25

INSTALLATION COMPLETED.
Run the network tutorial program now (Y or N) N
```

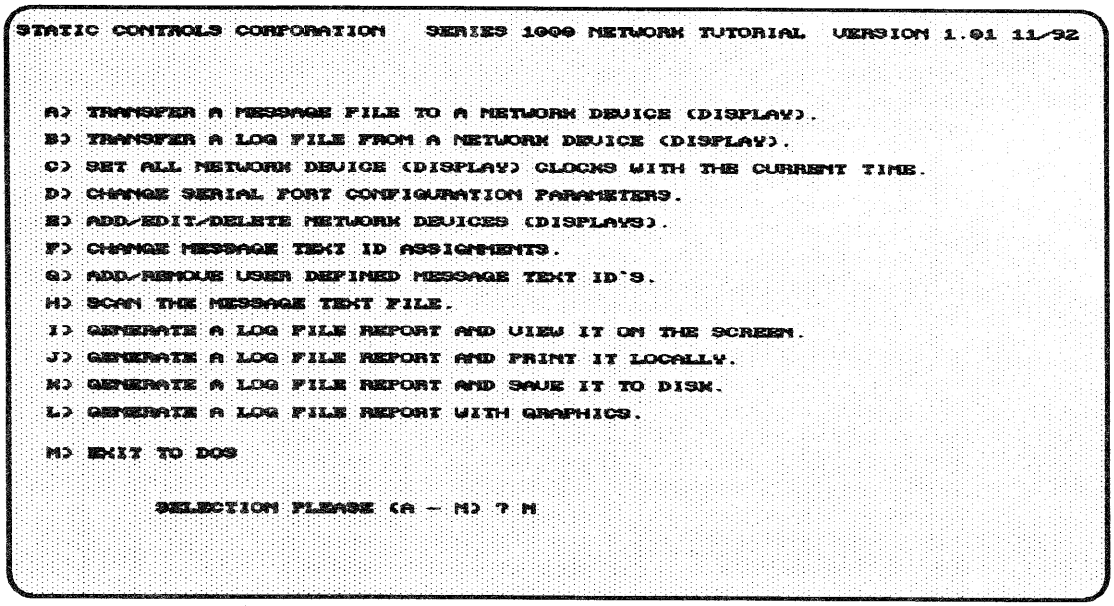
```
STATIC CONTROLS CORPORATION   SERIES 1000 NETWORK INSTALLATION   VER 1.05 01/93

   DOS version 5.00

THE DOS ENVIRONMENT MUST BE MODIFIED, BEFORE THE NETWORK SOFTWARE
CAN FUNCTION PROPERLY.

Modify Autoexec.bat and Config.sys to support network (Y or N) Y

Searching for Doe graphics driver ...
Renaming old autoexec.bat to autoexec.old !
- WIN/3
Reading old config.sys ...

Renaming old config.sys to config.old !

Writing new config.sys

BUFFERS=25

INSTALLATION COMPLETED.
Run the network diagnostics program now (Y or N) N
```

```
STATIC CONTROLS CORPORATION   SERIES 1000 NETWORK INSTALLATION   VER 1.05 01/93

   DOS version 5.00

THE DOS ENVIRONMENT MUST BE MODIFIED, BEFORE THE NETWORK SOFTWARE
CAN FUNCTION PROPERLY.

Modify Autoexec.bat and Config.sys to support network (Y or N) Y

Searching for Doe graphics driver ...
Renaming old autoexec.bat to autoexec.old !
- WIN/3
Reading old config.sys ...

Renaming old config.sys to config.old !

Writing new config.sys

BUFFERS=25

INSTALLATION COMPLETED.
Start the network controller program now (Y or N) N
```

The installation program will ask the operator if the Network Tutorial, the Network Diagnostics, or the Network Controller programs are to be run. If none of these are to be run, the installation is complete, and the install program exits to the MS-DOS prompt.

Network Tutorial

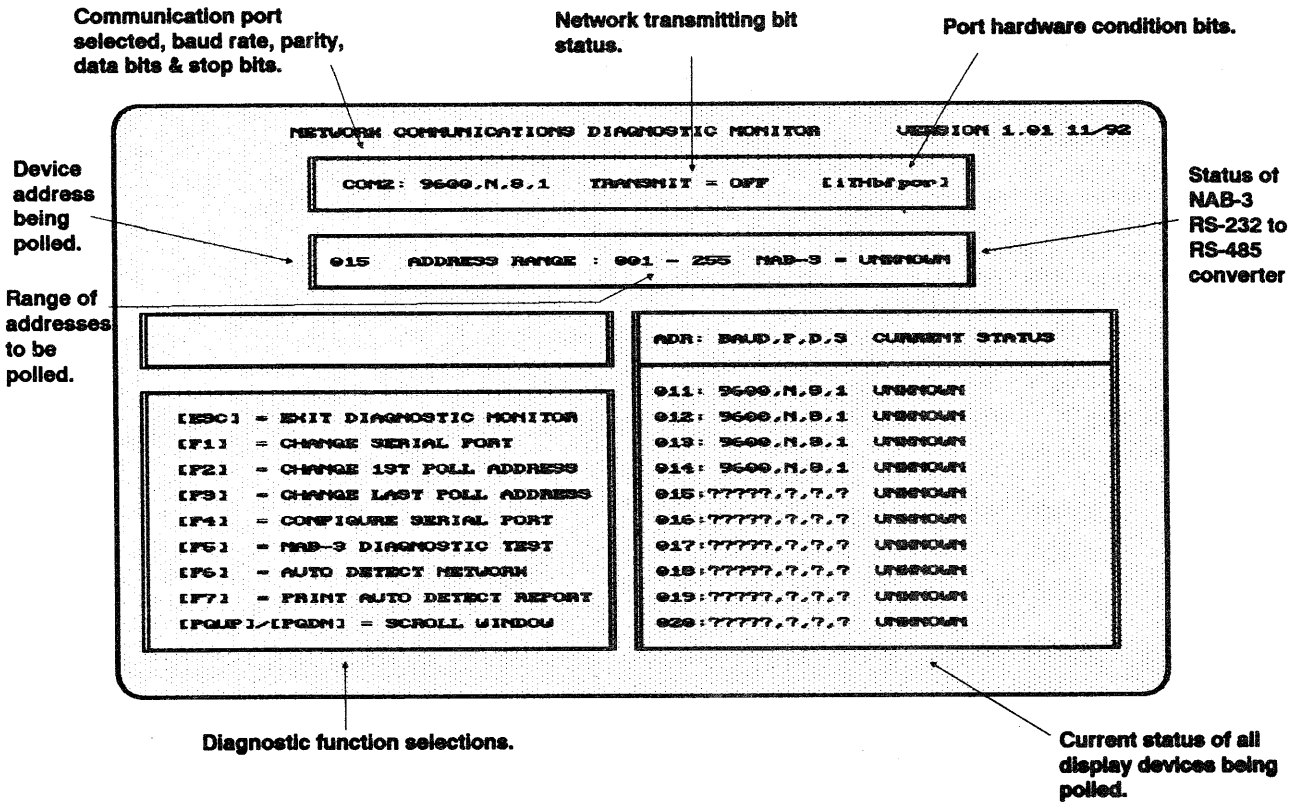
The Network Tutorial will demonstrate the keystrokes that are required to get the Network Controller System to do specific operations. The operator will chose an operation, and the Tutorial will switch into the Network Controller and automatically do specific operations, then returning to the Tutorial program.



Shown above are the selections available to the operator.

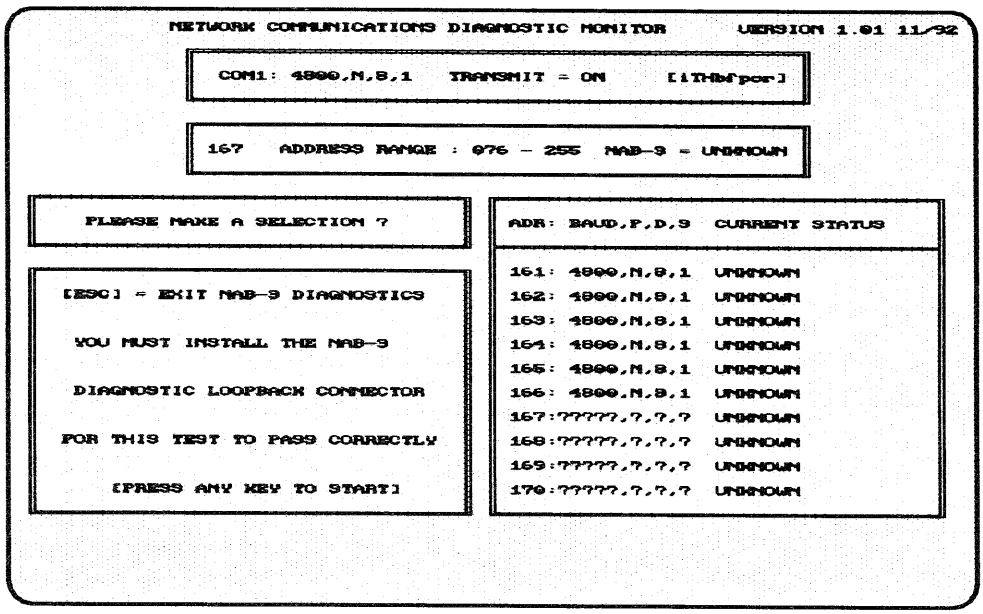
Network Diagnostics

The Network Diagnostics program will attempt to locate and verify all of the display devices that are connected and operating on the network. The disgnostics will also find and verify that the Network Adapter is functioning properly.

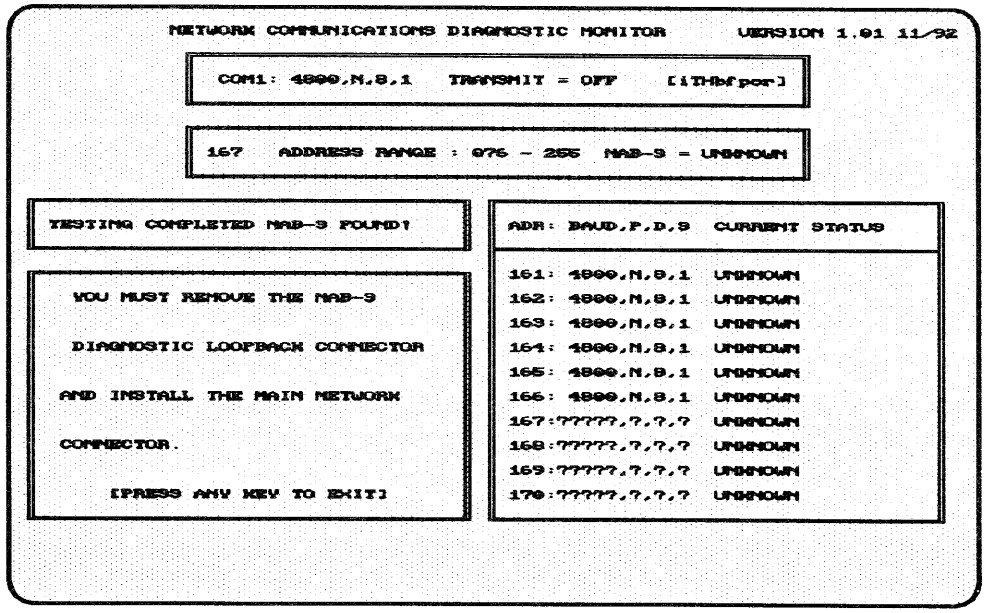


The diagnostic program will attempt to communicate (poll) with each display device on the network. It will try to communicate with each device using the selected communications parameters, and the range of display device addresses selected. As the diagnostic program attempts to poll each device, it will record the parameters that were required to communicate with each display device. The diagnostic program will try all baud rates, paritys, data bits and stop bits for each display device to attempt to communicate with each one.

There is a procedure for running the diagnostic program on a network system. First is verifying that the NAB-3 converter is functioning correctly with the network controller computer. From the opening screen press the [F5] function to test the NAB-3 or any other converter.

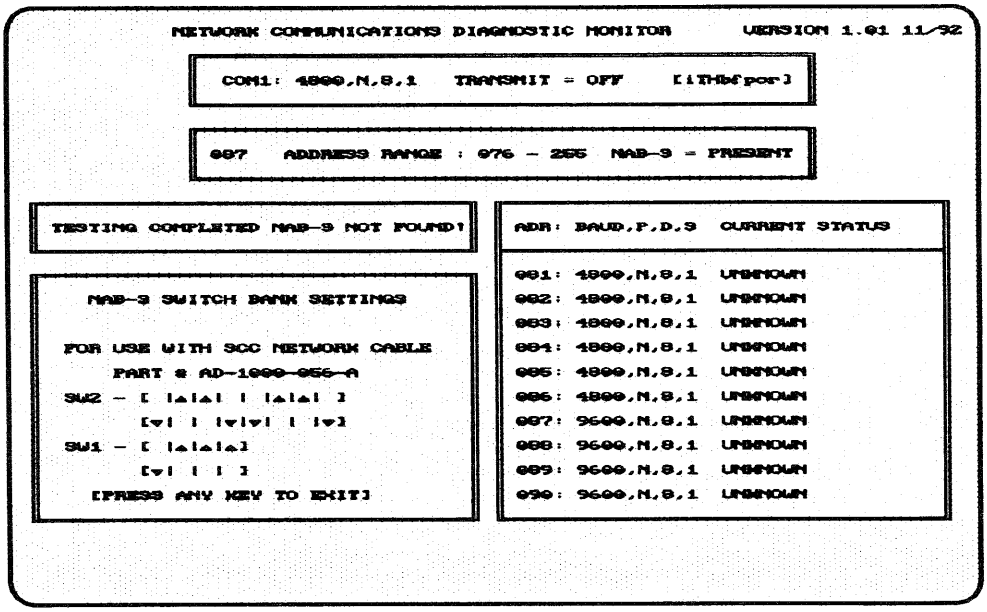


When entering the NAB-3 test, the disgnostic program will ask that a loop-back connector be inserted on the RS-485 side of the converter. To do this, disconnect the connector that is wired to all of the display devices on the network. Insert a connector that has pin #1 connected to pin#3, and pin #2 to pin #4.

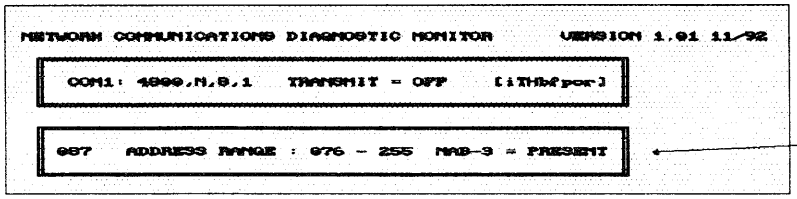


If the NAB-3 converter was found, and communicated correctly the screen shown above will be displayed. Disconnect the loop-back connector and replace the original connector that is wired to the display devices on the network.

If the diagnostic program could not communicate with the NAB-3 converter, the screen shown below will be displayed.

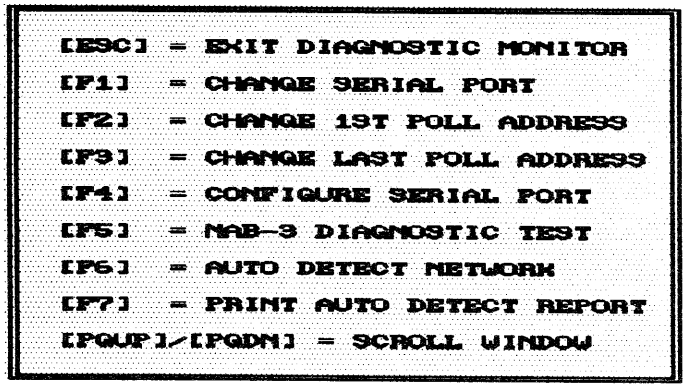


This will show the operator the correct DIP switch settings that are to be made on the converter. Check to see that the correct cable is connected between the computer and the converter, and check the DIP switch settings to see that they match the settings shown on this screen. If they are correct, also check or change the communication port number from the main function screen selection.



When the converter is communicating with the computer the NAB-3 status will be listed as PRESENT in the NAB-3 status location.

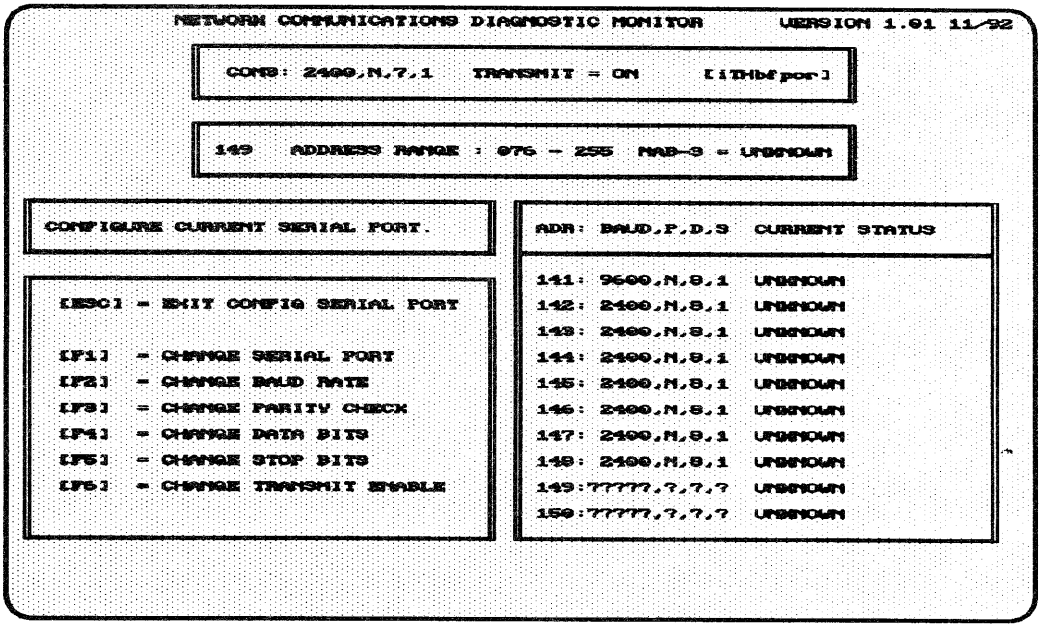
After the converter has been tested and found, the diagnostic program is now ready to try to communicate with all of the display devices on the network. The diagnostic program will use all of the selected communications parameters and the address range selected to poll.



From the main screen, the function selections are shown above. The [F1] function will toggle thru communications ports #1 thru #4. The [F2] and [F3] functions will incriment the first or the last polling address. Pressing [SHIFT] [F2] or [SHIFT] [F3] will decriment the first or last polling address.

The [F4] function will allow the operator to change the serial port configuration.

From the configure serial port screen, function selections are:



[F1] Change the serial port from #1 thru #4.

[F2] Change the baud rate from 300 to 19,200 baud.

[F3] Change parity from none to odd to even.

[F4] Change the data bits from 8 to 7.

[F5] Change the stop bits from 1 to 2.

[F6] Change transmit enable from hi (on) to lo (off).

On the main screen function selections [F6] and [F7] are for the auto detect function. With the auto detect, the diagnostic program will attempt to find any and all display devices on the network. This function will try to communicate with any display on the network by trying all communications parameters possible to communicate with the display. The auto detect function will try all addresses between 1 and 255, all com ports, and every combination of communication parameters to detect what displays are on the network. The auto detect function will log internally all results from this test, and the log report can be printed out on the network computers printer. This test can take quite some time to run depending on the results of the test.

Static Controls Corporation

Network Controller

Users Manual

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System Operation

The SCC Series 1000 Network program allows communication between a Network control computer and Static Controls Corporation Series 1000 Displays. The network program allows for sending and recieving message text files to and from the displays, recieving log files from the displays, setting clocks on the displays and other commands to the displays.

The series 1000 Displays can log the time and date of the displaying of any message stored internally to the display.

The SCC 1000 Network system consists of 3 major components. These are:

1) Host Network computer.

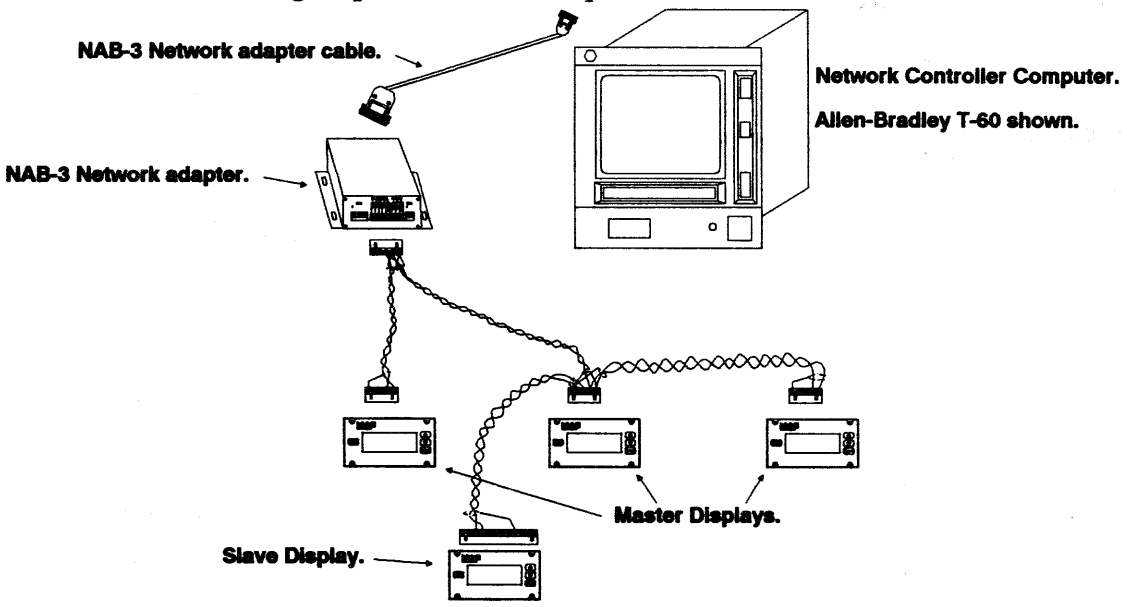
2) Network adapter.

3) Master 1000 Series Displays.

The Network computer issues commands via an RS-232 serial communications port with commands for a specific 1000 Series display. These commands are converted to an RS-485, half-duplex protocol in the network adapter. Each Series 1000 display decodes the commands, and if the commands are applicable to the display, acts apon the command.

The Network computer also keeps records of the message text files that are loaded into each of the displays on the network, message I.D. files that identify each message in the display as to thier type, and all log files generated by the display.

Log files of the displayed messages in each display are used to create statistical data based on the operation of a machine or group of machines or processes.



Network Computer Requirements

The minimum network computer requirements are listed below:

1) I.B.M. compatible computer with a 80286 microprocessor.

2) 512K of free system memory.

3) MS-DOS 3.3 operating system.

4) Hard disk drive with 20M Bytes free space.

5) Floppy disk drive of 1.2M Byte or 1.44M Byte capacity.

6) E.G.A. resolution monitor.

For maximum operating capability, recomendations are:

1) I.B.M. compatible computer with a 80386 or 80486 microprocessor.

2) 2M Extended system memory.

3) MS-DOS 5.0 operating system.

4) 105M Byte hard disk drive.

5) V.G.A. resolution monitor.

6) System printer.

Software Disk

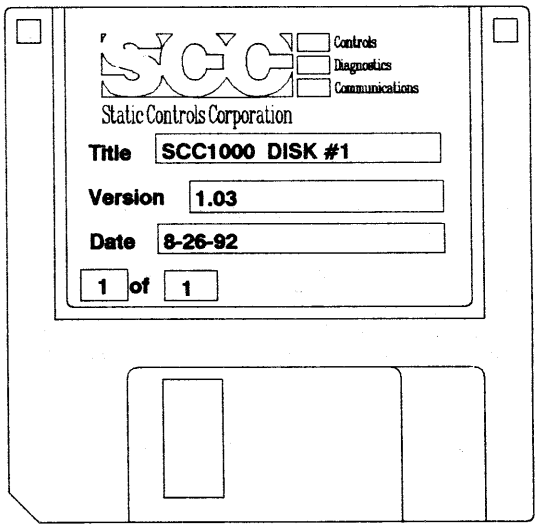
MAKE A BACKUP COPY OF ALL SOFTWARE DISKS!

The software disks provided are not copy protected and can be duplicated using the dos command "DISKCOPY".

Store the original software disks in a safe place.

Refer to the Installation portion of this manual for installation procedure.

The program is supplied on 1.44 M byte I.B.M. compatible, 3 1/2" floppy disk.



Initial Program Start-up

Change to the directory where the network system is saved. The default directory is "SCC1000". The program is started by typing the word "SCC1000" followed by a return.

C:>CD\SCC1000 ↵
C:\SCC1000>SCC1000 ↵

The first time the network program is run a series of questions need to be answered by the operator. These will be asked before the program will operate.

```
Static Controls Corporation    Series 1000 NETWORK Controller    V 1.00  7/92

                    BOOT DISK
Current setting = C
 [ A or C ]
Enter new setting :  C
```

Answer this question as to the disk that the network computer boots up from.

```
Static Controls Corporation    Series 1000 NETWORK Controller    V 1.00  7/92

                    CRT TYPE
Current setting = COLOR
 [ M or C ]
Enter new setting :  C
```

Answer this question as to the type of monitor used on the network computer.

```
Static Controls Corporation    Series 1000 NETWORK Controller    V 1.00  7/92


SELECT A COMMUNICATIONS PORT.

     (1) Use COM1: port
     (2) Use COM2: port
     (3) Use COM3: port
     (4) Use COM4: port

Enter choice (1-4) : 2
```

Answer this question as to the serial port that is to be used for network communications.

```
Static Controls Corporation     Series 1000 NETWORK Controller     V 1.00  7/92


                SELECT SERIAL COMMUNICATION SPEED.

                        (A) 38.4K
                        (B) 19.2K
                        (1) 9600
                        (2) 4800
                        (3) 2400
                        (4) 1200
                        (5) 600
                        (6) 300

                Enter baud rate choice (A,B,1-6) : 1
```

Answer this question as to the baud rate for the network communication port. Recommended baud rate is 9600 baud.

```
Static Controls Corporation     Series 1000 NETWORK Controller     V 1.00  7/92


                SELECT THE NUMBER OF DATA AND STOP BITS.

                        (1) 8bits + 1 stop
                        (2) 8bits + 2 stop
                        (3) 7bits + 1 stop
                        (4) 7bits + 2 stop

                Enter format choice (1-4) : 1
```

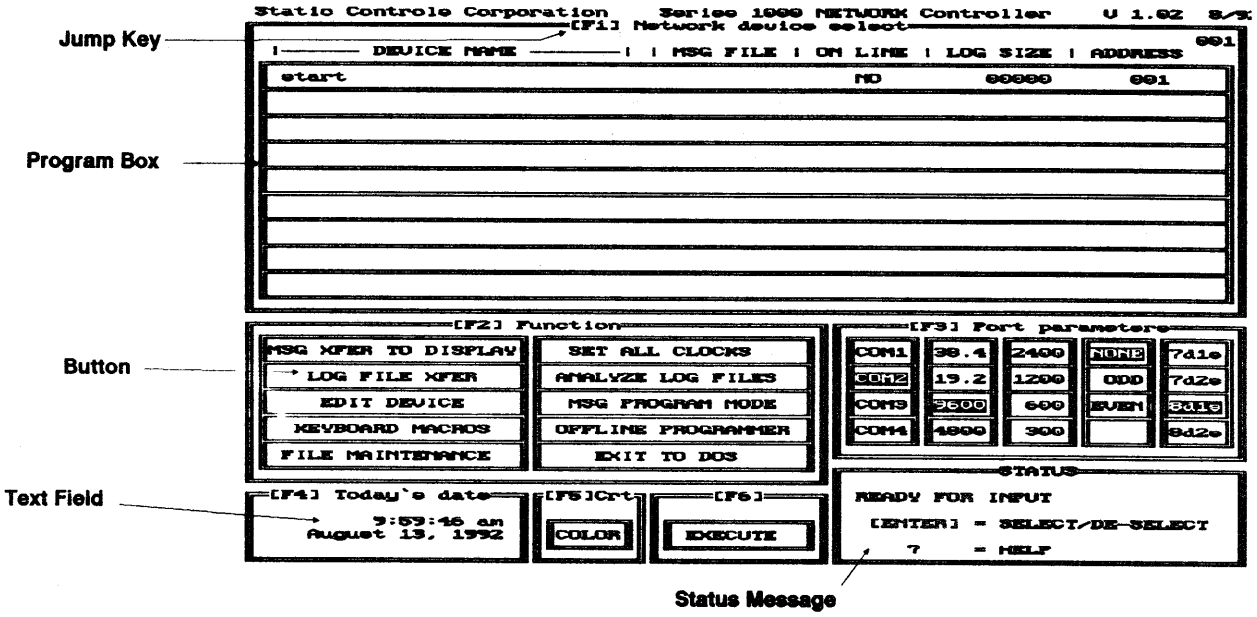
Answer this question as to the data bits and stop bits on the network communication port. 8 data bits are required for correct network operation.

```
Static Controls Corporation     Series 1000 NETWORK Controller     V 1.00  7/92


                        SELECT PARITY CHECK.

                                (1) None
                                (2) Even
                                (3) Odd

                        Enter parity choice (1-3) : 1
```

Answer this question as to the parity type to be used on the network communications port.

Moving Around The Program

Below is the main menu screen. Operation and movement across the menu is typical of all of the different menu screens in the program.

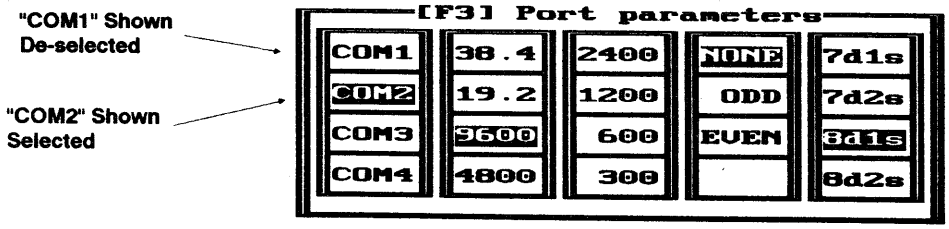


Each menu screen contains several sections. Each major section is refered to as a program box. In a program box, there can be up to 3 different sub-sections. There can be buttons, text fields and status messages.

Moving between program boxes is done by pressing a jump key. Each program box that has buttons or text fields has a jump key. The jump keys are the Network Computers function keys. Each program box has a label and a jump key on the top line of the box.

Within a program box, a "cursor" is movable to a button or a text field. The "cursor" is shown by blinking the button or text field. To move the cursor within a program box, using the arrow keys will move the cursor up, down, left or right. The Network Computers **HOME** and **END** keys will move the cursor to the first or the last entry in the program box. In cases that all of the available buttons are not shown within the program box, the **PAGE UP** and **PAGE DOWN** keys will also move the cursor up or down a page of button selections.

To Select a button or a text field, move the cursor untill the desired selection is blinking, and "click" the selection on or off by pressing the **ENTER** key. When a button or text field is "selected" the button will be shown with a black background with white lettering. "Clicking" the button again will de-select the selection.



Movement Keys

TO PROGRAM BOX	Jump keys [Function Key] Moves cursor to the selected program box. [SHIFT] Jump keys Moves cursor to selected program box, and selects or deselects all of the buttons in the program box. Works only with program boxes with multiple selections available.
WITHIN PROGRAM BOX	Up, Down, Right, Left Arrow keys Moves cursor position 1 place up, down, right or left. HOME, END keys HOME moves cursor to the first entry in the box. END moves cursor to the last entry in the box PAGE UP, PAGE DOWN keys Moves a new set of buttons into view if more buttons are available than can be seen in the program box at once. ENTER key Selects or deselects button or text field at the cursor position.
OTHERS	ESCAPE [Esc] key Aborts current operation. "?" key Invokes current help screen for cursor position.

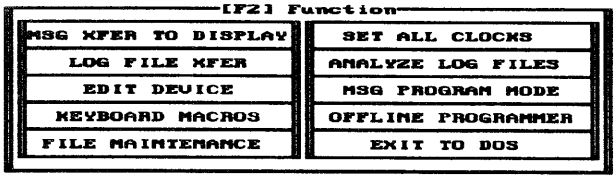
Current cursor position is button or text field that is blinking.

Program boxes that supports multiple selections are:

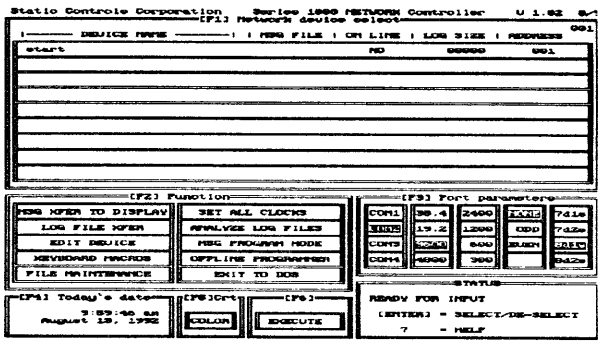
MAIN MENU	[F1] NETWORK DEVICE SELECT
EDIT DEVICE MENU	[F4] I.D. SELECT
FILE MAINTENANCE MENU	[F3] SOURCE FILE SELECT
ANALYZE LOG FILE MENU	[F1] NETWORK DEVICE [F2] LOG FILES [F7] OUTPUT TYPE

Menu Tree Structure

From the Main Menu's [F2] Function program box, all of the software's other menu screens can be accessed.

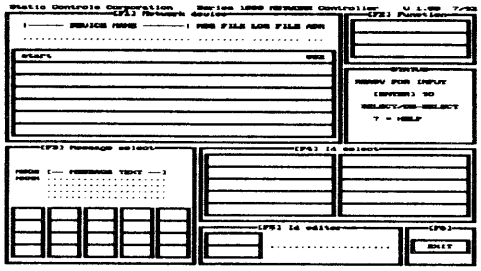


Main Menu

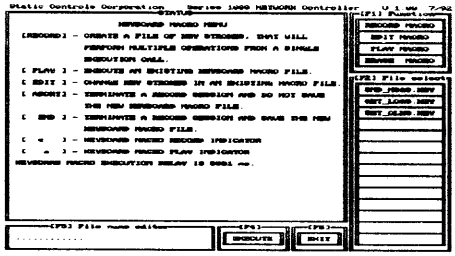


When exiting any of the submenu's, the program will exit back to the main menu.

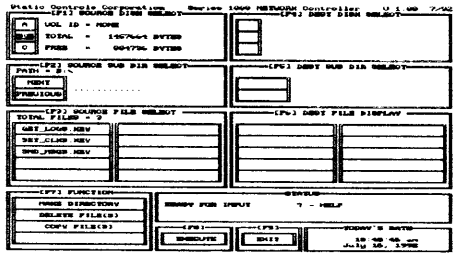
Edit Device Menu



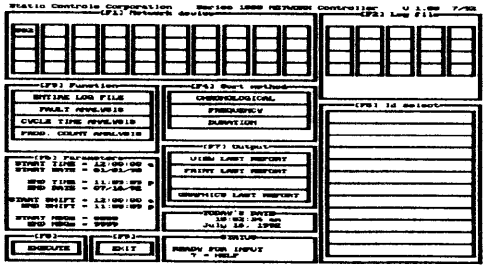
Keyboard Macro Menu



File Maintenance Menu



Analyze Log File Menu



Menu Definitions And Functions

MAIN MENU

Send message text file to a display.
Receive log file from display.
Set display clocks.
Select other menu.

EDIT DEVICE MENU

Assign a message text file to a display
Assign an address to the display.
Assign a log file name to the display.
Assign a message I.D. to each message in the message text file.
Add or remove a message I.D. type.

KEYBOARD MACRO MENU

Create (record) a keyboard macro.
Play (execute) a keyboard macro.
Edit an existing keyboard macro.
Erase (delete) a keyboard macro.

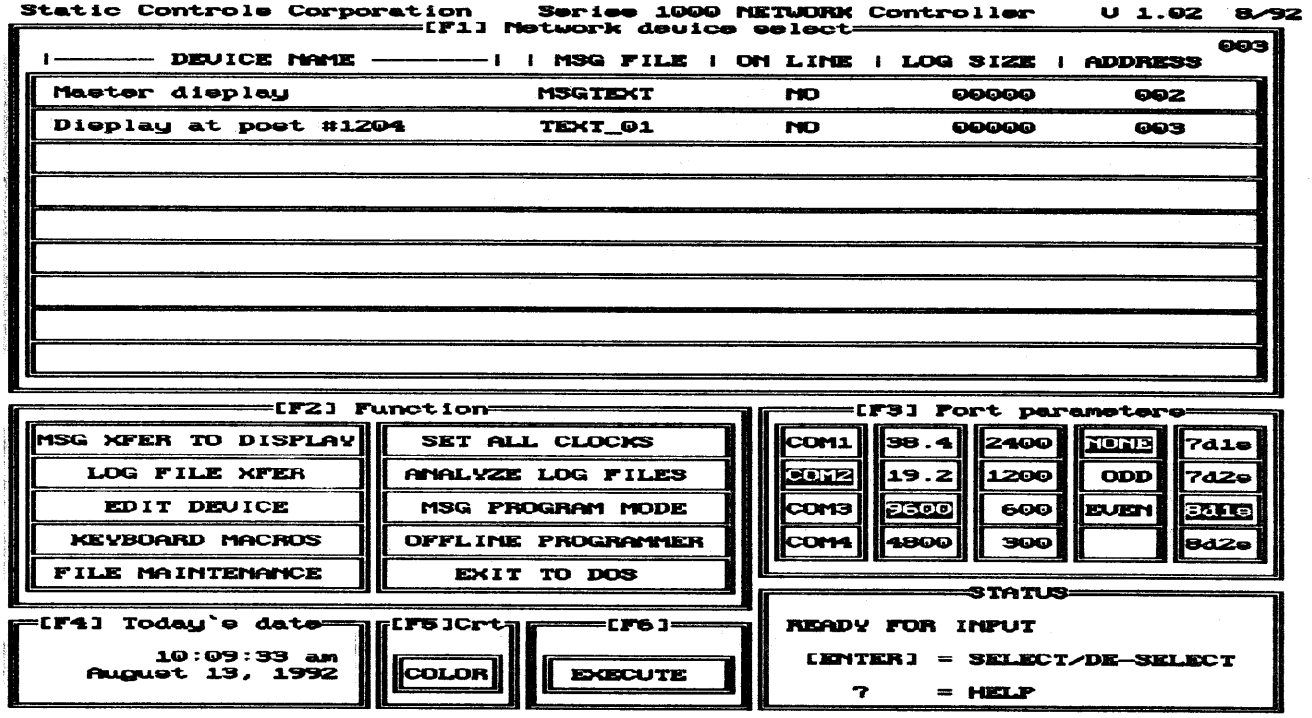
FILE MAINTENANCE MENU

Delete files from disk.
Copy files to another location or disk.
Make a directory on the disk.
Delete an entire directory from the disk.

ANALYZE LOG FILE MENU

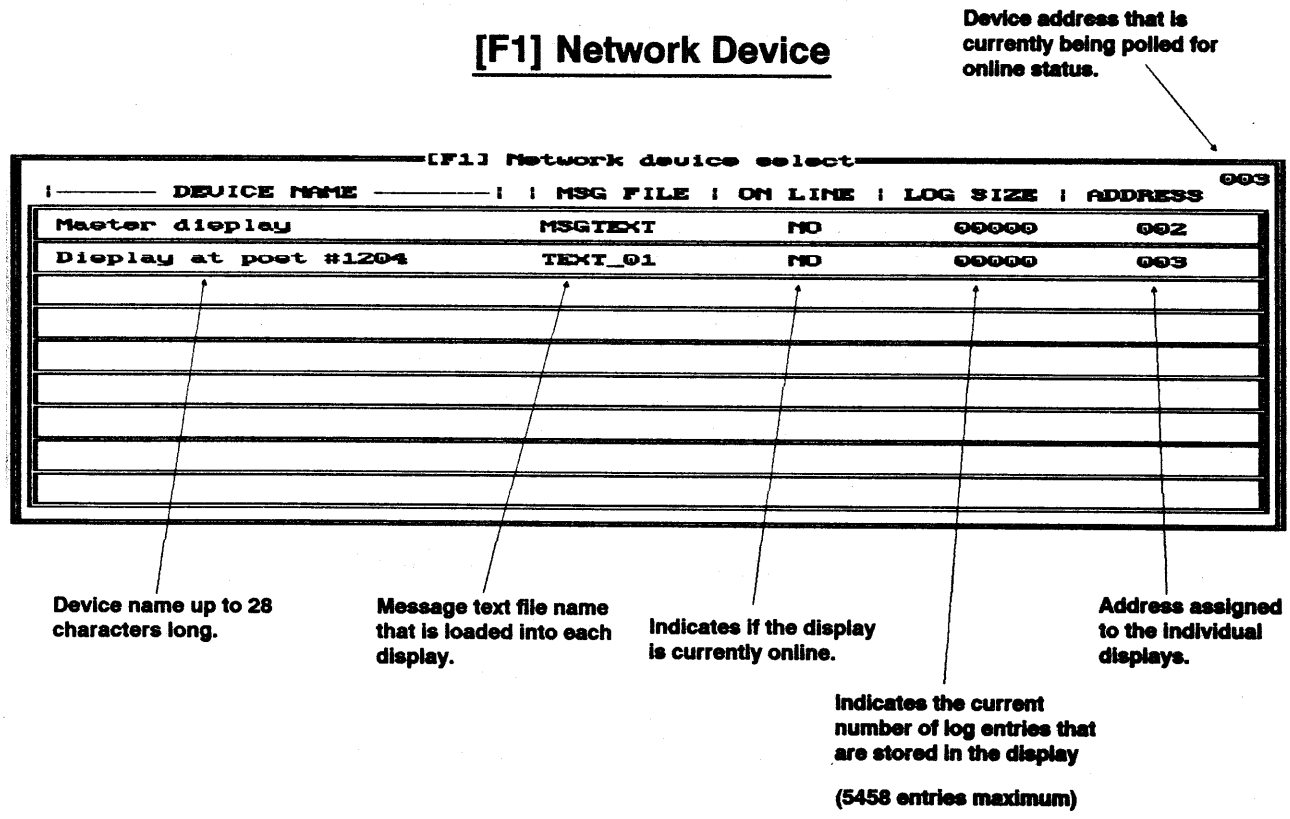
Create log file statistical data.
View log file report.
Print log file report.
Run graphics of log file report.

Main Menu

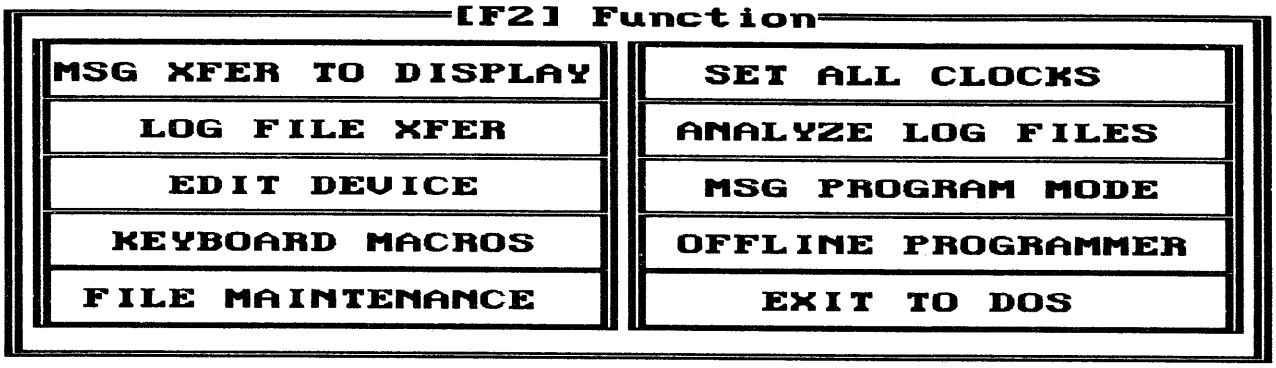


Each of the main menu's program boxes are described below:

[F1] Network Device



[F2] Function



This function will send a pre-defined message text file to the selected display(s).

This function will receive a log file from the selected display(s).

This function changes the network software to the edit device menu.

This function changes the network software to the keyboard macros menu.

This function changes the network software to the file maintenance menu.

This function will set all displays with the current time and date on the network computer.

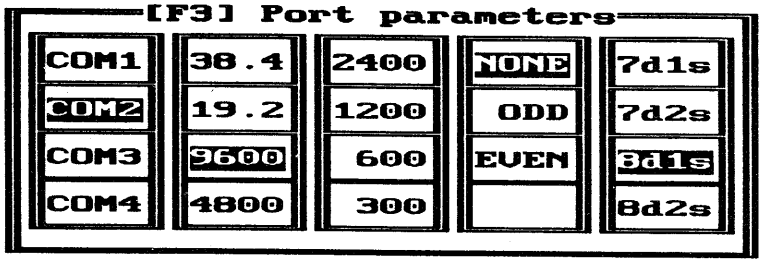
This function changes the network software to the analyze log files menu.

This function changes the network software to the message text program operation.

This function allows the operator to enter the SCCOFFL offline message program. This program will allow for message programming, printing of the message and I.D. files, ect. Refer to the SCC OFFLINE MANUAL for complete operation.

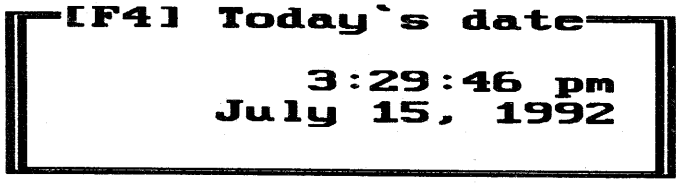
This function will exit the network software program and return to DOS.

[F3] Port Parameters



This program box allows for setting of the serial communication port that will operate the network of displays. Recommended parameters are 9600 baud, no parity, 8 data bits, 1 stop bit.

[F4] Today's Date

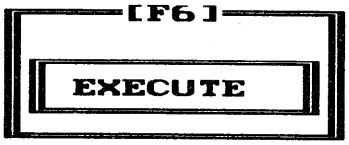


This box will contain a running clock of the current time and date. This is also a text field box, and the time and date may be changed in this box.

[F5] Color / Monochrome

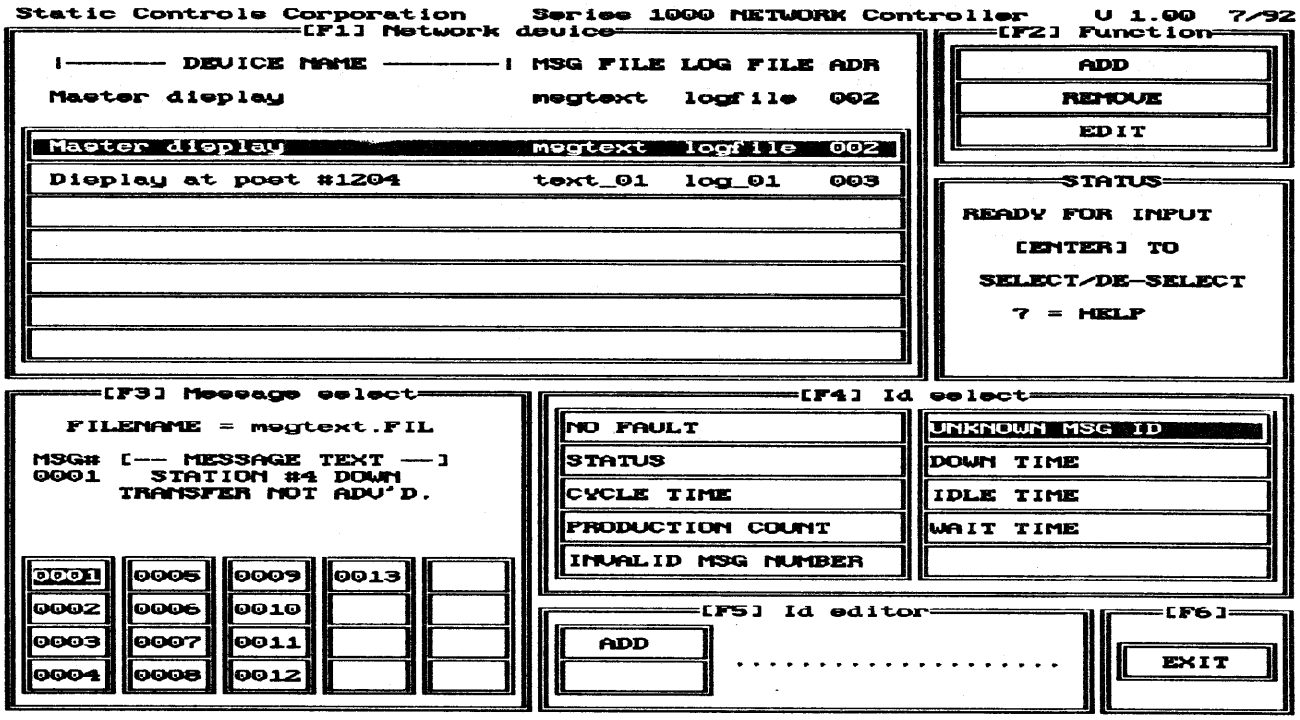
This box and button will change the monitor between color and monochrome.

[F6] Execute



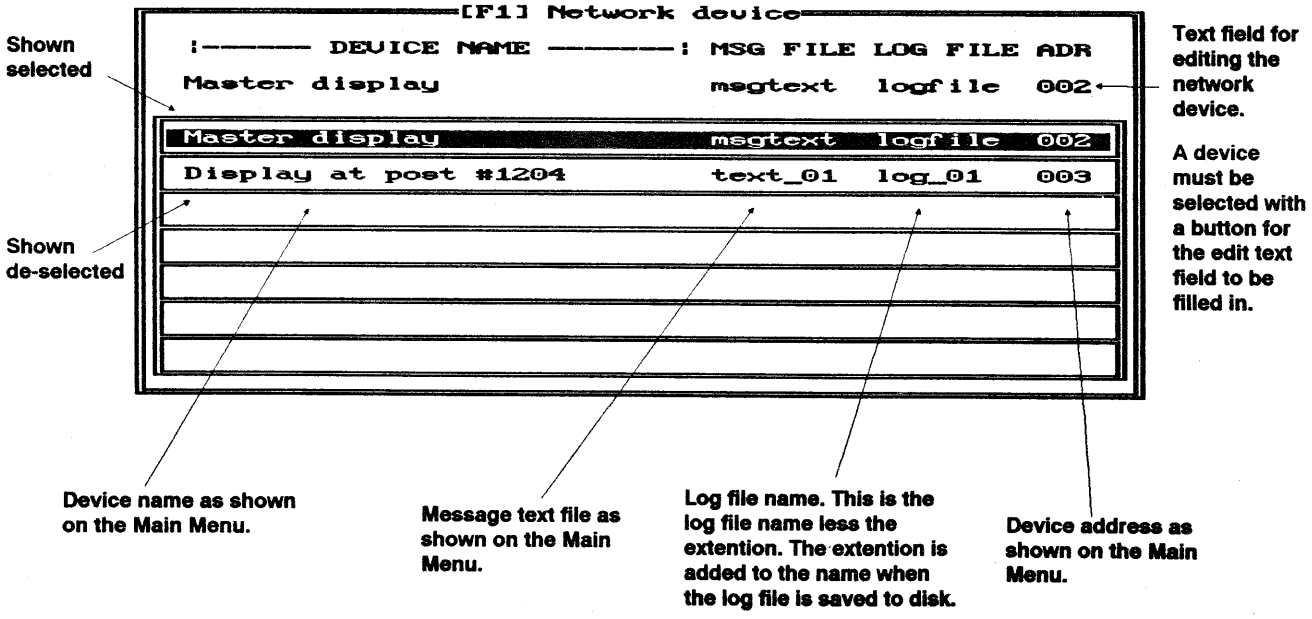
This box and button is used to execute any of the commands that have been selected by all of the other buttons and boxes.

Edit Device Menu



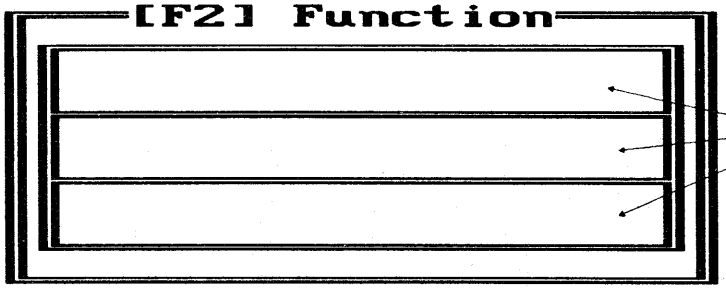
The edit device menu is used to set up each of the network device displays on the network. All files associated with a network display are "attached" to the display in this menu. Each of the program boxes in this menu are shown below.

[F1] Network Device



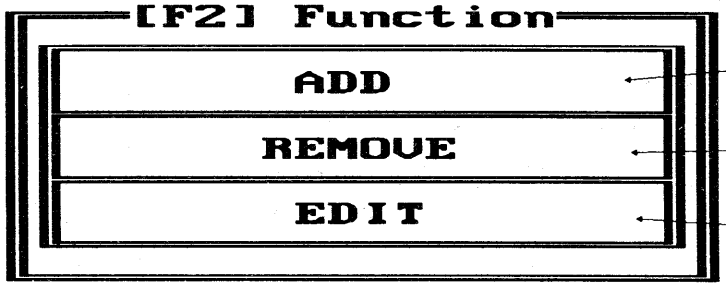
[F2] Function

This program box and buttons are used to add a new device, remove or edit an existing device. Initially the program box will have no visible button selections. The buttons will become visible after a device has been selected in the [F1] Network Device program box.



With no Network Device selected, the buttons in the [F2] program box are not visible. When a device has been selected, the buttons become visible.

When a device is selected, the buttons in the [F2] program box become visible.

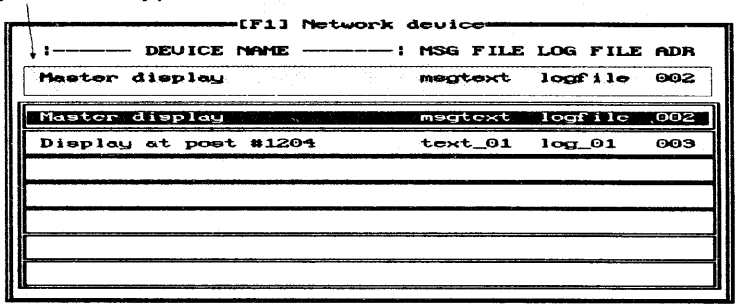


Add a new device after the currently selected network device.

Remove the currently selected network device.

Edit the currently selected network device. Edit the device in the text field area inside the [F1] program box.

Edit device text field. (shown highlighted for clarity.)



List of all available network devices.

"Master display" shown selected. When adding a new network device, it will be placed after the selected device, and before the network device labeled "Display at post #1204".

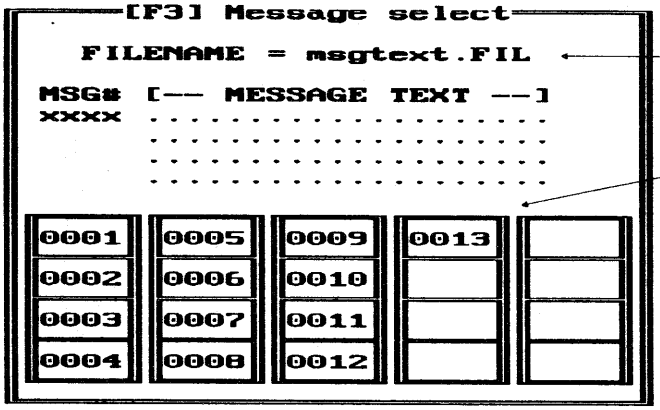
When editing, selected network device is edited in the text field.

If removing the network device, this selected device will be removed.

Network devices may be added, removed or edited in any order. Devices may be added, removed or edited at any time during operation of the network system. The device needs to be in the list of available network devices to do any operations with the display.

[F3] Message Select

The message select program box shows the operator the messages that are currently in the message text file for a selected network device. A network device needs to be selected in the [F1] program box before the [F3] Message Select program box will become visible. After a network device is selected the [F3] program box will become partially visible.

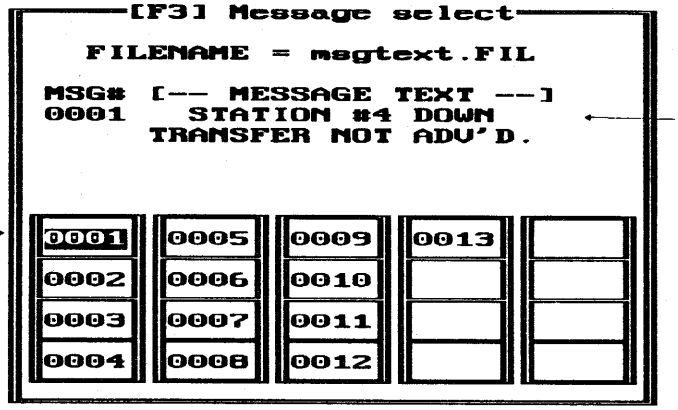


Selected devices message text file name.

Message numbers of all messages in the selected devices message text file.

Shown with no message number selected.

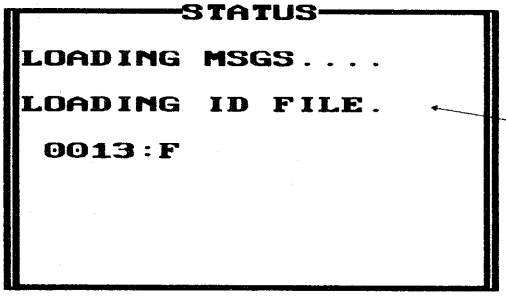
When a message number is selected with the [F3] program boxes buttons, the message text will be shown in the message text field.



Text in message text file for message number 0001.

Each devices message number's text will be shown in this text field, when the message number is selected.

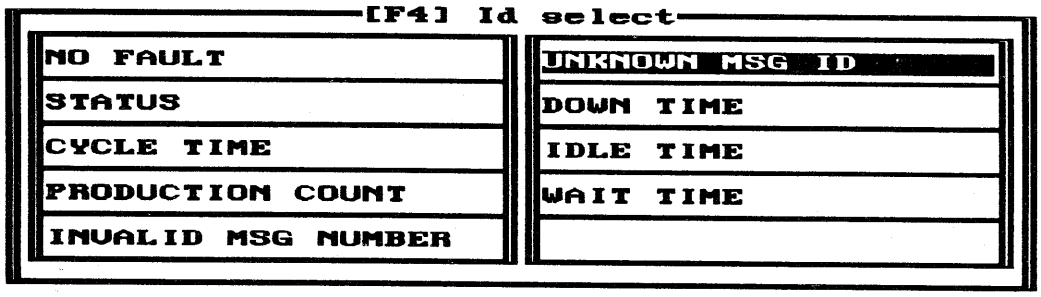
Shown with message number 0001 selected.



After jumping to program box [F3], the message file is loaded. The status box reflects that the message text file and the ID file are being loaded and checked.

[F4] Id Select

The [F4] ID Select program box shows the message type for a message selected in the [F3] Message Select program box. This program box will become visible after a network device has been selected, and a message number has been selected.

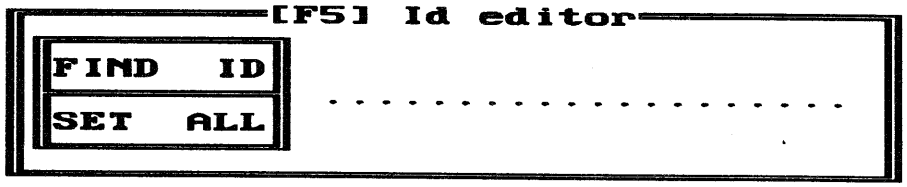


All of the currently available message ID's are shown in this program box. Initially all messages are defined as "**UNKNOWN MSG ID**". Select any of the currently available message ID's by clicking the desired button to select an ID for a message number. The [F4] program box will reflect the current message ID for the currently selected message number.

[F5] ID Editor

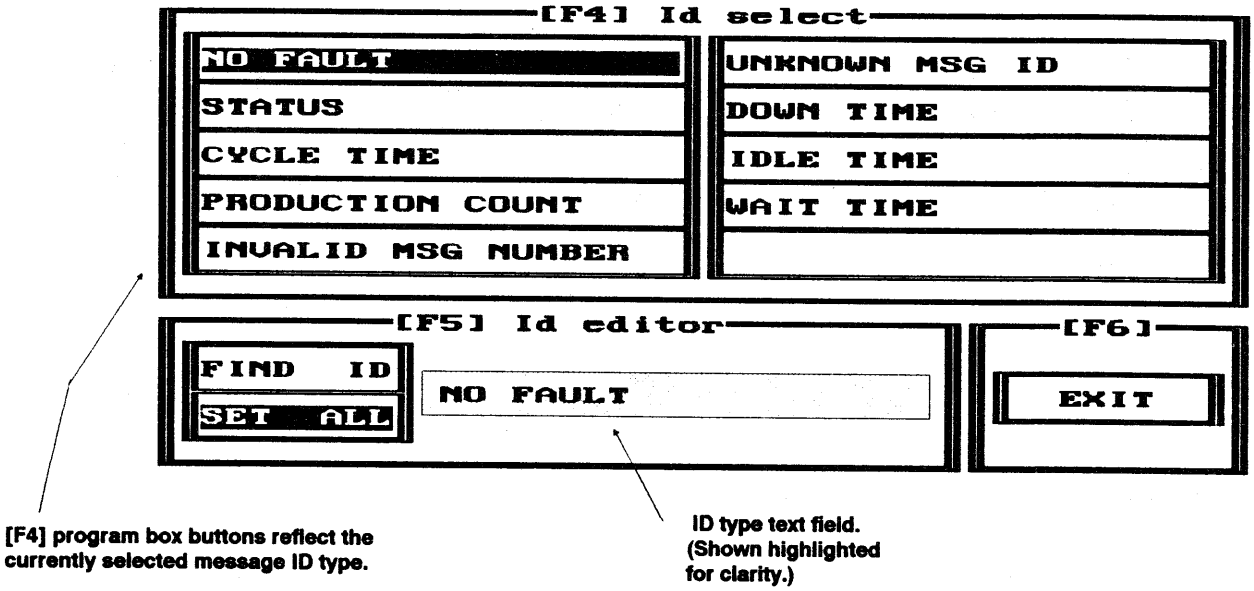
The [F5] ID Editor program box allows the operator to do a few different operations with the message ID's. Each of these different operations will have a different set of buttons in the [F5] program box.

With a network device selected, and the [F3] program box selected, and no message number selected in the [F3] program box, the [F5] program box buttons are shown below.

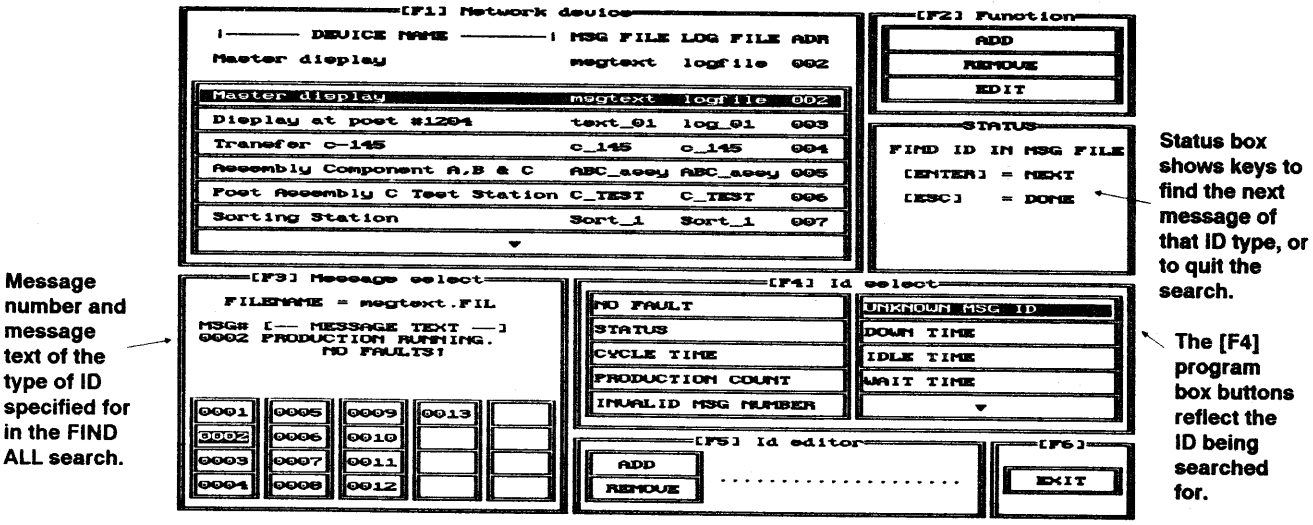


With no message number selected, the [F5] program box's buttons allow the operator to set all messages to a specific ID, or to find a message(s) of a specific ID type. Clicking the **SET ALL** button in the program box will allow the operator to set all messages in the message text file for the selected network device to a selected ID. Selecting **FIND ALL** allows the operator to find each message that is set to a specific ID type.

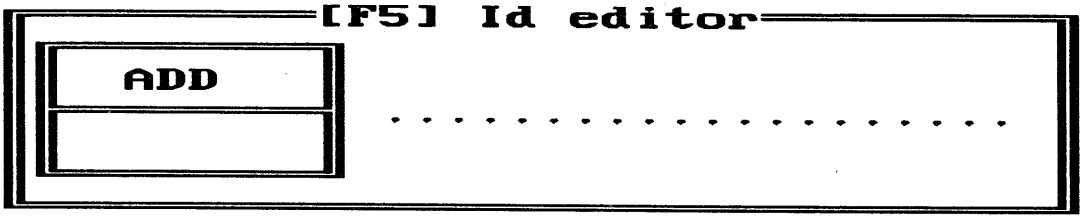
After selecting **SET ALL** the [F4] program box will become visible, and the text field in the [F5] program box will show the currently selected message ID. Change the ID type text field by using the up and down arrow keys. When the ID type that is to be attached to all of the messages appears in the text field, press enter to set all messages to that ID type.



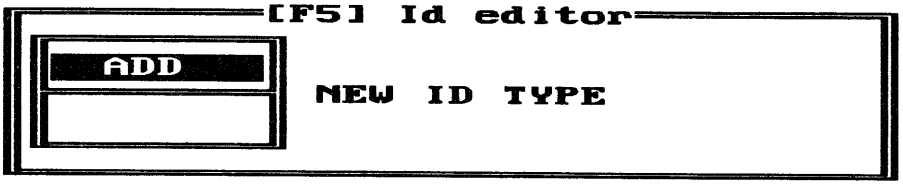
Selecting **FIND ID** works in the same manner as the **SET ALL** button. The menu below shows the screen after a message of the specified type of ID type has been found. To find the next message with the same specified ID type, press **ENTER**. To quit searching, press the **ESC** key.



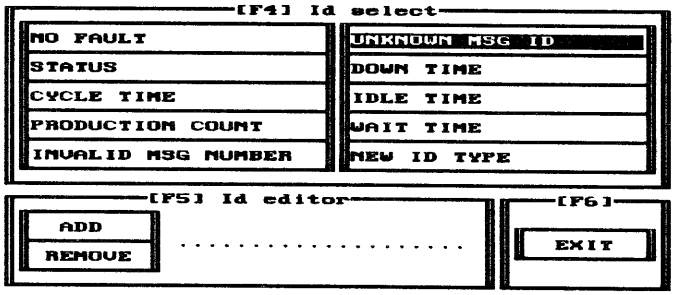
With a message number selected in the [F3] message select program box, the [F5] program box will contain a different set of button(s).



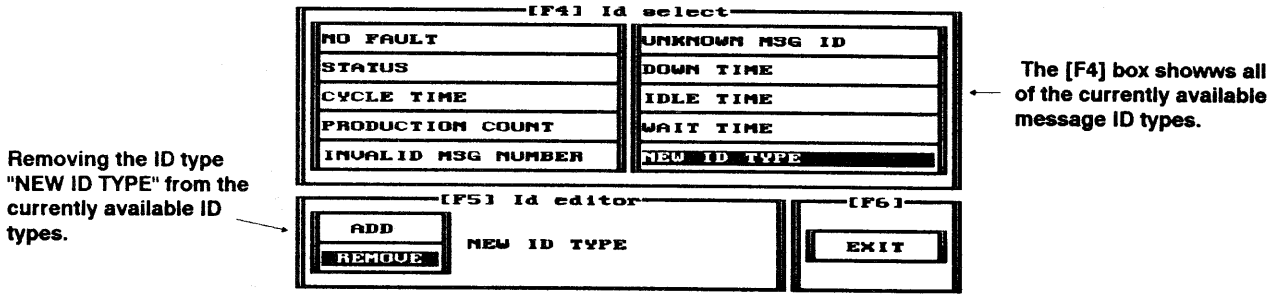
In the above [F5] ID Editor program box, selecting the **ADD** button will allow the operator to add a new ID type to the current list of message ID types.



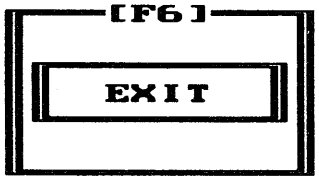
After selecting **ADD**, the text field in the [F5] box becomes visible and allows the operator to type in a new ID type name. Pressing ENTER after typing in the new name adds that ID type to the list of currently available ID types.



Once an ID type is added to the list of 9 permenent ID types, a **REMOVE** button becomes visible in the [F5] ID Editor box. The **REMOVE** button is only visible if an ID type has been added to the original 9 ID types. The 9 permenent ID types cannot be removed. Removing an ID type works in the same manner as adding an ID type. The ID type shown in the [F5] text field will be the ID type that is removed. Press **ENTER** to remove the specified ID type.



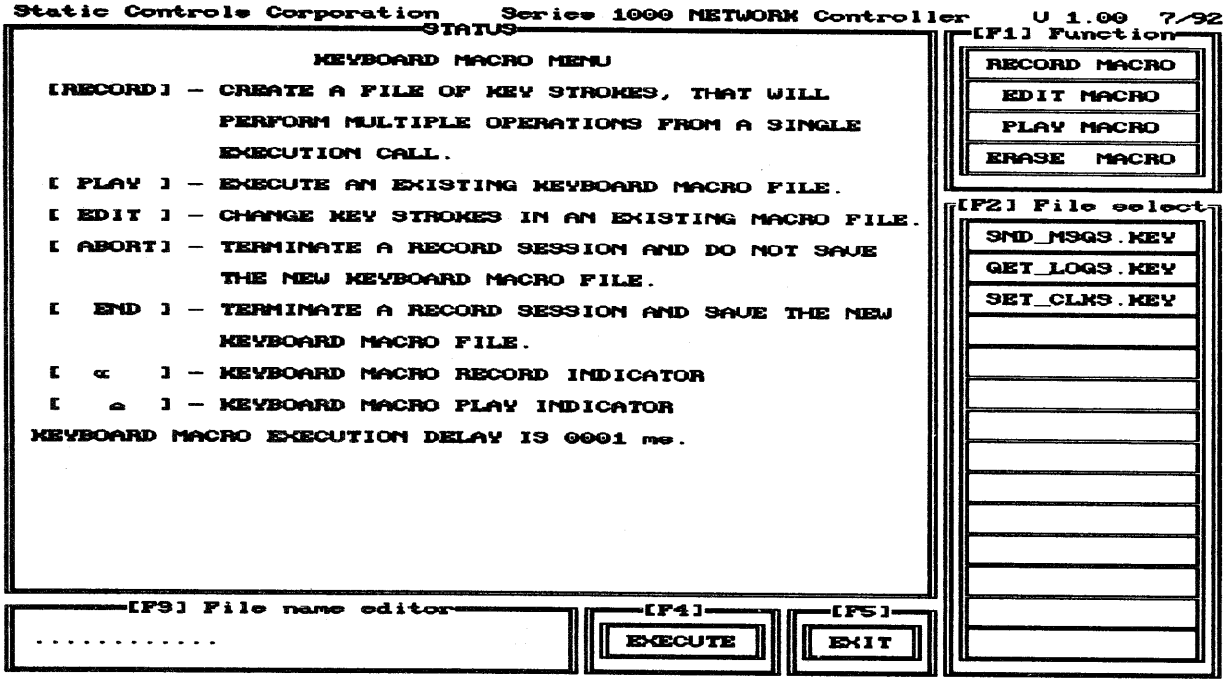
[F6] Exit



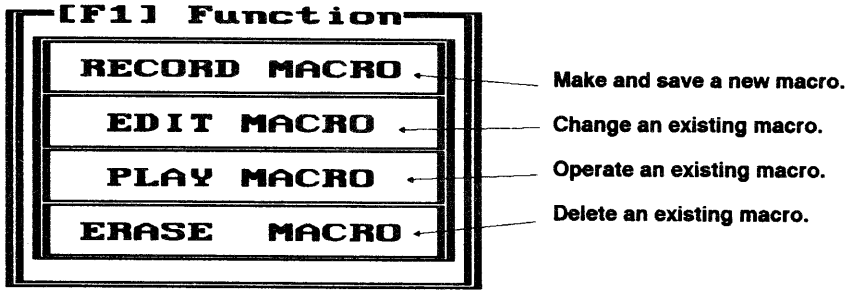
This box and button when selected will jump the network software program back to the main menu.

Keyboard Macro Menu

The keyboard macro menu allows the operator to save a set of keystrokes into a file that can be played back later. This allows the operator to save a method of operation that can be used over and over again with the same keystrokes.

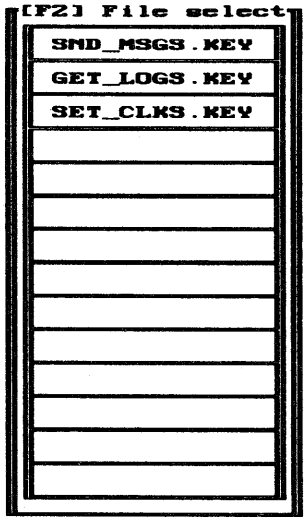


[F1] Function



The [F1] Function box and buttons select the macro function that is to be preformed.

[F2] File Select

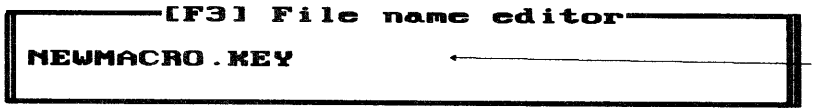


The buttons in the [F2] program box list the currently available macro files.

This program box and buttons list the currently available keyboard macro files that can be **PLAYED, EDITED** or **ERASED.** If recording a new macro file, the list allows the operator to see what file names are currently being used.

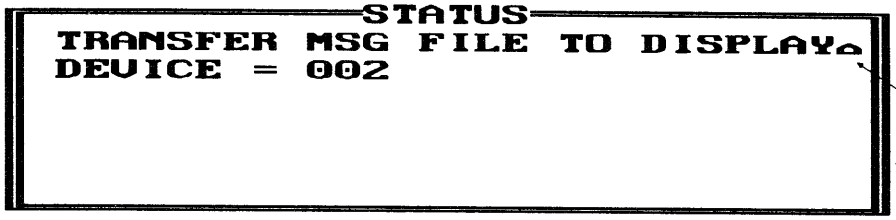
[F3] File Name Editor

The [F3] File Name Editor is a text field that the operator uses to insert a new file name when recording a new macro file. If a currently available macro file is selected for playing, editing, or erasing, the file name will also be shown in this box's text field.

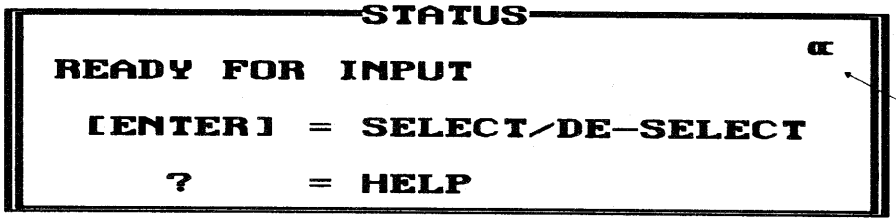


Shown here with the text field filled in with the macro file name "NEWMACRO".

The status box in each of the menu's will show if a macro file is being used. A special symbol is displayed in the corner of the status box for recording or playing. (Edit shows the same symbol as recording with text showing the next key in the macro file.

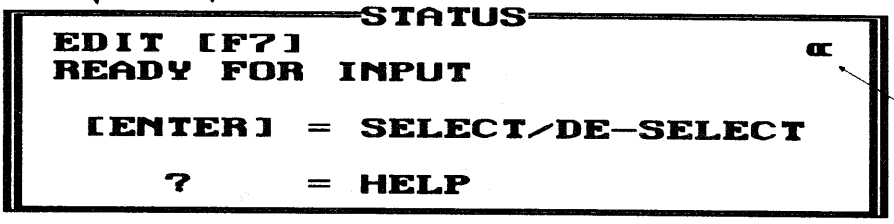


When PLAYING a keyboard macro file, this symbol will appear in the status box of each menu.



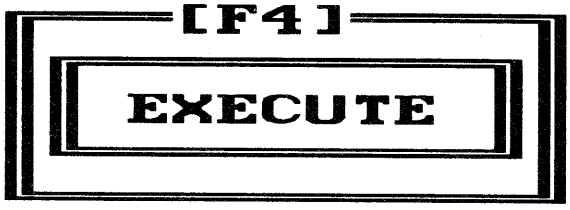
When RECORDING a keyboard macro file, this symbol will appear in the status box of each menu.

Edit verbage and the next key in the macro file are displayed in the status box of each menu.



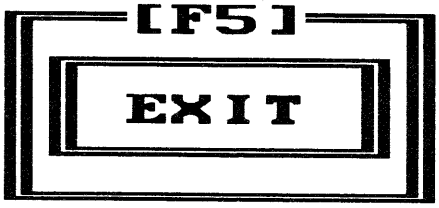
When EDITING a keyboard macro file, this symbol will appear in the status box of each menu.

[F4] Execute



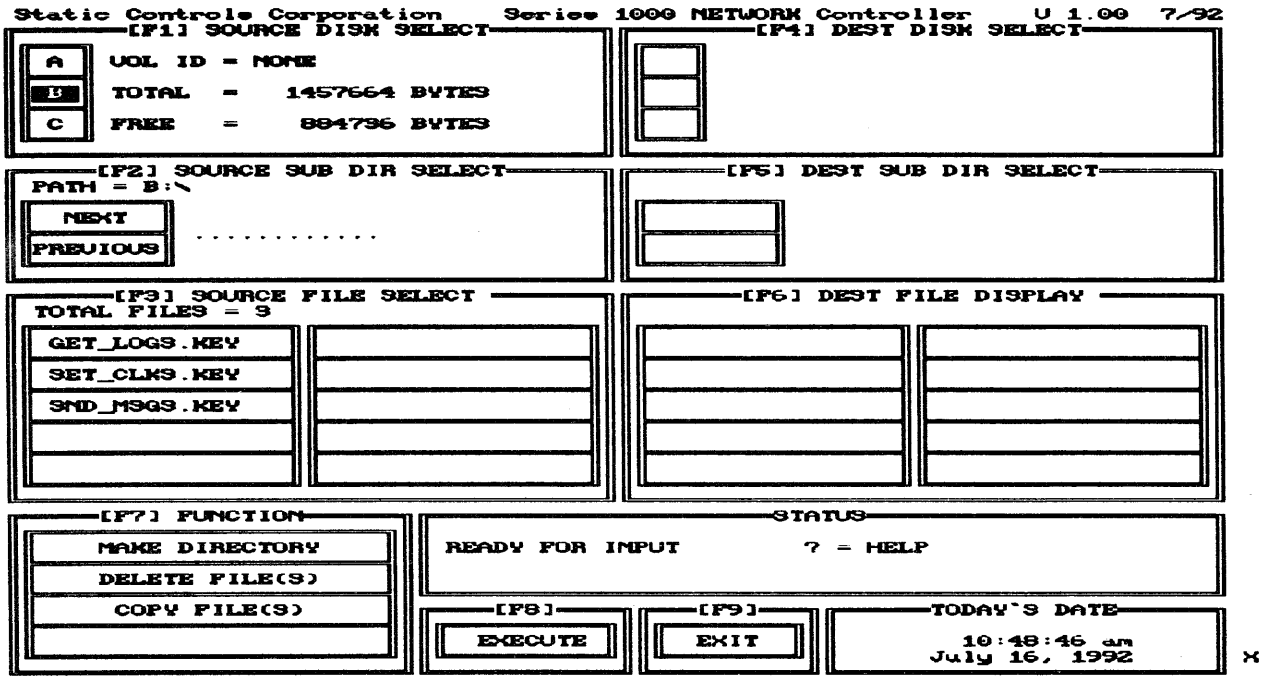
This box and button is used to execute the other selected functions.

[F5] Exit



This box and button is used to go back to the Main Menu.

File Maintenance Menu



This menu is used to copy files, delete files, make a directory or remove a directory.

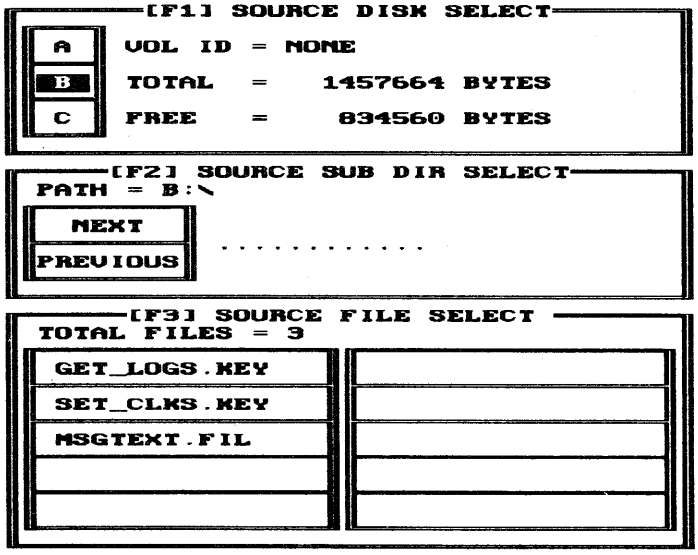
Source program boxes

The source drive letter and information on that drives disk space are shown here.

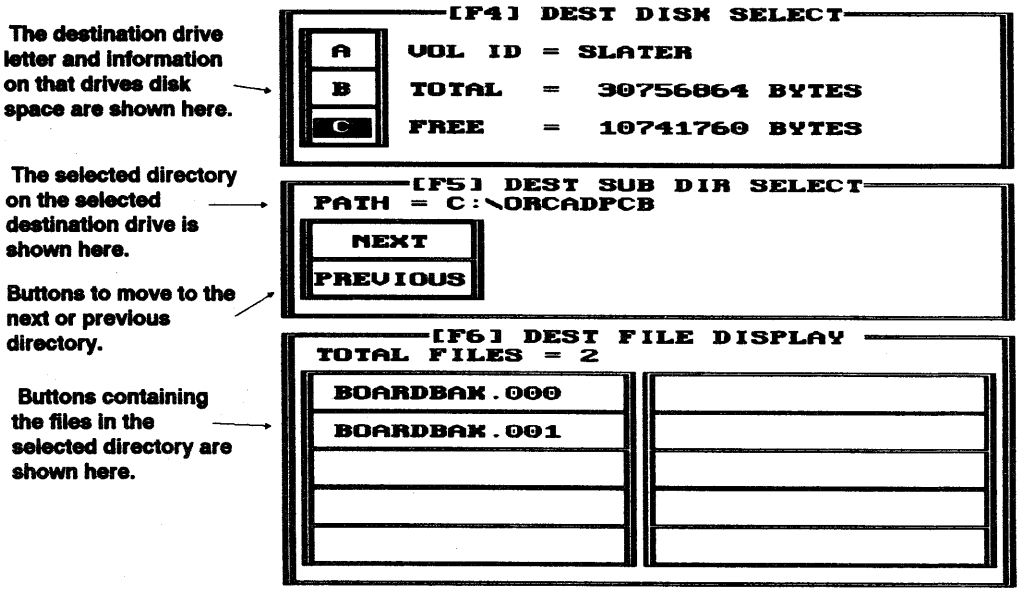
The selected directory on the selected source drive is shown here.

Buttons to move to the next or previous directory.

Buttons containing the files in the selected directory are shown here.



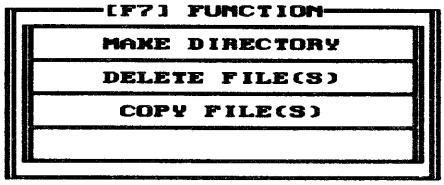
Destination program boxes.



The source boxes [F1], [F2], and [F3] are the source program boxes. [F4], [F5], and [F6] are the destination boxes.

All files and directories are created or removed from the source program boxes. The destination boxes only become visible when copy is selected in the [F7] Function box. Copied files are copied from the source selection to the destination selection.

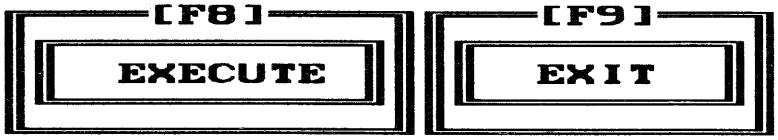
[F7] Function



This program box and buttons are used to select the function of the selected file(s) in the source boxes. Files can be deleted or copied to the destination boxes.

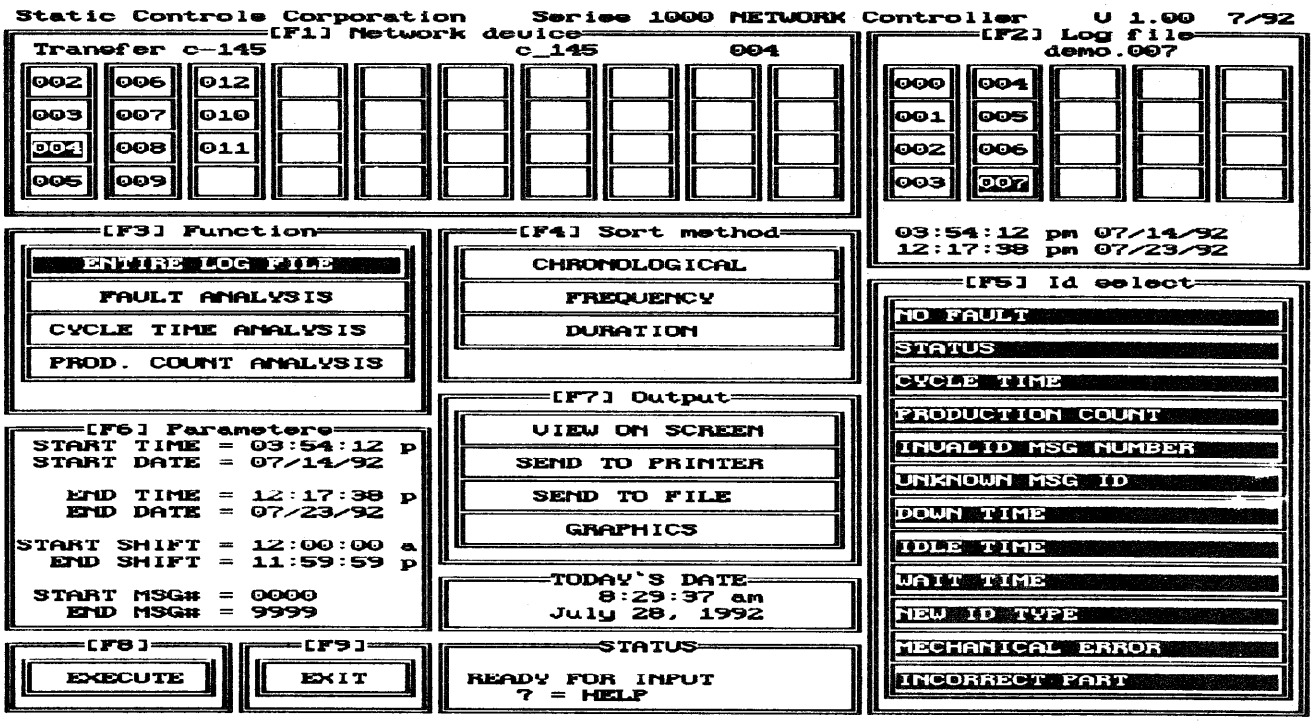
[F8] Execute

[F9] Exit



The **EXECUTE** and **EXIT** program boxes and buttons work in the same manner as in the main or any other menu.

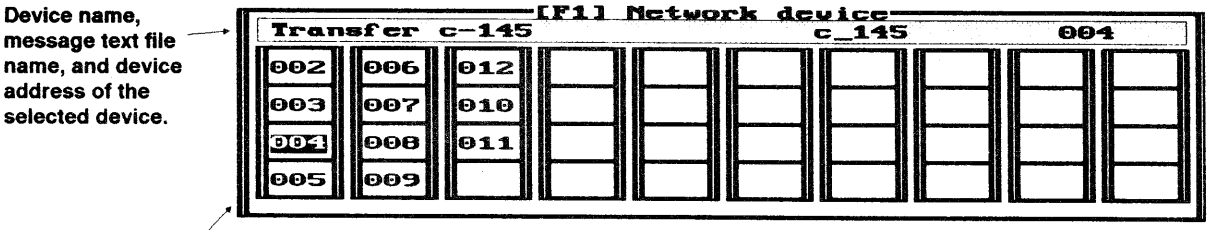
Analyze Log File Menu



Within this menu all reports are generated from log files saved on the disk. Log files are uploaded from the displays to the network controller and saved on disk in the Main Menu. The log files saved on the disk are used in this menu to generate reports on faults encountered in the network system.

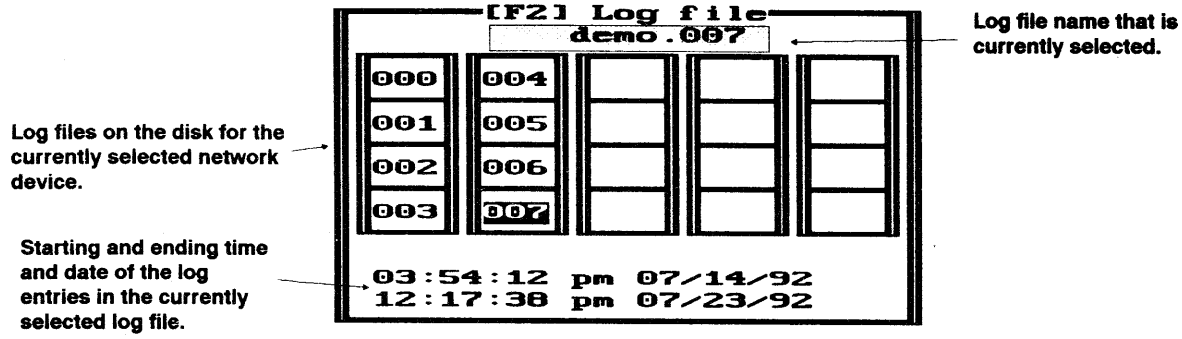
Reports can be viewed on the screen, printed or displayed in a graphic representation.

[F1] Network Device



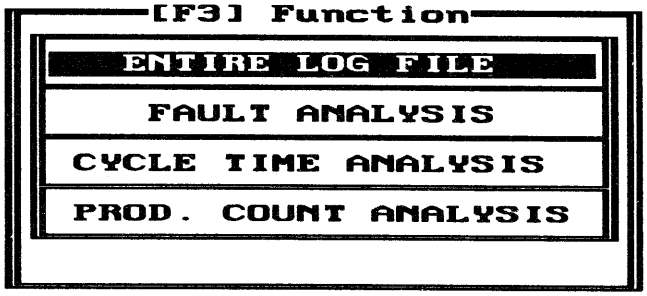
The [F1] program box and buttons select the network device(s) who's log files are to be analyzed. Multiple devices may be selected.

[F2] Log Files

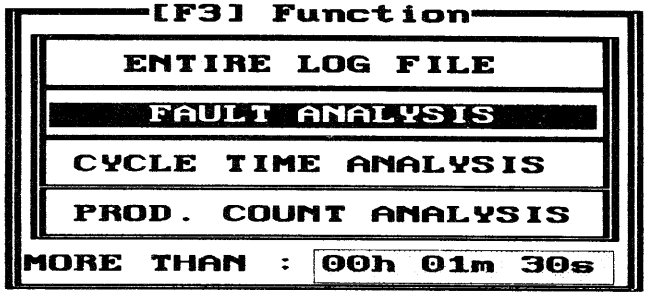


This box and buttons allow the operator to select one or more log files for the selected network device. These log files will be used for reports.

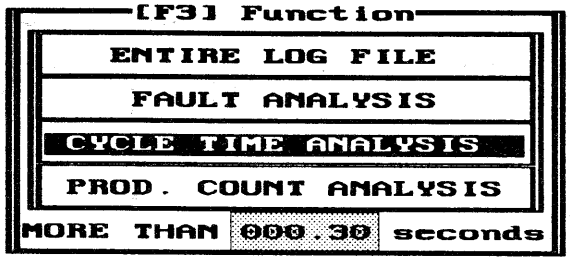
[F3] Function



This box and buttons select the type of messages that are to be used in the log file reports. Any messages that are not to be used will be "stripped" out of the report. The shown selection "**ENTIRE LOG FILE**" will use all logged messages in the report.

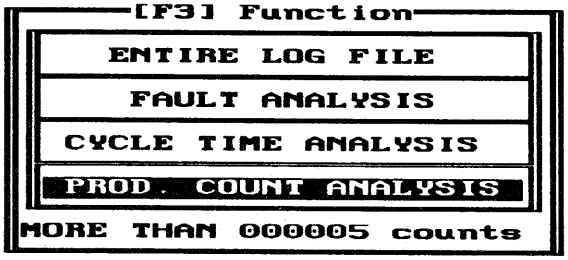


"**FAULT ANALYSIS**" will only use messages that are generated by a fault condition. In addition a text field allows the operator to set a time limit that the fault must be greater than to be included in the report.



Text field set to a minimum of 0.3 seconds in this example. Cycle times less than 000.30 seconds are not included in the report.

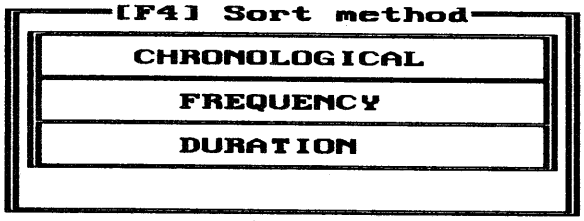
"**CYCLE TIME ANALYSIS**" will do a report on messages that have a variable cycle time in the message text. The text field is set to the minimum cycle time that is to be included in the report.



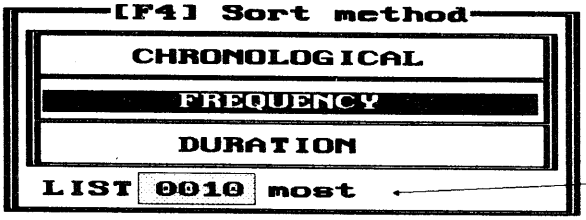
Production count analysis of counts greater than 5 pieces.

"**PRODUCTION COUNT ANALYSIS**" will do a report on the messages that are production counts with a variable inserted into the message text.

[F4] Sort Method

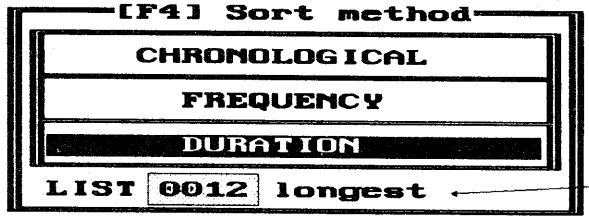


This box and buttons determine the method of sorting of the messages determined in the [F3] box. "**CRONOLOGICAL**" will list the messages in order of thier time and date. The time and date of each logged message is saved along with the message when the message was called up by the controlling P.L.C. attached to each of the network displays.



Shown with the top 10 messages in order of frequency to be shown on the report.

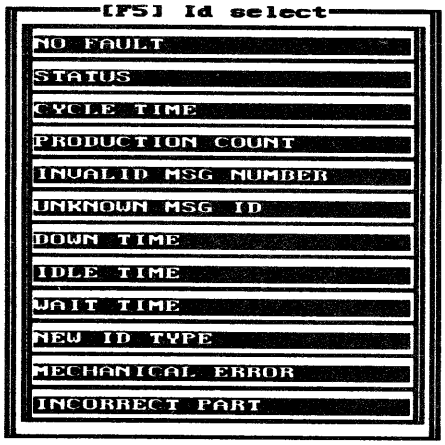
"**FREQUENCY**" will sort the messages in order of the most called up messages to the least called up messages. A text field allows the operator to set the number of messages that are to be seen on the report.



List the 12 longest duration fault messages on the report.

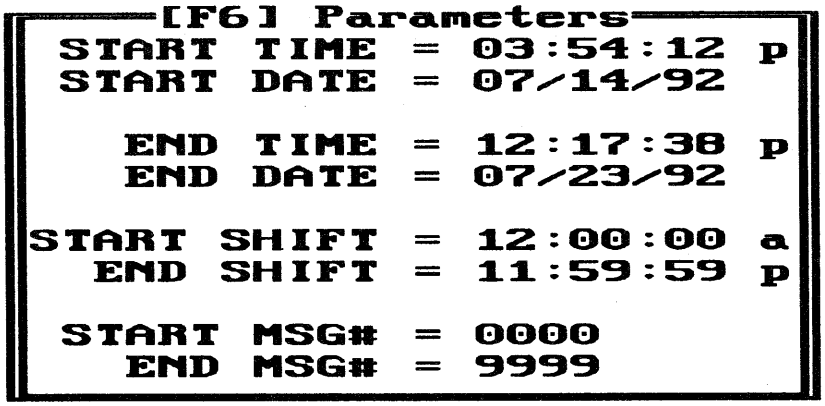
"**DURATION**" lists the messages in order of the time duration of each of the messages. The text field is filled in with the number of messages to be seen on the report.

[F5] I.D. Select



This box and buttons select the message I.D. types to be used in the report. The I.D.'s are initially selected when picking a function in the [F3] box. The I.D. types can be selected or deselected manually by clicking on any of the shown buttons in the box.

[F6] Parameters



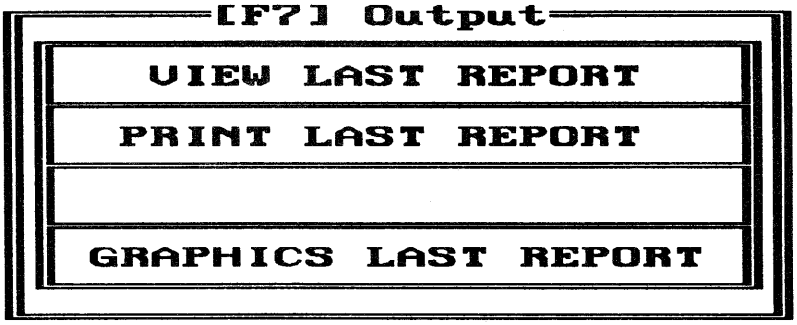
This box with it's text fields allows the operator to exclude messages from the report. Only messages that fit within the settings of this program box will be included in the report.

"**START TIME & DATE**" This text field defines the starting time and date of the messages to be included in the report. This field will be automatically filled in when selecting log files in the [F2} box.
"**END TIME & DATE**" This text field defines the ending time and date of the messages to be included in the report. This field is automatically filled in when selecting log files with the [F2] box.

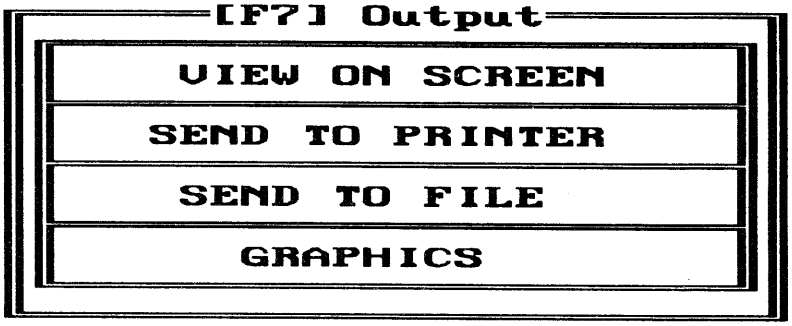
"**START & END SHIFT**" This allows the oprtator to exclude all message entries that are not within the start and end shift time.

"**START & END MESSAGE NUMBER**" This allows the oprtator to exclude any message number that does not fall within the message numbers set in this text field.

[F7] Output



This box and buttons determine where the output of the report is sent. If no selection has been made with the [F3] box the [F7] box will reflect that the only reports that can be seen are the last report on the disk.



If a selection has been selected in the [F3] box the [F7] box will reflect that a new report is to be generated, and where to send that report.

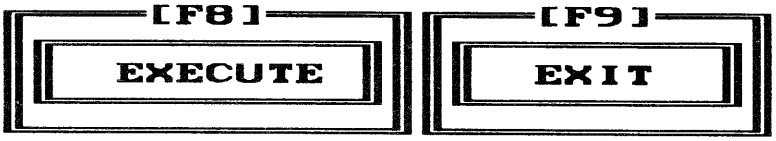
"**VIEW ON SCREEN**" allows the operator to see the report on the network computers C.R.T. screen.

"**SEND TO PRINTER**" allows the operator to print out the report.

"**SEND TO FILE**" allows the operator to put the report on to the disk.

"**GRAPHICS**" allows the operator to do a graphic report on the report data.

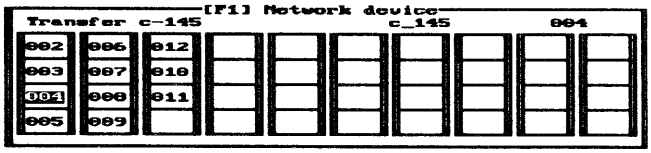
[F8] Execute **[F9] Exit**



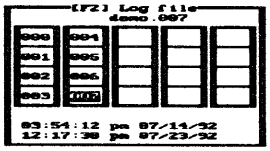
The **EXECUTE** button executes a command determined by all of the other selections in the menu. The **EXIT** button will return the operator to the main menu.

Log File Reporting Sequence

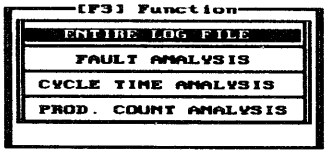
Select a network device(s).



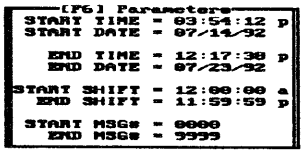
Select a log file(s).



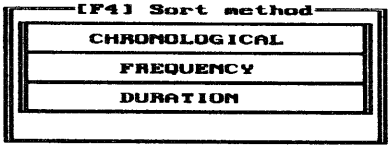
Select a function. (Selects specific message types to use.)



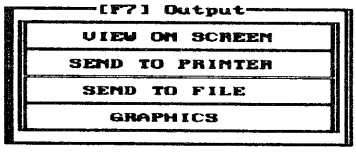
Set any parameters. (Omits blocks of messages.)



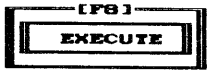
Select the sorting method. (Determines output sorting of messages.)



Select the final output.



Execute the selected options



Initial Setup

Initially all network displays come from the factory with no messages stored in the display's internal memory. All of the displays on the network system are to be loaded with messages for proper operation. Also the network controller is shipped with no network display information saved in it's internal setup. Before the network system can become operational both of these items need to be set up.

Network display message set up

There are several ways to set up and load messages into each of the network's master displays. This manual will go thru several methods for loading the message memory in each display.

Message Creation

Messages can be created from two different sources. Static Controls OFFLINE message programming software, or internally from the network program. Both of these programs use the same basic kernel and operate in the exact same manner when creating and saving message text files for a display. Refer to Static Controls OFFLINE manual for specific operation of the message programming software. Using the SCC OFFLINE software, create a message file for each display on the network system, saving each of those message text files on your computers hard disk. When completed the message text files will need to be copied to the network's hard disk in the SCC1000 subdirectory. **Note: the message text files on the network system MUST have the file name extention ".FIL".**

The second method for creating message text files is from within the network program. The Network System must be set up first to be able to create message text files from within the Network software.

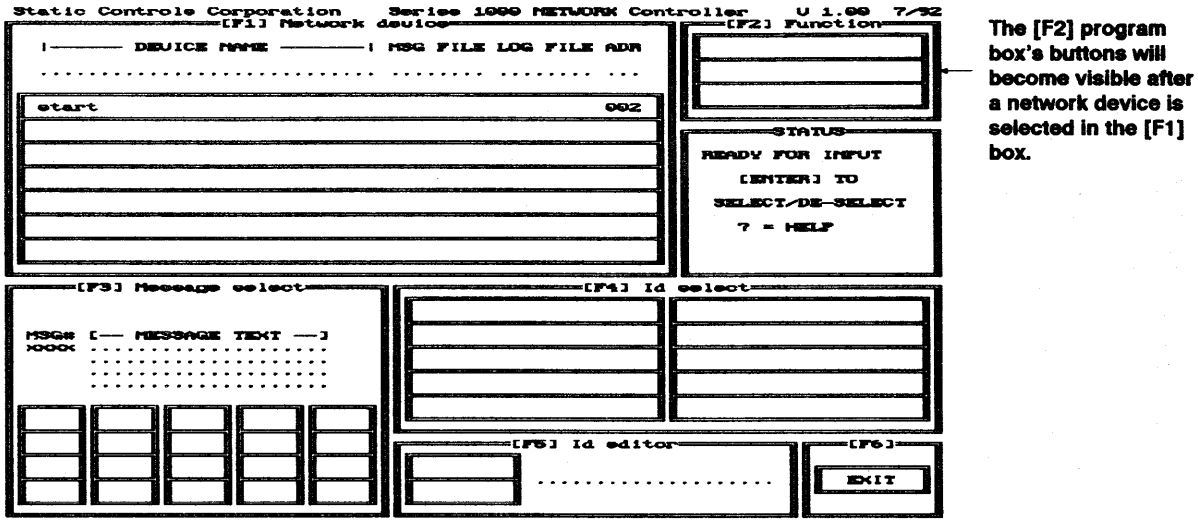
Network System Set Up

From the Main Menu select [F2] Function "**EDIT DEVICE**" and then [F6] "**EXECUTE**". This will send the program into the Edit Device Menu.

All of the Network Set up is done in the Edit Device Menu.

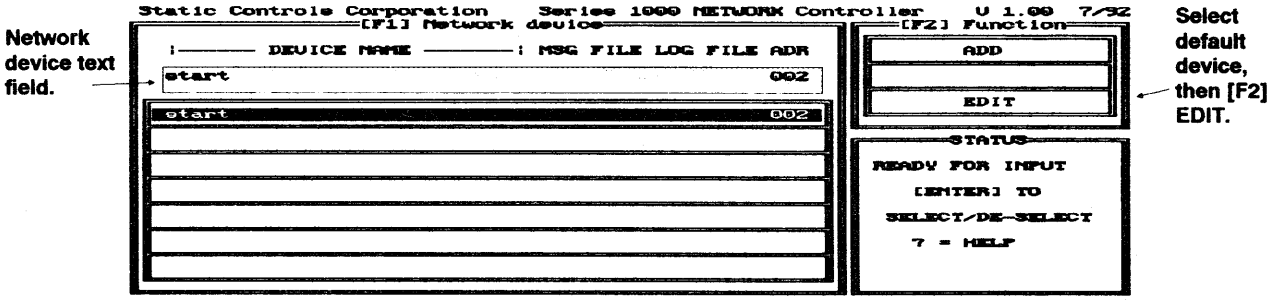
For each Network device on the network system, some information is required to be set in the network software. Each device is required to be "tagged" with the file name of the message text file, the log file name, and an address. Additionally a 28 character device name can be "tagged" to each network device, but is not required. Once a message text file is created for each device, a message I.D. tag must also be set for each message in the message text file.

Initially the Edit Device Menu will show 1 network device with a device name of "start" and an address of 002. This is the default value when the software is shipped.

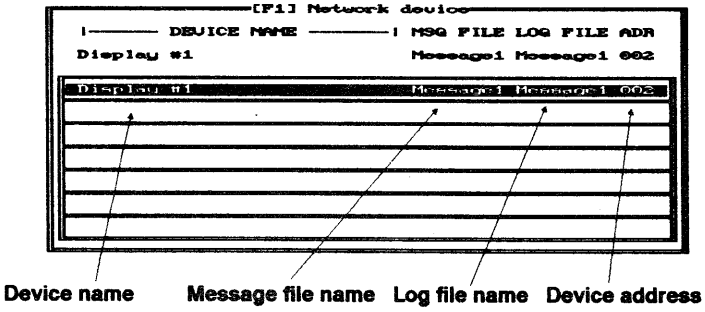


The [F2] program box's buttons will become visible after a network device is selected in the [F1] box.

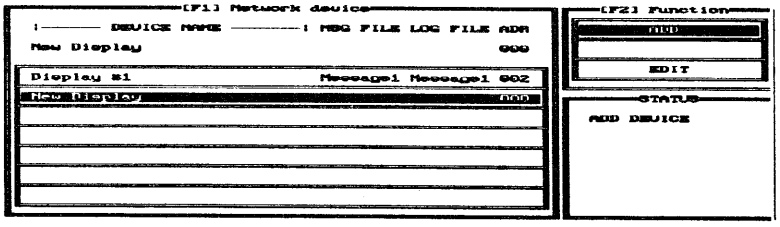
Select the default device in the [F1] Network device. Select "**EDIT**" in the [F2] Function box.



In the network device text field, enter a device name, the message text file name, log file name and the device address.

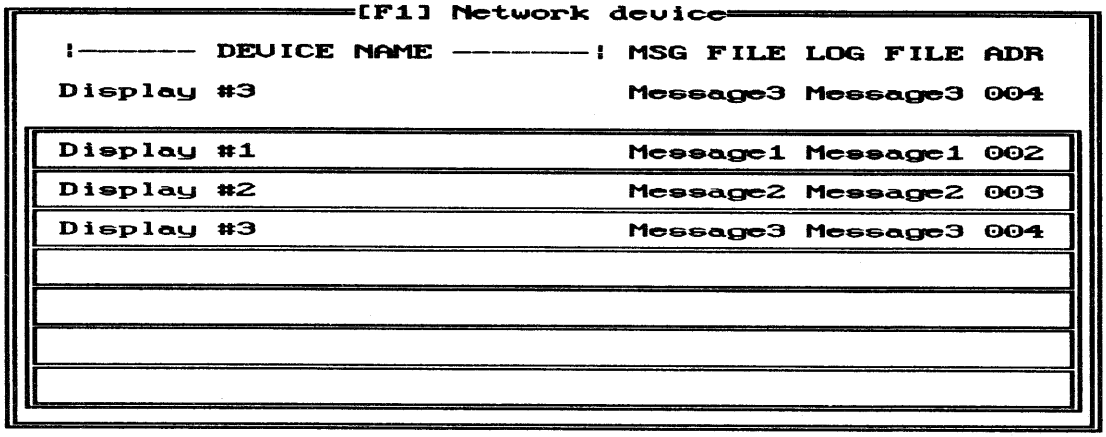


With the first device edited, leave the first device selected, and click the [F2] "**ADD**" button to begin to add new devices after the currently selected device.



Select "ADD" to add in devices 2 and up.

Continue adding devices until all devices on the network system are defined and tagged with the file names and addresses.



Creating Message Files

With the network devices all "tagged" with file names and addresses, a message file may be edited or created from within the network software. From the Main Menu, select a specific device in the [F1] Network Device box, and select "**PROGRAM MODE**" in the [F2] Function box. When executing this function, the program will first check to see if the selected device is "**ONLINE**". If the device is online, the display will send it's message file to the network controller to see if the message file in the display matches the message file on the network controllers hard disk. For initially creating message files, force any network devices on the wires to "**OFFLINE**" by disconnecting the communications cable out of the network controller.

When "**PROGRAM MODE**" is executed, the software will load up and run the kernel of the SCC OFFLINE software to create messages.

If the network device is "**ONLINE**" when executing "**PROGRAM MODE**", the network controller will command the network display to upload the display's message text file from the display to the network controller. The message text file is checked against the message text file located on the network controllers hard disk. If the two files do not match, the network controller will display the differences in the two files, and ask the operator which message file is to be saved. After the files are checked, the program will run the kernel of SCC OFFLINE to allow message file editing. When leaving the kernel of SCC OFFLINE, the network controller will download the message text file back to the selected network display automatically.

Network Controller Files

Associated with the network controller are various support files for both network controller operation and network display operation. When the network controller is started up, the controller will check all of the files that have been tagged to each of the network device displays.

```
SCANNING TEXT AND ID FILES !
```

The above dialog box will appear when the network controller is checking the files on the network controller's hard disk.

```
DEVICE 004 : MESSAGE TEXT FILE DOES NOT EXIST !
```

The above dialog box will be shown if a file that has been tagged to a network device does not exist on the network controllers hard disk.

Once the files are located, the network controller will check each of the files to determine that the files all match and are valid.

```
ID FILE VALIDATION

MESSAGE TEXT FILE = msgtext.FIL
MESSAGE ID FILE   = msgtext.ID
TEXT MSG NUMBER   = 0005
  ID MSG NUMBER   = 0006
         STATUS   = GOOD
```

Files that are saved on the network controllers hard disk are of two different types. The first are the files that determine the network controllers operation. The second type are the files that are tagged to each of the network device displays.

SCC_NET.ID This file contains all of the currently available I.D. types that can be assigned to a message text.

SCC_NET.DEV This file contains all of the network devices that are defined in this network system.

SCC_NET.EXE	This is the main kernel of the network operational program.
SCC_NET.COM	This is the startup of the network program.
SCC_NET.CFG	This is the file that contains the network configuration parameters. This file is hidden and cannot be viewed in the DOS directory.
NETSHELL.EXE	This is the startup shell for all of the network systems program.
SCCOFFL.EXE	This is the kernel of the message creation program.
????????.HLP	These files contain the help file for the message creation portion of the program
????????.KEY	This is a keyboard macro file.
SCC_NET.OUT	This is the last viewable log file report.
SCC_NET.PRN	This is the last printable log file report.
SCC_NET.GPH	This is the last graphable log file report.
SCC1000.BAT	This is the batch file program that is used to start up the network system.

The files for the network device displays are listed below.

????????.FIL	This is the message text file for a given display.
????????.000 thru ????????.999	These are the raw log files that have been uploaded from a display.
????????.ID	This is the ID file for the message text file in each display.

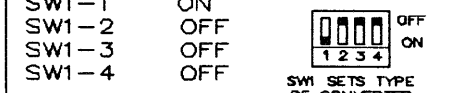
NAB-3 Network Converter

The NAB-3 converter converts the network controllers RS-232 communications to the 2 wire half duplex, RS-485 communications for use with the network displays. The converter can also be used as a 4 wire, full duplex, RS-422 converter for loading a message text file to the display on the plant floor right at the display.

When using the converter as the network RS-485 converter with the supplied SCC cable to the network controller the D.I.P. switches on the converter are to be set as shown.

NETWORK DIP SWITCH SETTINGS

SW1-1	ON
SW1-2	OFF
SW1-3	OFF
SW1-4	OFF
SW2-1	ON
SW2-2	OFF
SW2-3	OFF
SW2-4	ON
SW2-5	ON
SW2-6	OFF
SW2-7	OFF
SW2-8	ON

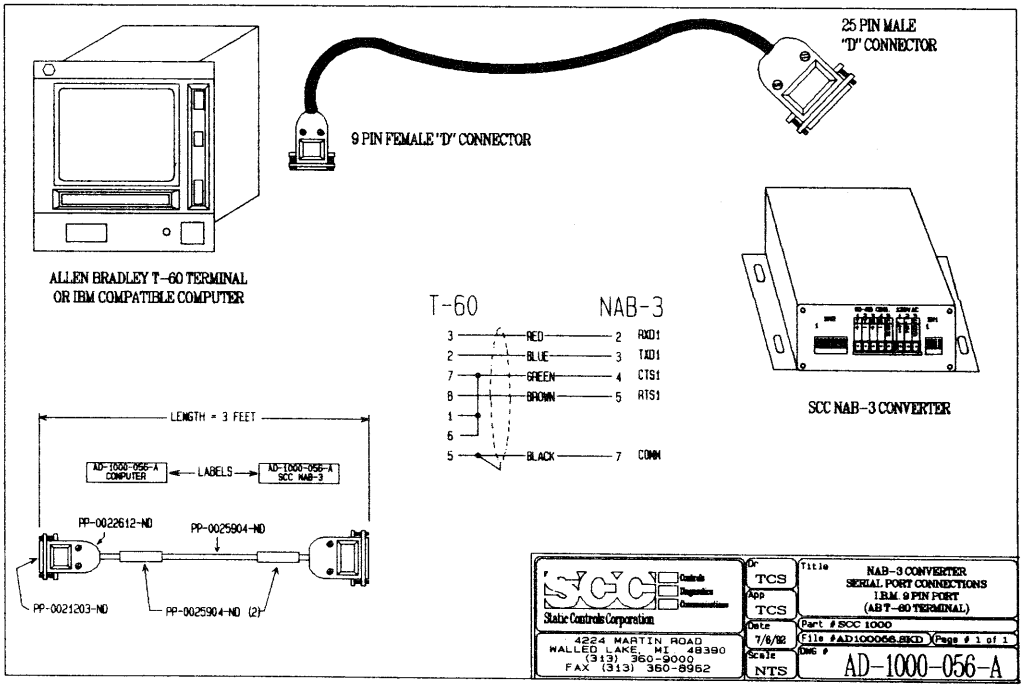


SW1 SETS TYPE OF CONVERTER OPERATION

SW2 SETS CONFIGURATION OF PINOUT ON RS-232 PORT

To operate the NAB-3 converter as a 4 wire, RS-422 converter, change SW1 #1 to off and set SW1 #3 to on.

Below is the cable supplied for the RS-232 side of each NAB-3 converter.



Network Device Set-up

Each of the network devices requires that the device (display) be set up to the proper network operating parameters.

Note: Master displays are tied to both the network controller computer, and the machine's P.L.C. Slave displays are displays tied only to a master display.

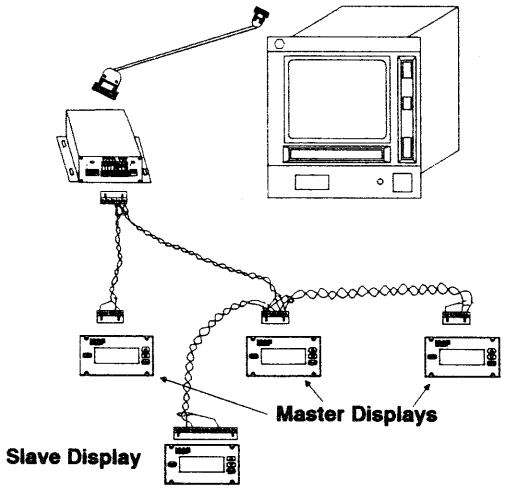
DISPLAY MODEL Each device on the network system is required to be ordered with the correct options. Valid S.C.C. part numbers are:

MASTER DISPLAY

1040-P4-03-128-C-FN
1040-P4-04-128-C-FN
1040-P4-13-128-C-FN
1040-P4-14-128-C-FN
1080-P4-03-128-C-FN
1080-P4-04-128-C-FN
1080-P4-13-128-C-FN
1080-P4-14-128-C-FN

SLAVE DISPLAY

1040-S-03-X-X-FN
1040-S4-03-X-X-FN
1040-S-04-X-X-FN
1040-S4-04-X-X-FN
1080-S-03-X-X-FN
1080-S4-03-X-X-FN
1080-S-04-X-X-FN
1080-S4-04-X-X-FN



MODE Each of the network devices is required to be set to the correct operating mode for correct network operation.

MASTER DISPLAY NETWORK MODE

SLAVE DISPLAY SLAVE MODE, SCC1000 SLAVE

All of the serial port parameters must match between the network controller and the master display device. Recommended parameters are 9600 baud, 8 data bits, 1 stop bit, no parity, and no handshake. Recomended parameters for the master to slave serial ports are 1200 baud, 8 data bits, 1 stop bit, no parity, and no handshake. Fully shielded cable is required for all of the serial communications wiring. See Series 1000 operation manual for installation of Series 1000 displays.

When programming messages for each display on the network, insure that the display has been set up to enable the logging function, and turn the log on for each message that is to be logged.

```
********** SYSTEM PARAMETERS **********   NOTE:System parameters for this file
                                                are as shown. Changes can be
AUTO BLANK BEFORE CLOCK..... OFF                made as needed by entering
BYPASS DISPLAY OF CLOCK..... OFF                the special feature menu and
THE CLOCK IS SET TO LINE.... #1                 selecting the appropriate
THE CLOCK IS SET TO......... TERM               category as listed below.
SCROLL DELAY TIME IS........ 5
FLASH TIME IS............... 5                  (C) Clock Maintenance
NUMBER OF FLASHES IS........ 05                 (F) Format message tms & cnts
DELAY AFTER MESSAGE IS...... 3                  (P) Printing Parameters
INSERT CHARACTER IS......... *                  (I) Parallel input parameters
PRINTER IS SET TO........... OFF                Any parameter which has been
# OF COLUMNS FOR PRINTER..... 40                modified from it's original
PRINTER BAUD RATE IS........ DIP SETTING        default setting is designated
PRINTER LINE FEED DELAY IS... 000               by an * in the column to it's
PARALLEL LOGIC TRUE = ...... HIGH               right.
PARALLEL STROBE/SAMPLE ..... STROBE
PARALLEL DEBOUNCE TIME IS.... 3          *
PARALLEL MSG # SELECT IS..... BCD
PARALLEL VARIABLE DATA IS.... BCD
NUMBER OF BCD DIGITS IS..... 4           *
NUMBER OF BINARY BITS IS..... 08
LOG SELECTED MESSAGES IS..... ON         *
CLEAR LOG BUFFER WHEN READ IS OFF
Press any key to continue ...
```

SYSTEM PARAMETER SCREEN OF SCCOFFL OFFLINE MESSAGE PROGRAMMING SOFTWARE.

LOG SELECTED MESSAGES IS "ON" should be selected to enable the logging function of the display.

CLEAR LOG BUFFER WHEN READ IS "OFF" . When this is "OFF", the log buffer is not cleared after the log buffer is read by the network controller. When "ON" the buffer is cleared after it has been read by the controller.

MSG #	LINE #	TYPE	CNT	LOG	ALRM	SLV #	[—— MESSAGE———]	TERM	RPT	DELAY
0001	#1	BLK	005	ON	OFF	01	STA.#1	CONT	OFF	OFF
0001	#2	BLK	005	ON	OFF	01	SHUTTLE TRANSFER	CONT	OFF	OFF
0001	#3	BLK	005	ON	OFF	01	PRODUCTION RUNNING	CONT	OFF	OFF
0001	#4	BLK	005	ON	OFF	01	NO FAULTS!	TERM	OFF	OFF
0002	#1	BLK	001	ON	OFF	01	CYCLE TIME	CONT	OFF	OFF
0002	#2	BLK	001	ON	OFF	01	*.* sec.'s	CONT	OFF	OFF
0002	#3	BLK	001	ON	OFF	01	2.4 sec.'s	CONT	OFF	OFF
0002	#4	BLK	001	ON	OFF	01	STANDARD.	TERM	OFF	OFF
0003	#1	BLK	001	ON	OFF	01	PRODUCTION COUNT	CONT	OFF	OFF
0003	#2	BLK	001	ON	OFF	01	****	CONT	OFF	OFF
0003	#3	BLK	001	ON	OFF	01	600 PARTS PER HOUR	CONT	OFF	OFF
0003	#4	BLK	001	ON	OFF	01	STANDARD.	TERM	OFF	OFF
0004	#1	BLK	003	ON	OFF	01	STA.#1	CONT	OFF	OFF
0004	#2	BLK	003	ON	OFF	01	CYCLE START	CONT	OFF	OFF
0004	#3	BLK	003	ON	OFF	01	PRODUCTION RUNNING	CONT	OFF	OFF
0004	#4	BLK	003	ON	OFF	01	A.O.K.	TERM	OFF	OFF
0005	#1	BLK	004	ON	OFF	01	STA.#1	CONT	OFF	OFF
0005	#2	BLK	004	ON	OFF	01	END OF CYCLE	CONT	OFF	OFF
0005	#3	BLK	004	ON	OFF	01	PART AT EXIT	CONT	OFF	OFF
0005	#4	BLK	004	ON	OFF	01	LOCATION.	TERM	OFF	OFF

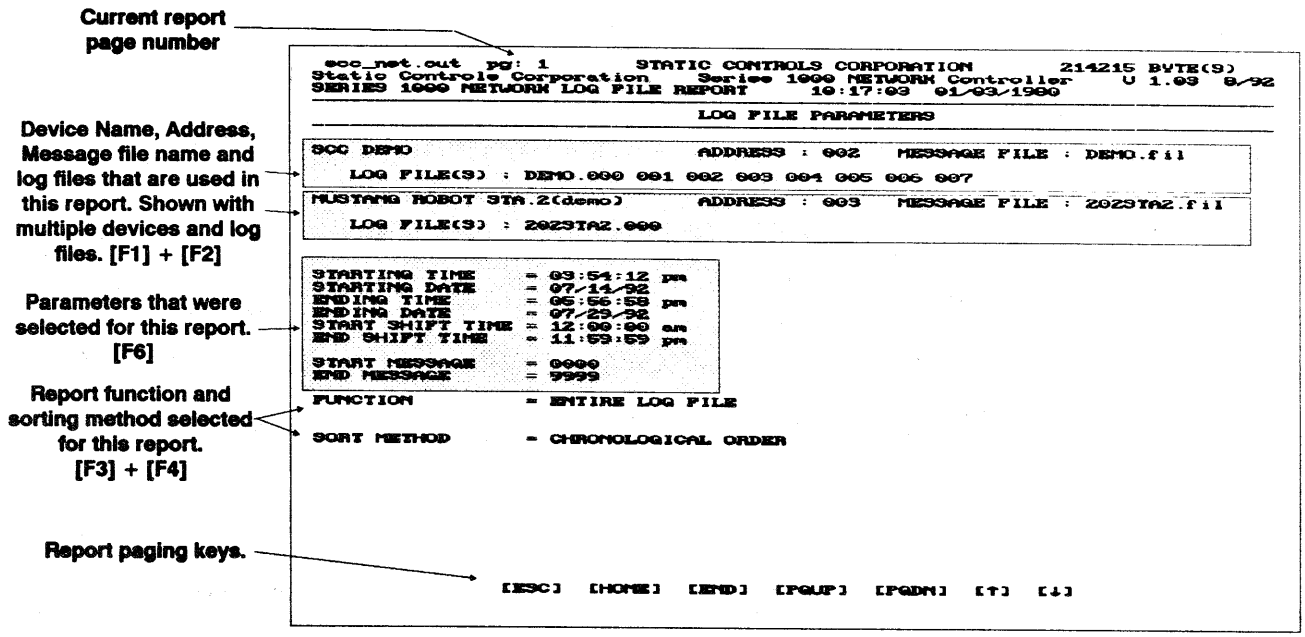
F1-HELP F2-AUTOCENTER OFF F3-REPLACE F4-EXIT F5-LOWERASCII

VIEW MESSAGES SCREEN OF SCCOFFL OFFLINE MESSAGE PROGRAMMING SOFTWARE.

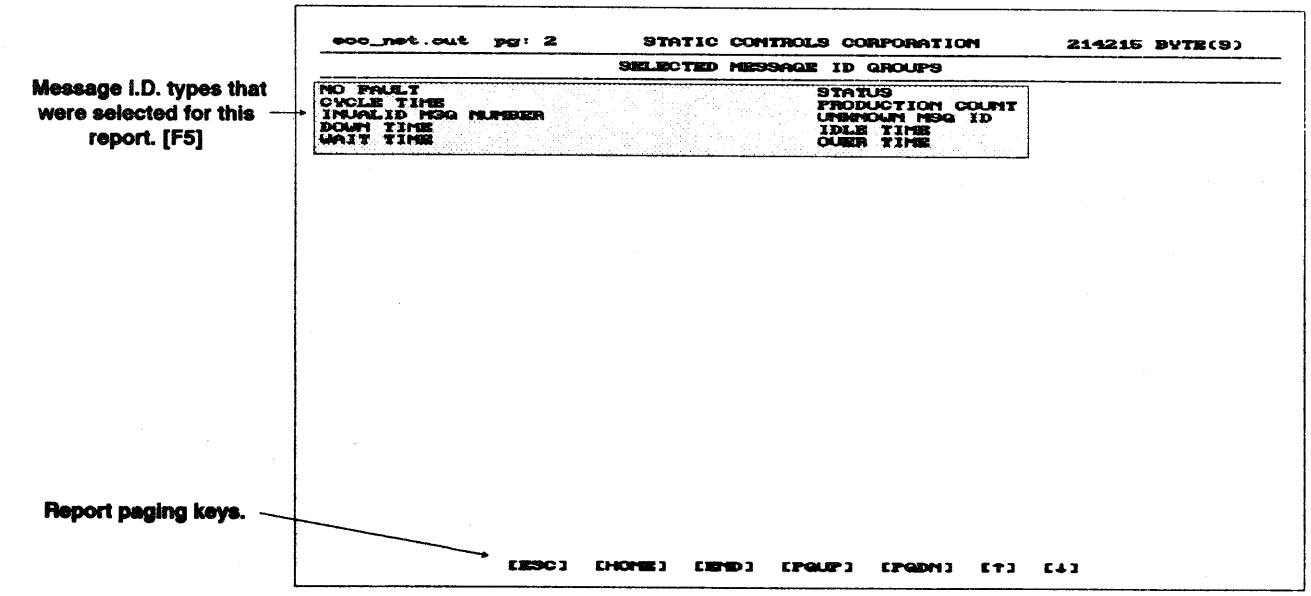
Set each message's LOG flag to "ON" for each message that is to be logged.

Reports

The reports generated by the Analyze Log File Menu are used for statistical evaluation of a machine or process. Listed below are the reports and thier contents.

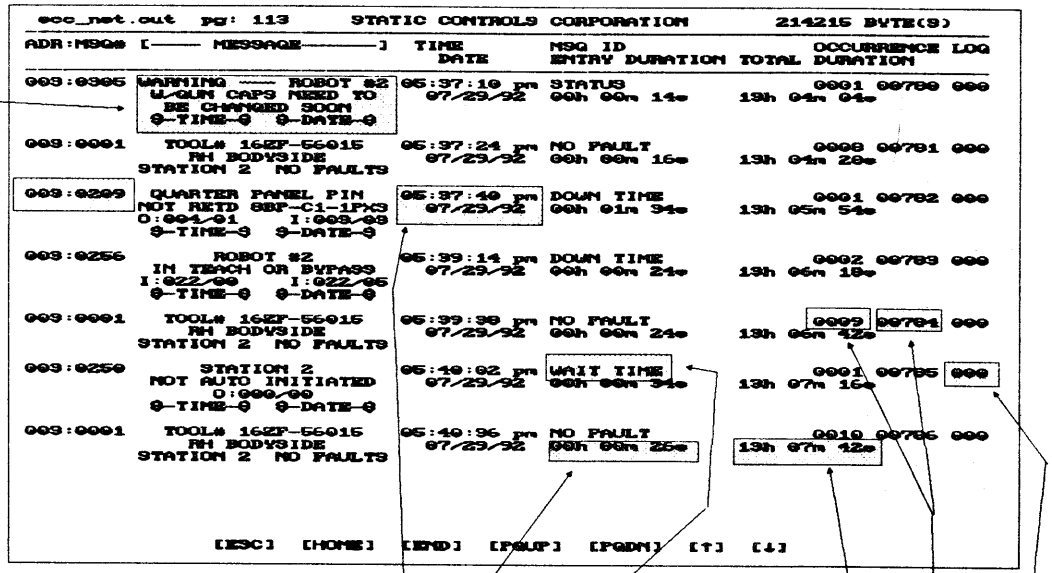


Typical page #1 of all reports.



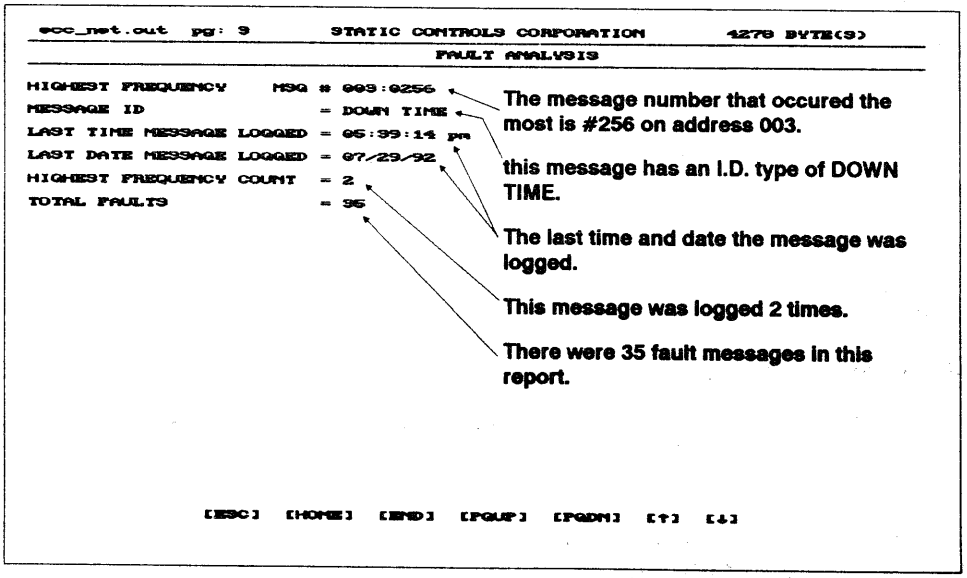
Typical page #2 of all reports.

After the first two pages of each report, the reports will differ depending on the type of report being generated. Below is a typical report page generated on 1 entire log file, and sorted in chronological order.

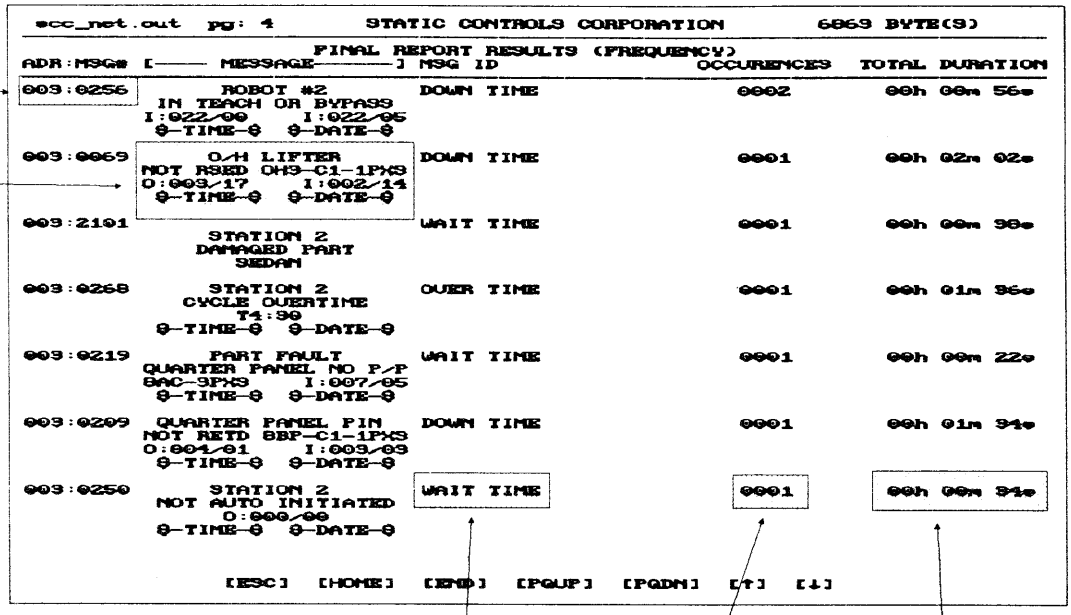


Typical summary report page. Used on frequency and duration sorting methods.

Example is from a report using FAULT ANALYSIS function and FREQUENCY sorting method.



Summary report used for frequency and duration types of sorting methods.



Typical data report page when using the frequency or duration sorting methods for a report. This report was run being sorted by frequency.

When reports are run, sorting by duration, the report looks the same as in this example, but the message that was logged for the longest duration would be at the top of the list.

Static Controls Corp.

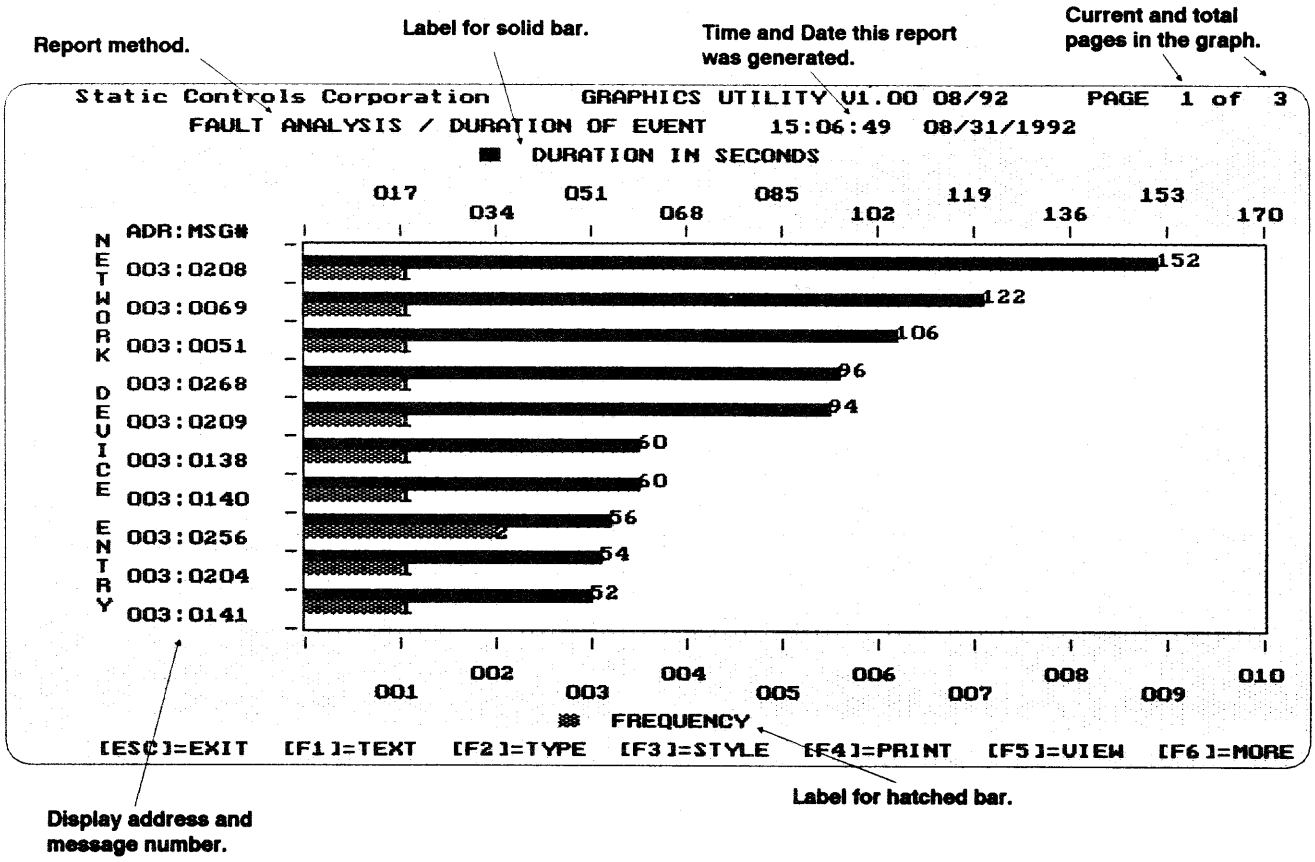
SCC Graph Utility

Users Manual

Report Graphing

The SCC Graph Utility allows for graph representation of report data generated from the SCC 1000 Network System fault analysis.

Below is the default graph generated by the SCC Network.

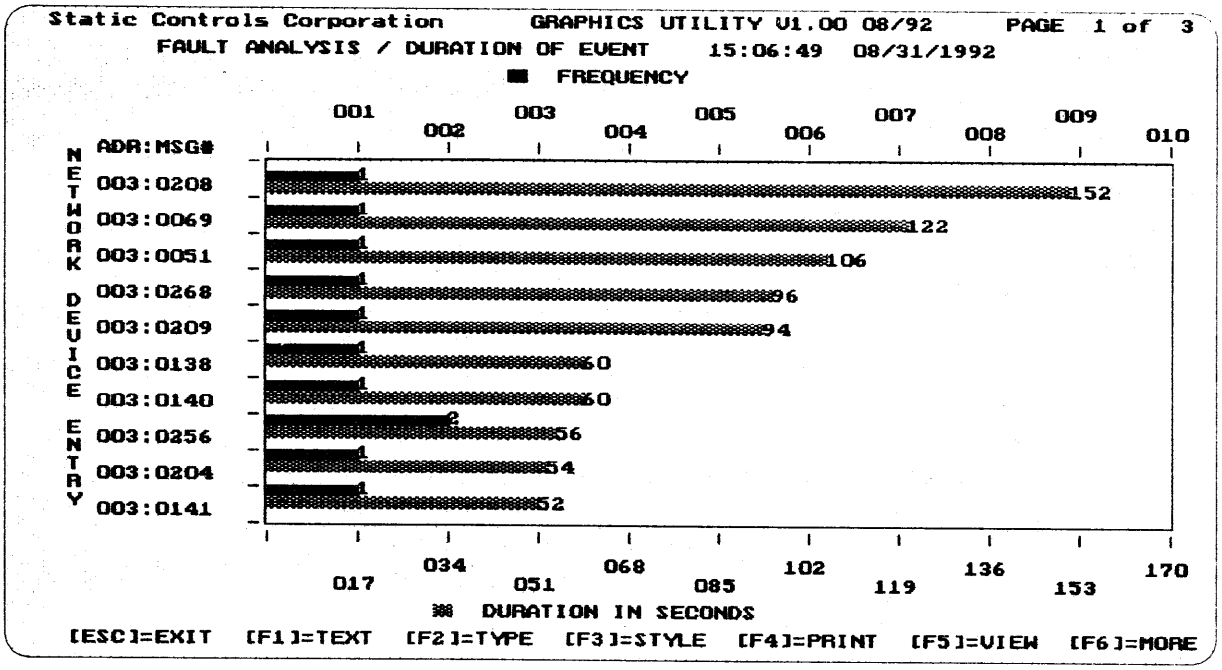


Shown above is the defaulted graph style #1. There are 4 different styles of graph that can be displayed. Style #1 contains both fault duration and fault frequency, with duration on the top "X" axis, and frequency on the lower "X" axis. The "Y" axis of the graph contains the network device address and the message number.

The above graph was generated with FAULT ANALYSIS and sorted by DURATION. This will show the longest duration fault first followed in desending order to the lowest duration fault.

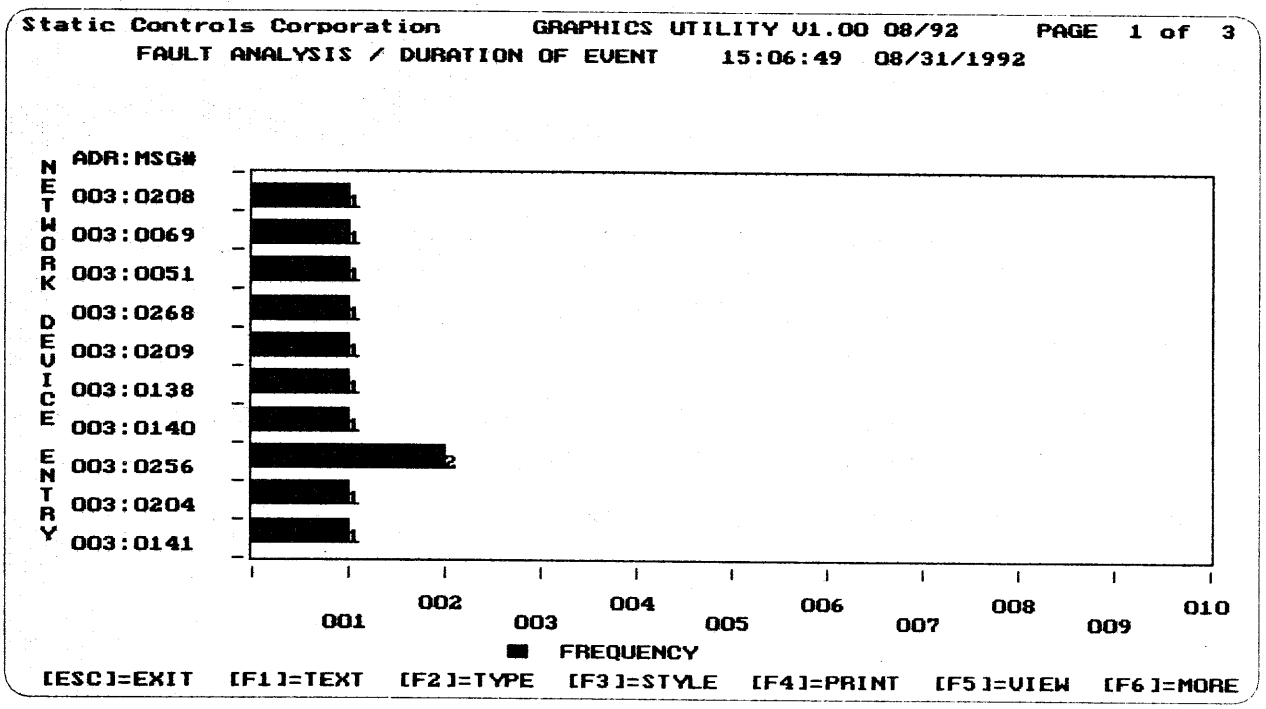
In the above graph, address #003, message number #0208 occured 1 time for a duration of 152 seconds.

Below is the same report shown as graph style #2.

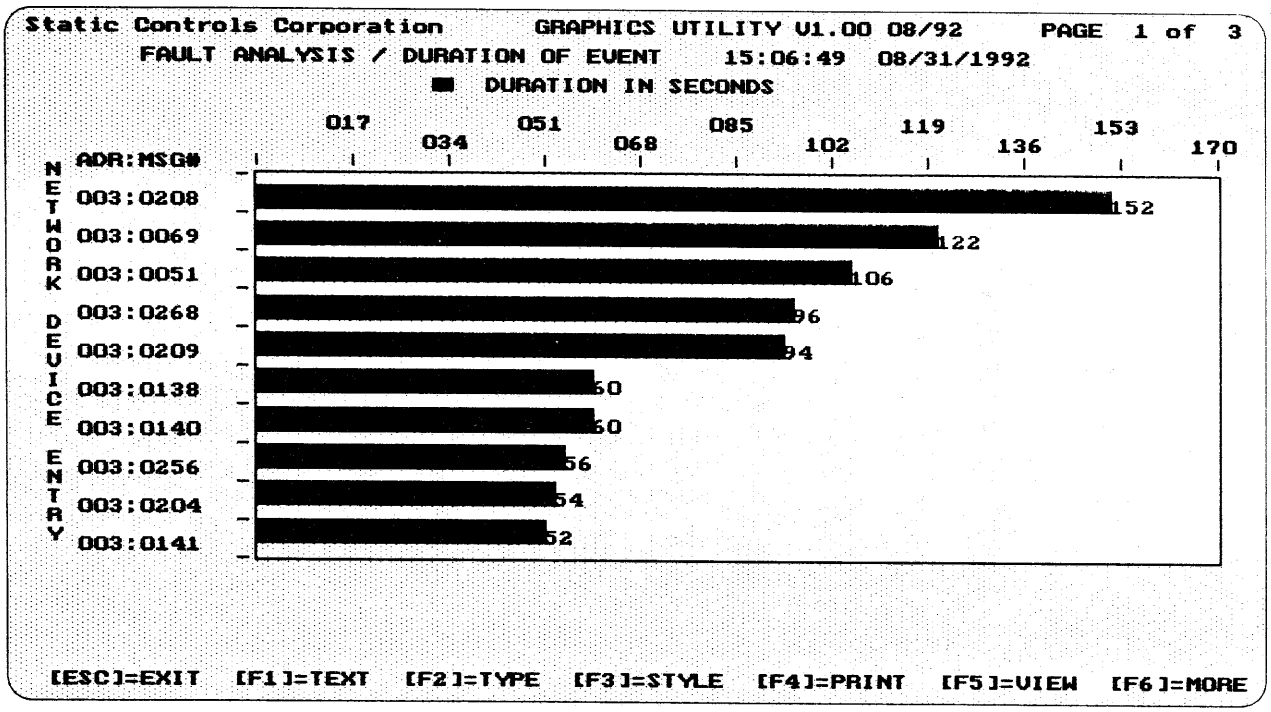


With graph style #2, faults are shown on the upper "X" axis, and duration is shown on the lower "X" axis.

Below is graph style #3, only showing frequency on the "X" axis.

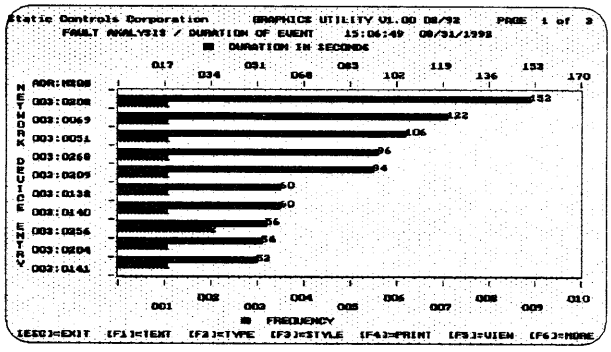


Shown below is graph style #4. Style #4 only shows duration on the "X" axis.

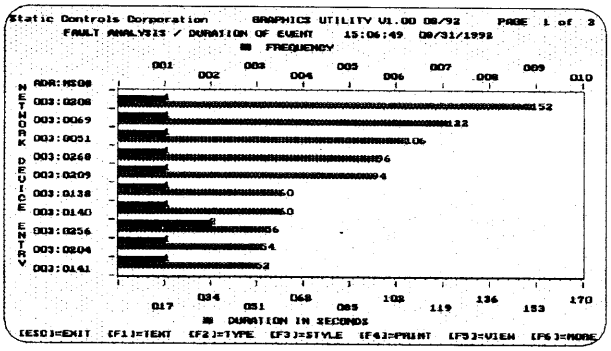


The graph style can be changed at any time by pressing the [F3] STYLE key.

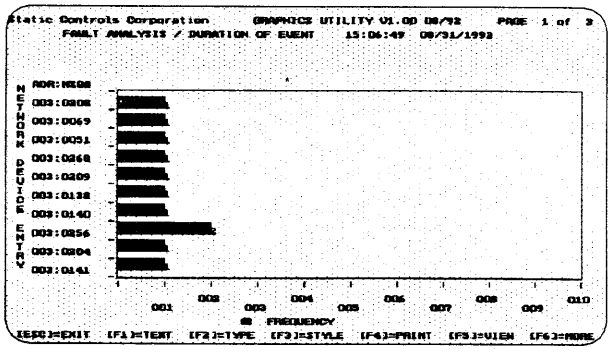
Style #1



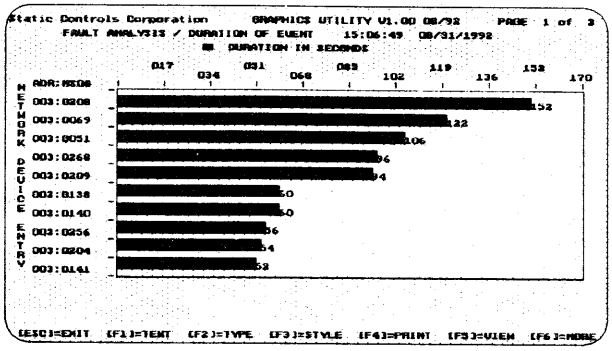
Style #2



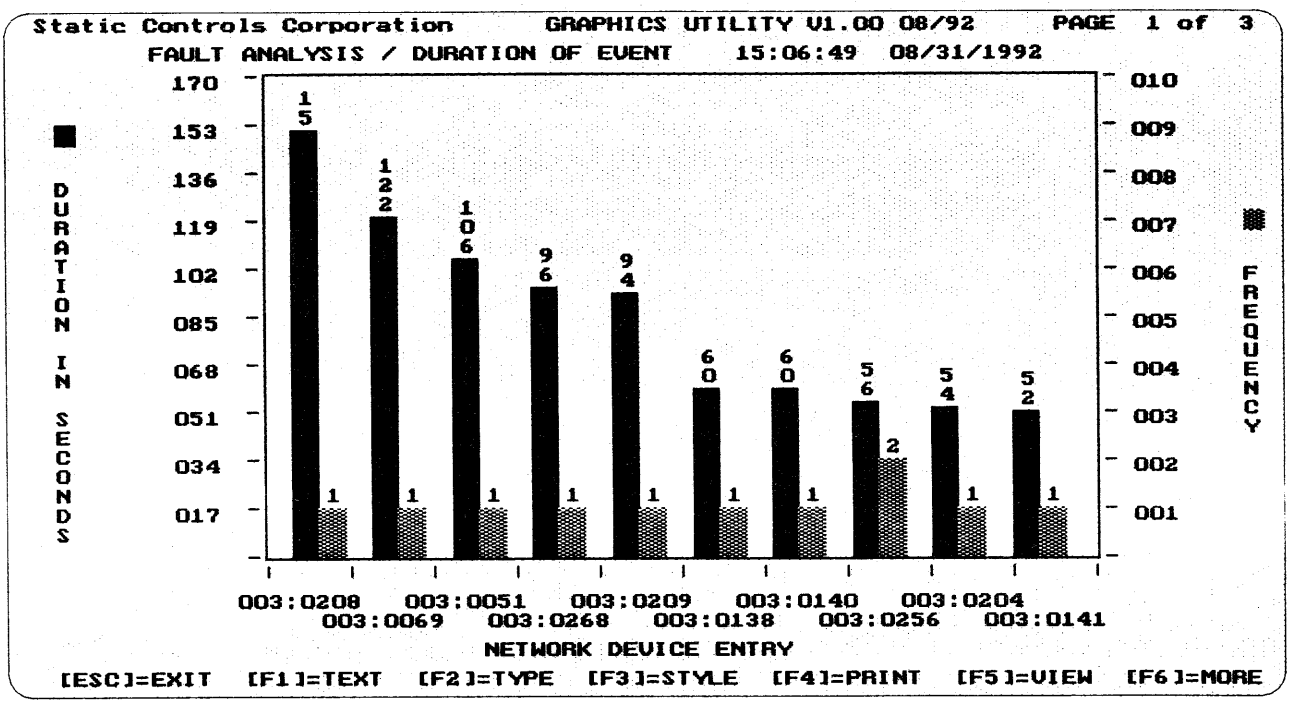
Style #3



Style #4

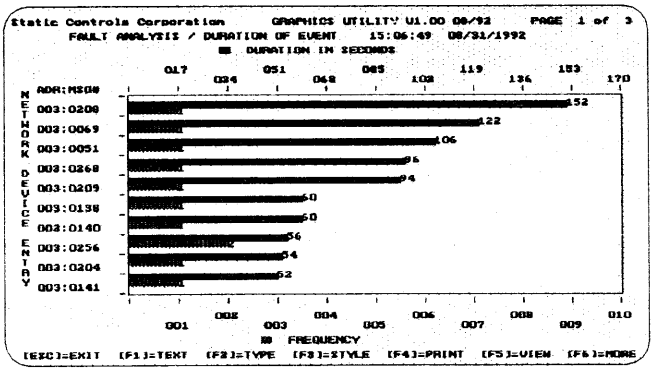


In addition to changing the graph style, the graph type may also be changed by pressing the [F2] key. The currently available types are horizontal (default), and vertical.

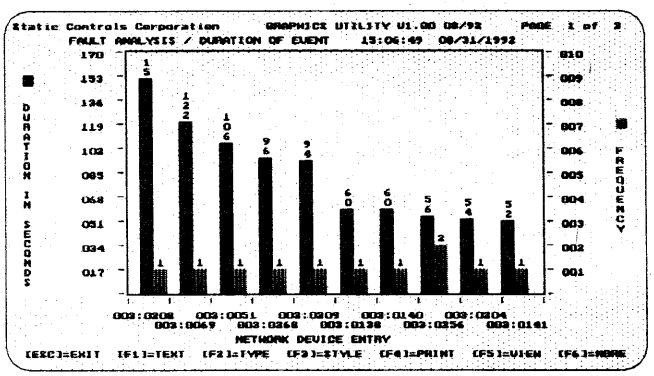


Shown above is a vertical type of graph. This graph is shown as style #1. All of the available styles can be shown in either type of graph.

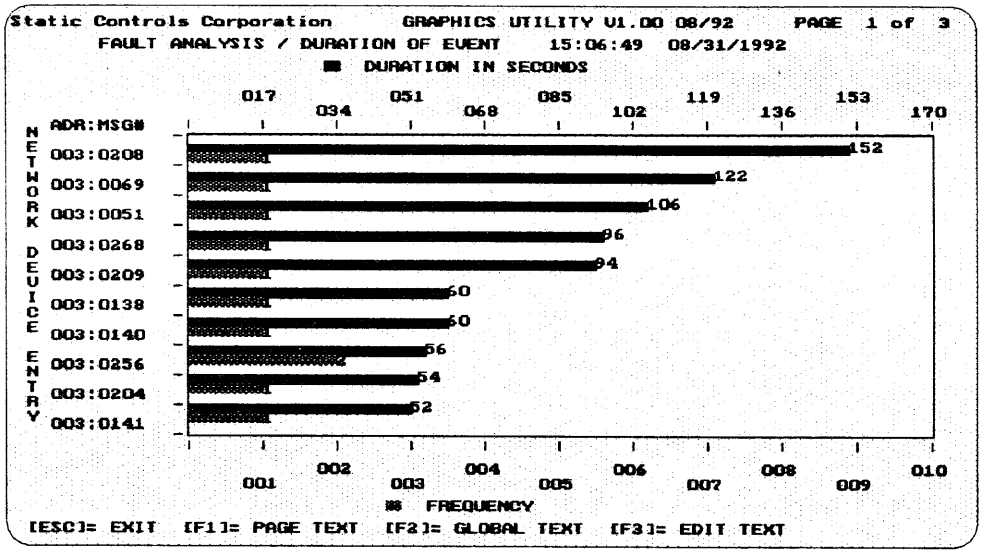
Horizontal type.



Verticle type.

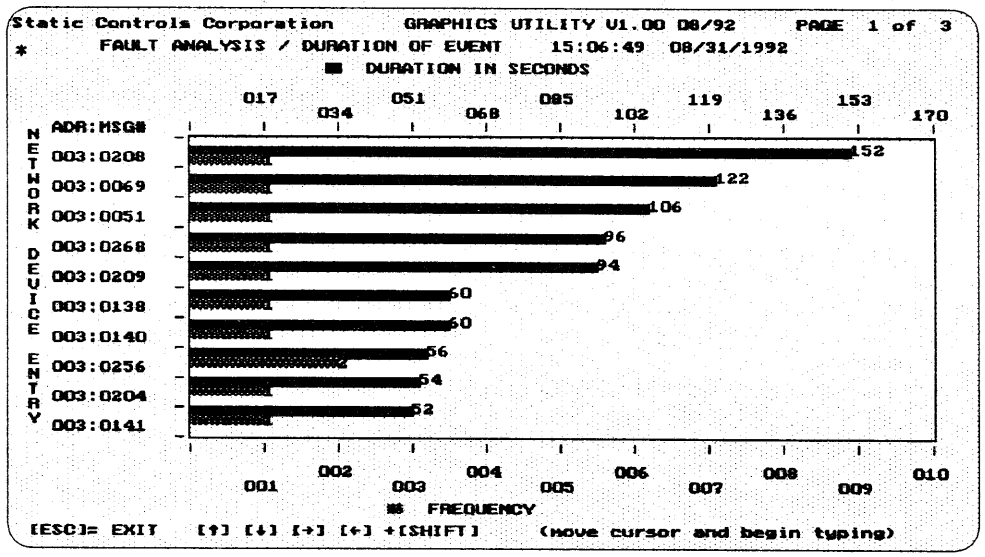


Text can be added to the graph by the operator. There are 2 different types of text that can be added to the graph. The first type is GLOBAL TEXT. This text will appear in the same place on each page of the graph. The second is PAGE TEXT which will appear only on the page that the text was put on.



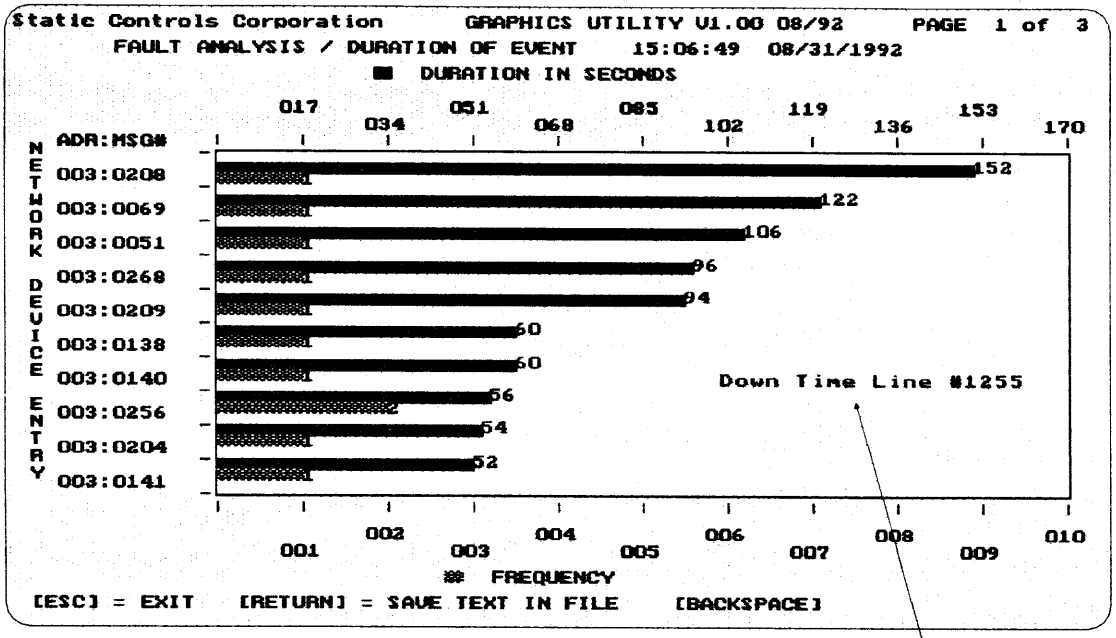
New text lower line.

After pressing [F1] TEXT, a new lower line of the graph program will appear. Press [F1] for page text or [F2] for global text.

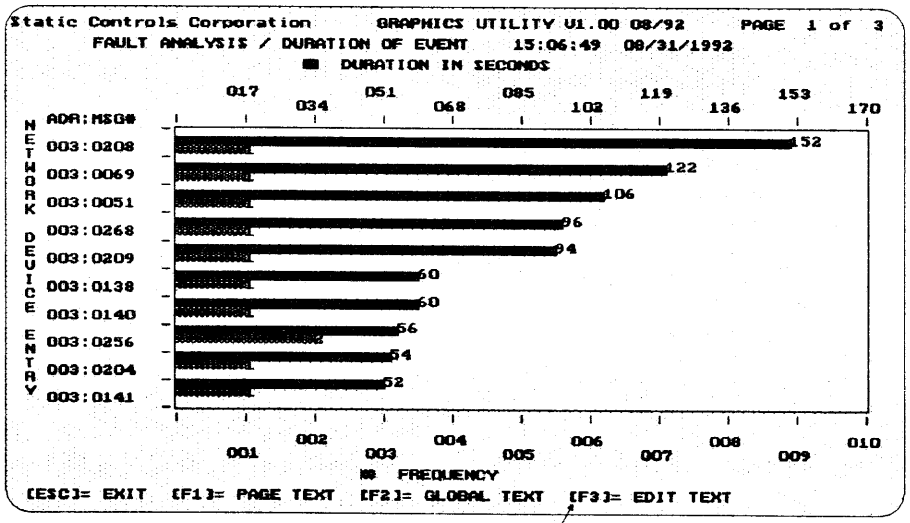


After selecting GLOBAL or PAGE text, move the cursor to the desired location by using the up, down, left and right arrow keys. The cursor is represented by a flashing "*" character. The cursor moves in character positions normally, to move in smaller increments, press the shift key while moving the cursor. This will move the cursor in screen dot increments for fine control of the cursor position.

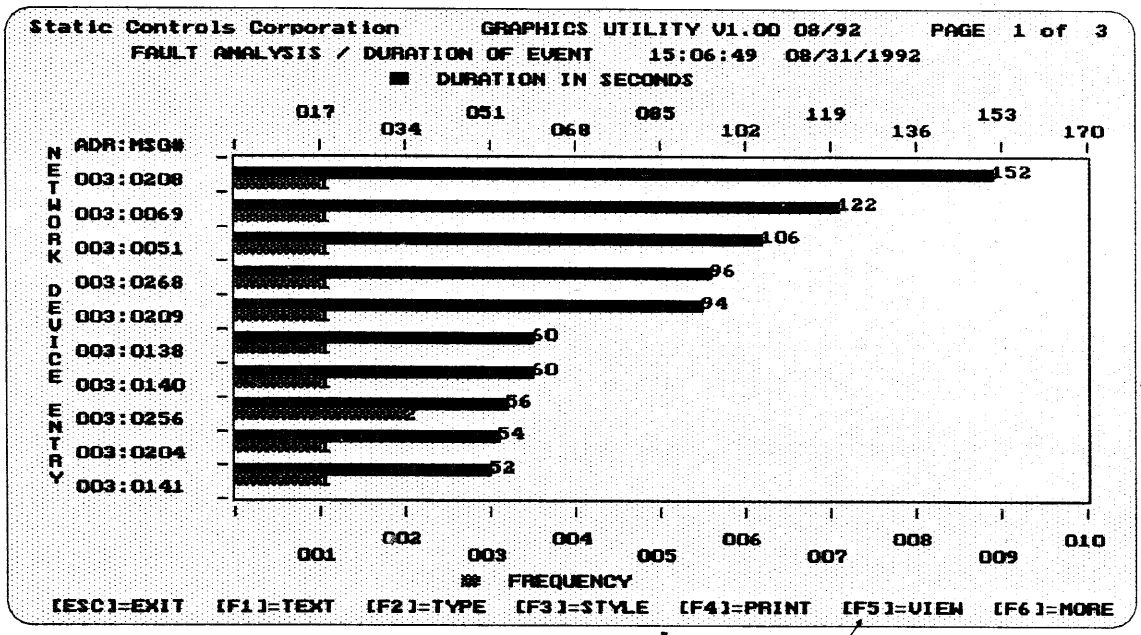
After typing in the text, press enter to save the text in the graphics file. To insert more text, move the cursor to a new location and type in the new text. To exit the text mode press the escape key.



When using the text mode, text that has been inserted into the graph may also be edited. After selecting the text mode, press the [F3] key to edit the text. The cursor will appear at the end of any text that is on the graph. Backspace over the old text and insert new text at this time. The editing function will pick each and every piece of text one at a time for editing. Press the enter key to leave the text and move to the next piece of text.



When viewing the graph, it may be required that the operator see the report that was generated to draw the graph from. At any time in the graph utility, pressing the [F5] key will display on the screen the text report that was used to generate the graphics. This is used to see the report parameters, the message text, the message I.D. and other extensive report data.

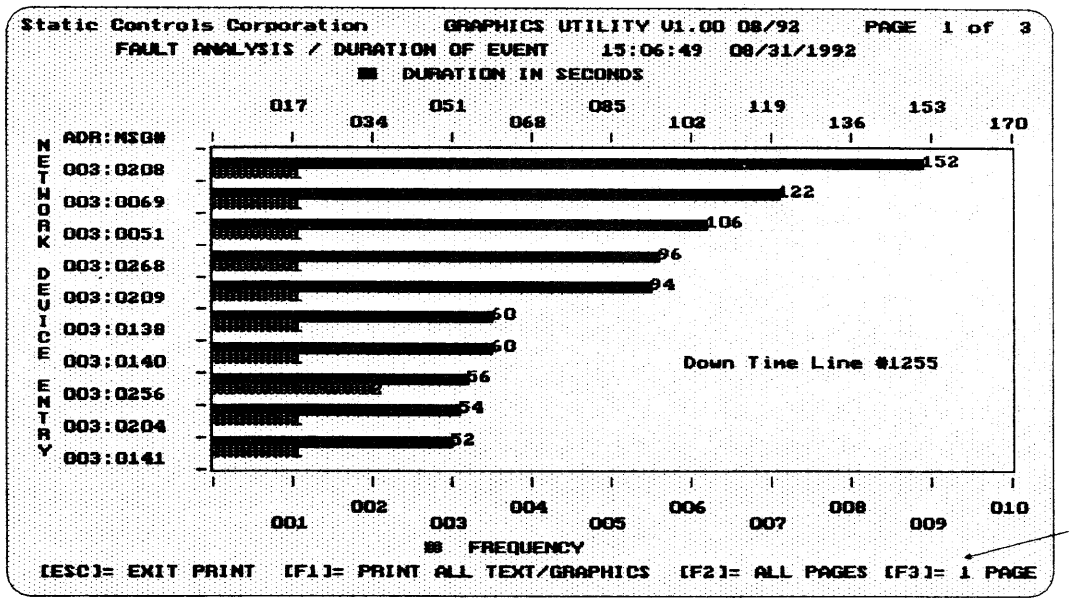


[F4] Print graph key.

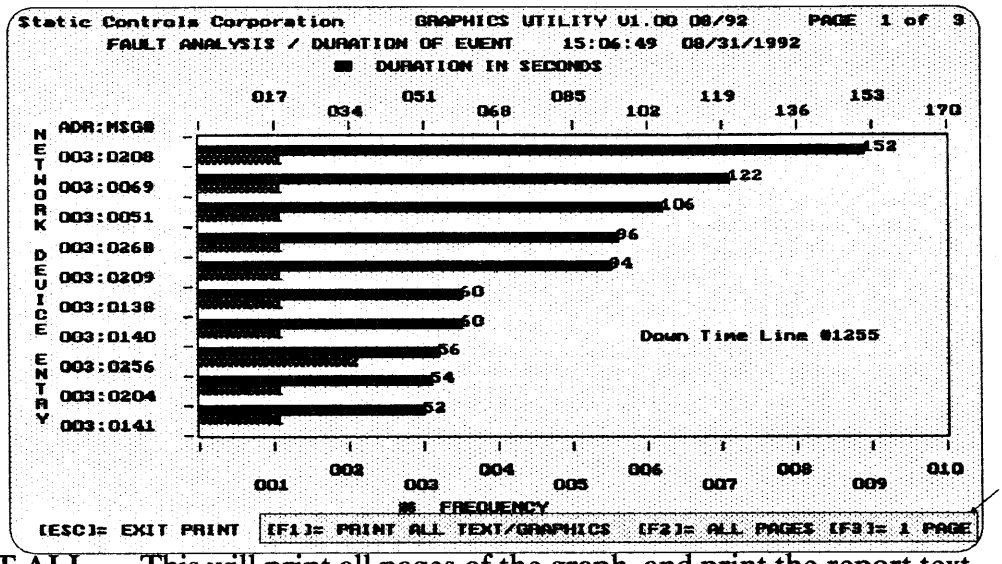
[F5] view report text key.

The graph may also be printed out on the network controllers system printer. Press the [F4] PRINT key to invoke the graph printing. There are several printing options for a graph report.

The printing options are listed below:



Print graph options.



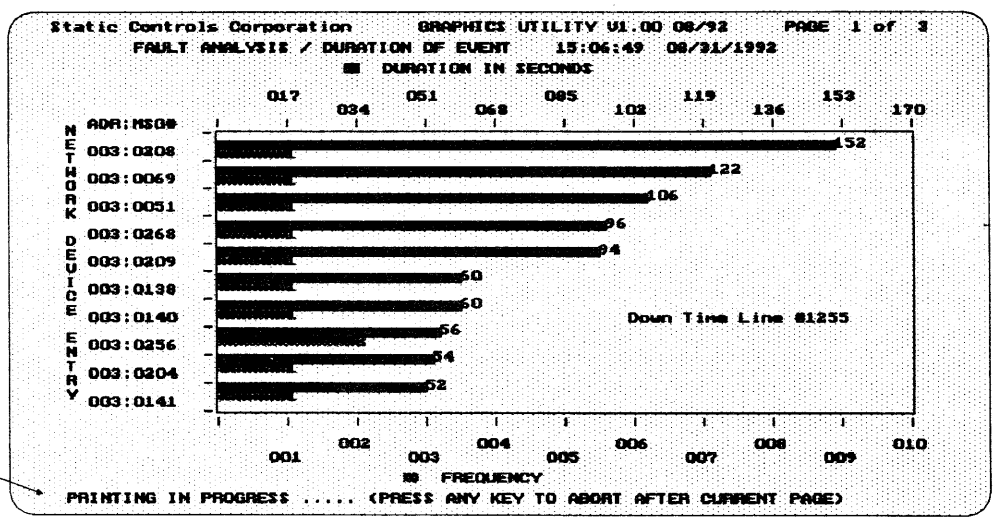
Print graph options.

[F1] PRINT ALL This will print all pages of the graph, and print the report text.

[F2] ALL PAGES This will print all graph pages.

[F3] 1 PAGE This will print the current graph page.

Once printing has started, the printing can be aborted by pressing the escape key. This will abort after the currently printed page is complete.



Abort print message.

The printing portion on the graphics utility requires that MSDOS graphic printing driver is installed. The INSTALL portion of the SCC Network program will install the graphics driver if possible. If the driver is not installed, printing of the graph files cannot be done. Also required is that the system printer emulates an I.B.M. printer in graphics mode.

SCC 1000 NETWORK SYSTEM

Memory Requirements

Controller Files

Required controller ram allocation.

SCC_NET

MSDOS (THRU 4.01)	60K	
MSDOS (5.0)	30K	
SCC SHELL	20K	
SCC_NET	475K	
	10K	EDIT MENU
	10K	MACRO MENU
	10K	FILE MENU
	10K	REPORT MENU
	0.1K	PER DEVICE ENTRY
	0.5K	I.D.FILE PER DEVICE
	0.03K	PER LOG REPORT ENTRY
	0.01K	PER LOG REPORT ENTRY

SCCOFFL

MSDOS (THRU 4.01)	60K
MSDOS (5.0)	30K
SCC SHELL	20K
SCCOFFL	465K

HIDDEN FUNCTIONS

"SCC" Menu

There are several diagnostic functions that may be accessed through any of the button/box menus. While the menu is displayed, press any function key , so that the password buffer will be cleared. Type in the following sequence of characters, 'SCC', to gain access to the internal record display utility menu. The menu will appear, and wait for the operator to make 1 of 9 possible selections, or press the [ESC] key to return to the previous menu.

'1' DISPLAY MESSAGE FILE

If the opertor selects item #1 from the debug menu, The message file view utility dialog will appear. This dialog informs the operator of the possible selections that can be made while viewing the message file. The [SPACEBAR] is used to step through the entire message file, viewing 24 records at a time. There can be a maximum of 1891 records in a message file, however the first record is always reserved for system parameters. Each record may hold one 20 character message with all of it's specific parameters. Each record will occupy one line on the display, with 52 characters per record. Each pair of characters represents one HEXA-DECIMAL byte, used by the message. The end of the message record is indicated by a colon ':', followed by the record's offset into the message file. The [ENTER] key is used to jump through the message file 408 records at a time. The operator may press the [ESCAPE] key at any time, to exit the message file view utility.

'2' DISPLAY LOG FILE

If the opertor selects item #2 from the menu, The log file display utility dialog will appear. This dialog informs the operator of the possible selections that can be made while viewing the log file. The [SPACEBAR] is used to step through the entire log file, viewing 24 records at a time. There can be a maximum of 5458 records in a log file. Each record may hold one message number with the time and date that it was logged, and a maximum of 6 insert characters for use by the message. Each record will occupy one line on the display, with 24 characters per record. Each pair of characters represents one HEXA-DECIMAL byte, used by the record. The log record is preceeded by the record number and a colon ':'. Following the record data, is the translation of the message number, the time and date stamp, and the insert characters. The [ENTER] key is used to jump through the log file 775 records at a time. The operator may press the [ESCAPE] key at any time, to exit the log file display utility.

'3' DISPLAY DEVICE RECORD FILE

If the opertor selects item #3 from the menu, The device record file will be display, one record at a time. The operator may use the Next or Previous selection keys to move through the file. the device record file dialog will display the address of the device, along with the required file names. The record also holds the latest polling status of that device. The operator may press the [ESC] key to exit from the device record display utility.

'4' PROGRAM REVISIONS

If the opertor selects item #4 from the debug menu, the program will display the name, version number, and release date of all the executable files associated with the network software.

'5' DISPLAY FREE MEMORY

If the opertor selects item #5 from the debug menu, the program will display the amount of free ram memory available to the program, and the amount of free disk space on the default drive.

'6' PROGRAM CONFIGURATION

If the operator selects item #2 from the debug menu, The program configuration default selection dialog will appear. The operator may preset the configuration values defined by STATIC CONTROLS CORPORATION, by selecting 'Y' for yes. If the operator selects 'N' for no, then each configuration parameter will be displayed, and may be altered at this time.

PROGRAM CONFIGURATION DESCRIPTOR TABLE

CONFIGURATION PARAMETER	DEFAULT VALUE	VALUE RANGE
Character transmit delay time	0.000 seconds	0 - 9.999 seconds

This delay value determines how long the program will pause after each character is transmitted.

Character receive time out	3.000 seconds	0 - 9.999 seconds

This delay value determines how long the program will wait for an individual character before terminating.

Turn around timer	0.100 seconds	0 - 9.999 seconds

This timer value is used to determine how long to wait before turning on the serial port transmitter.

Inter command timer	0.005 seconds	0 - 9.999 seconds

This timer value is used for delays allowing multi drop devices to decode the command on the network bus

Primary command timer	0.500 seconds	0 - 9.999 seconds

This timer value determines how long the program will wait for an initial command response

Minimum poll delay timer	1.045 seconds	0 - 9.999 seconds

This timer determines the minimum time the program will wait before polling a device again.

Port retry value	2	0 - 99

This retry count determines how many times the program will retry after a communication error occurs.

Terminate on errors	Yes	Yes or No

This control variable determines if the program will abort on errors or continue indefinitly.

Handshake enable delay time	0.030 seconds	0 - 9.999 seconds

This delay value determines how long the program will wait after changing the state of the RTS handshake line.

Handshake logic	True	True or False

This control variable determines if [TRUE:RTS = high] or [FALSE:RTS = low] is the active state for communications.

Communication mode	Normal	Normal or Extended

This control variables determines if outbound communications is buffered [Extended].

PROGRAM CONFIGURATION DESCRIPTOR TABLE

CONFIGURATION PARAMETER	DEFAULT VALUE	VALUE RANGE
CRT Type	Color	Color or Monochrome

This control variable determines the type of monitor used by this program.

Cursor underscore style	1	1 - 8

This control variable allows the cursor style to be change for hard to read monitors.

Boot disk	C	A or C

This control variable informs the program where the operating system software is stored.

Maximum number of log files	39	0 - 999

This control variable determines the number of log files that will be actively maintained for each device. Once this value is reached, the program will begin overwriting the oldest log files first.

Message text enable	N(on)	N = on F = off

This control variable determines if message text will be appended to the report file when any analysis mode is selected.

Full DIR enable	F(off)	N = on F = off

This control variable determines if the file maintenance menu allows the operator to create/delete subdirectories, and select subdirectories outside of the network environment.

Printer port	1	1 or 2

This control variable determines which printer port will be used by the program.

Printer lines per page	66	0 - 99

This control variable informs the program of the lines on each printer page.

'7' DISPLAY CURRENT MACRO FILES

If the opertor selects item #7 from the menu, The program will display the key values stored internally during macro execution.

'8' LAST KEY BUFFER SUBMENU

If the opertor selects item #8 from the menu, The last key buffer submenu will be displayed. The operator may then select '1' to view the current last key buffer that is stored in memory, or '2' to view the last key buffer file that was saved, the last time the program ended.

'9' DISPLAY LOG FILE ARRAYS

If the opertor selects item #9 from the menu, The program will display the log file select array for each device configured. The log file array corresponds to the 3 digit extension that is added to each log file name as it is created. The upper left corner of the array represents log file '.000', and progresses horizontally across the screen. The next row begins with log file '.050' and progresses in the same manner as the first. The '.' character represents an unselected or non existant log file, the '*' character indicates the log file exists and is selected.

Re-entering Network Diagnostics

The network diagnostic program can be run at any time when exiting the main network program. When exiting the main network program, do not press [ESC] to exit but the character "T". This will run the diagnostic program as described earlier in this manual.

Drawings

Listed below are the drawings for the S.C.C. Series 1000 Network System.

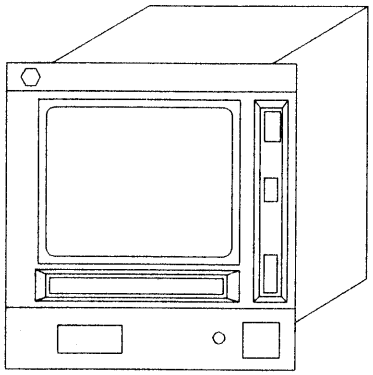
AD-1000-056-A	NAB-3 TO T-60 CABLE
DD-1000-060-A	NAB-3 DIMENSIONS
ED-1000-011-A	DISPLAY WIRING
ED-1000-012-A	PARALLEL COMMUNICATIONS CABLE
ED-1000-027-B #1	MASTER / SLAVE COMMUNICATIONS WIRING
ED-1000-027-B #3	MASTER / SLAVE COMMUNICATIONS WIRING
ED-1000-055-A	ALLEN BRABLEY I/O TO 1000 DISPLAY
ED-1000-057-A	NAB-3 DIP SWITCH SETTINGS
ED-1000-060-A	NAB-3 OUTPUT WIRING TO DISPLAYS
MASTER DISPLAY SET-UP AND EXTENDED SET-UP	
SLAVE DISPLAY SET-UP AND EXTENDED SET-UP	

Notes:

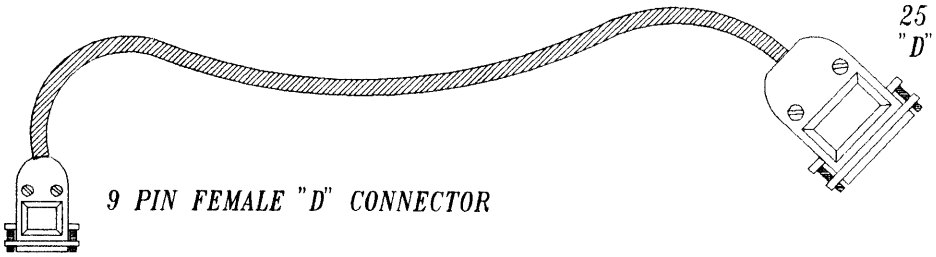
Series 1000 Model No. _____

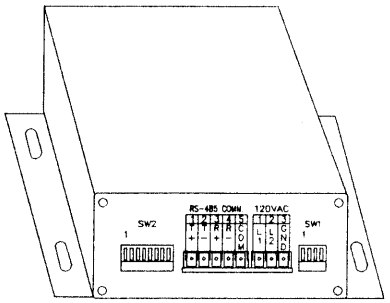
Series 1000 Serial No. _____

SYM	REVISION	APP	DATE

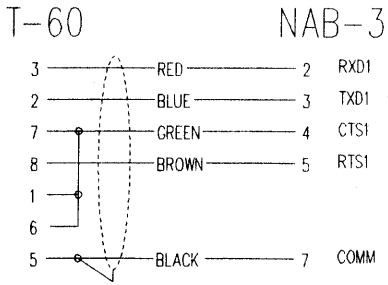


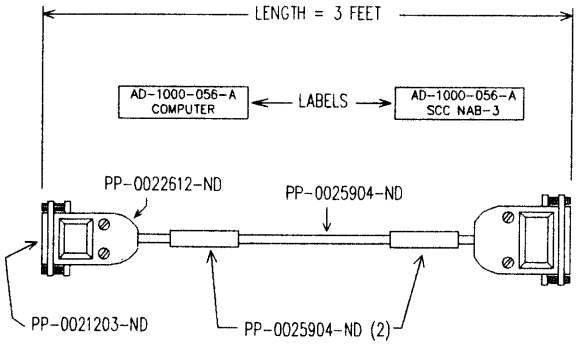
ALLEN BRADLEY T-60 TERMINAL OR IBM COMPATIBLE COMPUTER





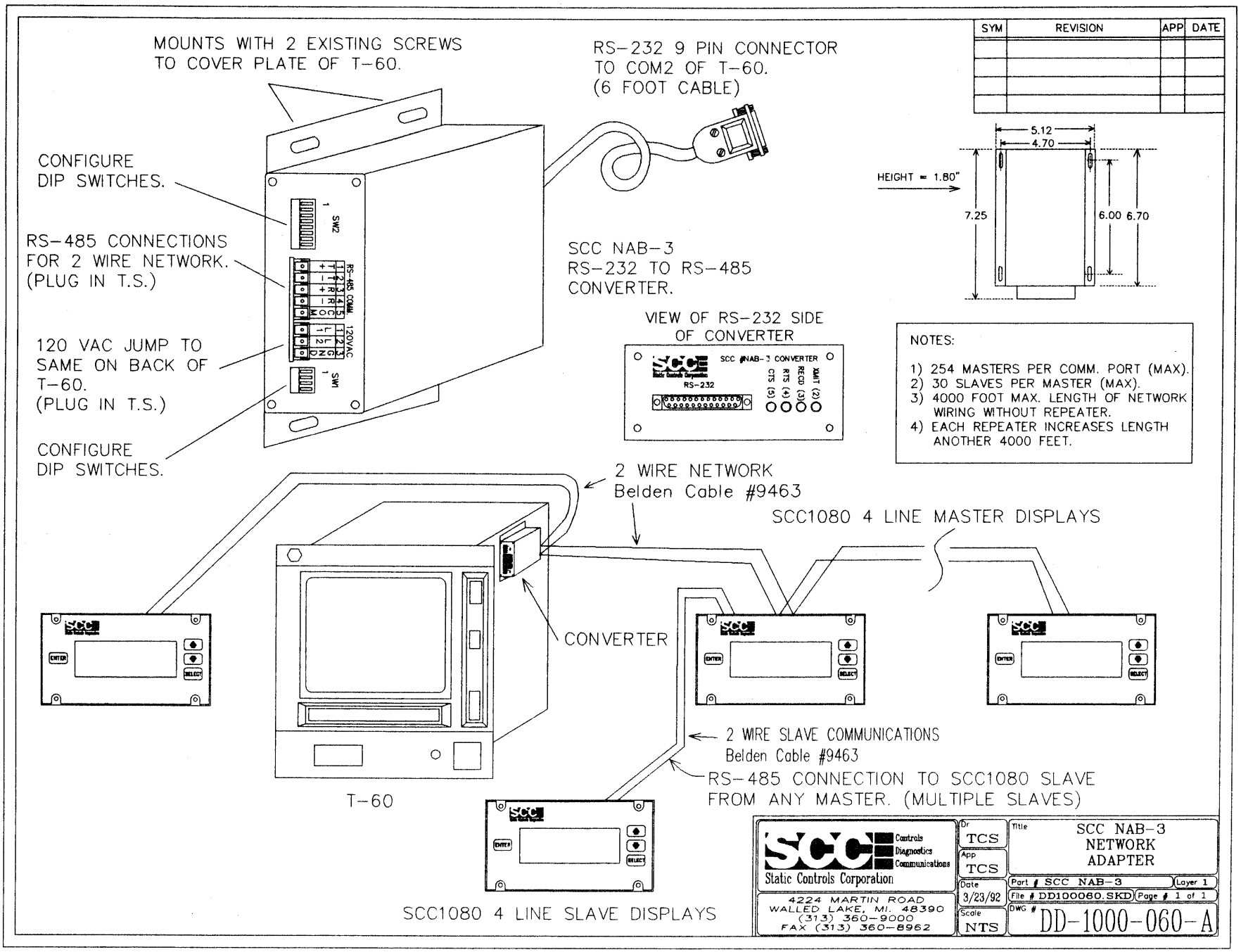
SCC NAB-3 CONVERTER





SCC Controls Diagnostics Communications
Static Controls Corporation
4224 MARTIN ROAD
WALLED LAKE, MI. 48390
(313) 360-9000
FAX (313) 360-8962

Dr	TCS
App	TCS
Date	7/6/92
Scale	NTS
Title	NAB-3 CONVERTER SERIAL PORT CONNECTIONS I.B.M. 9 PIN PORT (AB T-60 TERMINAL)
Part #	SCC 1000
File #	AD100056.SKD
Page #	1 of 1
DWG #	AD-1000-056-A



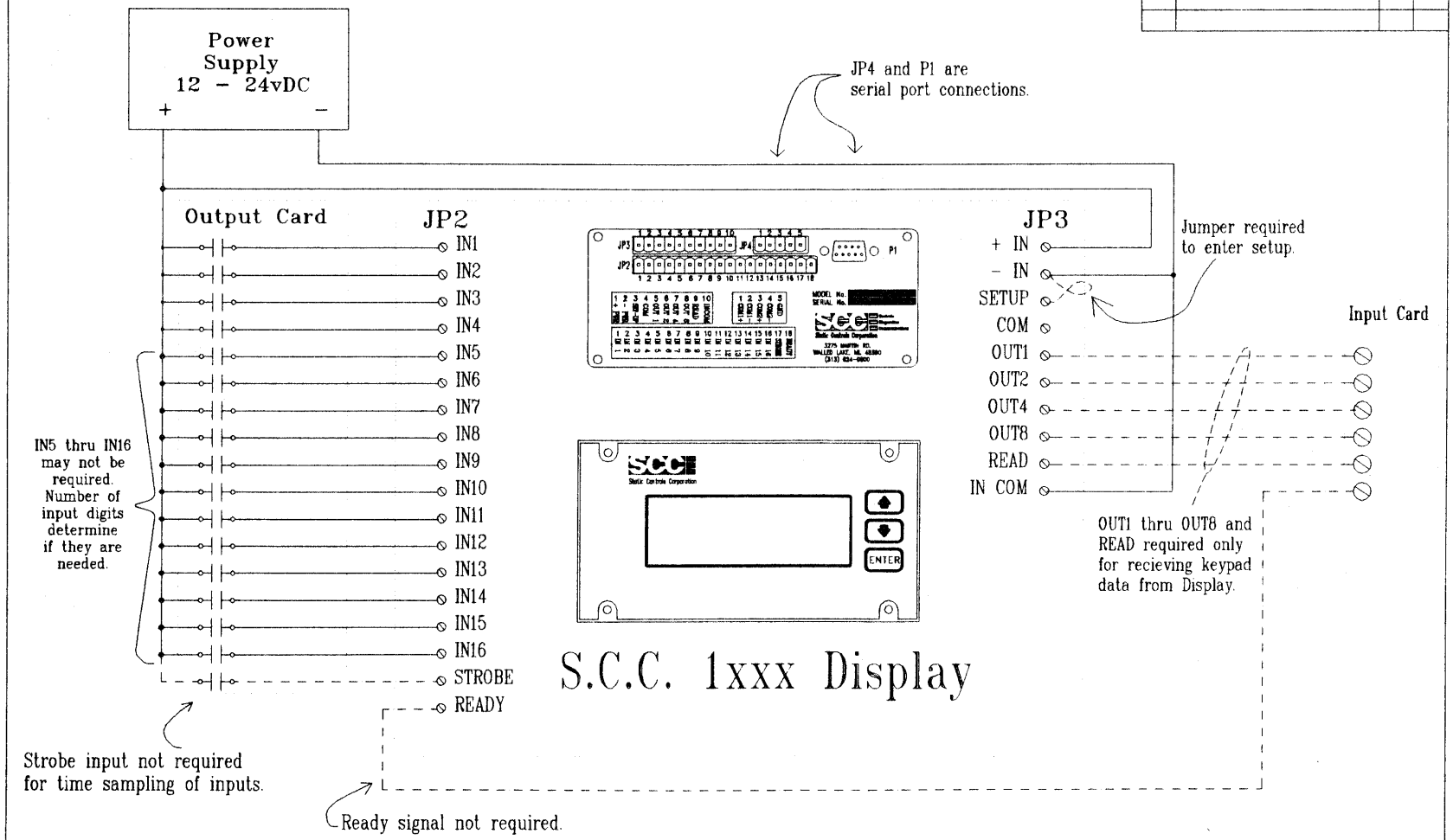
SYM	REVISION	APP	DATE

Static Controls Corporation
4224 MARTIN ROAD
WALLED LAKE, MI. 48390
(313) 360-9000
FAX (313) 360-8962

Dr	TCS
App	TCS
Date	3/23/92
Scale	NTS
Title	SCC NAB-3 NETWORK ADAPTER
Part #	SCC NAB-3
Layer	1
File #	DD100060.SKD
Page #	1 of 1
DWG #	DD-1000-060-A

REDUCED DRAWING

SYM	REVISION	APP	DATE
	FINALIZED REAR PANEL	TCS	5/9/91



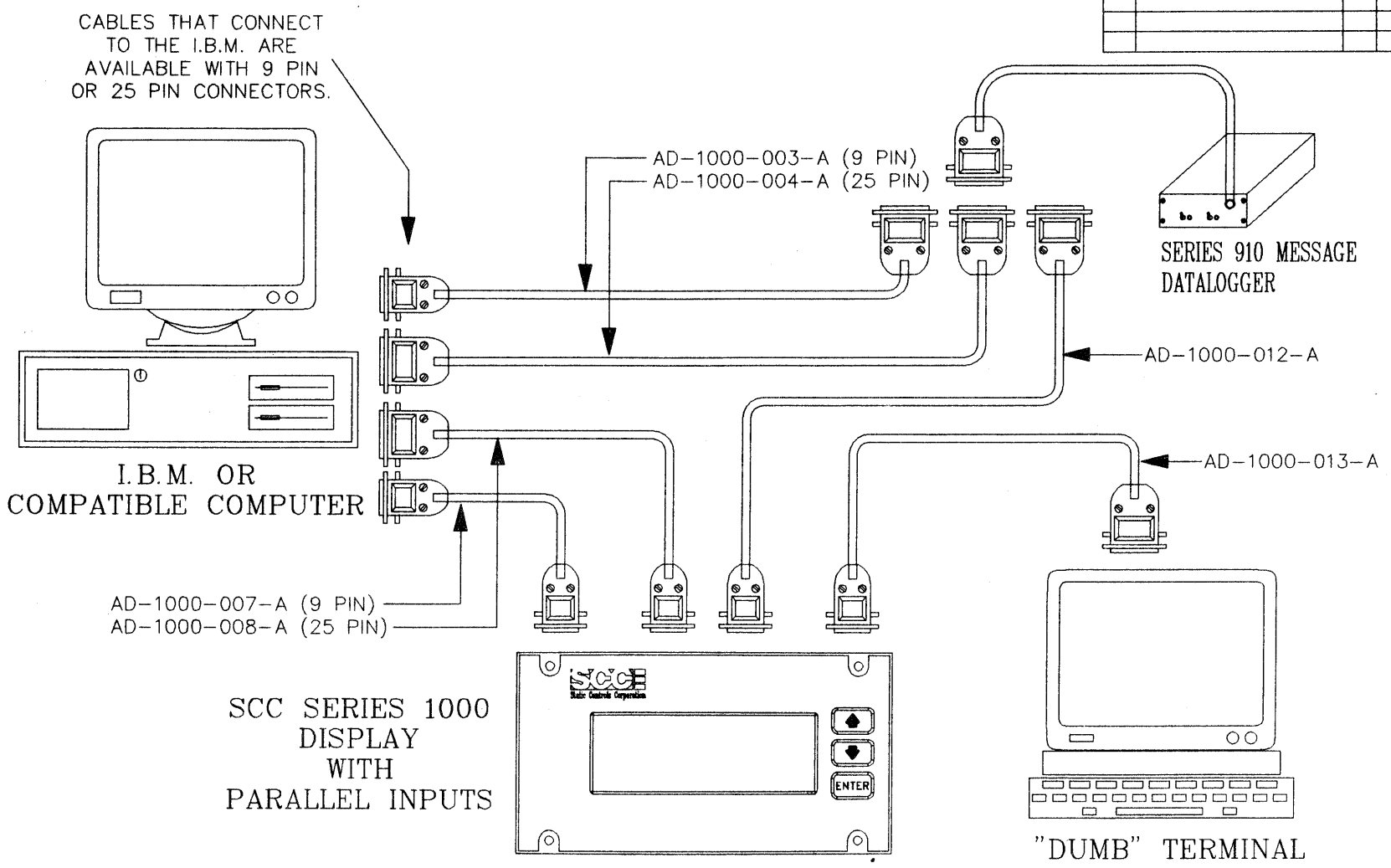
Note: Heavy wiring is minimum requirement.

SCC Controls Diagnostics Communications
Static Controls Corporation
4224 MARTIN ROAD
WALLED LAKE, MI. 48390
(313) 360-9000
FAX (313) 360-8962

Dr	TCS
App	TCS
Date	4/30/91
Scale	NTS
Title	PARALLEL 1000 DISPLAY INPUT AND OUTPUT WIRING
Part #	SCC 1000
File #	ED100011.SKD
Page #	1 of 1
DWG #	ED-1000-011-A

REDUCED DRAWING

SYM	REVISION	APP	DATE



SERIES 1000 & 1100 SERIAL COMMUNICATION CABLES.

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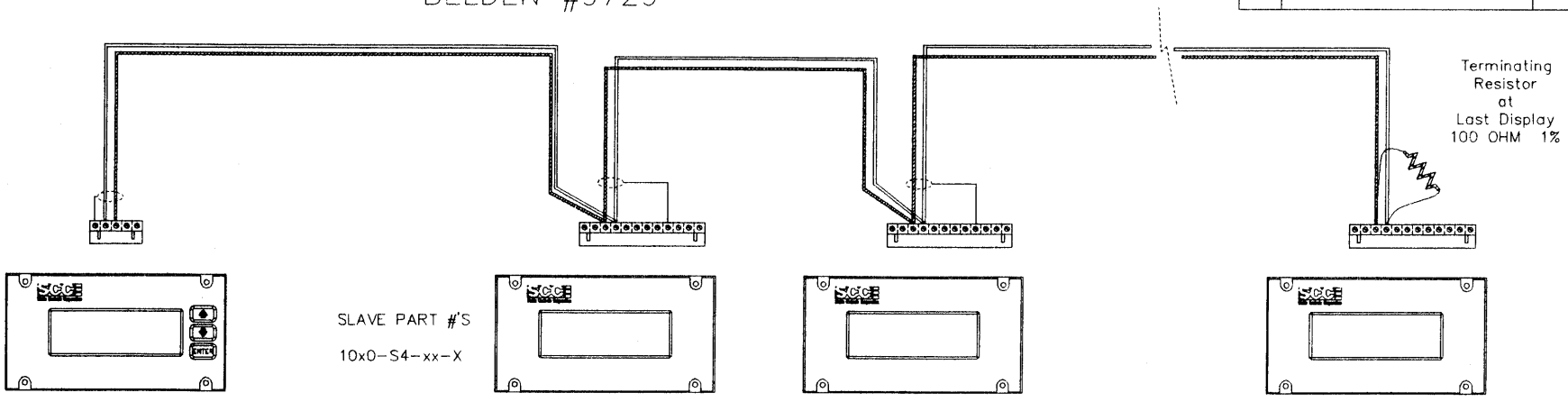
Dr	TCS
App	TCS
Date	11/14/91
Scale	NTS
Title	COMMUNICATIONS CABLES FOR 1000 SERIES DISPLAY PARALLEL INPUT
Part #	SCC 1000
Layer	3
File #	ED100012.SKD
Page #	1 of 1
DWG #	ED-1000-012-A

REDUCED DRAWING

SYM	REVISION	APP	DATE
A	ADDED MASTER/SLAVE PART #'S		6/26/91
B	ADDED SHIELD PIN #'S		7/9/91

RECOMENDED WIRING METHOD #1 – FULLY SHIELDED TWISTED PAIR CABLE BELDEN #9729



MASTER PART #'S

10x0-P-xx-P
10x0-P-xx-8
10x0-P-xx-32
10x0-P-xx-128
10x0-P4-xx-P
10x0-P4-xx-8
10x0-P4-xx-32
10x0-P4-xx-128

MAXIMUM DISTANCE BETWEEN "MASTER" AND "LAST SLAVE" IS 2000 FEET

SCC900 type "Master" & "Slave" communications wiring.

Master J4 pin #3 ———— Slave J1 pin #10
Master J4 pin #4 ———— Slave J1 pin#9
Master Shield J4 pin #5
Slave Shield J1 pin #4

For RS-485 communications only.
See additional drawings for complete wiring of Master or Slave display.

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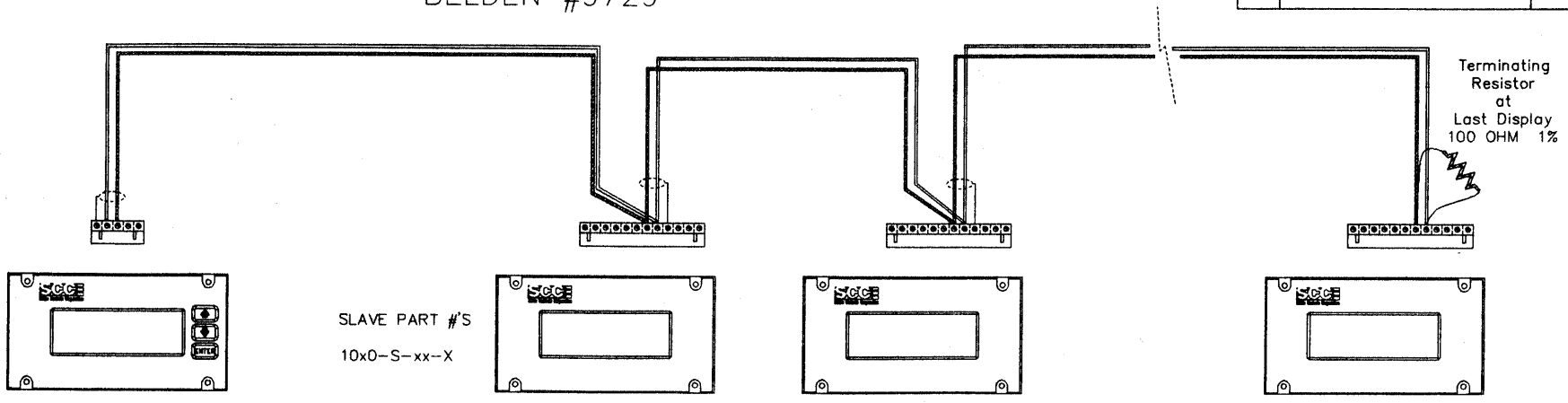
Dr	TCS
App	TCS
Date	6/13/91
Scale	NTS
Title	Master / Slave Communication Wiring SCC1000 Series Display
Part #	SCC 1000
File #	ED100027.SKD
Page #	1 of 3
DWG #	ED-1000-027-B

REDUCED DRAWING

SYM	REVISION	APP	DATE
A	ADDED MASTER/SLAVE PART #'S		6/26/91
B	ADDED SHIELD PIN #'S		7/9/91

RECOMENDED WIRING METHOD #1 – FULLY SHIELDED TWISTED PAIR CABLE
BELDEN #9729



MASTER PART #'S

10x0-P-xx-P
10x0-P-xx-8
10x0-P-xx-32
10x0-P-xx-128
10x0-P4-xx-P
10x0-P4-xx-8
10x0-P4-xx-32
10x0-P4-xx-128

MAXIMUM DISTANCE BETWEEN "MASTER" AND "LAST SLAVE" IS 2000 FEET

SCC900 type "Master" & "Slave" communications wiring.

Master J4 pin #3 ———— Slave J1 pin #6
Master J4 pin #4 ———— Slave J1 pin #5
Master Shield J4 pin #5
Slave Shield J1 pin #4

For RS-485 communications only.
See additional drawings for complete wiring of Master or Slave display.

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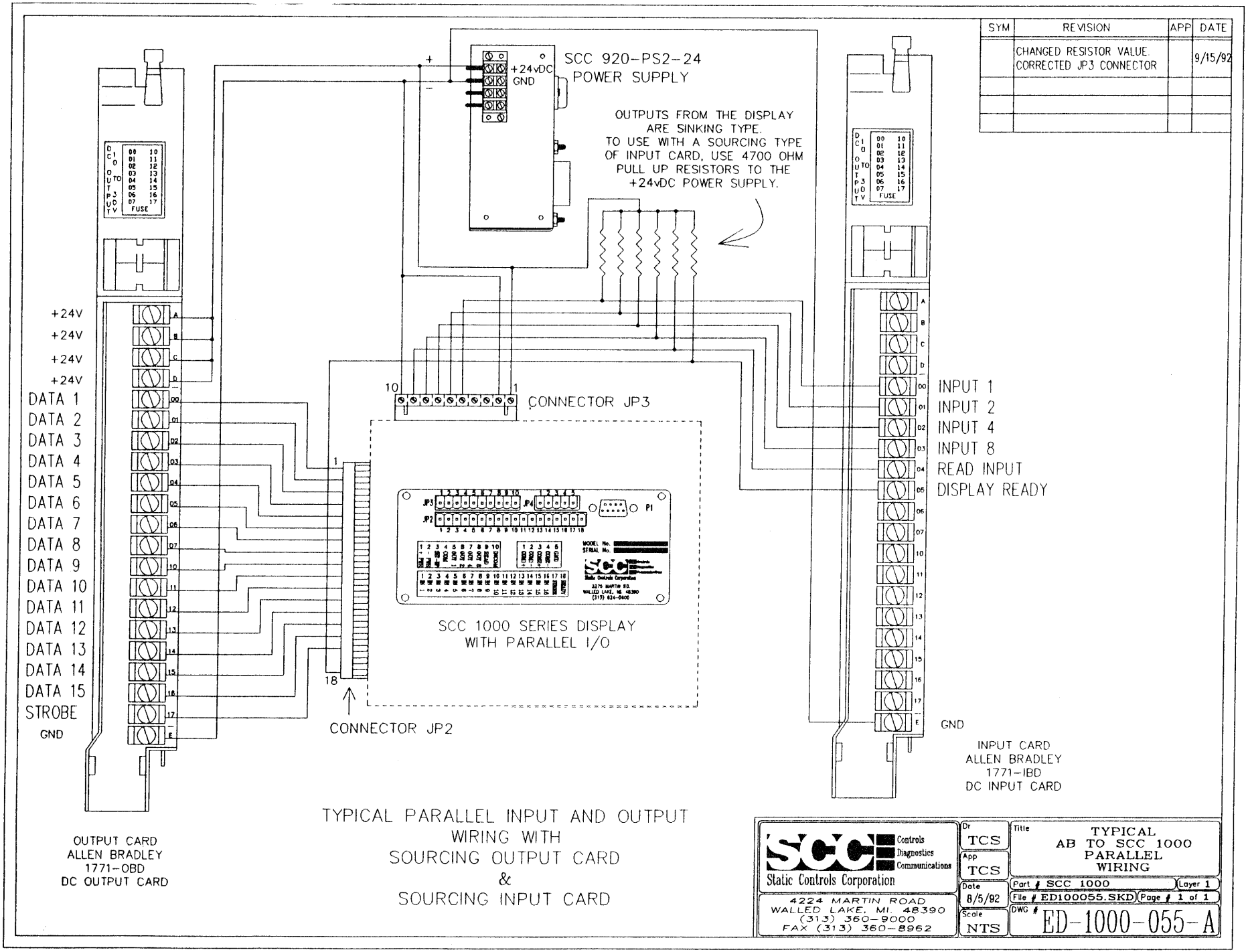
Dr TCS
App TCS
Date 6/13/91
Scale NTS

Title: Master / Slave Communication Wiring SCC1000 Series Display

Part # SCC 1000
File # ED100027.SKD Page # 3 of 3
DWG # ED-1000-027-B

REDUCED DRAWING

SYM	REVISION	APP	DATE
	CHANGED RESISTOR VALUE. CORRECTED JP3 CONNECTOR		9/15/92



TYPICAL PARALLEL INPUT AND OUTPUT WIRING WITH SOURCING OUTPUT CARD & SOURCING INPUT CARD

SCC Controls Diagnostics Communications
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WALLED LAKE, MI. 48390
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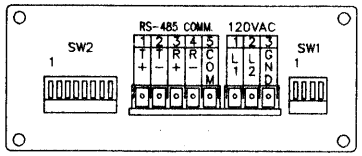
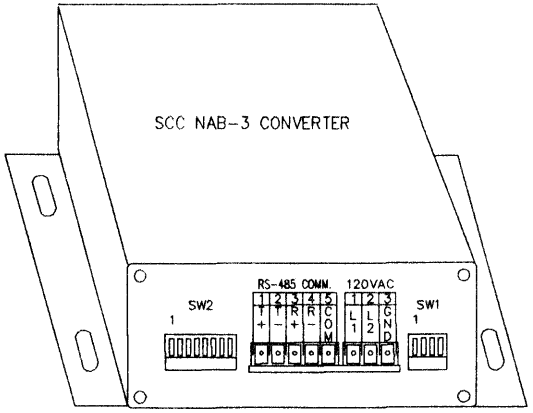
Dr	TCS
App	TCS
Date	8/5/92
Scale	NTS
Title	TYPICAL AB TO SCC 1000 PARALLEL WIRING
Part #	SCC 1000
Layer	1
File #	ED100055.SKD
Page #	1 of 1
DWG #	ED-1000-055-A

SYM	REVISION	APP	DATE

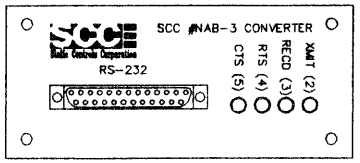
END PLATE OF NAB-3 CONVERTER



SCC NAB-3 CONVERTER

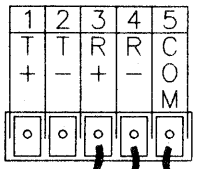


END PLATE OF NAB-3 CONVERTER



L.E.D.S INDICATE CONDITION OF T-60'S RS-232 PORT

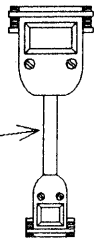
RS-485 COMM.



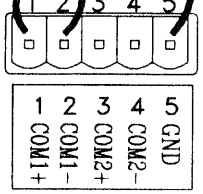
NAB-3 RS-485 TERMINAL

CONNECTIONS FROM NAB-3 CONVERTER TO SCC 1000 DISPLAY RS-485 COMMUNICATIONS

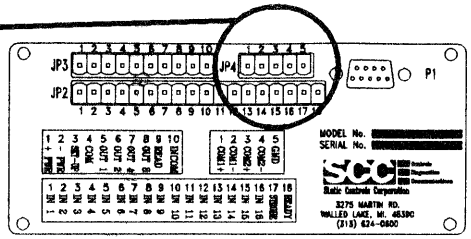
SCC #AD-1000-056-A
NAB-3 to AB T-60
CABLE



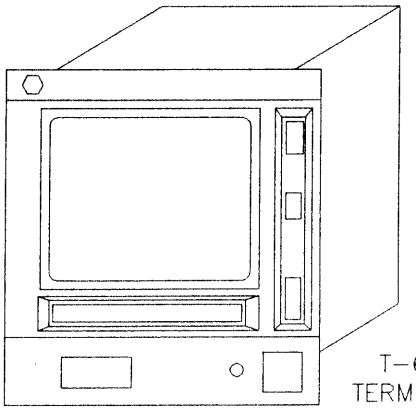
JP4



SCC1000 DISPLAY RS-485 TERMINALS



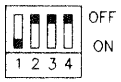
REAR PLATE
SCC 1000 DISPLAY



T-60 TERMINAL

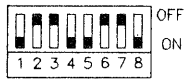
NETWORK DIP SWITCH SETTINGS

SW1-1	ON
SW1-2	OFF
SW1-3	OFF
SW1-4	OFF



SW1 SETS TYPE OF CONVERTER OPERATION

SW2-1	ON
SW2-2	OFF
SW2-3	OFF
SW2-4	ON
SW2-5	ON
SW2-6	OFF
SW2-7	OFF
SW2-8	ON



SW2 SETS CONFIGURATION OF PINOUT ON RS-232 PORT

NAB-3 CONVERTER

CONVERTS ALLEN BRADLEY'S
RS-232 SERIAL PORT
TO
STATIC CONTROLS
RS-485 SERIAL PORT
ON NETWORK DISPLAYS

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Dr	TCS
App	TCS
Date	7/8/92
Scale	NTS

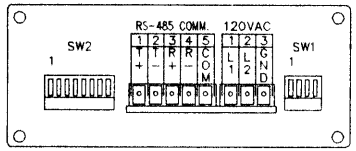
Title: NAB-3 CONVERTER NETWORK SETUP AND DIP SWITCHES

Part # SCC 1000 | Layer 1

File # ED100057.SKD | Page # 1 of 1

DWG # ED-1000-057-A

SYM	REVISION	APP	DATE



SCC NAB-3 RS-232 TO RS-485 CONVERTER.

NOTE:
WIRING CAN EXIT FROM THE CONVERTER IN MULTIPLE DIRECTIONS.

BELDEN CABLE #9463

BELDEN CABLE #9463

BELDEN CABLE #9463

MASTER DISPLAY

MASTER DISPLAY

MASTER DISPLAY

SLAVE DISPLAY

NETWORK TO MASTER DISPLAY WIRING

	NAB-3 CONVERTER	DISPLAY #1	DISPLAY #2	DISPLAY #x
COM +	JP2 #3	JP4 #1	JP4 #1	JP4 #1
COM -	JP2 #4	JP4 #2	JP4 #2	JP4 #2
SHIELD	JP2 #5	JP4 #5	JP4 #5	JP4 #5

MASTER TO SLAVE DISPLAY WIRING

	MASTER DISPLAY	SLAVE DISPLAY
COM +	JP4 #3	JP1 #10
COM -	JP4 #4	JP1 #9
SHIELD	JP4 #5	JP1 #4

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Dr	TCS
App	TCS
Date	3/23/92
Scale	NTS
Title	SCC NAB-3 NETWORK ADAPTER WIRING
Part #	SCC NAB-3
Layer	1
File #	ED100060.SKD
Page #	1 of 1
DWG #	ED-1000-060-A

Controls
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SCC MASTER DISPLAYS, NETWORK SYSTEM.

MODE
- ☐ SINGLE UNIT
- ☐ MULTI-DROP
- ☐ SLAVE — ☐ SCC900, ☐ SCC1000, ☐ UTICOR — GROUP ADDRESS [ ]
- ☐ MESSAGE FILES
- ☐ DIAGNOSTIC
- ☒ 1000 NETWORK

DISPLAY ADDRESS (0-255) [???]

PRIORITY ☒ DISPLAY ☐ INPUT

SERIAL PORT #1

BAUD RATE	☐ 38.4K	☐ 19.2K	☒ 9600	☐ 4800
	☐ 2400	☐ 1200	☐ 600	☐ 300
DATA BITS	☒ 8	☐ 7		
STOP BITS	☒ 1	☐ 2		
PARITY	☒ NONE	☐ ODD	☐ EVEN	
HANDSHAKE	☒ NONE	☐ CTS	☐ XON	

SERIAL PORT #2

BAUD RATE	☐ 38.4K	☐ 19.2K	☐ 9600	☐ 4800
	☐ 2400	☒ 1200	☐ 600	☐ 300
DATA BITS	☒ 8	☐ 7		
STOP BITS	☒ 1	☐ 2		
PARITY	☒ NONE	☐ ODD	☐ EVEN	
HANDSHAKE	☒ NONE	☐ CTS	☐ XON	

PARALLEL PORT

INPUT LINES	☒ SAMPLED	☐ STROBED					
VARIABLES	☐ SAMPLED	☒ STROBED					
INPUT SAMPLE TIME	☐ 0	☐ 10	☒ 20	☐ 30	☐ 40	☐ 50	
	☐ 60	☐ 70	☐ 80	☐ 90	☐ 100	☐ 110	
	☐ 120	☐ 130	☐ 140	☐ 150mSEC.			
INPUT FORMAT	☒ B.C.D.	☐ BINARY					
VARIABLE FORMAT	☒ B.C.D.	☐ BINARY	☐ ASCII				
LOGIC INPUTS	☒ HI	☐ LO					
VARIABLE DATA DIGITS	☐ 1	☐ 2	☐ 3	☒ 4	☐ 5		
OUTPUTS	☒ TIMED	☐ CONSTANT					
OUTPUT DELAY TIME	☐ 1	☒ 50	☐ 150	☐ 300mSEC			

CLOCK

CLOCK DISPLAYED AS MESSAGE #0000	☒ YES	☐ NO		
BLANK BEFORE CLOCK	☐ YES	☒ NO		
DISPLAY CLOCK ON LINE #	☒ 1	☐ 2	☐ 3	☐ 4
CLOCK IS SET TO	☒ TERMINATE	☐ CONTINUE		

SHOW SETUP INFO. ☐ YES ☒ NO

Controls
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SCC MASTER DISPLAYS, NETWORK SYSTEM.

EXTENDED SETUP

ENTER KEY =	☐ NONE	☒ CR	☐ LF	☐ BOTH
UP ARROW KEY =	☒ DEFAULT UP		☐ OTHER	
DOWN ARROW KEY =	☒ DEFAULT DOWN		☐ OTHER	
FILL CHARACTER =	☒ DEFAULT _		☐ OTHER	
ESC. CHARACTER =	☒ DEFAULT $1B		☐ OTHER	

PORTING

MAIN INPUT PORT	☐ 0	☒ 1	☐ 2	☐ 3	☐ 4
MSG. INPUT PORT	☐ 0	☒ 1	☐ 2	☐ 3	☐ 4
MSG. OUTPUT PORT	☐ 0	☒ 1	☐ 2	☐ 3	☐ 4
KEYPAD DATA PORT	☐ 0	☐ 1	☐ 2	☒ 3	☐ 4
KEY CONTROL PORT	☐ 0	☐ 1	☐ 2	☒ 3	☐ 4
PRINTER OUT PORT	☒ 0	☐ 1	☐ 2	☐ 3	☐ 4
SLAVE OUT PORT	☐ 0	☐ 1	☒ 2	☐ 3	☐ 4
REPEATER PORT	☒ 0	☐ 1	☐ 2	☐ 3	☐ 4

KEYPAD ☒ BUFFERED/HDX ☐ BUFFERED/FDX ☐ INSTANT/HDX ☐ INSTANT/FDX

USE AS ☐ 1) 422 PORT ☒ 2) 485 PORTS

STROBE DELAY ☐ 0 ☒ 10 ☐ 20 ☐ 30 ☐ 40
☐ 50 ☐ 60 ☐ 70 ☐ 80 ☐ 90mSEC

INVALID MESSAGE # ☐ TIMED ☒ SHOWN

RECEIVE CHARACTER TIMER = 1500 mSEC
TRANSMIT CHARACTER TIMER = 01 mSEC
INTER COMMAND TIMER = 050 mSEC
TURN AROUND TIMER = 50 mSEC
INTER LOG TIMER = 060 mSEC
INTER MESSAGE TIMER = 060 mSEC

Controls
Diagnostics
Communications
Static Controls Corporation

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SCC SLAVE DISPLAYS, NETWORK SYSTEM

MODE
- ☐ SINGLE UNIT
- ☐ MULTI-DROP
- ☒ SLAVE
  - ☐ SCC900
  - ☒ SCC1000
  - ☐ UTICOR — GROUP ADDRESS [ ]
- ☐ MESSAGE FILES
- ☐ DIAGNOSTIC
- ☐ 1000 NETWORK

DISPLAY ADDRESS (0-255) [0??]

PRIORITY ☒ DISPLAY ☐ INPUT

SERIAL PORT #1

BAUD RATE	☐ 38.4K	☐ 19.2K	☐ 9600	☐ 4800
	☐ 2400	☒ 1200	☐ 600	☐ 300
DATA BITS	☒ 8	☐ 7		
STOP BITS	☒ 1	☐ 2		
PARITY	☒ NONE	☐ ODD	☐ EVEN	
HANDSHAKE	☒ NONE	☐ CTS	☐ XON	

SERIAL PORT #2

BAUD RATE	☐ 38.4K	☐ 19.2K	☐ 9600	☐ 4800
	☐ 2400	☒ 1200	☐ 600	☐ 300
DATA BITS	☒ 8	☐ 7		
STOP BITS	☒ 1	☐ 2		
PARITY	☒ NONE	☐ ODD	☐ EVEN	
HANDSHAKE	☒ NONE	☐ CTS	☐ XON	

NOT APPLIED TO SLAVE UNITS.

PARALLEL PORT

INPUT LINES	☐ SAMPLED	☐ STROBED				
VARIABLES	☐ SAMPLED	☐ STROBED				
INPUT SAMPLE TIME	☐ 0	☐ 10	☐ 20	☐ 30	☐ 40	☐ 50
	☐ 60	☐ 70	☐ 80	☐ 90	☐ 100	☐ 110
	☐ 120	☐ 130	☐ 140	☐ 150mSEC.		
INPUT FORMAT	☐ B.C.D.	☐ BINARY				
VARIABLE FORMAT	☐ B.C.D.	☐ BINARY	☐ ASCII			
LOGIC INPUTS	☐ HI	☐ LO				
VARIABLE DATA DIGITS	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	
OUTPUTS	☐ TIMED	☐ CONSTANT				
OUTPUT DELAY TIME	☐ 1	☐ 50	☐ 150	☐ 300mSEC		

CLOCK

CLOCK DISPLAYED AS MESSAGE #0008	☐ YES	☐ NO
BLANK BEFORE CLOCK	☐ YES	☐ NO
DISPLAY CLOCK ON LINE #	☐ 1 ☐ 2 ☐ 3 ☐ 4	
CLOCK IS SET TO	☐ TERMINATE	☐ CONTINUE

SHOW SETUP INFO. ☐ YES ☒ NO

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Static Controls Corporation

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SCC SLAVE DISPLAYS, NETWORK SYSTEM

EXTENDED SETUP

ENTER KEY =	☐ NONE	☒ CR	☐ LF	☐ BOTH
UP ARROW KEY =	☒ DEFAULT UP		☐ OTHER	☐
DOWN ARROW KEY =	☒ DEFAULT DOWN		☐ OTHER	☐
FILL CHARACTER =	☒ DEFAULT _		☐ OTHER	☐
ESC. CHARACTER =	☒ DEFAULT $1B		☐ OTHER	☐

PORTING

MAIN INPUT PORT	☐ 0	☒ 1	☐ 2	☐ 3	☐ 4
MSG. INPUT PORT	☒ 0	☐ 1	☐ 2	☐ 3	☐ 4
MSG. OUTPUT PORT	☒ 0	☐ 1	☐ 2	☐ 3	☐ 4
KEYPAD DATA PORT	☒ 0	☐ 1	☐ 2	☐ 3	☐ 4
KEY CONTROL PORT	☒ 0	☐ 1	☐ 2	☐ 3	☐ 4
PRINTER OUT PORT	☒ 0	☐ 1	☐ 2	☐ 3	☐ 4
SLAVE OUT PORT	☒ 0	☐ 1	☐ 2	☐ 3	☐ 4
REPEATER PORT	☒ 0	☐ 1	☐ 2	☐ 3	☐ 4

KEYPAD ☒ BUFFERED/HDX ☐ BUFFERED/FDX ☐ INSTANT/HDX ☐ INSTANT/FDX

USE AS ☐ 1) 422 PORT ☒ 2) 485 PORTS

STROBE DELAY ☐ 0 ☒ 10 ☐ 20 ☐ 30 ☐ 40
☐ 50 ☐ 60 ☐ 70 ☐ 80 ☐ 90mSEC

INVALID MESSAGE # ☐ TIMED ☒ SHOWN

- NOTES -

- NOTES -