



Winning Solutions...Worldwide

PROGRESSIVE SYSTEM PROGRAMMER (PSP) Software Version 2.0 Technical Manual

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MIKOHN CORPORATION OVERVIEW

There is a Mikohn product in every casino in the world. This simple statement is a testimony to the Mikohn influence as a key supplier to the international gaming industry. Within its four core divisions, Mikohn has a diversified portfolio that encompasses high-tech player tracking and management information systems, an advanced system for the automation of table games, turn-key design and manufacturing for high impact interior and exterior signage and lighting displays, and a wide and growing number of proprietary specialty games.

SYSTEMS

Heralded as the dominant leader in progressive jackpot systems, Mikohn continues to expand its offerings of sophisticated electronic systems to include the linking of multi-site casinos, advanced management information and player tracking innovations, related module enhancements, and bonusing technology.

TABLE GAMES

Mikohn continues to broaden its staple of proprietary table games, which include new branded specialty games. Designed to bring variety to the gaming floor and attract players, these games encourage greater play through their novel looks and concepts, progressive jackpot systems, and outstanding display features.

GAMING OPERATIONS

The Mikohn slot division continues to create unique and different products that will stand on their own merit. Mikohn will strive to introduce high margin products in games, predict and beat the changes in the industry, and drive that change while building a strong base of products that will gain market share, maintain a competitive edge, and focus on products with recurring revenue. Creating high demand and competitive slot products with a strong emphasis in differentiation added entertainment value and immediate brand recognition remains the focus of the Gaming Operations division.

EQUIPMENT SALES

As the pioneer and industry leader in the development of interior signage and displays in casinos, Mikohn is renowned for its unique, sensory-stimulating displays. This specialized form of artwork features multi-dimensional elements, thematic progressive displays, meters, robotics/animatronic technology, and computer-coordinated sound and light shows. Mikohn can also customize slot glass to a particular theme, color, and style, enhancing the overall effect of any game. The award-winning Mikohn exterior lighting and signage design team invents displays that not only illuminate buildings, but also magnify their presence and theme.

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1. About This Manual

This is a reprint of the PSP v2.0 Technical Manual 990-051-00, originally released in January 1994. Formatting and style has been updated to current MIKOHN standards. Some outdated material has been omitted, such as detailed discussions of using the Mitsuba Pocket PC. However, the information essentially has not changed from the original document.

1.1 Who Should Use This Manual

This manual is designed for use by Service Technicians who set up MIKOHN progressive links in a casino environment. Technicians will use the PSP program to configure MIKOHN Controllers (CON1 and CON2), which control progressive jackpot systems and associated displays. Appendix C, on page 90, contains confidential system administrator information and should be distributed only to qualified users.

1.2 Manual Contents

Each chapter is named after the page it represents. *Page* refers to each screen in the PSP program.

- Chapters 5 through 17 discuss every PSP page, except for Security Upload, which is discussed only in Appendix C.
- Chapter 18 contains Troubleshooting information.
- Appendix A discusses Machine Protocols.
- Appendix B discusses how to configure a Random Bonus game.
- Appendix C is confidential and should be available only to system administrators. It discusses Security Options for the PSP program.

1.3 Conventions Used in This Manual{ XE "user manual:conventions" }

- **Caution** tells a reader to be careful with the components (such as hardware or software) he or she is using.
- **Casino** (see Site).
- **Machine** refers to a slot machine, also called an EGM (Electronic Gaming Machine) in some jurisdictions.
- **Field** refers to text options displayed on a page of the PSP program and which a user selects to perform a specific function. An example is [BASE VALUE](#), located in the [Jackpot Programming](#) page.
- **Figures** are captures of PSP screens and are represented in inverse black and white for easier printing and online reading.
- **Interface Board** refers to the communications board installed in each machine; also called SMIB or Watchman, according to the jurisdiction.
- **Note** is for helpful and important information.
- **Operator** means the organization or persons running an establishment, such as a casino (also called site). Operator also refers to the person or group responsible for the procedures discussed in this document.
- **Page** refers to each screen in the PSP program. The information on each page displays based on which controller (CON1 or CON2) you are using.
- **User** refers to the operator or any qualified member or affiliate of the operating establishment.
- **Site** refers to a casino, operation, or venue; and is used interchangeably with these terms.
- **Warning** tells a reader to be careful so as not to get hurt.
- **You** is the person reading this manual or performing some action relevant to the system.

1.4 Reference Documentation

- CON2 User Manual Reprint, P.N. 950-010-00
- CON1 Configuration Manual, P.N. 990-000-00

1.5 Getting Help

This manual is designed to provide complete instruction for using PSP v2.0. However, if you require further assistance, contact MIKOHN Customer Service at **1-800-798-1942**.

2. PSP Overview

The MIKOHN controller units—Standard Controller (CON1) and SuperController (CON2)—are sophisticated devices for overseeing the operation of progressive jackpot systems and associated display signage. They are, however, dependent on user definition for progressive jackpot system performance. There is no direct user interface built into MIKOHN controllers, so it is necessary to configure the units via a computer with PSP installed.

PSP v2.0 is available as a standalone software package for use on any DOS- or Windows-based personal computer or bundled with a palmtop PC. The program itself runs from the DOS prompt.

3. Installation Overview

Installation procedures depend on the selected MIKOHN components, the type of machines connected to the system, and the desired mode of system operation. Read this manual carefully before proceeding with the installation.

If there are problems with the installation, when you contact MIKOHN customer service have a description of the problem, a list of the MIKOHN equipment used, and the make and model of connected gaming devices.

3.1 Software Testing and Display Programming Considerations

Before proceeding to the next step in the installation process, consider the following point. It may be a good idea to connect your computer and your controller in a testing area, away from the casino floor, in order to familiarize yourself with software operation before programming for real-time jackpot systems. If you do have this ability to program off-site, try to have the MIKOHN displays that the system will use, such as the Photon Overheads or CHAMELEONS (CHAMI and CHAMII) connected to the controller as well. This will give you visual confirmation that your programming with PSP software is correct.

Even if you cannot perform off-site testing or there is no connection to a controller and jackpot system, first familiarize yourself with the PSP menus, options, and conventions before using the program. You can program all pertinent progressive jackpot information and store that programming in memory for future download to your system.

3.2 Connecting the Computer to the Controller

Both the CON1 and CON2 controllers interface with programming computers via DB-9 female RS-232 ports on the controller. Use the serial interface cable with a male DB-9 connector, which is available from MIKOHN (P.N. 134-001-30).

- Connect the cable from the computer to the female DB-9 on the CON1.
- Connect the cable from the computer to the J4 connector on the CON2.

3.3 Loading PSP Software on the PC

To use PSP, the computer must meet the following specifications:

- 8086-compatible running DOS v3.30 or higher
- Hard disk
- Configurable RS-232 serial port

To load PSP onto your computer, perform the following steps:

1. Turn on the computer and wait for the hard disk prompt C:\> to display.
2. Place the disk labeled MIKOHN:PSP2.0 in the 3.5" drive (usually A).
3. Type **MKDIR PSP** and press the ENTER key on the keyboard. This creates a subdirectory on your hard drive for the PSP software files.
4. Type **CD PSP** to enter the new PSP subdirectory.
5. Type **COPY A:.* C:/V** and press the ENTER key. This copies all the files on the MIKOHN disk into the subdirectory PSP you created in step 3 above.

3.4 Software Startup

How you start and use PSP depends on the system on which the software is loaded. Section [3.4.1](#) explains how to start it from any DOS-based PC.

3.4.1 Accessing PSP Software on any DOS-Based PC

In section [3.3](#), you created a subdirectory on your hard disk named PSP and copied the program files to the directory. To access and use PSP, perform the following steps:

1. At the C:\> prompt, type **CD PSP** and press ENTER on the keyboard.
2. Type one of the following batch file commands (depending on the controller you are using for your progressive system) and press ENTER:
CON1
CON2
CON2OLD (for CON2 software older than v3.0)
DISPLAY2 (if you are using PSP to program CHAMELEONS, AGLs, MARK1s, or MARK2s only and not for programming a controller for progressive system information)
3. At the prompt, type the six-digit numeric password given to you by the system administrator and press F10:
4. At the Configuration Screen prompt, press F1 to display the default path and progressive system values.
5. If in step 2 you entered CON1, the Jackpot Display Configuration menu shown in [Figure 4.1](#) opens. If you entered CON2, the Jackpot Display Configuration menu shown in [Figure 4.2](#) displays.

4. PSP Program Overview

PSP is a menu-driven program that has specific operating conventions that apply to any page of the program. This user interface allows you to learn how to use the software faster and make fewer errors in data entry. The following sections discuss several operating conventions you will use with PSP software. [Figure 4.1](#) and [Figure 4.2](#) show sample Main Menus for CON1 and CON2 system setups.

4.1 The Main Menu

The PSP Main Menu screen is a template of all the program pages. The top displays the program name, version number, copyright information, and the date and time. In the middle of the screen is the data entry area or menu/submenu selection area. The function key indicators (such as F5) are after that. The bottom of the screen is a message area. The lower right area of the screen shows what page is currently open (for example, page 1 for the Jackpot Programming page).

Most PSP pages have fields that you can edit. Enter values for fields and press the SEND function key to send data to the controller and affect the progressive jackpot system operation. The 10 submenu fields displayed on the PSP Main Menu for a CON1 are the same for both the CON1 and CON2. The CON2 Main Menu lists four additional submenu fields that are specifically for use with the CON2. To access a program page, press the key that corresponds to it.

The following is a list of all available pages. Each page is a link to the section in this manual where it is explained.

- [Jackpot Programming](#), page 11
- [Jackpot Summary](#), page 20
- [Symbols and Currency Setup](#), page 23
- [Message Programming](#), page 25
- [Odometer Control](#), page 38
- [Multiple Controller Setup](#), page 43
- [Clear/Reset Current Jackpot](#), page 46
- [Controller Test Modes](#), page 49
- [Time/Date Setting](#), page 57
- [After Jackpot Increments](#), page 59
- [Jackpot Hit Summary](#), page 61
- [Extra Coin Play](#), page 62
- [Security Upload](#), page 92
- [Denomination](#), page 64

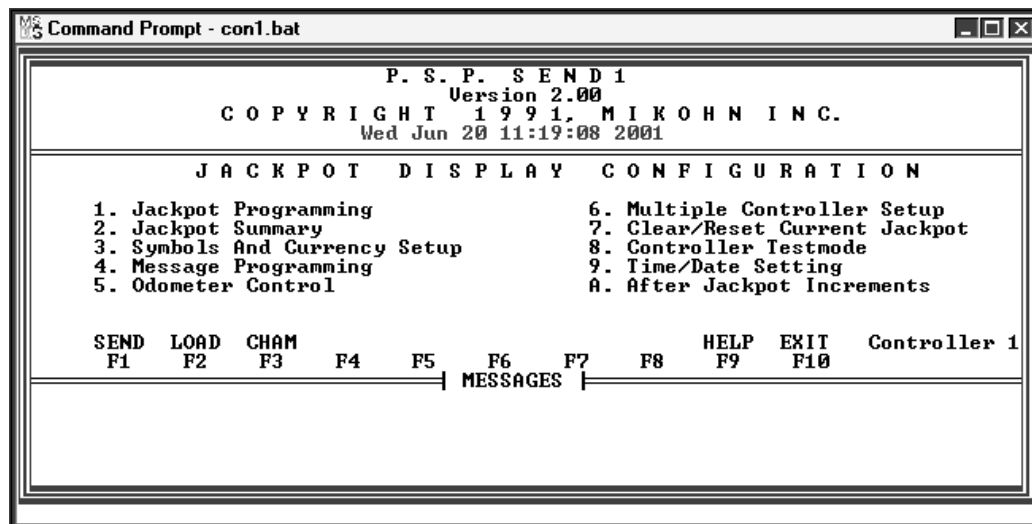


Figure 4.1 PSP Main Menu CON1

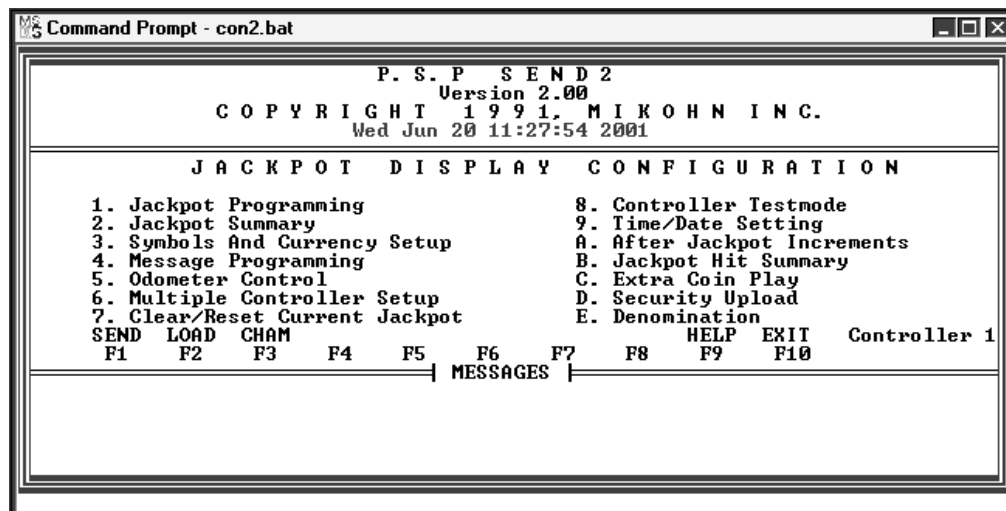


Figure 4.2 PSP Main Menu CON2

4.2 Function Keys

All PSP pages use the keyboard function keys (such as F1 and F2) for certain actions. Throughout all PSP pages, you will see function keys labeled F1 through F10 listed horizontally across the bottom of the page menu. Not all function keys are enabled on every page. If there is no action listed above the function on screen (such as SEND above F1), that function key is not usable on that page. For example, on the PSP Main Menu, F4 through F8 have no corresponding action word above them, so on that page they do not serve any purpose.

Several function keys have the same use on all pages. Because the F1 SEND, F2 LOAD, F3 CHAM, F9 HELP and F10 EXIT functions serve the same purpose regardless what controller you are using, the definitions for these keys are not repeated. They are described in this chapter only, in the following sections.

4.2.1 F1 SEND

Use F1 to download (SEND) data from the computer to the controller. From the Main Menu page, press F1 to send all the stored data entered for pages 1,3,5,6,9, and A. When you press F1, the following message displays:

PLEASE WAIT!!

SENDING CONFIGURATION DATA

If the download is successful, no message displays in the message area and, if the controller is connected to a display, you will see the data from the CURRENT JP field display for the associated jackpot group. If the download is unsuccessful, see [Troubleshooting](#), on page 69.

4.2.2 F2 LOAD

Use F2 to upload (LOAD) data from the controller to the computer. The controller information is stored in its EPROM chip. From the Main Menu page, press F2 to load all the stored data for pages 1,3,5,6,9 and A in the controller RAM to the computer. When you press F2, the following message displays:

PLEASE WAIT!!

LOADING CONFIGURATION DATA

If the upload is successful, no message displays. The values will change for one or more fields in the screen's data area. If the upload is unsuccessful, see [Troubleshooting](#), on page 70.

4.2.3 F3 CHAM

Use F3 to send only the message files stored in the computer to a CHAMELEON visual display. You can use this function when the computer is connected either to the controller or to the display's logic PCB RS-232 serial port. Use this function if you accessed PSP with the CON1 batch file, CON2 batch file (CON2 v3.0 or higher), CON2OLD batch file (CON2 software older than 3.0), or DISPLAY2 batch file (programming CHAMELEONS, AGLs, MARK1s, or MARK2s directly). This function can also be used when the display is informational only and is not connected to a progressive jackpot system.

4.2.4 F9 HELP

Use F9 to open the Help file associated with the displayed page. You can press F9 any time to see a short explanation of what the page does, what the values mean, and what actions are affected by the other function keys. You can press the ESC key on the keyboard to exit the Help menu.

4.2.5 F10 EXIT

Use F10 to leaves the Main Menu and bring up the Save option prompt before returning to the computer operating system. F10 is the universal escape key for every page of PSP. When you are done with a program page, press F10 to automatically return to either that page menu or the Main Menu. When you do so, the following prompt appears.

```
Select exit options menu
(Esc)      Exit without file save
(F1)       Enter configuration file
(F2)       Save configuration file on Exit
```

The exit mode you choose depends on what you want to do with the data you entered during a PSP session. Any time you access PSP, you are prompted for a path to the subdirectory holding any saved files. If you have saved files and want to update them (rather than use the default files), select the path option when the prompt displays. This feature is particularly helpful when you want to program progressive system information off-site (away from the casino floor) then download the information quickly when you are onsite. See the following list for exit options:

Esc

To exit without saving all the entries and upload data from the controller, press ESC or ENTER on the keyboard. The program exits to the operating system without saving the information.

F1

To save the entries and upload data, press F1. At the prompt, type a subdirectory path and name for the data. Entering a subdirectory name without defining a path to another subdirectory is permissible; the named subdirectory will be on the first level of the PSP subdirectory. All the data from this session is saved in the named directory.

F2

If you entered the program using an existing path and you want to save the current data to that subdirectory, press F2. The data files write to the subdirectory, automatically overwriting any existing files with the same names.

4.3 Message Section

At the bottom of each PSP page is a message display area. It shows error messages, program status messages, and other pertinent data while you use PSP. These messages can be helpful when you are having problems uploading or downloading information to the controller from the computer.

4.4 Arrow Keys

For program pages (such as Jackpot Programming and Odometer Control) that have data entry/definition tables, the arrow keys on the keyboard move the cursor on the screen to the digit you want to change. The cursor follows the action dictated by the up, down, left, and right arrow keys and will scroll to the beginning, end, top, or bottom when the end of a column or row is reached.

5. Jackpot Programming

When you select option 1 on the Main Menu, the Jackpot Programming page displays. This page allows you to define and edit progressive jackpot information stored in the controller memory for all jackpot groups. Use this page to define jackpot groups and the jackpot information associated with the group.

Of all the PSP pages, the Jackpot Programming page is the most important. Most of the other program pages support the information defined within this page. You will use it when you first set up your progressive system and will continue to access the program for editing purposes. Therefore, it is extremely important to read and understand all the aspects of function and field definitions presented in this section before moving to other sections of the manual.

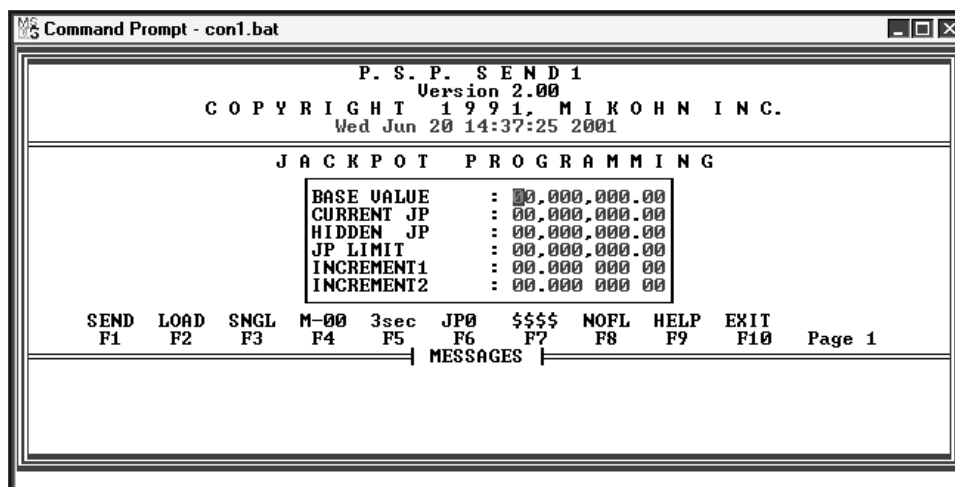


Figure 5.1 Jackpot Programming CON1

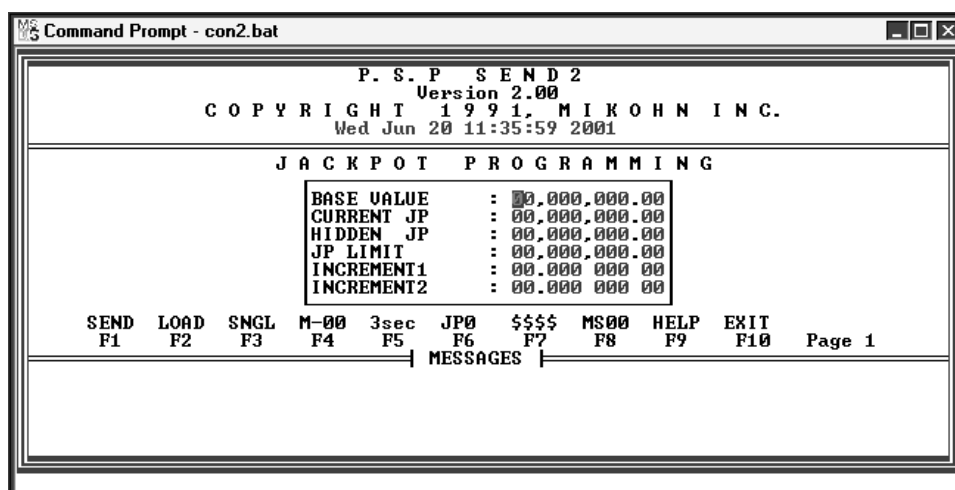


Figure 5.2 Jackpot Programming CON2

5.1 Jackpot Programming Function Keys

In Page 1, you view and change progressive jackpot information for the jackpot groups under the controller's direction. Such jackpot attributes are: Jackpot Base Value, Current Jackpot Amount, Hidden Jackpot Amount, Jackpot Maximum Limit, Primary Jackpot Increment Amount and Secondary Jackpot Increment Amount. Additionally, this page allows you to define the types of progressive jackpots to be used, the machine types associated with the progressive jackpot system, the length of the jackpot signal (in milliseconds or seconds) from machines, the jackpot display as currency or coin, the machine serial communication protocol (CON2), and the flash rate of connected Photon signs (CON1).

This section describes each of the function keys available from the Jackpot Programming page. The definitions indicate where functions vary according to the type of controller.

5.1.1 F3 Jackpot Type

Use F3 to define the jackpot type for a particular jackpot group. The types are listed in the following sections.

SNGL

SNGL creates a single jackpot for one jackpot group. If you choose this option, there is only one jackpot game and only JP0 is available (F6).

ARRW

ARRW is a special jackpot that has high and low jackpots. Both jackpot amounts are displayed above the gaming machines and a graphic arrow device shows which is the active jackpot. The arrow switches between the two jackpots as coins are wagered; the switching is controlled by a defined flip rate (see [FLIP RATE](#) on page 22). If you choose this option, there is only one jackpot game; however, you must enter data for JP0 and JP1.

HIGH

HIGH is the same as ARRW except the flip rate is ignored and highest jackpot is always the selected one. As with ARRW, there is only one jackpot game; however, you must enter data for JP0 and JP1.

MANY

MANY allows up to four jackpot games to be controlled, which means control of up to four different jackpot groups. When set to MANY, you can configure jackpot information for JP0, JP1, JP2, and JP3. ARRW, HIGH, and the HID (hidden) jackpot types cannot be used in this mode and data entry into the HIDDEN JP field is ignored. The CON2 has up to eight jackpot games/groups under its management.

Hidden Jackpots (HID1, HID2, HID3)

HID (hidden) jackpots are a special game type that maintains player interest *after* a jackpot is hit for a group. A lower reset value (BASE VALUE) might not be enough to interest players until the current jackpot amount is built up again. Hidden jackpots help ensure the reset value is high enough to encourage continued machine play even after the “big” jackpot is hit.

HID1 (Hidden Type 1)

If you choose HID1, you must enter data for the HIDDEN JP field. Enter an amount determined from hold percentage analysis. If you are using two jackpot groups on the CON1 or two or more on the CON2, press the F6 function key to access the additional jackpot groups and enter data for them.

During game play on the machines associated with the HID1 jackpot groups, the percentage defined by the value you entered in the INCREMENT1 field for the group is contributed to both the CURRENT and HIDDEN jackpot amounts as players wager coins. Both CURRENT and HIDDEN jackpot amounts are limited by the value defined for the JP LIMIT field.

When a player hits a jackpot, the game awards the player the CURRENT jackpot and the controller moves the amount in the HIDDEN JP field to the CURRENT JP field. The BASE VALUE then moves to the HIDDEN JP field. The INCREMENT1 value contributes to and the JP LIMIT field limits the new values for CURRENT and HIDDEN jackpots.

CON1: HID1 limits the number of jackpot games/groups to two, JP0 and JP2. PSP uses jackpot group JP1 to store the data for the hidden jackpot of JP0 and uses JP3 to store the data for the hidden jackpot of JP2.

CON2: HID1 limits the number of jackpot games/groups to four, JP0, JP2, JP4, and JP6. Jackpot groups JP1, JP3, JP5, and JP7 are used for data storage.

HID2 (Hidden Type 2)

For both the CON1 and CON2 controllers, HID2 limits the number of jackpot games/groups to two, JP0 and JP1. JP2 stores the data for the hidden jackpot of JP1.

HID2 allows you to have one jackpot game/group with no hidden value (JP0) and one jackpot game/group with a hidden value (JP1). The former operates just like the SNGL jackpot type, a hit awards the player the CURRENT jackpot amount and moves the BASE VALUE amount to the CURRENT JP field.

The hidden game of HID2 operates like the game for HID1. In the event of a jackpot hit, the CURRENT jackpot amount is awarded to the player, the value of the HIDDEN JP field is moved to the CURRENT JP field, and the BASE VALUE field value is moved to the HIDDEN JP field. The INCREMENT1 value contributes to and the JP LIMIT field limits new values for CURRENT and HIDDEN jackpots.

CON1: PSP ignores JP3

CON2: PSP ignores JP3 through JP7

HID3 (Hidden Type 3)

HID3 allows you to have hidden jackpot games in which the increment values for HIDDEN jackpots are different from the increment values for the CURRENT jackpots. This configuration provides for a fine-tuned house hold.

Specifying hidden jackpots requires more preliminary work to set the house hold percentage calculations than other jackpot types. It also requires planning physical jackpot groups based on the available group that the software can control.

CON1: Limits the number of jackpot games/groups to two, JP0 and JP2. However, the data screens for jackpot groups JP1 and JP3 are available and you input values for the INCREMENT1, INCREMENT2, and JP LIMIT fields. You configure JP0 and JP2 as normal, entering data for the BASE VALUE, CURRENT JP, HIDDEN JP, JP LIMIT, INCREMENT1, and INCREMENT2 fields. However, the values for INCREMENT1, INCREMENT2, and JP LIMIT of the JP0 screen apply only to the CURRENT JP field, as shown here:

JP1: INCREMENT1, INCREMENT2, and JP LIMIT fields apply to the **JP0** HIDDEN JP

JP2: INCREMENTx and JP LIMIT fields apply to **JP2** CURRENT JP

JP3: INCREMENTx and JP LIMIT fields apply to **JP2** HIDDEN JP

CON2: Limits the number of jackpot games/groups to four: JP0, JP2, JP4, and JP6. Jackpot groups JP1, JP3, JP5, and JP7 are accessible, but you input values only for the INCREMENT1, INCREMENT2, and JP LIMIT fields.

JP1: INCREMENTx and JP LIMIT fields apply to **JP0** HIDDEN JP

JP3: INCREMENTx and JP LIMIT fields apply to **JP2** CURRENT JP

JP5: INCREMENTx and JP LIMIT fields apply to **JP4** HIDDEN JP

JP7: INCREMENTx and JP LIMIT fields apply to **JP6** HIDDEN JP

2BET

2BET applies only to the CON2. It is a jackpot type reserved for gaming devices that allow an additional wager after the game is completed. When set to 2BET, the CON2 can control up to four jackpot games/groups (JP0 through JP3). JP4 through JP7 are accessible but have no function and require no data entry.

5.1.2 F4 Machine Type

Use F4 to inform the controller the machine types connected to a particular jackpot group. Not all gaming devices send the same electronic signals to notify the controller of various game events. Each manufacturer's game has different pulse patterns and durations to signify coin-in, coin-out, or progressive jackpot hit.

F4 allows you to define up to 20 machine types so the controller can recognize their particular electronic signals. Machines types show on screen as M-xx, where xx is a value 00 through 19. [Appendix A: Communication Protocols](#), on page 71, lists the machine type codes you need to enter for the jackpot group you are configuring.

5.1.3 F5 Jackpot Signal Time

Use F5 to adjust for differences in the pulse time length for a jackpot hit on a machine. Gaming machines differ and there is no standard for duration of the jackpot hit signal various machine types send. F5 allows you to define 10 jackpot signals. The following table shows the definition of the displayed values.

Table 5.1 Jackpot signal length definitions

Displayed	Time
50ms	1/50 second
.5s	½ second
1sec	1 second
1.5s	1 ½ second
2sec	2 seconds
3sec	3 seconds
4sec	4 seconds
5sec	5 seconds
6sec	6 seconds
7sec	7 seconds

5.1.4 F6 Jackpot Group

Use F6 to select the jackpot group to configure. The jackpot groups available for configuration depend on which jackpot type you have selected with the F3 function key. The CON1 can manage four groups, and the CON2 can manage eight groups. Section [F3 Jackpot Type](#), on page 12, discusses how to configure the jackpot type.

5.1.5 F7 Currency/Coin

Use F7 to set whether a progressive jackpot hit will display in currency or the number or coins to be paid. Casinos should determine which format to use based on the game's denomination. For example, if the game denomination is small, such as a nickel jackpot, a currency display may not seem very high to players. In this case, a coin payout display might be more effective in gaining player interest.

There are two considerations for setting a jackpot group to either a currency or coin format: the Currency Symbol and the values for the INCREMENT1 and INCREMENT2 fields.

If F7 is set to currency (\$\$\$\$), you must access the Symbols and Currency Setup page (see page 23) to define the type of currency being used in the game and display format of the jackpot amount.

Currency and coin settings increment the jackpot amounts differently, so how you set F7 affects the CURRENT and HIDDEN jackpot amounts. Refer to the [Increment Calculation Rate](#) on page 19 for a complete description of increment calculations before you set a jackpot group to currency or coin or define INCREMENT1 and INCREMENT2.

5.1.6 F8 Photon Flash (CON1)

Use F8 for CON1 progressive systems that include Photon displays to instruct displays connected to a particular jackpot game/group to flash on and off. Values for F8 include:

NOFL: instructs the Photon displays not to flash at all

FLS1 — FLS9: flash rate instructions, a value of 1 being the fastest flash rate and 9 the slowest

5.1.7 F8 Serial Protocol (CON2)

Use F8 for CON2 progressive systems to assign the communication protocol the CON2 will use to connect to gaming devices. Values range from MS00 to MS22, and the setting depends on the machine connection. See [Appendix A: Communication Protocols](#), on page 71, for a complete listing of gaming devices and their corresponding serial protocol code.

NOTE:

The CON1 is capable of some of the same communications with the addition of the Gateway interface PCB and appropriate firmware.

Unlike the CON1, you configure the Photon Flash rate for a CON2 from
program page 2, Jackpot Summary.

5.2 Jackpot Programming Data Fields

5.2.1 BASE VALUE

A 10-character numeric field for defining the base reset value for a progressive jackpot associated with a particular jackpot group. When the jackpot type is defined as a SNGL (single; see F3), this value will replace the CURRENT JP amount on the display as a value in the page after a progressive jackpot hit.

When the Jackpot Programming page is first accessed, the cursor displays in the first character of this field, ready for data entry. The value of this field cannot exceed the JP LIMIT value.

5.2.2 CURRENT JP

A 10-character numeric field for defining the current progressive jackpot amount to display for the associated jackpot group. The value of this field cannot be greater than the JP LIMIT value.

5.2.3 HIDDEN JP

A 10-character numeric field for defining the hidden progressive jackpot amount. If a jackpot group has been configured as a hidden type (HID1, HID2, or HID3), you must complete this field. If the jackpot type is defined (using F3) as SNGL, ARRW, HIGH, or MANY, this field is not used. The value of this field cannot be greater than the JP LIMIT value.

5.2.4 JP LIMIT

A 10-character numeric field for defining the maximum progressive jackpot amount for the associated jackpot group.

5.2.5 INCREMENT1

A 10-character numeric field for defining the primary increment to the CURRENT JP of a jackpot group for each coin wagered in machines connected to the controller. This field dictates the contribution to the progressive jackpot for each coin wagered on the game. For example, if set to 00.010 000 00 for a jackpot group configured for currency with a one-dollar denomination base, \$0.01 would be contributed to the CURRENT JP for every coin wagered by the player.

The value defined for this field is dependent the F7 function key setting. Refer to the [Increment Calculation Rate](#) instructions on page 19 before assigning a value to this field.

5.2.6 INCREMENT2

A 10-character numeric field for defining the secondary increment to the CURRENT JP of a jackpot group for each coin wagered after the CURRENT JP reaches the amount defined for the JP LIMIT field. This field allows you to set a variable contribution to the game that will maintain player interest after the JP LIMIT is reached without negatively affecting the house hold. For example, if the JP LIMIT is set to \$10,000.00, the INCREMENT1 is 00.010 000 00, and the INCREMENT2 is 00.005 000 00 for a game set to currency play with a base denomination of one dollar, then while the CURRENT JP value is below \$10,000.00, \$0.01 is contributed for each dollar wagered. When the CURRENT JP value reaches \$10,000.00, the increment contribution to the jackpot drops to \$0.005 for each dollar wagered.

If the value of this field is set to all zeros, there is no further increment of the CURRENT JP amount after it reaches the value of the JP LIMIT field.

The value defined for this field is dependent on the F7 function key setting. Refer to the [Increment Calculation Rate](#) instructions on page 19 before assigning a value to this field.

5.3 Increment Calculation Rate

Before you set the values for the INCREMENT1 and INCREMENT2 fields for a jackpot game/group, use the F7 function key to determine the display format, Currency or Coins. The formulae for both display types and examples are listed below.

5.3.1 Currency Format Calculation

When F7 displays as \$\$\$\$, the Currency format is selected. To figure out the INCREMENT1 and INCREMENT2 rates for currency displays, you must know the progressive percentage rate and machine denomination. The calculation formula is:

$$\text{Currency Increment Rate} = \text{Denomination} * \text{Progressive Rate}$$

Example 1

A dollar (\$1.00) link has a progression rate of 5% (0.05). The increment rate per coin played is $\$1.00 * .05 = \0.05 , which means 5 cents per coin in. You would enter this as an INCREMENT1 and/or INCREMENT2 value of 00.050 000 00.

Example 2

A quarter (\$0.25) link has a progression rate of $\frac{1}{2}$ of 1 percent (0.005). The increment rate is figured as $0.005 * 0.05 = .00025$. You would enter this as 00.000 250 00.

5.3.2 Coin Format Calculation

When F7 displays as COIN, the Coin format is selected. To figure out the INCREMENT1 and INCREMENT2 rates for coin displays, you must know only the progressive percentage. The calculation formula is:

$$\text{Coin Increment Rate} = \text{Progressive Percentage}/100$$

Example 1

A dollar (\$1.00) link has a progression rate of 5% (0.05). Increment rate = $.05/100 = .0005$. You would enter this as 00.000 500 00.

Example 2

A quarter (\$0.25) link has a progression rate of 5%. Increment rate = $.05/100 = .0005$. You would enter this as 00.000 500 00. Note that this is the same as Example 1 because the denomination is not relevant.

Example 3

A nickel (\$0.05) link has a progression rate of $\frac{1}{2}$ of 1 percent (0.005). Increment rate = $.005/100 = .00005$. You would enter this as 00.000 050 00.

6. Jackpot Summary

When you select option 2 on the Main Menu, the Jackpot Summary page displays. This page allows you to edit progressive jackpot summary information stored in the controller's memory for all jackpot groups. When you use either the CON1 or CON2 controller, you can include this data in attract mode messages for CHAMELEON displays. For the CON2, this page also allows you to designate Random Bonus jackpot status for any of the eight jackpot groups and the toggle for the Photon flashing and speed. Figure 6.1 shows the page display for a CON1 setup, and Figure 6.2 shows the page for a CON2 setup.

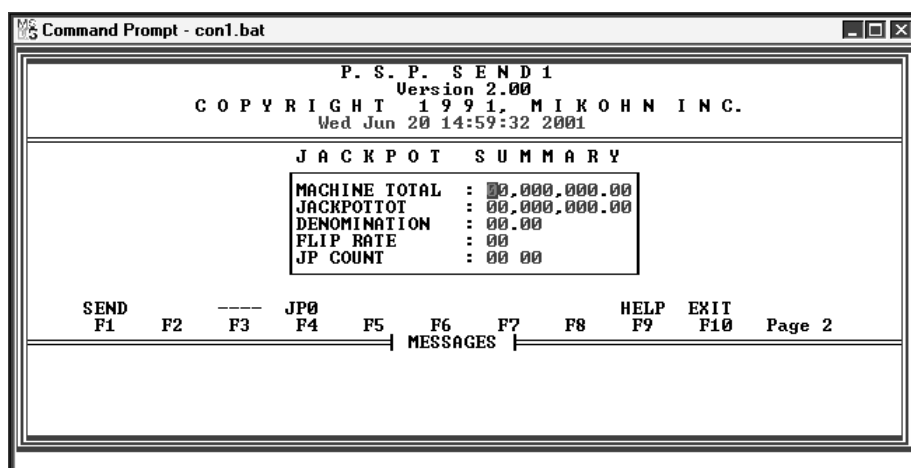


Figure 6.1 Jackpot Summary CON1

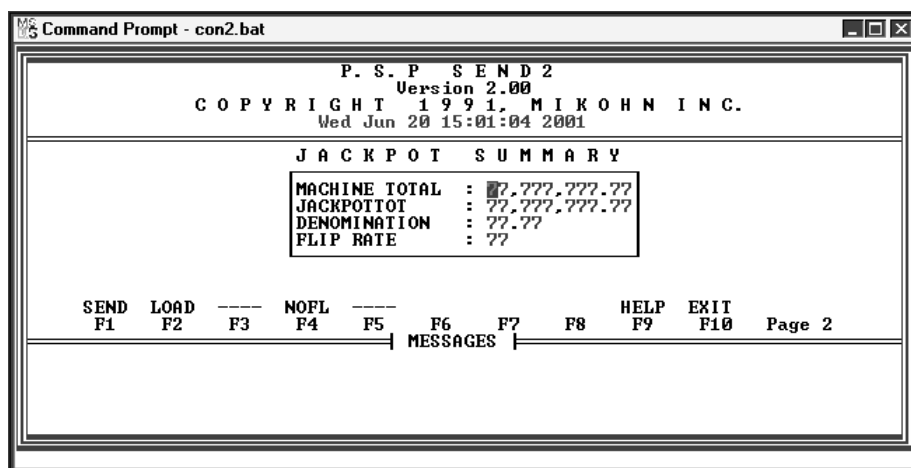


Figure 6.2 Jackpot Summary CON2

6.1 Jackpot Summary Function Keys

The following section outlines only those function keys unique to the Jackpot Summary page. Standard keys, such as F1, are not discussed. Function keys F2, F5, F6, F7, and F8 are inoperable in this page. Note: The F2 LOAD option is available in the CON2 page but not in the CON1 page (instead, it is located in page 1, Jackpot Programming).

6.1.1 F3 Attract Mode

Use F3 to define whether the MESS.DO message programmed in the controller will display on CHAMELEON signage after a two-minute idle state. (The MESS.DO message contains custom display information; see [Message Programming](#).) F3 is an on/off toggle switch. If it displays ----, the MESS.DO message will not cycle or display. If you select MESSG, the MESS.DO message will cycle or display on a CHAMELEON after being an idle state for two minutes.

6.1.2 F4 Jackpot Group CON1

Use F4 for the CON1 to define which jackpot group data is being configured in this page. Four values are available; JP0 through JP3, depending on the setting of the jackpot type. When you select a jackpot group and press F1 to send the data, only the selected jackpot group is affected. You cannot send the defined data on this page to all jackpot groups at once; you must perform the F4, F1 cycle for each group.

6.1.3 F4 Photon Flash CON2

Use F4 for the CON2 to define whether in-machine Photon displays will flash in idle state and at what speed. Values for F4 are NOFL, which instructs the Photon not to flash at all, and flash rate instructions from FLS1 to FLS9, with a 1 being the fastest flash rate and 9 the slowest.

6.1.4 F5 Random Jackpot

Use F5 for the CON2 setup only to specify which of the eight jackpot groups will be random jackpot games. Values for F4 range from ---- to RAND1 through RAND8. The use of random jackpot games requires the correct EPROM version installed in the controller. See [Appendix B: Random Bonus Jackpot Game Programming](#), page 80, for information on using and programming random bonus jackpots for a progressive system.

6.2 Jackpot Summary Data Fields

6.2.1 MACHINE TOTAL

A 10-character numeric field for defining the total amount paid (in currency) from all gaming machines connected to the controller. This value is derived by multiplying machine denomination by the total coin out.

6.2.2 JACKPOTTOT

A 10-character numeric field for defining the progressive jackpot total amount paid by all machines/jackpot groups. This value is derived by multiplying machine denomination by the jackpots paid amount (coin out).

6.2.3 DENOMINATION

A four-character numeric field for defining the denomination of the machines connected to the controller.

6.2.4 FLIP RATE

A two-character numeric field for defining the number of coin-in pulses necessary to change the arrow display from one jackpot amount to the other when a jackpot has been defined as [ARRW](#). This value tells the display when to flip. If the ARRW jackpot definition is not being used, do not configure this field.

6.2.5 JP COUNT

A four-character numeric field, displayed only for a CON1 setup, for defining the total count of the progressive jackpots that have been hit. This is a count of jackpots and should not be confused with the JACKPOTTOT, which defines the amount of money won.

7. Symbols and Currency Setup

When you select option 3 on the Main Menu, the Symbols and Currency Setup page displays. This page allows you to define the currency type displayed and configure the display format of currency symbol placement and numeric information. You will assign a value only if you have configured the jackpot group to show Currency rather than Coins ([F7 Currency/Coin](#) from the [Jackpot Programming](#) page). There are no editable data fields for this page. The field only indicates the display configuration chosen with the various function keys. The page display is similar for both the CON1 and CON2, except for the CON2, there is an F2 LOAD capability. [Figure 7.1](#) shows the Symbols and Currency Setup page for the CON2.

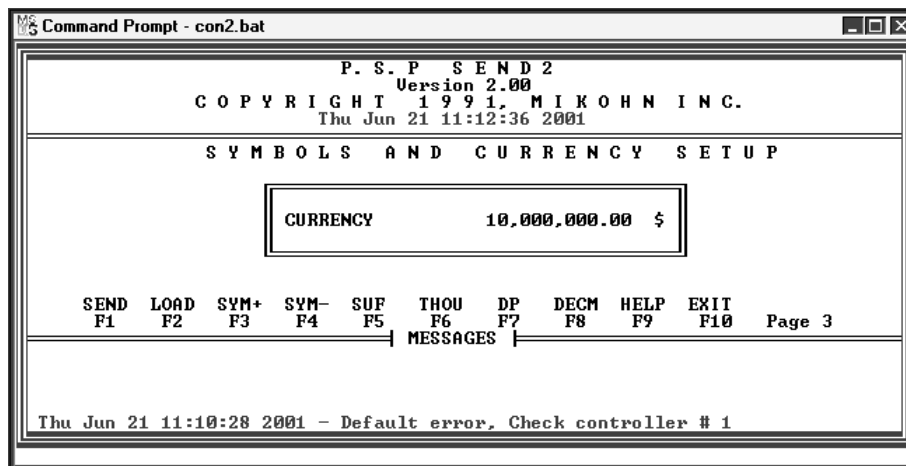


Figure 7.1 Symbols and Currency CON2

7.1 Symbol and Currency Function Keys

This section outlines only those function keys unique to the Symbol and Currency page. Standard keys, such as F1, are not discussed.

7.1.1 F2 LOAD

[F2 LOAD](#) is available on the CON2 page display only.

7.1.2 F3 SYM+

Use F3 to scroll forward through the currency options and select the one you want to display with jackpot information on a CHAMELEON display. (Photon displays show only numeric information and cannot show currency symbols.) There are 30 currency options. The default symbol is the dollar sign (\$).

7.1.3 F4 SYM-

Use F4 to scroll backward through the currency options and select the one you want to display with jackpot information on a CHAMELEON display. (Photon displays show only numeric information and cannot show currency symbols.) There are 30 currency options. The default symbol is the dollar sign (\$).

7.1.4 F5 Prefix/Suffix

Use F5 to place the currency symbol to the left (PREfix) or to the right (SUFfix) of the progressive jackpot amount.

7.1.5 F6 THOU

Use F6 to define the separator symbol (space, comma, or period) for thousands.

7.1.6 F7 Decimal Point

Use F7 to define the character (comma, period, or dollar sign) that distinguishes the currency's decimal amounts. Assign a Decimal Point value if F8 is set to DECM.

7.1.7 F8 Decimal/Integer

Use F8 to define whether the jackpot amount is a decimal number (fractional amounts of the currency) or an integer (no decimals). The choices are DECM or INTG, and the default is DECM. This setting is critical to the jackpot amount display. Before you set this option, read sections [5.1.5, F7 Currency/Coin](#) and [5.2, Jackpot Programming Data Fields](#).

When you change the setting from DECM to INTG, the default data field changes from \$10,000,000.00 to \$1,000,000,000. A setting of INTG multiplies all numeric fields in pages 1,2,7, and A (and C for the CON2) by a factor of 100 because you have eliminated fractional amounts from currency displays.

Example

Assume that on page 1, [Jackpot Programming](#), you have defined the base amount for a jackpot group as 00,005,000.00 in the BASE VALUE field. If the function key F8 on page 3 is set to DECM, that base value is equal to \$5,000. If, on the other hand, F8 is set to INTG, that base amount is actually \$500,000, an increase factor of 100.

The same holds true for increment amounts. Assume that you have defined a jackpot group with a denomination of \$1.00 and an increment rate of .01. If F8 is set to DECM, the actual increment would be one cent for each dollar wagered on the machines part of that jackpot group. If the setting of F8 is INTG, the increment would be \$1.00 for each \$1.00 wagered.

When you change the F8 setting, make sure to observe the display of the jackpot amount and increment to verify that the jackpot groups are behaving the way you configured them.

8. Message Programming

When you select option 4 on the Main Menu, the Message Programming page displays. This page lets you create and edit messages for CHAMELEON displays associated with your progressive jackpot system. This page is the same for both the CON1 and CON2. Message programming gives operators the ability to increase player interest in the progressive jackpot system and use the displays for eye-catching advertising. Real-time jackpot win amounts and machine payout summary information can be included in messages for even greater player interest.

The person who programs messages must pay strict attention to details because there are dozens of message presentation formats available. In order to use this feature to its full advantage, the user must read and practice the information presented in this chapter.

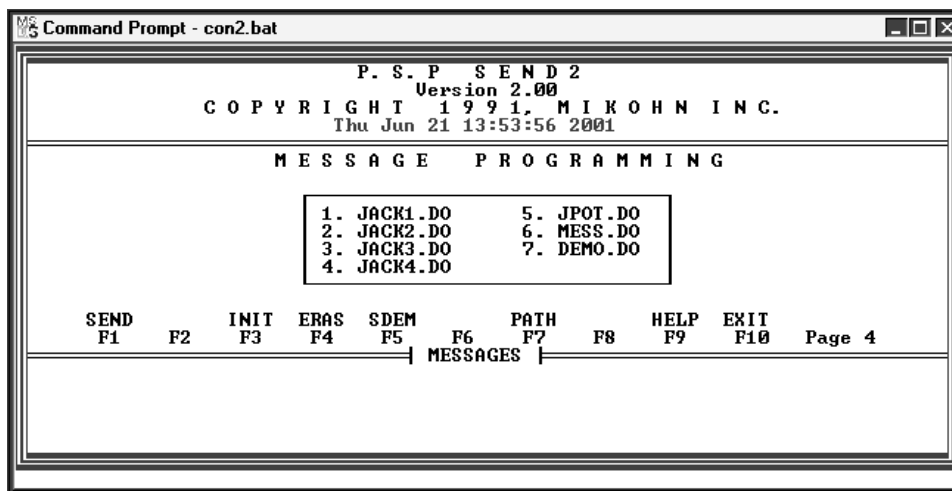


Figure 8.1 Message Programming

8.1 Message Programming Function Keys

Function keys F2, F6, and F8 are not functional on the Message Programming page. F1 has a unique function here. Before using the function keys, program the messages for your progressive system. Use the information in this section after you have created your message files.

8.1.1 F1 SEND

Use F1 to send the message data you have programmed for the JACKx.DO, JPOT.DO, and MESS.DO from the computer to the CON1/CON2 controller. Pressing F1 does not send the DEMO.DO file. The files are selected from your personal subdirectory or from the CON1/CON2 subdirectory if you do not maintain personal data.

After you press F1, the message area at the bottom of the screen shows the message Sending file xxxx, where xxxx stands for the names of the programmed message fields.

8.1.2 F3 INIT

Use F3 to initialize all the JACKx.DO and MESS.DO message files in your computer subdirectory. Initialization means erasing all data, leaving only a default text string in the JPOT.DO file. Before you initialize files, consider the consequences: after the message files are initialized, they are irretrievably lost. You will have to re-enter new messages for all the files or call up stored message files with the [F7 PATH](#) command.

If you are not using a special subdirectory to save your personalized data, press F3 to initialize the CON1/CON2 subdirectory JACKx.DO and MESS.DO message files. The following messages appear:

CAUTION: This will destroy all existing data files

Select <F3> to confirm or any other key to quit

Press F3 again to confirm the message file initialization. After initialization, default JPOT.DO and DEMO.DO remain.

8.1.3 F4 ERAS

Use F4 to quickly erase any single message file (JACKx.DO) without affecting all files. If you are not using a special subdirectory to save your personalized data, press F4 to erase selected JACKx.DO message fields from the CON1/CON2 subdirectory. The following messages appear:

CAUTION: This will erase existing data

Select file to erase or any other key to quit

Press the numeric key that corresponds to the JACKx.DO file to be erased. For example, press 2 to erase the JACK2.DO file. Press any other key on the keyboard if you do not want to erase a file.

8.1.4 F5 SDEM

Use F5 to send the preprogrammed DEMO.DO file to the CHAMELEON display so you can view its different display presentations. The DEMO.DO message file is never loaded into the controller with the F1 key; it can only be displayed with F5.

8.1.5 F7 PATH

Use F7 to select message files stored in the computers memory. Press F7 to preset the user with a path definition screen. After you enter a path to specific message files, you can send the messages to the computer or save them in a personal subdirectory. These selectable messages are created as follows:

1. When you exit PSP, you are prompted with a choice of save options:
Select exit options menu
(Esc) Exit without file save
(F1) Enter configuration PATH Name
(F2) Save configuration file on Exit
2. If you want to save a new set of files different from those saved in previous PSP sessions, you would press F1 and at the prompt enter a path name for the files. All files (all data, not just message files) are saved into the subdirectory.
3. When you next access the Message Programming page and you want to use the saved files, press F7. At the prompt, enter the name of the subdirectory where the files are stored. After the file loads, you can enter the messages for editing or send it to the controller with the F1 SEND command.

8.2 Message Programming Data Fields

8.2.1 JACK#.DO

The JACK#.DO file is usually programmed to advertise casino activities and service, such as special promotions, although they can be used for any type of communication. There are four JACK#.DO files, from JACK1.DO to JACK4.DO. The messages in JACK#.DO display on CHAMELEON displays every few minutes on a rotating basis.

JACK#.DO messages can be simple or extensive, depending on the purpose of the message. However, they are limited to the amount of available RAM.

8.2.2 JPOT.DO

The JPOT.DO is a special message that instructs the CHAMELEON display to show the increment of the progressive jackpot amount in real-time as players wager on progressive system machines. Though you can edit this message, there are some elements you should not change. Contact MIKOHN for more information.

8.2.3 MESS.DO

The MESS.DO file is an idle-state message used to attract players to the machines. It shows on the display only when no coin-in activity is sensed on any of the machines attached to the progressive jackpot system after two minutes. It will repeat itself until a coin-in pulse is recorded, at which point it stops immediately and allows the JPOT.DO message to take over.

8.2.4 DEMO.DO

The DEMO.DO file is a series of preprogrammed message lines that show the many different presentation formats available for your messages. Although you can edit this file, you should not make any lasting changes because this file can be used as a template on which your message can be modeled.

8.3 The Programming Messages Work Area

The programming work area is where you configure (program) message files. From the Message Programming page, press the number that corresponds to the message file you want to configure (for example, press 1 to open the JACK1.DO file). Figure 8.2 shows the options for [Effect Definition Command Symbols](#) and the message file currently open. After you create your messages, you will use the [Message Programming Function Keys](#) to set up your progressive system.

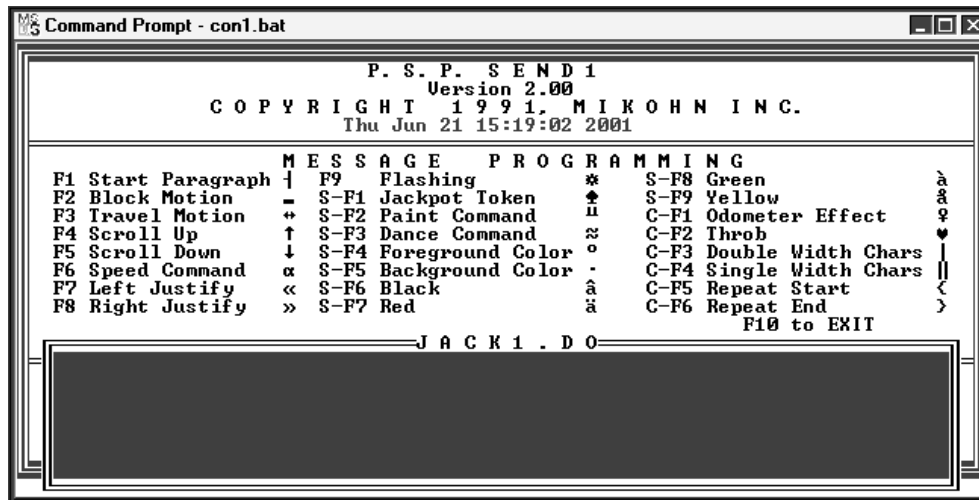


Figure 8.2 Message Programming message programming work area CON1

8.4 Message Programming Keyboard Conventions

All **alphanumeric keys** are available for text entries when you create or edit message files in the programming work area. To move the cursor within a file, use the left, right, up, and down arrow keys. Each key moves the cursor one space at a time. The DELETE and BACKSPACE keys erase characters.

Use the **function keys** (F1, F2, and so forth) to insert the corresponding [Effect Definition Command Symbols](#) wherever the cursor is when you press the key. To insert effect symbols that do not correspond to function keys, use the SHIFT or CTRL key in combination with a function key. The key to use is indicated by an S (SHIFT) or C (CTRL) before the effect character. For example, to insert the red color command for several words, move the cursor to the point in the text where you want red to start, press and hold down the SHIFT key, and press the F7 function key. The appropriate symbol (ã) will appear in the file.

Do not use the **RETURN (ENTER) key** to edit message files. The ENTER key does not end one line and begin another, as in a word processing program. In Message Programming, the Start Paragraph effect (F1) serves this purpose.

Use the **space bar** on the keyboard to insert spaces between words in the file you are editing.

To exit the programming work area screen and return to the main Message Programming page, use either of the following choices: Press ESC to exit without saving your changes or Press F10 to exit and save your editing.

8.5 Effect Definition Command Symbols

When you work in the programming area, you insert special graphic characters in the text that tell you how the messages will display on a CHAMELEON. These characters are called *effect definition command symbols*. All symbols are defined in the following subsections.

8.5.1 Tips for Entering Message Text

- Write down the messages you want to convey to the audience before you do any message programming.
- Do not use the RETURN (ENTER) key.
- Type the entire text string in the file, then edit the string by inserting the effect definition commands in the appropriate spots in the text.
- Proofread your entries before adding effect definition command symbols.
- Compare the final message display to what you originally wrote down.

8.5.2 Tips for Editing Text Strings

- Design and edit the message so it will fit in the available display space.
- Set Travel Motion as a speed value below 3 so users can read the message easily. If it is set to 3, insert two or more spaces between words.
- Look for missing words or letters on the display, which indicate that text lines are too long.
- Add two or three spaces between words to compensate for the travel motion.
- Consider making the date text a repeat travel message if you are using a CON1 (this option is not available for the CON2). Use the Repeat Start and Repeat End effect definition command symbols. Note that the Repeat Start symbol is the only symbol inserted in front of a Start Paragraph symbol, and is followed by a repeat value of 2 to 9. The Repeat End command is placed eight spaces after the end of the repeated text string so the text does not appear to wrap.

8.5.3 Effect Definition Command Symbols Defined

Start Paragraph – F1

Used to end one line and begin another. Place this command at the start of each line of the message. It precedes any other command except the Repeat Start command and its repeat value.

Block Motion – F2

Commands the message line immediately following it to display on the sign instantly. That is, it does not travel into place from above, below, or left or right. Place this command after the Start Paragraph command and before the Speed command, which specifies how long the text will display.

Travel Motion ↔F3

Instructs the associated message line to travel horizontally, from left to right, across the display. Place this command after the Start Paragraph command and before the Speed command, which is required to specify the left/right travel speed.

NOTES:

The Dance command works uniquely with Travel Motion in a CON1/CHAMI progressive system combination. With Block and Scroll text, the pixels that make up the characters alternate between red, yellow, and green (hence, *dancing*). With Travel text, however, each character of the text to which the Dance command is assigned takes one of the three colors and holds that color as it travels across the display. In multiple-character messages with Dance and Travel, the colors alternate red, yellow, green. For example, the word JACKPOT in Travel mode with Dance assigned to the whole word would cause the letter J to be red, the letter A to be yellow, the letter C to be green, the letter K to be red, and so forth, as the word traveled left to right across the sign.

The Flash command does not work with Travel Motion in a CON1/CHAMI progressive system combination. This command is reserved for Block and Scroll Up/Down text formatting.

Scroll Up ↑ F4

Instructs the associated message line to move from bottom to top vertically on the display. Place this command after the Start Paragraph command and before the Speed command, which is required to control the motion speed and text time to display.

Scroll Down ↓ F5

Instructs the associated message line to move from top to bottom vertically on the display. Place this command after the Start Paragraph command and before the Speed command, which is required to control the motion speed and text time to display.

Speed Command α F6

Defines the length of time a text line displays and the speed of its motion. Place this command after a text display mode command or other commands requiring a speed definition. Its values range from 1 (slowest) to 9 (fastest). The type of action the Speed command affects depends on the command with which it is used:

- Travel: speed of horizontal text travel.
- Block Motion: amount of time the text line shows on the display.
- Scroll Up/Down Motion: the speed at which the text travels vertically to its position and the amount of time the text line shows on the sign.

Left Justify « F7

Commands message text to show on the far left side of the display. Use this command only with the Block, Scroll Up, and Scroll Down commands and place it before the Flash or Dance commands but after the Block and Scroll commands.

Right Justify » F8

Commands message text to show on the far right side of the display. Use this command only with the Block, Scroll Up, and Scroll Down commands and place it before the Flash or Dance commands but after the Block and Scroll commands.

Flashing □ F9

Causes the text line to flash on and off. Place this command immediately after a text mode display definition (such as Left Justify or Block) and Speed Command value, and before special effects (such as Dancing) and color commands. Its on/off cycle is approximately 1/2 second. This command is not active if embedded in a Travel Motion text string and it is not effective with the Paint or Throb commands.

Jackpot Token ♠ Shift+F1

Allows you to access one of the jackpot amount data fields from page 1, [Jackpot Programming](#), or page 2, [Jackpot Summary](#). If you call up JPOT.DO, you will see that the message programming calls on the Current Jackpot amount for the JP0 jackpot group for display during real-time play and jackpot increment. Values used here are from 0 through 8 for the CON1 and 00 through 19 for the CON2. Any of the jackpot amounts or event count fields can be called by using the Jackpot Token command. Place this command after all text definition and speed commands.

Table 8.1 CON1 Token Values

Token Value	Explanation
0	Current jackpot amount, jackpot group as selected on display logic board. Used in the JPOT.DO message for real-time increment display. Used in MESS.DO.
1	Total number of jackpots hit, all jackpot groups (page 2, Jackpot Summary Data Fields).
2	Total non-jackpot payout amount from machines, all jackpot groups (page 2, Jackpot Summary Data Fields).
3	Total jackpot payout amount, all jackpot groups (page 2, Jackpot Summary Data Fields).
4	Total regular and jackpot payout amount, all jackpot groups The sum of data fields MACHINE TOTAL and JACKPOTTOT from page 2, Jackpot Summary Data Fields .
5	Current jackpot amount, jackpot group JP0 (from page 1, Jackpot Programming). Used in JACKx.DO messages for showing the current jackpot amount during message cycling.
6	Current jackpot amount, jackpot group JP1 (from page 1, Jackpot Programming). Used in JACKx.DO messages for showing the current jackpot amount during message cycling.
7	Current jackpot amount, jackpot group JP2 (from page 1, Jackpot Programming). Used in JACKx.DO messages for showing the current jackpot amount during message cycling.
8	Current jackpot amount, jackpot group JP3 (from page 1, Jackpot Programming). Used in JACKx.DO messages for showing the current jackpot amount during message cycling.

Table 8.2 CON2 Token Values

Token Value	Explanation
00	Current jackpot amount, jackpot group as selected on display logic board. Used in the JACKx.DO messages for real-time increment display. Can also be used in MESS.DO.
01	Current jackpot amount, jackpot group JP1 (from page 1, Jackpot Programming). Used in all JACKx.DO and MESS.DO messages to show the current jackpot amount during message cycling.
02	Current jackpot amount, jackpot group JP2 (from page 1, Jackpot Programming). Used in all JACKx.DO and MESS.DO messages to show the current jackpot amount during message cycling.
03	Current jackpot amount, jackpot group JP3 (from page 1, Jackpot Programming). Used in all JACKx.DO and MESS.DO messages to show the current jackpot amount during message cycling.
04	Current jackpot amount, jackpot group JP4 (from page 1, Jackpot Programming). Used in all JACKx.DO and MESS.DO messages to show the current jackpot amount during message cycling.
05	Current jackpot amount, jackpot group JP5 (from page 1, Jackpot Programming). Used in all JACKx.DO and MESS.DO messages to show the current jackpot amount during message cycling.
06	Current jackpot amount, jackpot group JP6 (from page 1, Jackpot Programming). Used in all JACKx.DO and MESS.DO messages to show the current jackpot amount during message cycling.
07	Current jackpot amount, jackpot group JP7 (from page 1, Jackpot Programming). Used in all JACKx.DO and MESS.DO messages to show the current jackpot amount during message cycling.
08	Current jackpot amount as defined by the settings of switches S3/S4 on the CHAMELEON logic board. Used in JPOT.DO messages to show the current jackpot amount during message cycling.
09	Total machine payout amount. The total amount, in either currency or coins, paid by all gaming devices connected to the CON2 exclusive of the progressive awards. This value is as defined for the MACHINE TOTAL data field (page 2).
10	Total progressive payout amount. The total amount, in either currency or coins, paid in progressive jackpots from the gaming devices connected to the CON2. This value is as defined for the JACKPOTTOT data field (page 2).
11	Total payout amount. The combined total amount, in either currency or coins, paid in from the gaming devices connected to the CON2. This value is the sum of MACHINE TOTAL and JACKPOTTOT data fields (page 2).
12	The total count (not the amount) of progressive jackpot hits for jackpot group JP0 (see page 2, Jackpot Summary Data Fields).
13	The total count (not the amount) of progressive jackpot hits for jackpot group JP1 (see page 2, Jackpot Summary Data Fields).
14	The total count (not the amount) of progressive jackpot hits for jackpot group JP2 (see page 2, Jackpot Summary Data Fields).
15	The total count (not the amount) of progressive jackpot hits for jackpot group JP3 (see page 2, Jackpot Summary Data Fields).
16	The total count (not the amount) of progressive jackpot hits for jackpot group JP4 (see page 2, Jackpot Summary Data Fields).
17	The total count (not the amount) of progressive jackpot hits for jackpot group JP5 (see page 2, Jackpot Summary Data Fields).
18	The total count (not the amount) of progressive jackpot hits for jackpot group JP6 (see page 2, Jackpot Summary Data Fields).
19	The total count (not the amount) of progressive jackpot hits for jackpot group JP7 (see page 2, Jackpot Summary Data Fields).

Paint Command μ Shift+F2

Simulates down vertical “painting” of alternate colors over stationary text. The color change uses all three hues and travels vertically downward over the text, one color replacing another. Place this command after a text placement definition. Do not use with any color command (red, green, yellow) or with Flash, Throb, or Travel commands.

Dance Command \approx Shift+F3

Activates the LED pixels to quickly alternate between red, green, and yellow colors on stationary text, creating an illusion of movement. When text is in Travel, Flash, or Throb mode, it causes each character in a word to alternate colors (see [NOTES](#): on page 30).

Place this command directly before the actual text and it remains in effect until a Start Paragraph command. A text color command for the next text string must follow the Dance command. Note that the CHAMELEON requires this command to be placed at the *end* of the text string to turn off the effect.

Foreground Color $^{\circ}$ Shift+F4

Defines the foreground color of text characters. Place this command before text with a Color command (red, green, yellow, or black). It is always used in combination with Background Color and should be configured in contrast. It is a toggle command; turn it off by placing it at the end of the effect.

Note that if you use default Single Width characters, remember to define the next text string’s characters as Double Width.

Background Color $.$ Shift+F5

Defines the background color behind text (red, green, yellow; black is the default and does not have to be defined). Use this command in combination with Foreground Color. It is a toggle command; turn it off by placing it at the end of the effect.

Note that if you use default Single Width characters, remember to define the next text string’s characters as Double Width.

Black \hat{a} Shift+F6

Defines black (no color) for foreground text (that is *not* using Paint or Dance) or the background (default). Place this command immediately in front of a text string. It is a toggle command; turn it off by defining another color for the foreground or background. It remains in effect until a new color is defined; the Start Paragraph command does not affect color commands.

Red \hat{a} Shift+F7

Defines red for foreground text (that is *not* using Paint or Dance) or the background. Place this command immediately in front of a text string. It is a toggle command; turn it off by defining another color for the foreground or background. It remains in effect until a new color is defined; the Start Paragraph command does not affect color commands.

Green à Shift+F8

Defines green for foreground text (that is *not* using Paint or Dance) or the background. Place this command immediately in front of a text string. It is a toggle command; turn it off by defining another color for the foreground or background. It remains in effect until a new color is defined; the Start Paragraph command does not affect color commands.

Yellow ā Shift+F9

Defines yellow for foreground text (that is *not* using Paint or Dance) or the background. Place this command immediately in front of a text string. It is a toggle command; turn it off by defining another color for the foreground or background. It remains in effect until a new color is defined; the Start Paragraph command does not affect color commands.

Odometer Effect ♀ Ctrl+F1

Activates odometer-like increment effect of the jackpot when coins are wagered on progressive machines. This command is used in the JPOT.DO message file. If it is placed in front of the jackpot token for the current jackpot of a particular jackpot group, it causes that jackpot amount to increment (“roll”) upward. See [Odometer Control](#) for more information.

Throb ♥ Ctrl+F2

FOR CON1 ONLY. Causes text to appear to shrink and expand. Text cycles every ½ second between Double Width/Height and Single Width/Height characters. Place this command directly before the text it affects and after the color definition command. The Start Paragraph command turns it off automatically. It is best used with Block mode text with a modest Speed command value (at least five seconds) and can be used with the Dance command, but is not recommended with Paint or Flashing.

Sngl Width Char | Ctrl+F3

Defines text lines to be one pixel wide. It is a toggle command; turn it off with the Dbl Width command.

Dbl Width Char || Ctrl+F4

Defines text lines to be two pixels wide, where possible. This command is similar to bold text. Place it after Travel motion text lines. It is a toggle command; turn it off with the Sngl Width command.

Repeat Start { Ctrl+F5

FOR CON1 ONLY. Defines where repeating statements in a text string start. Always place this command immediately after Start Paragraph and set a repetition value from 1 to 9. Only one repeat start/stop statement is allowed per text line.

Repeat End } Ctrl+F6

FOR CON1 ONLY. Defines where repeating statements in a text string ends. Place this command at the end of the text string.

Font Select ☺ Ctrl+F5

FOR CON2 ONLY. Allows you to select a custom font (typestyle) for a text string, depending on the size of the display “window.” Window size is determined by the vertical number of pixels for each display cell. Count the number of vertical pixels in a cell before using the Font Select command. The value range for Font Select is from 0 to 9 (10 total per font). The following tables show the font types defined according to window size. It is a toggle command; the defined value continues until a new value is defined.

NOTES:

Letter Space Width means the width between one character and the next. *Descender* is the portion of a lower case character that descends below the text baseline (such as g, p, q).

Table 8.3 Font Select values for 7 vertical pixels

Value	Character Height (Pixels)	Attributes	SNGL/DBL Wide	Letter Space Width
0	7	No Descenders	Single	1 Pixel Column
1	7	No Descenders	Double	1 Pixel Column
2	7	Descenders	Single	1 Pixel Column
3	7	Descenders	Double	1 Pixel Column
4	6	No Descenders	Single	1 Pixel Column
5	6	No Descenders	Double	1 Pixel Column
6	6	Descenders	Single	1 Pixel Column
7	6	Descenders	Double	1 Pixel Column
8	6	No Descenders	Single	1 Pixel Column
9	6	No Descenders	Double	1 Pixel Column

Table 8.4 Font Select values for 8 to 11 vertical pixels

Value	Character Height (Pixels)	Attributes	SNGL/DBL Wide	Letter Space Width
0	8	No Descenders	Single	1 Pixel Column
1	8	No Descenders	Double	1 Pixel Column
2	8	Descenders	Single	1 Pixel Column
3	8	Descenders	Double	1 Pixel Column
4	7	No Descenders	Single	1 Pixel Column
5	7	No Descenders	Double	1 Pixel Column
6	7	Descenders	Single	1 Pixel Column
7	7	Descenders	Double	1 Pixel Column
8	6	No Descenders	Single	1 Pixel Column
9	6	No Descenders	Double	1 Pixel Column

Table 8.5 Font Select values for 12 to 15 vertical pixels

Value	Character Height (Pixels)	Attributes	SNGL/DBL/TRPL Wide	Letter Space Width
0	12	No Descenders	Double	2 Pixel Column
1	12	No Descenders	Triple	2 Pixel Column
2	12	Descenders	Double	2 Pixel Column
3	12	Descenders	Triple	2 Pixel Column
4	8	No Descenders	Single	1 Pixel Column
5	8	No Descenders	Double	1 Pixel Column
6	8	Descenders	Single	1 Pixel Column
7	8	Descenders	Double	1 Pixel Column
8	7	No Descenders	Single	1 Pixel Column
9	7	No Descenders	Double	1 Pixel Column

Table 8.6 Font Select values for 16 to 23 vertical pixels

Value	Character Height (Pixels)	Attributes	SNGL/DBL/TRPL Wide	Letter Space Width
0	16	No Descenders	Double	2 Pixel Column
1	16	No Descenders	Triple	2 Pixel Column
2	16	Descenders	Double	2 Pixel Column
3	16	Descenders	Triple	2 Pixel Column
4	14	No Descenders	Double	2 Pixel Column
5	14	No Descenders	Triple	2 Pixel Column
6	14	No Descenders	Double	2 Pixel Column
7	14	No Descenders	Triple	2 Pixel Column
8	12	No Descenders	Double	2 Pixel Column
9	12	No Descenders	Triple	2 Pixel Column

Table 8.7 Font Select values for 24 to 31 vertical pixels

Value	Character Height (Pixels)	Attributes	SNGL/DBL/TRPL Wide	Letter Space Width
0	24	No Descenders	Double	2 Pixel Column
1	24	No Descenders	Triple	2 Pixel Column
2	24	Descenders	Double	2 Pixel Column
3	24	Descenders	Triple	2 Pixel Column
4	16	No Descenders	Double	2 Pixel Column
5	16	No Descenders	Triple	2 Pixel Column
6	16	Descenders	Double	2 Pixel Column
7	16	Descenders	Triple	2 Pixel Column
8	14	No Descenders	Double	2 Pixel Column
9	14	No Descenders	Triple	2 Pixel Column

Table 8.8 Font Select values for 32 vertical pixels

Value	Character Height (Pixels)	Attributes	SNGL/DBL/TRPL Wide	Letter Space Width
0	32	No Descenders	Double	2 Pixel Column
1	32	No Descenders	Triple	2 Pixel Column
2	32	Descenders	Double	2 Pixel Column
3	32	Descenders	Triple	2 Pixel Column
4	24	No Descenders	Double	2 Pixel Column
5	24	No Descenders	Triple	2 Pixel Column
6	24	Descenders	Double	2 Pixel Column
7	24	Descenders	Triple	2 Pixel Column
8	16	No Descenders	Double	2 Pixel Column
9	16	No Descenders	Triple	2 Pixel Column

9. Odometer Control

When you select option 5 on the Main Menu, the Odometer Control page displays. This page allows you to edit the speed of the odometer effect when it is implemented for the current jackpot amount in the JPOT.DO message file. The page is the same for CON1 and CON2, except the CON2 page has an F2 LOAD function key (see [Figure 9.1](#)).

The actual odometer code and control is held in memory on the CHAMELEON EPROM, from which the display program calls default values. However, PSP allows you to override these values with customized values to suit your progressive system.

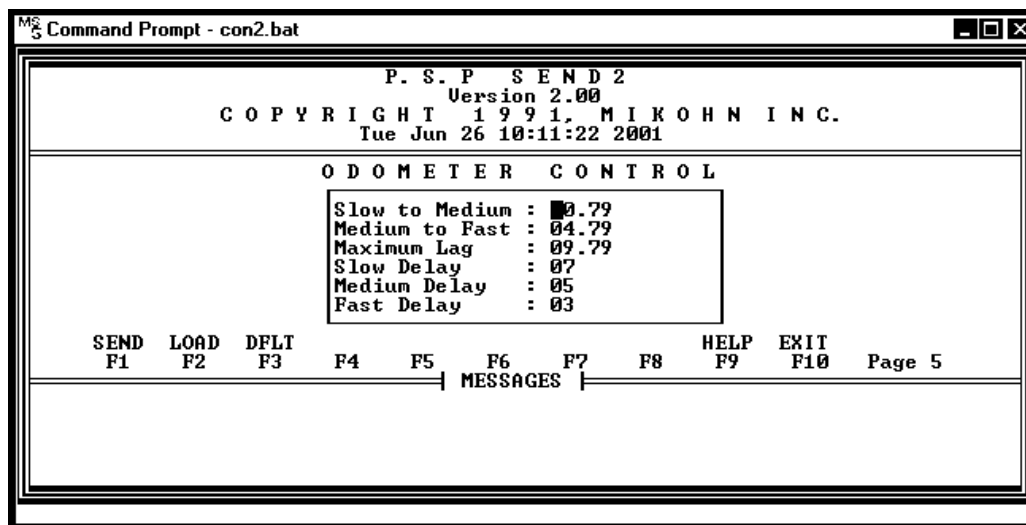


Figure 9.1 Odometer Control CON2

9.1 Odometer Control Function Keys

This section outlines the Odometer Control function keys for both the CON1 and CON2. Standard keys, such as F1, are not discussed. F2 (CON1 only) F4, F5, F6, and F8 are inoperable on this page.

9.1.1 F2 LOAD

F2 LOAD is available on the CON2 page display only.

9.1.2 F3 DFLT

Use F3 to reset the controller's odometer values to preset factory values. If you program the odometer effect incorrectly, you can press F3 to return the values to their original factory setting, as follows:

Slow to Medium	:	00.25	←	Lag equal to or less than this value has a Slow Delay
Medium to Fast	:	00.50	←	Lag equal to or less than this value but greater than the Slow to Medium value has a Medium Delay
Maximum Lag	:	01.00		
Slow Delay	:	21		
Medium Delay	:	10		
Fast Delay	:	00	←	Lag greater than Medium to Fast and less than Maximum Lag has a Fast Delay

9.2 Odometer Control Data Fields

Before setting these fields, MIKOHN recommends reading the [Odometer Control Rules](#) section, which contains guidelines and tips for setting the odometer.

9.2.1 Slow to Medium

A four-character numeric field for defining the maximum amount (currency or fractional coin) of lag between the displayed and actual jackpot amounts in which the value defined for the Slow Delay field is in effect.

9.2.2 Medium to Fast

A four-character numeric field for defining the maximum amount (currency or fractional coin) of lag between the displayed and actual jackpot amounts in which the value defined for the Medium Delay field is in effect.

9.2.3 Maximum Lag

A four-character numeric field for defining the maximum amount (currency or fractional coin) of lag between the displayed and actual jackpot amounts. Any value over this amount makes the display show the actual jackpot amount.

9.2.4 Slow Delay

A two-character numeric field for defining the odometer effect speed when the amount of lag is equal to or less than the value defined for the Slow to Medium field. Values can be 00 to 32, with the former being fastest and latter being slowest.

9.2.5 Medium Delay

A two-character numeric field for defining the odometer effect speed when the amount of lag is equal to or less than the value defined for the Medium to Fast field. Values can be 00 to 32, with the former being fastest and latter being slowest.

9.2.6 Fast Delay

A two-character numeric field for defining the odometer effect speed when the amount lag is *greater* than the value defined for the Medium to Fast field. Values can be 00 to 32, with the former being fastest and latter being slowest.

9.3 Odometer Control Rules

Correct use of the odometer effect can encourage progressive play. Like message programming, defining and using odometer control requires planning and practice.

9.3.1 Lag Amounts and Odometer Delay Speeds

The term *lag* refers to the difference between the displayed and actual jackpot amounts. For example, if the actual jackpot amount (from controller) is in one instant \$1,255.43 and the displayed amount is at the same time \$1,253.75, the lag would be \$1.68. The lag values assigned to the first two data fields ([Slow to Medium](#) and [Medium to Fast](#)) determine which of the three odometer delay speeds will be used on the display to show the jackpot amount.

The actual jackpot amount is always accurate, regardless of the quantity and speed at which the progressive controller receives coin-in pulses. When the odometer effect is in use, the displayed jackpot amount is always behind the actual jackpot amount while coin-in pulses are being received. There are only three instances when the actual and displayed jackpots are the same:

- When no machines connected to the progressive system are receiving coin-in pulses.
- When the lag exceeds the value defined for the Maximum Lag data field.
- When there is a jackpot hit on the system.

9.3.2 Odometer Considerations

The primary reason to use the odometer effect is to attract attention to a steadily increasing jackpot amount. You should consider the following points when programming the odometer effect.

- The odometer effect is best used with the current jackpot amount in the JPOT.DO message file (although it can be used with any jackpot token in the JACKx.DO, JPOT.DO, and MESS.DO message files). The use of the odometer effect in other message types can result in unpredictable display because when the controller is polling it might not pick up the value of a token at the moment of odometer increment.
- Lag amounts and delay speeds are directly associated with the jackpot increment amount (see [Jackpot Programming Data Fields](#)). The higher the value defined for jackpot increment, the faster lag amounts and the associated change in delay speed for the odometer effect will occur. If you increase the increment factor, you should increase lag values; otherwise, the odometer effect will usually be Medium or Fast delay.
- Avoid quick jumps in the odometer effect delay speed. The values you assign for Slow, Medium, and Fast Delay data fields should be graduated. For example, if you assign a value of 20 to the Slow Delay, do not assign 05 to the Medium Delay because the jump in speed is too abrupt. The general rule is to assign a value to the Medium Delay that is $\frac{1}{2}$ of the Slow Delay, and a value to the Fast Delay that is $\frac{1}{2}$ of the Medium Delay. In this example, you would assign 20 to Slow, 10 to Medium, and 05 to Fast to provide a smooth transition as increased coin-in pulses start to hit the lag amounts during heavy play.

- Do not exceed 09 in the Fast Delay data field if you want to avoid the Maximum Lag value routinely hitting and the displayed jackpot jumping to the actual jackpot amount. During heavy play, the lag between displayed and actual jackpot amounts widens, especially if the Fast Delay is set to 10 or higher. When the Maximum Lag value is exceeded, the displayed jackpot amount resets to the actual jackpot amount on the display. If many low denomination/high maximum bet machines in a busy area are connected to the progressive system and the Fast Delay value is set too high, the sign will often jump from the displayed to the actual jackpot amount.
- Do not set the Maximum Lag too low, and never less than the values assigned to the Slow to Medium and Medium to Fast data fields. If it is set too low, displayed jackpots will reset frequently. To avoid any displayed to actual jackpot sign resets, set the Maximum Lag value to 99.99. To have occasional resets during heavy play, set the value to 100 times that of the denomination of the games connected to the progressive system (that is, 05.00 for nickel games, 25.00 for quarter games).

10. Multiple Controller Setup

When you select option 6 on the Main Menu, the Odometer Control page displays. This page allows you to configure all slave controllers connected to a CON1 or CON2. The page is the same for the CON1 and CON2, except the CON1 page does not have F2 LOAD or F8 serial interface function keys. [Figure 10.1](#) shows the CON2 Multiple Controller Setup page.

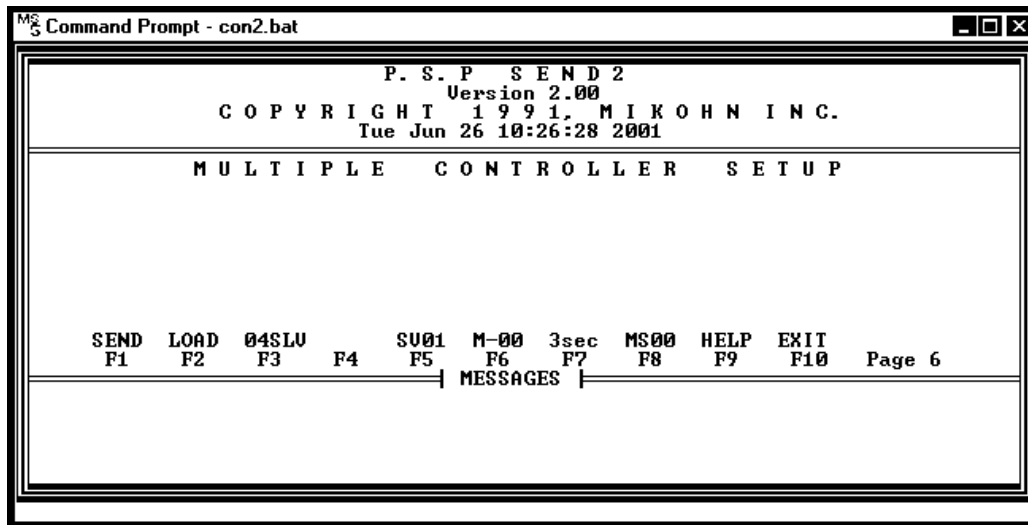


Figure 10.1 Multiple Controller Setup CON2

The CON1 and CON2 controllers allow you to designate one controller as a master that oversees the operation of slave controllers. The CON2 master/slave configuration allows up to 512 machines in a progressive jackpot system: one master and 15 slaves, each with up to 32 connected machines. The CON1 master/slave configuration allows up to 150 machines in a progressive jackpot system: one master and four slaves, each with up to 30 connected machines. Consult your controller manual for details about connecting and addressing masters and slaves and their corresponding game machines.

Each slave unit is responsible for recording coin-in pulses on the connected machines and relaying the information to the master. They also detect and relay progressive jackpot hits to the master.

The master controller is the only unit in the configuration that retains the jackpot system information. It is also the only unit programmed with the PSP software. It transmits to slaves all the information dealing with jackpots, currency parameters, and so forth. Messages for CHAMELEON displays connected to controllers in a master/slave setup cannot be sent over the network. To program messages, use PSP to download preprogrammed messages from the computer to each controller connected to the displays.

To oversee slaves and handle information transmitted throughout the entire progressive system, the master controller must “know” the number of slave units connected to it and number and types of machines connected to the slaves as well as to itself. Also, with bi-directional communication between slaves and their masters, delimiting the configuration (that is, telling the master how many slaves are connected) optimizes operation as the master does not waste time searching for controllers that are not there.

10.1 Multiple Controller Setup Function Keys

This section outlines the Multiple Controller Setup function keys for both the CON1 and CON2. Standard keys, such as F1, are not discussed. F2 and F8 show for the CON2 only. F4 is inoperable.

10.1.1 F2 LOAD

FOR CON2 ONLY. Use F2 to upload master/slave configuration data from the controller to the computer.

10.1.2 F3 xxSLV

Use F3 to define the number of slaves connected to the master controller. Values for the CON1 are 01SLV to 04SLV, corresponding to the maximum number of slave units (four) that can be connected to the CON1. The values for the CON2 are 01SLV to 15SLV, corresponding to the maximum number of slave units (15) that can be connected to the CON2.

10.1.3 F5 SVxx

Use F5 to identify an individual slave connected to the master, and the machine types, jackpot duration signal length, and serial interface types of the gaming devices connected to that slave. Each slave must have a unique identification number (ID) associated with it. The ID is selected with the appropriate rotary switch on the main PC board of the controller. Refer to your controller's manual for the switch location and how to set it. After setting the switch, use the F5 function key to match the controller's switch setting.

The CON1 and CON2 differ in their rotary switch values and the PSP master/slave ID number specification. The CON1 does not have a jumper to designate it as master or slave; its status is controlled by a rotary switch setting. A 0 (zero) setting makes the unit a standalone, non-fiber-linked progressive controller. A 1 (one) setting makes it a master with fiber communications. A 2 (two) makes the CON1 a slave #1. However, you must also set the value of F5 to SV01. In contrast, the CON2 F5 value matches the rotary switch value.

10.1.4 F6 M-xx

Use F6 to define the machine types connected to the slaves. Displays as a machine type numerical code. Different gaming devices use varying pulse patterns and durations to indicate coin-in, coin-out, and progressive hits. F6 lets you inform the master controller what types of machines are connect to the different slaves.

You can define up to 20 different machine types, which display as M-xx, where xx is the values 00 through 19. See [Appendix A: Communication Protocols](#) to determine the machine type code to enter for the jackpot group you want to configure.

10.1.5 F7 xsec

Use F7 to define the jackpot signal duration time, in milliseconds to seconds, of the jackpot signal sent by the particular machine type. Because all gaming machines are different, there is no standard for the duration of the jackpot hit signal. Use F7 to adjust for such differences. You can define up to 10 jackpot signals with the F7 function key. [Table 10.1](#) illustrates the jackpot signal duration options.

Table 10.1 Jackpot signal duration

Displayed	Time
50ms	1/50 second
.5s	½ second
1sec	1 second
1.5s	1 ½ seconds
2sec	2 seconds
3sec	3 seconds
4sec	4 seconds
5sec	5 seconds
6sec	6 seconds
7sec	7 seconds

10.1.6 F8 MSxx

FOR CON2 ONLY. Use F8 to define the serial protocol (handshake) between the CON2 and certain gaming devices. Displays as a machine serial interface code. Values range from MS00 to MS22, and the setting you choose depends on the machine connection. Refer to [Appendix B: Random Bonus Jackpot Game Programming](#) for a complete list of gaming devices and their corresponding serial protocol code.

11. Clear/Reset Current Jackpot

When you select option 7 on the Main Menu, the Clear/Reset Current Jackpot page displays. This page allows you to reset the current jackpot for any jackpot group in the progressive system as well as reset any hit or active jackpots (*active* is a hit jackpot that has not been paid). The page is the same for the CON1 and CON2 except the CON2 has an F8 CANC (cancel) function. The page offers the following advantages:

- Faster than using the Jackpot Programming page to set Current Jackpots for all jackpot groups.
- Allows you to clear any jackpot on any group.
- For the CON2, allows you to cancel false jackpots and reset the Current Jackpot to the amount it was before the false hit, with any additional coin-in increments added.

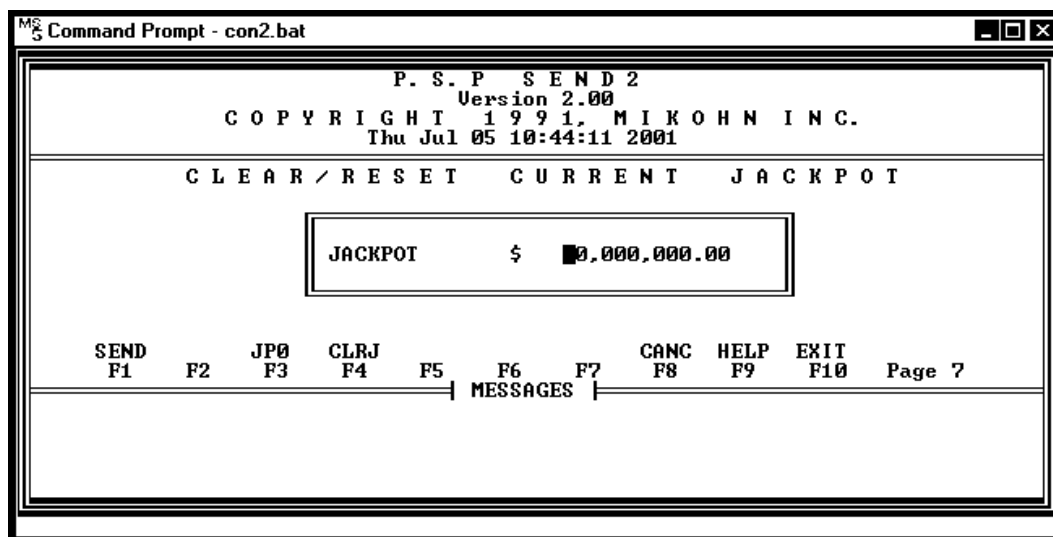


Figure 11.1 Clear/Reset Current Jackpot

11.1 Clear/Reset Current Jackpot Function Keys

Function keys F2, F5, F6, and F7 are inoperable for both controllers. F8 works only for the CON2.

11.1.1 F3 JPx (Jackpot Group)

Use F3 to define the jackpot group (JP0 to JP3 for the CON1 and JP0 to JP7 for the CON2) to which the JACKPOT field data is sent with F1. For the CON2, this key is also used to define the jackpot group for which a false jackpot occurred that you want to cancel with F8.

The range of values for F3 in this page is limited to the type of progressive game in your system. For example, if the value of F3 on page 1, [Jackpot Programming](#), has been set to SNGL, only the value of JP0 is available for F3 on page 7.

11.1.2 F4 CLRJ (Clear Jackpot)

Use F4 to clear all active jackpots on the progressive jackpot system, regardless of the configuration defined in page 8, [Controller Test Modes](#). Active jackpots are hit jackpots shown as WINNER on displays. When you press F4, the winning amount clears from any displays and the jackpot base amount (or hidden jackpot amount if HID1, 2, or 3 are used) shows on the display associated with the jackpot group for which the hit occurred.

F4 is the only way to clear jackpots if you defined F3 as FALS (False Jackpot) in page 8, [Controller Test Modes](#). F4 in page 7 will also override a page 8 RESW setting, which normally requires a physical keyswitch reset.

11.1.3 F8 CANC (Cancel Jackpot, CON2)

FOR CON2 ONLY. Use F8 to cancel false jackpots hit for the jackpot group defined with F3 on this page. When you press F8, the jackpot win message sequence clears from the displays and the previous jackpot amount shows on the display associated with the jackpot group for which the false hit occurred. Any coin-in signals that accumulated in the time between the false win and the cancellation are added to the Current Jackpot amount.

Although F8 cancels a false active jackpot, it does not clear the hit record from the jackpot history fields held in controller memory. If you access Jackpot History with F3 on page 8, [Controller Test Modes](#), the false jackpot hit and associated data will display, along with legitimate jackpots. Page B, [Jackpot Hit Summary](#), will include the false jackpot in the total number of jackpots for the group for which the false jackpot occurred.

11.2 Clear/Reset Current Jackpot Data Field

The JACKPOT data field is the only data field for page 7. It is a 10-character numeric field to define the base reset value for a progressive jackpot associated with a particular jackpot group. Depending on the Jackpot Group defined by F3, this value will replace the CURRENT JP amount associated with that group.

It is important to know the characteristics of a jackpot before resetting its current amount. Before you use this field, check the following important items:

- This field's value cannot exceed the value of the [JP LIMIT](#) field in page 1, Jackpot Programming.
- Check the [F7 Currency/Coin](#) field in page 1: is it set to Currency or Coin?
- Check the [F8 Decimal/Integer](#) field in page 3: is it decimal or integer?

These parameter settings affect the jackpot amount display. For example, if you set the jackpot group JP0 to COIN and from page 7 you sent the value JACKPOT \$ 00,000,010.00 to the controller, the displayed Current Jackpot for JP0 would be 1000 COINS. This would display regardless of the F8 setting (DECM or INTG) on page 3.

As another example, if you set the jackpot group JP0 to CURRENCY INTG and from page 7 you sent the value JACKPOT \$ 00,001,000.00 to the controller, the displayed Current Jackpot for JP0 would be \$100,000.

12. Controller Test Modes

When you select option 8 on the Main Menu, the Controller Test Modes page displays. This page allows you to test certain functions of the progressive system and any displays that show game data. You can also use it to select the jackpot reset method. In addition, if you are using a CON2, you can view jackpot history for the last 100 progressive jackpots. The information includes the jackpot group, associated machine, jackpot amount, and date and time of the occurrence.

The page is the same for CON1 and CON2, except the CON2 page has the F2 LOAD and F4 JPOT# function keys.

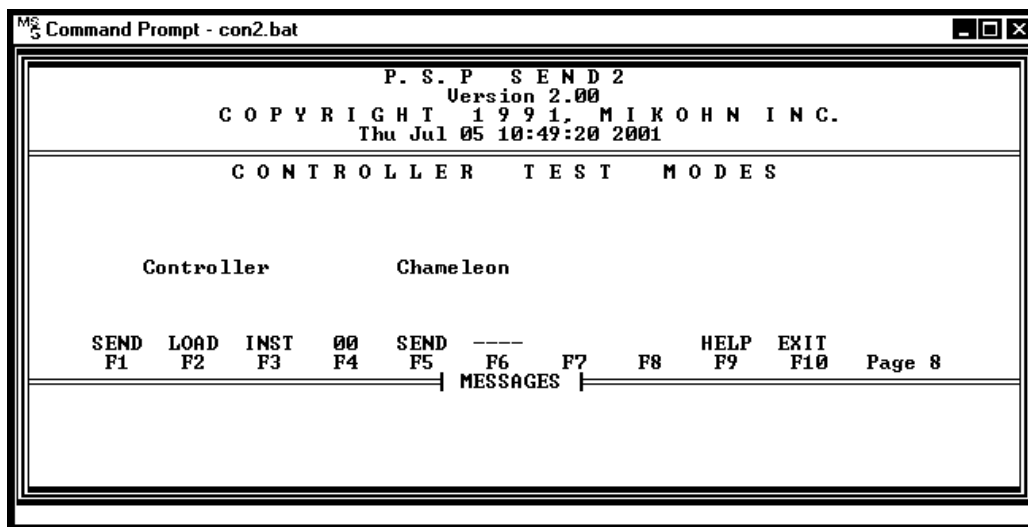


Figure 12.1 Controller Test Modes

There are no data fields for this page. Instead, two columns display: Controller and Chameleon. By their positions, these titles indicate the function keys that are associated with their particular operations. Function keys F1, F2, F3, and F4 are for controller operations, and function keys F5 and F6 are for Chameleon sign operations.

12.1 Controller Test Modes Function Keys

This section outlines only those function keys unique to the Controller Test Modes page. Standard keys, such as F1, are not discussed.

12.1.1 F2 LOAD

Use F2 to upload all stored test mode and setup data from the controller to the computer. **F2 LOAD** is available on the CON2 page display only.

12.1.2 F3 Controller Test Modes

Use F3 to choose the test function from among the seven available. The first four are for both CON1 and CON2 controllers, and the last three are for the CON2 only.

No Test Mode (----)

The default F3 setting is No Test mode, shown as four dashes (----). The default means no controller test is requested and when this setting is sent to the controller with F1, active jackpots for all groups can be reset with a coin-in signal from the winning game machine. If you do not want jackpots reset with the PSP program or physical keyswitches, set the default value.

Installation Mode (INST)

Use the Installation mode to test each gaming machine to make sure it is sending coin-in signals to the controller. In addition, sometimes you might want to test a machine that appears to be malfunctioning. To perform these two tests without incrementing any jackpot, set F3 to INST and press F1 to send the value to the controller.

After you configure the controller for installation tests, the following message shows on the display:

\$8.00 .00

The first characters show the display software version (here, CON1 v8.00). The second set of characters is the machine ID (number).

If you insert a coin in one of the connected gaming machines with a good connection and signal to the controller, the coin-in signal will be confirmed by a change in display, as shown below.

\$8.00 .01

The value of 01 will show briefly in the far right area of the display. When the value resets to 00, repeat the test on a different machine. To cancel the Installation mode, set F3 to any other value.

False Jackpot Detection (FALS)

Gaming machines can send false jackpot signals to the controller even when the controller is correctly programmed for the machine types in the progressive system. A false jackpot hit occurs when a necessary winning combination did not actually occur.

You can quickly clear a false jackpot and reset the jackpot amount to what it was when the false hit occurred by setting F3 to FALS for False Jackpot Detect and by setting CANC in [Clear/Reset Current Jackpot](#) (for a CON2). You should set to FALS mode only before actual operation or during idle time.

Usually you clear jackpots at the machine by resetting the winning machine and providing a coin-in signal to the controller from one of the games in the jackpot group. However, when the controller is set to the FALS mode, you cannot clear jackpots at the game machine; you must use PSP and a serial connection to the controller.

If a **valid** jackpot hits, connect the PSP computer to the controller, access PSP, open page 7, Clear/Reset Current Jackpot, and press the [F4 CLRJ \(Clear Jackpot\)](#) function key to the clear the jackpot. The corresponding jackpot group resets to the base values defined with page 1, Jackpot Programming.

If an **invalid** (false) jackpot hits, reset it based on whether the system uses a CON1 or CON2. The following subsections detail the steps for each.

CON1 Reset Procedures

For a CON1 setup, reset the current jackpot amount after resetting the jackpot group, as detailed in the following steps. This method does **not** account for any coins and resulting jackpot increment contributed by play on the other games in the jackpot group during the reset period.

In a normal jackpot reset situation, players wager coins as the winning machine is reset. The controller notes the wagers and coin-in signals and increments the base jackpot amount. When the jackpot group resets, the base amount plus the increment during the reset period displays as the current jackpot.

However, in a false jackpot situation, the current jackpot is reset manually and cannot reflect any jackpot increment.

1. Write down the amount of the false jackpot showing on the display.
2. Connect the computer to the CON1, access PSP, and call up page 7, Clear/Reset Current Jackpot.
3. Enter the jackpot amount noted in step 1. Before you defined the JACKPOT value, make sure you know whether the group is configured for currency **or** coins and decimal **or** integer display.
4. Press F4 to clear the active jackpot. Then immediately press F1 SEND to send the JACKPOT amount. The current jackpot will reset to its previous amount and will appear on the display.

CON2 Reset Procedures

The CON2 reset procedure, shown in the following steps, retains increment data, unlike the CON1 method. The CON2 holds the active jackpot amount in memory and increments it until the jackpot is either cleared or cancelled. If cleared, the winning jackpot amount, without increments, is stored in the jackpot history memory area. Any increment that occurred in the reset period is applied to the base jackpot amount defined on page 1, [Jackpot Programming](#), for the jackpot group and the total displays as the current jackpot.

However, in a false jackpot situation, the stored jackpot amount and added increment becomes the current jackpot amount and shows on the group's display. The false jackpot amount is still recorded to the jackpot history data and the hit is recorded to the jackpot hit summary data.

1. Connect the computer to the CON2, access PSP, and call up page 7, Clear/Reset Current Jackpot.
2. Press F3 to select the jackpot group for which the false hit occurred.
3. Press F8 to cancel the false jackpot. The current jackpot will reset to its previous amount, plus any increment during the reset period.

Keyswitch Jackpot Reset (RESW)

Some gaming jurisdictions require that active jackpots be reset with a dedicated electro-mechanical keyswitches. To accommodate this, you can set function F3 to RESW, which prohibits (overrides) clearing active jackpots based only on the detection of a coin-in signal. When F3 is set to RESW, only pre-wired keyswitches on the jackpot group lines to the controller can reset the corresponding active jackpot. (Note that F4 on page 7, [Clear/Reset Current Jackpot](#), can override the RESW setting.)

CAUTION!

During a jackpot reset with a keyswitch, you must hold the key in the reset position for at least five (5) seconds to successfully reset the jackpot. If you hold it for less time, the system could interpret it as a coin-in signal. This time requirement applies to all system and controller configurations.

There are two important facts to consider before using the keyswitch reset method:

- A. It decreases the number of machines that can be connected to the controller. The reset mechanism requires a ground strobe data pin on the machine harness connector in the controller, which leaves fewer connectors for machines.
 - i. If you use a CON2 (models A and AF), setting the value of F3 to RESW automatically disables pins 29 (machine #31) and 40 (machine # 32) on connector J1 for machine coin-in and jackpot signals. Those pins now are reserved for reset signals.

Jackpot groups JP0 to JP3 have a reset line to pin 39 (usually reserved for machine #31) on the J1 connector. Jackpot groups JP4 to JP7 have a reset line to pin 40 on the J1 connector (usually reserved for machine #32).
 - ii. If you use a CON2I or CON2IF model, the keyswitch reset is affected at the controller itself. In this case, you lose eight machine inputs at J1.
 - iii. If you use a CON1, pin 3 at connector J2 (normally reserved for machine #30) is automatically disabled for machine coin-in and jackpot signals. That pin is now reserved for reset signals.
- B. You will not be able to use any gaming device of machine type M06 (see [Appendix A: Communication Protocols](#), page 71). This machine type is reserved for electro-mechanical slots that require timed door closure for jackpot reset.

Jackpot History H+01/H+10 with F4 (CON2)

H+01 is Jackpot History; increments of one. H+10 is Jackpot History; increments of 10. The CON2 stores certain jackpot history data in memory. A CHAMELEON can display this data. (The CON1 does not provide jackpot history information.) This program page accesses history for the last 100 progressive jackpots, including the jackpot group and machine number that hit the jackpot, the jackpot amount, and the date and time the hit occurred. From the Main Screen, use page B, Jackpot Hit Summary, to determine how many progressive jackpot hits have occurred on any jackpot groups. To access jackpot history, perform the following steps:

1. Press F3 until you see **H+01**, which is the single jackpot decrement/increment scrolling control.
2. Press F4. The value for F4 will increment one number for every key press (to 01, 02, and so on). Hold down the SHIFT key and press F4 to decrement the number by one until it is at 00.
3. Press F3 once to display the value **H+10**. Press F4. The value for F4 will increment 10 numbers for every key press (to 10, 20, and so on). Hold down the SHIFT key and press F4 to decrement the number by 10 until it is at 00. **Note:** when the number is within 10 of the target jackpot, press F3 until the H+01 value displays, then use F4 to increment or decrement to the exact jackpot you want to see.
4. The sequence of the jackpot display will repeat until you choose another value for F3 (such as INST, FALS, or RESW) or another jackpot to view with F3, F4, and F1.
5. Jackpot data display is in descending order, with the most recent progressive jackpot being the value 00 on F4. With 00 displaying, press F1 to send the parameter the CON2. If there has been at least one progressive jackpot hit on the system associated with the controller, a sequence similar to the following examples will display:

H0	The jackpot number. This value shows the most recent jackpot data is being displayed. A value of H1 would be the second-most recent progressive jackpot, and so on.
0,xx,5	The jackpot group and machine number upon which the last progressive jackpot occurred. In this case, the jackpot hit on JP0 machine #5. The xx placeholder has a value from 00 to 15 if the progressive system is a master/slave configuration on fiber link. The 00 indicates the master, 01 indicates slave #1, 02 indicates slave #2, and so on.
\$1,420.43	The amount of the jackpot hit.
FRI	The day of the week when the jackpot hit. Day/date/time information is held in memory and supplied to the CON2 from page 9, Time/Date Setting .
11/21/92	The date when the jackpot hit.
14:25:32	The exact time the jackpot hit, in 24-hour format.

Controller Factory Settings Reset (FAC) (CON2)

Controller Factory Settings Reset. User privileges must be high enough to perform a factory reset.

12.1.3 F4 JPOT

FOR CON2 ONLY. Jackpot Ordinal Number. Used with F3, allows you to select the jackpot history in reverse order on any CHAMELEON display. See [Jackpot History H+01/H+10 with F4 \(CON2\)](#).

12.1.4 F5 and F6 Chameleon Testing

Occasionally the CHAMELEON displays used with MIKOHN progressive systems develop loose connections or malfunctioning LEDs. The following sections details how to run diagnostic tests. When you run these tests, all displays (in-machine and overhead) on the progressive system will show the test display, regardless of jackpot group.

F5 SEND

Use F5 to send the data defined for F6 to the CON1 or CON2 controller.

12.1.5 F6 CHAM TEST

CHAMELEON test modes for the CON1 and CON2 formats; Use F6 to choose the test function.

Normal Chameleon Operation ----

The default value for F6 is the symbol ----. After running any test on signage, always return the signs to normal operation by defining this value and pressing F5.

Character Set Display CHAR

Choose this value for F6 and press F5 to instruct the displays to show the complete character set in Travel Motion across the display from right to left. This test is useful for determining if a particular cell or pixel in a cell is malfunctioning. It will also indicate any data corruption of the software on the display's logic board if nonsense characters show.

Test Pattern Display TPAT

Choose this value for F6 and press F5 to instruct the displays to show a distinctive pattern display, which appears as contiguous diagonal lines, as shown here: /\ /\ /\ /\ /\

This test pattern will display in Dancing Colors and at first will be stationary. After a moment, the pattern will enter in Travel Mode across the display from right to left. This test helps to determine if a particular cell or pixel is malfunctioning or if there is a short on adjoining columns or rows.

All Pixels Red Display RED

To assess whether any red LEDs are malfunctioning, set F6 to RED and press F5. All the pixels will display red. Malfunctioning or failed LEDs are indicated by blank pixels in cells.

All Pixels Green Display GRN

To assess whether any green LEDs are malfunctioning, set F6 to GRN and press F5. All the pixels will display green. Malfunctioning or failed LEDs are indicated by blank pixels in cells.

All Pixels Yellow Display YEL

To assess whether any yellow LEDs are malfunctioning, set F6 to YEL and press F5. All the pixels will display yellow, which is the product of red and green LED illumination. If only green shows, the red LED malfunctioned or failed. If only red shows, the green LED malfunctioned or failed. If no color shows, both LEDs failed or there is a signal malfunction.

All Pixels Off OFF

To turn off all the pixels for any reason, set F6 to OFF and press F5. The displays will go black until reactivated with ---- or other F6 value. This test determines whether any components in a display are shorted; if so, single pixels will remain ON.

Drive Board Software Version Display VERS

To see the software version of the CHAMELEON driver board controlling the displays, select VERS for F6 and press F5. The version will show in the format **V. x.xx**, where x.xx is the numeric EPROM version.

13. Time/Date Setting

When you select option 9 on the Main Menu, the Time/Date Setting page displays. This page allows you to define the date and time in controller memory for use with the jackpot history data accessed with page 8, Controller Test Modes. The page is the same for the CON1 and CON2, except the CON1 is used only with the TOTALIZER software and requires a special socket/chip at U2 on the PCB. This manual discusses only the CON2 settings for date and time.

When you first activate your progressive jackpot system, access this page and define the data and time, then send it to the CON2. All jackpot hit history for all machines of all jackpot groups reference the date and time based on the initial entry for this field. Date and time information is always maintained in memory, regardless of whether the CON1 is on or off—the capacitor at location C51 on the PCB always supplies power for this purpose.

P. S. P. SEND 2
Version 2.00
COPYRIGHT 1991, MIKOHN INC.

TIME / DATE SETTING

DATE m/d/y / /

TIME h:m:s : :

SEND F1 LOAD F2 F3 F4 F5 AM F6 SUN F7 F8 HELP F9 EXIT F10 Page 9

MESSAGES

Figure 13.1 Time/Date Setting CON2

13.1 Time/Date Setting Function Keys

This section outlines only those function keys unique to the Time/Date Setting page. Standard keys, such as F1 and F2, are not discussed. Function keys F3, F4, F5, and F8 are inoperable for the CON2 format.

13.1.1 F6 AM/PM Toggle

Use F6 to define the AM (morning) and PM (evening) for the time (hour/minute/second) defined with the **TIME** data field. The program is based on a 12-hour clock (so one o'clock in the afternoon is defined as 01:0000 **not** 13:00:00). To instruct the CON2 whether the time defined is morning or evening, press F6 to show either AM or PM.

13.1.2 F7 Day of Week

Use F7 to define the day of the week (Sunday through Saturday). Press F7 to cycle the days forward, starting with SUN. Press F7 and hold down the SHIFT key to cycle the days backwards.

13.2 Time/Date Setting Data Fields

The two data fields available for user configuration deal with the date and time of day (shown here in the order they appear onscreen).

13.2.1 DATE

A six-character numeric field for defining the date in MM/DD/YY format. Entering out-of-range data in this field (such as 13/34/93) and attempting to SEND the data will cause an error message to display. When you first access this program page, the cursor displays in the first character of this field, ready for data entry.

13.2.2 TIME

A six-character numeric field for defining the time in HH:MM:SS (12-hour) format. Entering out-of-range data in this field (such as 13:34:02, which is military, 24-hour format) and attempting to SEND the data will cause an error message to display.

14. After Jackpot Increments

When you select option A on the Main Menu, the After Jackpot Increments page displays. This page allows you to shut down a progressive system as needed. The page is the same for CON1 and CON2, except the CON2 page has the GRP0/GRP1 command over the F8 function key. You will use this screen in the following two situations:

- When you want to shut down all or a part of a progressive system after the next jackpot hits. In nearly all gaming jurisdictions, it is required that a progressive cannot be shut down until a player wins the jackpot. This is because players have contributed to a progressive jackpot amount in good faith that they could win it, so it must be paid back to the gaming public that created the win amount.

In addition, some jurisdictions require that increments must be turned off to a progressive system after shutdown. This assures that no jackpot amount occurs after the final hit on the system. On a large system with many machines being played, there could be a considerable increment held in a controller's buffer memory while a jackpot hit is being reset.

- When your jurisdiction does not allow a change in jackpot increment until the present jackpot has been hit. See [INCREMENT2](#) in the Jackpot Programming page. Certain jurisdictions may not allow an increment change after an arbitrary limit has been reached. In such a situation, you can have a jackpot group or groups change the increment rate after a jackpot hit has occurred with this program page.

NOTE:

For part or all of the progressive system to shut down completely, the [BASE VALUE](#) in the Jackpot Programming page must be set to all zeros for the jackpot group or groups being shut down. After a hit, the base amount for a jackpot group is set to zero and if the After Jackpot Increment value is set to zero, there will be no contribution to the selected jackpot group(s). Before a jackpot hit for the group, contributions to the jackpot will occur on machines connected to that group/game as defined by the INCREMENT fields in the Jackpot Programming page.

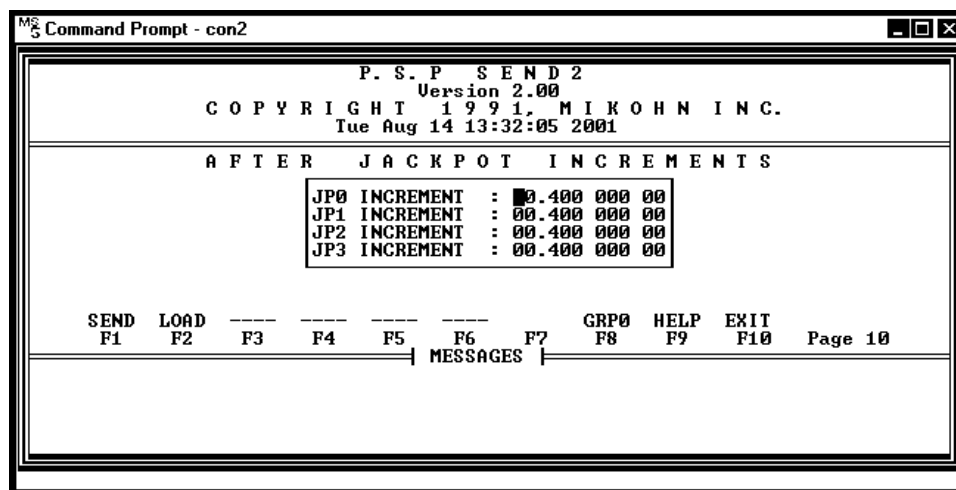


Figure 14.1 After Increments CON2

14.1 After Jackpot Increments Function Keys

This section outlines only those function keys unique to the After Jackpot Increments page. Standard keys, such as F1 and F2, are not discussed. Function key F7 is inoperable, and F8 works only for the CON2 format.

14.1.1 F3 to F6 Jackpot Toggle

Use F3 through F6 to define which jackpot groups use the After Jackpot increments defined in the data fields. The default value for each key is ----, which means that the jackpot group associated with the particular function key will use the INCREMENT fields in Jackpot Programming and not the After Jackpot values defined on this page. Pressing one of the keys will display the value JPx where x represents the group associated with the key (such as JP0 with F3, JP1 with F4, JP2 with F5 and JP3 with F6).

When the JPx value is chosen, that group will use the after Jackpot Increment value defined for it on this program page. To make the choice active, define an After Jackpot Increment value, toggle on the JP group intended to use the value, and press the F1 key to send the information to the controller.

14.1.2 F8 Top/Bottom Group Toggle

FOR CON2 ONLY. Because there are a limited number of function keys for actions, F8 toggles the values in the data fields to display JP4, JP5, JP6, and JP7 (the additional four jackpot groups available with the CON2) when it is set to GRP1. It also toggles the choices available with function keys F3 through F6. When F8 is set to GRP0, you can configure jackpot groups JP0 through JP3. When F8 is set to GRP1, you can configure jackpot groups JP4 through JP7.

14.2 After Jackpot Increments Data Fields

The four data fields (for CON1; eight for CON2) available for user configuration deal with the definition of increment value for one or more jackpot groups. Listed as JP0 through JP3, each field is a one- to 10-character numeric field for defining the after-jackpot increment to the CURRENT JP of a jackpot group for each coin wagered in machines connected to the controller. The field is divided by a decimal point after the first two digits.

For a situation in which you are shutting down a jackpot group, you would define the value of the corresponding group here as all zeros so there would be no contribution to a jackpot after a hit. If you were resetting the increment, you would assign a value. Refer to the sections [INCREMENT1](#) and [INCREMENT2](#) for details about defining an increment value.

14.3 End of CON1 Documentation

The After Jackpot Increments page is the last program page available for the CON1 controller. The remaining sections deal exclusively with the CON2. The appendices apply to both controller units.

15. Jackpot Hit Summary

When you select option B on the Main Menu, the Jackpot Hit Summary page displays. This page allows you to acquire hit count information from the controller for all active jackpot groups. A toggle (F8) allows you to view the top four groups and bottom four groups of the eight possible with the CON2.

Jackpot hit summary information can be helpful in assessing play activity in the casino. For example, if you have three jackpot groups (JP0, JP1, and JP2) that have the same number of machines of the same type, but in three different areas of the casino. Using this PSP page gives you a quick idea of player traffic, where progressive jackpot systems do and do not work on the floor. Also, you can quickly see if a group is being hit for an inordinate amount of jackpots based on payout/hold statistical data. This program page is not, however, designed to take the place of machine accounting systems; it is only an assessment tool. You can also use the information from the page to display marketing messages. Your JACKx.DO and MESSS.DO can proclaim the total number of jackpots hit on the system.

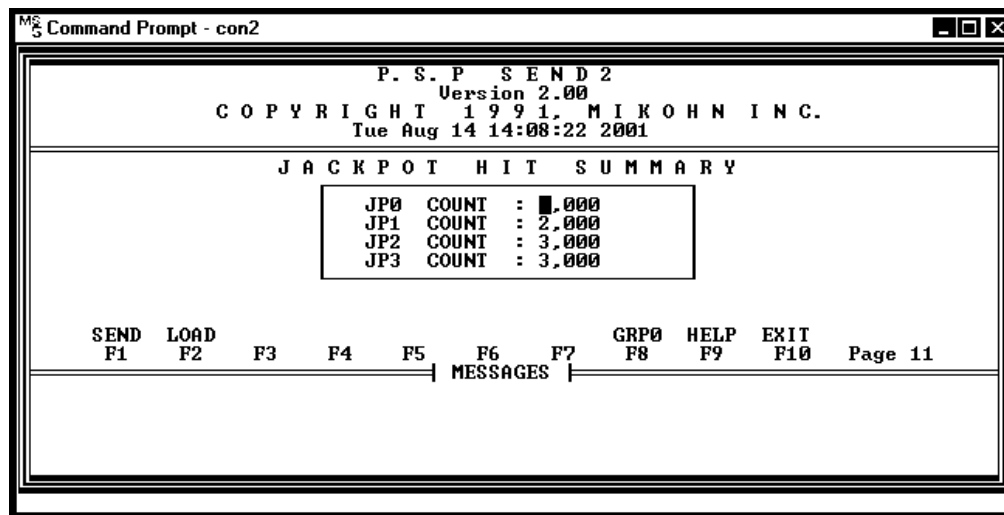


Figure 15.1 Jackpot Hit Summary

15.1 Jackpot Hit Summary Function Keys

This section outlines only those function keys unique to the Jackpot Hit Summary page. Standard keys, such as F1 and F2, are not discussed. Function keys F3 through F7 are inoperable.

15.1.1 F8 Top/Bottom Group Toggle

Use F8 to toggle the data fields between the eight jackpot groups available for the CON2. F8 toggles the values in the data fields to display either JP0 through JP3 (F8 set to GRP0), or JP4 through JP7 (F8 set to GRP1). The F8 setting is the same whether you use SEND or LOAD; all data is transferred either way. F8 only toggles data field display and data entry status on screen.

15.2 Jackpot Hit Summary Fields

The eight data fields available for user configuration deal with the acquisition and definition of the number of jackpot hits for one or more jackpot groups. Listed as JP0 through JP3, each field is a four-character numeric field for showing or defining the number of hits up to 9,999. A comma divides the field after the first digit.

16. Extra Coin Play

When you select option C on the Main Menu, the Extra Coin Play page displays. This page is used to configure your progressive jackpot system for gaming machines that accept a second wager during game play. Currently, a number of gaming device manufacturers offer units that allow the player to place an additional wager after the initial bet to achieve a consolation win or take another chance at a winning combination. This page lets you define increments for the second wagers.

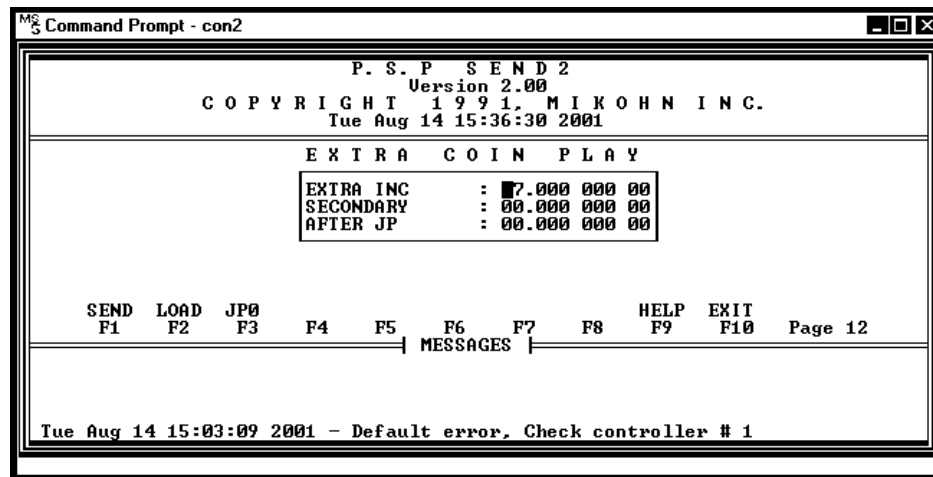


Figure 16.1 Extra Coin Play

16.1 Extra Coin Play Function Keys

This section outlines only those function keys unique to the Extra Coin Play page. Standard keys, such as F1 and F2, are not discussed. Function keys F4 through F8 are inoperable.

16.1.1 F3 JPx (Jackpot Group)

Use F3 to define which of the eight possible jackpot groups is affected by the increment values entered into the data fields of this program page. Use this function key first to select the desired jackpot group, then enter values to the data fields. F3 cycles jackpot groups JP0 through JP7. Hold the SHIFT key down and press F3 to cycle back through the groups. Extra coin wagering machines require a special serial return and are always clustered in the same jackpot group.

16.2 Extra Coin Play Data Fields

There are three data fields for this page. Each is a 10-character numeric field that defines certain jackpot increment parameters for extra coin wager machines on the progressive system. Each field is divided by a decimal point after the first two digits. Before entering values, press F3 to select the jackpot group to be configured.

16.2.1 EXTRA INC

Defines the primary increment for extra coin wagers. This increment is independent of the INCREMENT1 value defined with the Jackpot Programming page. The EXTRA INC value dictates the contribution to the progressive jackpot for each extra coin wagered on the game. For example, if set to 00.010 000 00 for a jackpot group configured for currency with a one-dollar denomination base, \$0.01 would be contributed to the CURRENT JP for every extra coin wagered by a player.

NOTE:

The EXTRA INC value depends on how [F7 Currency/Coin](#) is set in the Jackpot Programming page. Also, see the [Increment Calculation Rate](#) before assigning a value to this field.

16.2.2 SECONDARY

Defines the secondary increment rate for extra coin wagers. This increment is independent of the INCREMENT2 value defined with the [Jackpot Programming](#) page. The SECONDARY value dictates the contribution to the CURRENT JP for each extra coin wagered after the CURRENT JP reaches the amount defined for the JP LIMIT field.

16.2.3 AFTER JP

Defines the after-jackpot increment to the CURRENT JP for each extra coin wagered. This increment is independent of the JPx INCREMENT value of the [After Jackpot Increments](#) page.

17. Denomination

When you select option E on the Main Menu, the Denomination page (displayed as Set Denominations) displays. This page is exclusively for use with a multi-denomination progressive jackpot system. If you are not using gaming devices of different denomination on the same jackpot system, skip this section entirely.

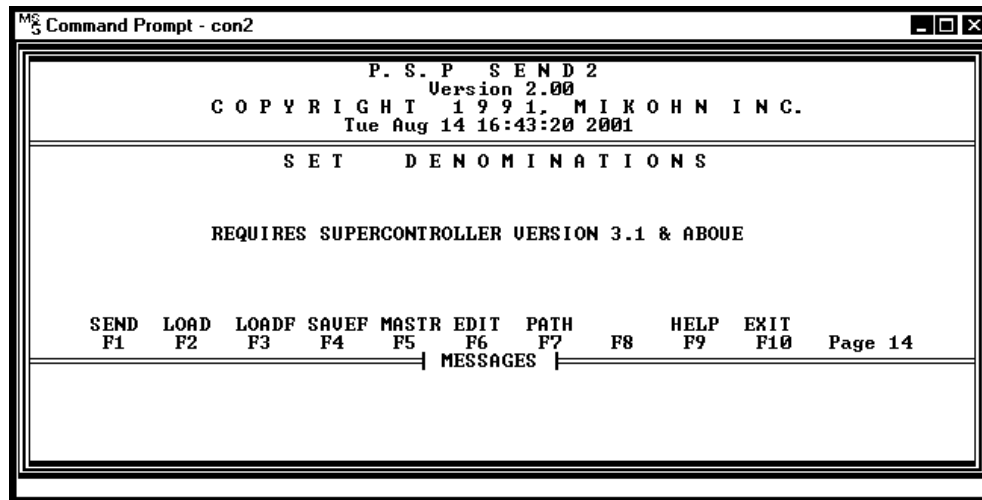


Figure 17.1 Denomination (Set Denomination)

17.1 Coin Pulsator History

Before the development of the CON2 version 3.10, mixing machines of different denominations on a progressive system required an additional hardware component called a Coin Pulsator. This device was programmed by the user to “level” contributions to the jackpot from different denomination machines.

For example, assume a single progressive jackpot game (JP0) with a \$1 slot, a \$0.25 slot, and a \$0.05 slot and no change for coin-in/jackpot increment/denomination. With the system set to currency and INCREMENT1 value set to 00.050 000 00 (5%) and the denomination for the system set to \$00.05 (see PSP page 2) the machines would contribute the following on a five-coin wager:

\$1 Slot	:5 “nickels” (= \$5.00 wager) x 5% per coin = \$0.0125
\$0.25 Slot	:5 “nickels” (= \$1.25 wager) x 5% per coin = \$0.0125
\$0.05 Slot	:5 “nickels” (= \$0.25 wager) x 5% per coin = \$0.0125

The problem is that the CON2 has no way of knowing a dollar coin-in signal from a nickel coin-in signal. Therefore, the dollar machine is really only contributing 25% to the progressive jackpot and the quarter machine is contributing 1% to the progressive. Average these values and you find the real player contribution to be not 5% but 2.1%.

The Coin Pulsator eliminated the problem by multiplying a machine's coin pulse signal to the CON2. For example:

\$1 Slot	:5 "nickels" (= \$5.00 wager) x20	x 5% per nickel = \$0.0125
\$0.25 Slot	:5 "nickels" (= \$1.25 wager) x5	x 5% per coin = \$0.0625
\$0.05 Slot	:5 "nickels" (= \$0.25 wager) x1	x 5% per coin = \$0.0125

The multiplier function counts 20 coin-in pulses for each actual coin wagered on the \$1 slot (\$1 = 20 x 5 cents) and five coin-in pulses for each actual coin wagered on the 25 cent slot (25 cent = 5 x 5 cents). The nickel slot coin-in pulses are registered as one-to-one. Now, the contribution to the progressive is equal for all denomination machines at 5%.

Beginning with version 3.10, the multiplier function was added directly to the CON2, eliminating the need for the Coin Pulsator device. The Denomination page sets the multiplier for each machine on the progressive system.

NOTE:

All hit frequencies and payout percentages are available only according to local jurisdictional gaming rules and regulations.

17.2 Denomination Function Keys

This section outlines only those function keys unique to the Denomination page. Standard keys, such as F1 and F2, are not discussed. Function key F8 is inoperable.

17.2.1 F3 LOADF

Use F3 to retrieve a Set Denomination file saved on the computer for later retrieval. Before using F3, ensure the path to the subdirectory on the computer that holds the file is defined with the function key F7 PATH.

17.2.2 F4 SAVEF

Use F4 to save a set of denomination multiplier definitions on the computer, in a file of your specification. Before using F4, ensure the path to the subdirectory on the computer that holds the file is defined with the function key F7 PATH.

17.2.3 F5 master/slave

Use F5 to select the CON2, either master or slave unit, on the progressive system for the associated gaming devices for which you want to define multiplier data. The default display value is MASTR (master). If you use only one CON2, choose this value for editing the gaming devices attached to that controller. If you use more than one CON2 in a master/slave configuration, MASTR is the designation for the primary CON2. Press F5 to display the other values, such as 01SLV and 02SLV for the first and second slaves, and so on.

The maximum value that can be selected with this function is the value set with function key F6 on program page 6, [Multiple Controller Setup](#). After you choose the appropriate CON2, press F6 EDIT to make the screen display the 32 machines.

17.2.4 F6 EDIT

Use F6 to call up the data fields for the gaming devices associated with the CON2 and designated with F5. Each machine can have up to a three-digit multiplier factor entered with a maximum value of 100.

17.2.5 F7 PATH

Use F7 to designate a predefined subdirectory on the computer where you will save denomination multiplier files. You cannot create the path from PSP; you must do so from the operating system. **Note** that when you save the Set Denomination file to a new path with F7, all message fields created with page 4 (that is, JACK1.DO, JPOT.DO, MESS.DO) are also saved to the designated directory. A path prompt displays when you press F7, as shown below.

```
Current SUB-Path -> xxx\  
Press (F1) to ESC  
  
Enter SUB-PATH name of your files  
Press <ENTER> when done  
(8 characters max)  
SUB-PATH->
```

The default Current SUB-Path (xxx\) is the current subdirectory. If this is the location where you want to save the denomination file and message files, press F1, then F4 to SAVE them.

If you want to save the files to another subdirectory, type the path (if applicable) and subdirectory name at the prompt and press the ENTER key. The prompt will disappear from the screen; press F4 and the files will save to the designated subdirectory.

17.3 Denomination Data Fields

To access data fields for input with this program page, first press function key F6 (EDIT). The following screen displays.

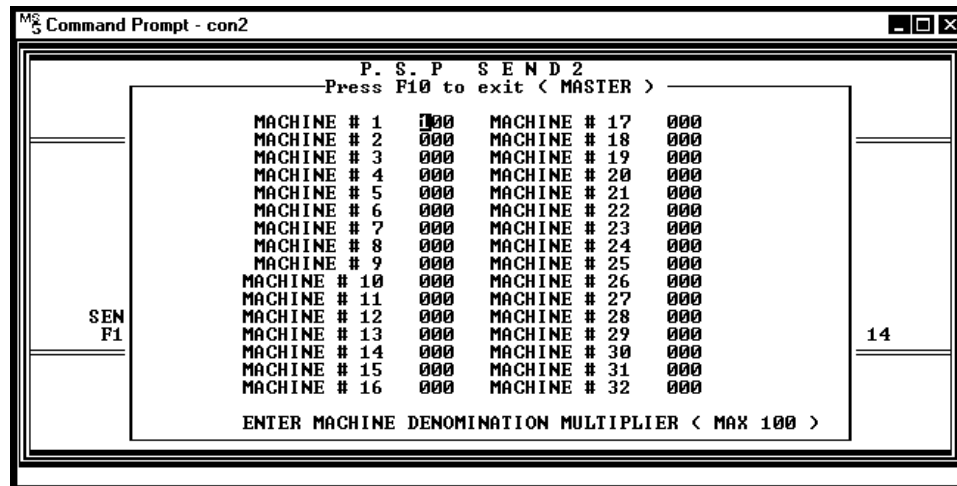


Figure 17.2 Setting denomination fields

This screen shows the master controller ready to be configured. The cursor defaults to the multiplier definition field for Machine #1. You can enter up to three digits in this and all the 32 fields with a value limit of 100.

There are 32 data fields available for the master and slave units because each CON2 can have up to 32 gaming devices connected to it. Press ESC to exit this screen without saving any data or press F10 to save the data and return to the default Denomination screen.

17.4 Configuring Multiplier Factors

The following tutorial explains how to configure a progressive system with machines of different denominations.

1. Access page 1, [Jackpot Programming](#). Configure the jackpot.
2. Access page 2, [Jackpot Summary](#). In the DENOMINATION field, enter the denomination of the lowest common denominator of the machines attached to the CON2. For example, if you have dollar, quarter, and nickel machines attached to the system, enter 00.05 for the nickel machines.
3. Access page E, Denomination. Choose MASTR with F5.
4. Press [F6 EDIT](#). The data fields for the 32 machines associated with the chosen master CON2 display.
5. Enter a multiplier factor for those machines that need an adjustment to coin-in pulses. The multiplier factor is the number of times it takes for the lowest common denominator on the system to divide into the denomination of the machine you are adjusting.

For example, assume a progressive system with 10 machines attached to the CON2. Machines 1, 2, and 3 are \$1.00 slots; machines 4, 5, and 6 are \$.25 slots; and machines 7, 8, 9, and 10 are \$.05 slots. The multiplier factor data for each of these machines would look like the following:

MACHINE #	1	020
MACHINE #	2	020
MACHINE #	3	020
MACHINE #	4	005
MACHINE #	5	005
MACHINE #	6	005
MACHINE #	7	001
MACHINE #	8	001
MACHINE #	9	001
MACHINE #	10	001

Machines 1 through 3 are dollar machines. It takes 20 nickels to equal one dollar, so the correct entry is 20. Machines 4 through 6 are quarter machines. It takes five nickels to equal one quarter, so the correct entry for these machines is 5. Finally, machines 7 through 10 are nickel devices, so they receive a multiplier factor of 1.

6. Press F10 to save the data to file after you enter the factor data for each for each machine.
7. Press F1 to SEND the data to the CON2.
8. Test the setup. Deposit coins in the various machines and watch the progressive increment. You should see a difference in the increment value to the progressive jackpot when you wager a dollar versus a nickel or quarter, based on the multiplier factor defined for each machine.

18. Troubleshooting

18.1 F1 SEND is not Working

18.1.1 Symptom

If when you press F1 and the download is unsuccessful, the following messages display:

DD/MMM/DD HH:MM:SS YYYY - Default error. Check controller #

DD/MMM/DD HH:MM:SS YYYY - Error occurred in sending data to controller

18.1.2 Probable Cause

Errors indicate a communication problem between the computer and controller. The problem could be any of the following.

- The computer is not connected to the controller.
- The controller is not powered up.
- There is a physical (cable or connector) problem with serial communication.
- The program is using CON2.BAT and trying to communicate with a CON1, or is using CON1.BAT and trying to communicate with a CON2.
- The serial port on the Mitsuba Pocket PC (if used) has not been activated.
- The controller has a hardware component failure of some sort.

18.2 F2 LOAD is not Working

18.2.1 Symptom

If when you press F2 and the upload is unsuccessful, the following messages display:

```
DD/MMM/DD HH:MM:SS YYYY - Default error. Check controller #  
DD/MMM/DD HH:MM:SS YYYY - Error occurred in sending data to  
controller
```

18.2.2 Probable Cause

Errors indicate a communication problem between the computer and controller. The problem could be any of the following.

- The computer is not connected to the controller.
- The controller is not powered up.
- There is a physical (cable or connector) problem with serial communication.
- The program is using CON2.BAT and trying to communicate with a CON1, or is using CON1.BAT and trying to communicate with a CON2.
- The controller has a hardware component failure of some sort.

18.3 CON1 Does not Recognize Coin In with CON1 Setup

18.3.1 Symptom

There may be a short delay after PSP setup before the CON1 can recognize coin-in signals. After approximately 30 seconds, the CON1 logic chip should complete all random number calculations. After 30 seconds, the CON1 does not recognize coin-in signals.

18.3.2 Corrective Action

- Recheck the setup for each jackpot group designated as Random Bonus.
- Check that the Minimum and Maximum Limits are NOT set to the same value. If they are, the CON1 will never recognize coin-in signals because it cannot calculate a random number for the game win.

18.4 RESET Acts as Coin In

18.4.1 Symptom

A RESET procedure fails.

18.4.2 Corrective Action

- After a hit and during the RESET procedure, **hold the key for at least five seconds** in order for the reset to take effect.

Appendix A: Communication Protocols

NOTE:

Refer to the controller manual for information about harnessing and other hardware.
The information herein is concerned only with data input to the PSP program for upload to the computer.

Manufacturers' gaming devices differ in their ability to accommodate multiple jackpots and the method by which coin-in pulses are sent out. To adapt to these differences, use PSP to tell the controller what machine types are connected to it. The controller's firmware has code that adjusts for different machine types.

Machine type settings are a way to set up input lines on the CON1 and CON2 to monitor for specific signals, which can range from a simple pulse of a varying duration to more complex, multi-transitional pulse sequences.

The CON1 and CON2 have four input lines and support all machine-type functions. The CON1I and CON2I have only one input line; therefore they only support the input line "A" functions.

The following sections describe popular gaming devices (listed by manufacturer name) and recommendations for defining machine types.

Aristocrat

Older machines (Esprit and some Microstars) were only capable of one progressive JP, so they used the short coin, long JP method. Recommended machine type is M-00 or M-05.

Newer machines needed more JP outputs so they implemented the pulse train. Recommended machine type is M-08.

Bally

Older machines (E series) were only capable of one progressive JP, so they used the short coin, long JP method. Recommended machine type is M-00 or M-05.

Newer machines (5000 and newer series) support two interface styles. One style is a relay board capable of up to three JPs. Recommended machine type is M-00 or M-05 if coin and JP0 are multiplexed on the same line, or M-02 if coin and JP0 are on separate lines. The other style interface is an RS-232 port. This is used with the Multicomm and supports multiple JPs and Nevada Reg. 14 signals. Recommended machine type is M-05 with machine serial set for MS01.

IGT

Older machines (Fortune 1, Fortune II, some S-Slot and Player's Edge software) were only capable of one progressive JP, so they used the short coin, long JP method. Recommended machine type is M-00 or M-05.

Newer machines support multiple JPs and Nevada Reg. 14 signals with a pulse train. Recommended machine type is M-08.

Sigma

Older machines were only capable of one progressive JP, so they used the short coin, long JP method. Recommended machine type is M-00 or M-05.

Newer machines support multiple JPs and Nevada Reg. 14 signals. There are two styles of signals they support—pulse train with recommended machine type is M-08; and a modified RS-422 signal with recommended machine type M-05 with a machine serial of MS10.

Universal

Some older machines had a problem with JP signals locking ON. Recommended machine type is M-01. Common machines are capable of two and sometimes three progressive JPs. They use the short coin, long JP method. Each JP is on a separate line. Recommended machine type is M-00 or M-05.

A.1 Machine Types

The following sections show the relationship between machine types and the information they send to the controller on lines A, B, C, and D. Note that the standard CON1 handles up to four jackpot groups and the CON2 handles up to eight. JPA indicates the ARROW jackpot type and JPH indicates HIGHEST meter paid jackpot type.

A.1.1 Machine Types M-00, M-01, M-03

Machine type M-00 and M-01 are the same except that M-01 requires an 8- to 12-second pulse on input line A (or C and D if set for 2BET configuration). M-03 is identical to M-00 except that M-03 accepts a coin pulse as short as 20ms.

Table A.1 Jackpot value assigned to input signal lines A through D on Connector J1: M-00 and M-01

Type	A	B	C	D
SNGL	coin/jp0	--	--	coin-out
HID1	coin/jp0	jp2	jp4	coin-out
HID2	coin/jp0	jp1	--	coin-out
HID3	coin/jp0	jp2	jp4	coin-out
ARRW	coin/jpA	--	--	coin-out
HIGH	coin/jpH	--	--	coin-out
MANY	coin/jp0	jp1	jp2	coin-out
2BET	coin 0	coin1	jp0	jp1

A.1.2 Machine Types M-02

M-02 separates coin-in from JP0.

Table A.2 Jackpot value assigned to input signal lines A through D on Connector J1: M-02 and M-03

Type	A	B	C	D
SNGL	coin	jp0	--	coin-out
HID1	coin	jp0	jp2	coin-out
HID2	coin	jp0	jp1	coin-out
HID3	coin	jp0	jp2	coin-out
ARRW	coin	jpA	--	coin-out
HIGH	coin	jpH	--	coin-out
MANY	coin	jp0	jp1	coin-out
2BET	coin0	coin1	jp0	jp1

A.1.3 Machine Type M-04

With machine type M-04, the coin-in input on line A looks for active signals longer than 50 ms. Up to eight jackpot groups can be multiplexed with the coin signal on line A. The coin-out signal inputs to line D and input lines B and C are not used in this configuration. [Table A.3](#) shows that jackpots are represented by a header signal followed by a series of signals, the number of which indicates the jackpot group that has been hit.

Table A.3 M-04

Number of Pulses	1	2	3	4	5	6	7	8
SNGL	JP0	--	--	--	--	--	--	--
HID1	JP0	JP2	JP4	JP6	--	--	--	--
HID2	JP0	JP1	--	--	--	--	--	--
HID3	JP0	JP2	JP4	JP8	--	--	--	--
ARRW	JPA	--	--	--	--	--	--	--
HIGH	JPH	--	--	--	--	--	--	--
MANY	JP0	JP1	JP2	JP3	JP4	JP5	JP6	JP7
2BET	not used	not used	not used	not used	not used	not used	not used	not used

A.1.4 Machine Type M-05

Jackpot values are assigned to input signal lines A through D on connector J1. Similar to M-00 except line D is used for jackpot signals instead of a coin-out signal when appropriate.

Table A.4 Jackpot value assigned to input signal lines A through D on Connector J1: M-05

Type	A	B	C	D
SNGL	coin/jp0	--	--	coin-out
HID1	coin/jp0	jp2	jp4	jp6
HID2	coin/jp0	jp1	--	coin-out
HID3	coin/jp0	jp2	jp4	jp6
ARRW	coin/jpA	--	--	coin-out
HIGH	coin/jpH	--	--	coin-out
MANY	coin/jp0	jp1	jp2	jp3
2BET	coin1/jp0	coin2/jp1	coin3/jp2	coin4/jp3

A.1.5 Machine Type M-06

Machine type M-06 is used exclusively with older electro-mechanical slot machines. In order to reset a jackpot correctly, the door switch on the game must be closed for approximately three seconds, which disables the coin-in and jackpot signals.

Table A.5 Jackpot value assigned to input signal lines A through D on Connector J1: M-06

Type	A	B	C	D
SNGL	coin	jp0	dr open	jp reset
HID1	coin	jp0	dr open	jp reset
HID2	coin	jp0	dr open	jp reset
HID3	coin	jp0	dr open	jp reset
ARRW	coin	jpA	dr open	jp reset
HIGH	coin	jpH	dr open	jp reset
MANY	coin	jp0	dr open	jp reset
2BET	not used	not used	not used	not used

A.1.6 Machine Type M-07: Regulation 14

Machine type M-07 fulfills certain requirements of Reg. 14 in the state of Nevada. However, to avoid conflicts that may occur with associated software and hardware, it is recommended that machine type M-08 be used in place of M-07 whenever possible.

Machine type M-07 has coin-in signals (without header; a header signal, if received, is ignore) and up to eight jackpots multiplexed on input line A. The coin-out signal inputs to line D. input lines B and C are not used in this configuration. [Table A.6](#) shows that jackpots are represented by a header signal followed by a series of signals, the number of which indicates the jackpot group that has been hit.

Table A.6 M-07

Number of Pulses	1	2	3	4	5	6	7	8
SNGL	JP0	--	--	--	--	--	--	--
HID1	JP0	JP2	JP4	JP6	--	--	--	--
HID2	JP0	JP1	--	--	--	--	--	--
HID3	JP0	JP2	JP4	JP6	--	--	--	--
ARRW	JPA	--	--	--	--	--	--	--
HIGH	JPH	--	--	--	--	--	--	--
MANY	JP0	JP1	JP2	JP3	JP4	JP5	JP6	JP7
2BET	not used	not used	not used	not used	not used	not used	not used	not used

A.1.7 Machine Type M-08: Regulation 14

Machine type M-08, like M-07, fulfills certain requirements of Reg. 14 in the state of Nevada. It is the preferred setting over machine type M-07.

Machine type M-08 has coin-in signals (without header; a header signal, if received, is ignore) and up to eight jackpots multiplexed on input line A. The coin-out signal inputs to line D and input lines B and C are not used in this configuration. [Table A.7](#) shows that jackpots are represented by a header signal followed by a series of signals, the number of which indicates the jackpot group that has been hit.

Table A.7 M-08

Number of Pulses	1	2	3	4	5	6	7	8
SNGL	JP0	--	--	--	--	--	--	--
HID1	JP0	JP2	JP4	JP6	--	--	--	--
HID2	JP0	JP1	--	--	--	--	--	--
HID3	JP0	JP2	JP4	JP6	--	--	--	--
ARRW	JPA	--	--	--	--	--	--	--
HIGH	JPH	--	--	--	--	--	--	--
MANY	JP0	JP1	JP2	JP3	JP4	JP5	JP6	JP7
2BET	not used	not used	not used	not used	not used	not used	not used	not used

A.1.8 Machine Type M-09: Regulation 14

Machine type M-09 fulfills certain requirements of Reg. 14 in the state of Nevada. However, to avoid conflicts that may occur with associated software and hardware, it is recommended that machine type M-08 be used in place of M-09 whenever possible.

Machine type M-09 has coin-in signals (with header signal of 100ms followed by a 50ms pulse for each coin wagered on the machine) and up to eight jackpots multiplexed on input line A. The coin-out signal inputs to line D and input lines B and C are not used in this configuration. [Table A.8](#) shows that jackpots are represented by a header signal followed by a series of signals, the number of which indicates the jackpot group that has been hit.

Table A.8 M-09

Number of Pulses	1	2	3	4	5	6	7	8
SNGL	JP0	--	--	--	--	--	--	--
HID1	JP0	JP2	JP4	JP6	--	--	--	--
HID2	JP0	JP1	--	--	--	--	--	--
HID3	JP0	JP2	JP4	JP6	--	--	--	--
ARRW	JPA	--	--	--	--	--	--	--
HIGH	JPH	--	--	--	--	--	--	--
MANY	JP0	JP1	JP2	JP3	JP4	JP5	JP6	JP7
2BET	not used	not used	not used	not used	not used	not used	not used	not used

A.2 Machine Serial Communication Protocol

NOTE:

This information applies only to the CON2. If you are using a CON1, serial communication is affected by the use of the Gateway communication interface device. Refer to the documentation associated with the Gateway device for serial protocol information with the CON1.

The CON2 can be serially linked to individual slot machines or slot data concentrators. The communications parameters depend on the external device. This channel is bi-directional. Currently, this port gathers coin and jackpot occurrence data and tells the slot machine the progressive values. Many types of information may pass through this interface. At present, there are three general supported communications protocols: **MIKOHN Standard**, **Bally**, and **IGT**.

Previously, with the CON1, the MIKOHN protocol was used successfully under the name **SINFO**. Data was transmitted from a Gateway interface device after being translated from an output format. The CON2 eliminates the need for a Gateway and outputs this data protocol directly from the machine interface. Data is asynchronous, at 2400 baud with one start bit, one stop bit, and no parity. The CON2 reports jackpots immediately; it does NOT have to wait for data to appear on the display line before informing the slot machine of the payout value.

A.2.1 Communication Protocol Terminology

Cycling

Cycling means that during a jackpot hit, the CON2 sends the Current Jackpot value, the hit jackpot value, and the machine number of the device upon which the jackpot hit occurred. The Current Jackpot is the reset amount (Base Value) after the hit has occurred. The term *No Cycling* means only the Current Jackpot amount is sent.

HID Swap

As discussed in Chapter 5, Jackpot Programming, there are three hidden jackpot types available for use with the CON2: HID1, HID2, and HID3.

The term *HID Swap* means that when an HID1, HID2, or HID3 game type has been defined for a particular jackpot group, the jackpot group used for the HIDDEN JP is dropped for the particular HID game used.

In HID1 and HID3, the even number jackpot groups are always displayed (such as JP2, JP4, JP6), and the odd ones are always used for the Hidden JPs, or the “dropped” ones. A four JP Group HID1 or HID3 will use MS15 or MS16 and the displayed JP Groups will be JP0, JP2, JP4, and JP6. MS06 and MS07 arrange group numbers as if the CON2 is in hidden jackpot mode only (HID1 or HID3) regardless of the Jackpot Type.

Table A.9 Displayed and hidden jackpot groups for HID1, HID2, and HID3

HID 1	HID2	HID3
Displayed Hidden JP0 for JP1	Displayed Hidden JP2 for JP1	Displayed Hidden JP0 for JP1
Displayed Hidden JP2 for JP3		Displayed Hidden JP2 for JP3
Displayed Hidden JP4 for JP5		Displayed Hidden JP4 for JP5
Displayed Hidden JP6 for JP7		Displayed Hidden JP6 for JP7

A.3 Communication Protocol Table

The communication protocol table shows the relationship between the machine serial select function key F8 on page 1 of PSP for CON2, and the type of output serial information. The allowable groups associated with the particular MS type must remain constant. For example, MS-02 requires that information for three jackpot groups be sent, and machine serial type MS-05 requires data for eight jackpot groups.

Table A.10 Communications protocol table

F8 Key	Protocol	JP Groups	Cycling	HID Swap
MS00	MIKOHN (SINFO)			
MS01	Bally Multi-Com			
MS02	IGT 3 group	JP0, JP1, JP2	No Cycling	No
MS03	IGT 3 group	JP0, JP1, JP2	Cycling	No
MS04	IGT 1 group	JP0	No Cycling	No
MS05	IGT 8 group	JP0, JP1, JP2, JP3, JP4, JP5, JP6, JP7	No Cycling	Yes
MS06	IGT 3 group	JP0, JP2, JP4	No Cycling	Yes
MS07	IGT 3 group	JP0, JP2, JP4	Cycling	Yes
MS08	IGT 1 group	JP0	Cycling	No
MS09	IGT 8 group	JP0, JP1, JP2, JP3, JP4, JP5, JP6, JP7	Cycling	Yes
MS10	Sigma	Reg. 14 Serial Protocol		
MS11	UGI	Reg. 14 Serial Protocol		
MS12	Games of Nevada	Reg. 14 Serial Protocol		
MS13	IGT 2 group	JP0, JP1	No Cycling	Yes
MS14	IGT 2 group	JP0, JP1	Cycling	Yes
MS15	IGT 4 group	JP0, JP1, JP2, JP3	No Cycling	Yes
MS16	IGT 4 group	JP0, JP1, JP2, JP3	Cycling	Yes
MS17	IGT 5 group	JP0, JP1, JP2, JP3, JP4	No Cycling	No
MS18	IGT 5 group	JP0, JP1, JP2, JP3, JP4	Cycling	No
MS19	IGT 6 group	JP0, JP1, JP2, JP3, JP4, JP5	No Cycling	No
MS20	IGT 6 group	JP0, JP1, JP2, JP3, JP4, JP5	Cycling	No
MS21	IGT 7 group	JP0, JP1, JP2, JP3, JP4, JP5, JP6	No Cycling	No
MS22	IGT 7 group	JP0, JP1, JP2, JP3, JP4, JP5, JP6	Cycling	No
MS23	Reserved	Reserved	Reserved	Reserved

Appendix B: Random Bonus Jackpot Game Programming

The Random Bonus game is a special type of linked game developed by MIKOHN to increase the number of players and resulting increase of coin-in. It is considered a gaming device by some jurisdictions and requires special approval.

In normal wagering games, a particular reel or card configuration alone determines a payout, be it a standalone game or one connected to a progressive system. In the Random Bonus game with linked gaming devices, a winning payout may also be determined by an arbitrary or random operation that is totally independent of any wing reel symbol or card combination. When used in a progressive game system, this random award gives the player two entirely different rewards. In other words, the player may win the progressive in the normal manner or by a Random Bonus hit.

The random number used to determine the payout is actually a user-calculated amount within a specified range and controlled by the logic within the controller's EPROM. Defining a high/low range for the random award amount is actually creating an average jackpot, because the median will be achieved statistically over time and number of games.

A hit occurs when the EPROM-generated number matches the respective meter's CURRENT JP value. To signify that a random hit has occurred, an audible alarm of some sort is triggered because the hit is random and has no connection to any particular winning reel/card combination. A bell is the standard device, but other equipment may be used.

The progressive can be awarded any time during play regardless of any winning combinations that apply to the regular game. The actual bonus number set by the EPROM logic is, of course, unknown to anyone.

In the Random Bonus game, the casino determines the frequency of the bonus awards by altering the range between the minimum and maximum awards. The narrower the range, the more frequent the Random Bonus Jackpot is awarded. The size or value of the prize is determined by the following formula:

$$\begin{aligned} & \text{(The defined Current JP value)} \\ & + \text{(Total Coin-in of all machines on the System} \times \\ & \text{The defined Increment Rate)} \end{aligned}$$

The Increment Rate and value of the initial Current JP can then be adjusted according to the average coin-in per machine, which is known by accounting history. The following example illustrates the operation.

A casino decides to offer an average Random Bonus Jackpot of \$500.00 on \$.25 slot machines. The Random Bonus Jackpot will have a Minimum Value of \$100.00 and a Maximum Value of \$900.00. There are 80 machines involved on the system, each of which averages a gross income of \$600.00 per day. The hold percentage on the machines is about 17% (83% payout), which translates into a net income per machine of \$102.00 for the casino. Based on these accounting figures, it is decided to put 2% of the net hold figure as the increment to the Random Bonus Jackpot. Based on these variables, the number of Random Bonus Jackpots per day will be 1.92:

Avg. \$/day/mach	\$600.00	Avg. Random JP Average Random JP = $\$100 + \$900/2$	\$500.00
Avg. Hold PC	17.00%	Min. JP in coin Minimum Value = $\$100/\.25$	400
Avg. win/day	\$102.00	Avg. Increment in coin Average Increment = $\$500 - \$100/\.25$	1600
# of Mach	80	Avg. Random JP in coin Average Jackpot in Coins = Average Increment (1600) + Min. Value (400)	2000
Avg. Total Win	\$8,160.00	Avg. coin in/JP Average Coin-In Per Jackpot = Average Jackpot in Coins (2000)/.02 (Progressive Contribution)	100000
Denomination	\$0.25	Start Value PC	0.400%
Min. Random JP	\$100.00	Prog Increment PC	1.600%
Max. Random JP	\$900.00	#JPs/DAY	1.92
% Net to Progressive	2.00%	#JPs/Month	57.60

B.1 Special Equipment for Random Bonus Games

The following MIKOHN equipment is necessary to set up a Random Bonus game.

- Standard Controller (CON1) or SUPERCONTROLLER (CON2) installed with Random Bonus firmware (R designation).
- Jackpot Trigger Device (JPTD). One for the CON1. Two for the CON2, to drive up to eight Random Bonus games.
- Displays compatible with the particular controller. CHAMI for the CON1. CHAMI or CHAMII for the CON2. A CHAMI limits the number of random games to four. In addition, a Gateway is required to allow the CON2 to communicate with the CHAMI.
- PSP software and computer to program the controller.
- Documentation:
 Jackpot Trigger Device, P.N. 950-240-00
 CON1 User Manual, P.N. 990-000-00 or CON2 User Manual, P.N. 990-010-00

B.2 Special Considerations

The following are the guidelines for setting up a Random Bonus game:

- Do **NOT** set the option in the PSP software to allow Random Bonus games when a casino uses only progressive games.
- CON1 controllers use only CHAMI displays.
- CON1 controllers can use only one Random Game and cannot mix other game types with it (that is, no additional progressive jackpot games).
- CON2 controllers can use both CHAMI and CHAMII displays. For CHAMIs, a Gateway is also necessary.
- CON2 controllers using CHAMI displays can run up to four Random Bonus games.
- CON2 controllers using CHAMII displays can run up to eight Random Bonus games.
- CON2 controllers can run regular progressive games in addition to the Random Bonus game(s).
- The Bally® Multi-COM™ progressive controller cannot be used with the Random Bonus game.
- Bonus EPROM and non-Bonus EPROM CON2 controllers cannot exist on the same fiber buss in a master/slave configuration.

B.3 CON1 Standard Controller Bonus Configuration

The CON1 can use only the CHAMI display and casinos can configure only one Random Bonus game on the system. Because there is only the Random Bonus game, no other regular progressive system game can be used in conjunction with it.

When in the Random Bonus game configuration, up to 29 gaming devices can be connected to the controller. If you want to use machines of different denominations, you must have a Coin Pulsator unit connected to each.

To configure a CON1 as a Random Bonus game controller, perform the following steps:

1. Connect the CON1 to gaming devices and CHAMI displays.
2. Connect the PC to the CON1.
3. Access PSP via the CON1.BAT file. When the Main Menu displays, choose page 1, Jackpot Programming. See [Figure 5.1](#).
4. Use F3 to set the jackpot type to MANY (multiple jackpots).
5. Use F6 to select JP0 (first jackpot group). This jackpot group, as well as JP1 and JP2, is not used in the Random Bonus game. In order to assure that no spurious data can be obtained from the data fields of JP0-JP2, the fields are set to null values.
6. Using the cursor and the keyboard, enter all zeros (0s) in all the data fields of JP0. When the fields have null values, press F1 to SEND the data to the CON1.
7. Repeat step 6 for jackpot groups JP1 and JP2.
8. Use F6, select jackpot group JP3.

NOTE:

If you use the COIN value for F7 instead of the \$\$\$\$ (currency) value, refer to the Increment Calculation Rate inset. The values you define for the BASE VALUE, CURRENT JP, HIDDEN JP, JP LIMIT, and INCREMENT1 data fields are markedly different for coin versus currency configuration.

9. Enter a value in the BASE VALUE, CURRENT JP, and HIDDEN JP data fields equal to the Minimum Random Bonus Jackpot amount.

This number should be rounded to zeros for system efficiency. For example, enter \$100.00 rather than \$99.99. This will always be the Random Bonus Jackpot reset value.

Note: if the Minimum Value (HIDDEN JP) is equal to or greater than the Maximum Value (JP LIMIT), a C18 error code displays. If the CURRENT JP value is greater than Maximum Value (JP LIMIT), a C19 error code displays.

10. Enter a value in the JP LIMIT data field equal to the Maximum Random Bonus Jackpot amount. This field is the Maximum Limit or upper value for the random bonus range from which the bonus number will be selected.

This number should **not** be rounded to zeros. An example maximum award would be entered as \$899.99.

Note: This sets the range for the Random Bonus Jackpot RNG (Random Number Generator). Per the examples above, the actual random number will fall between \$100.00 and \$899.99. When the random number generated by the EPROM is equal to the value of the CURRENT JP data field, a Random Bonus Jackpot hit occurs. The CURRENT JP value changes based on the increment value.

11. Enter a value in the INCREMENT1 data field. This is the contribution to the jackpot from coins wagered. In the example above, the contribution was set at 2%, so the data entry for this field would be 00.005 000 00 (that is, $\$.25 \times 2\% = \0.0005 , or 1/2 cent per quarter in a game set for currency configuration).
12. Make sure all the digits in the INCREMENT2 data field are set to zero (0). INCREMENT2 is not used in the Random Bonus Jackpot Game.
13. Verify that the F3 value is set to MANY, which is the game type for the Random Bonus game.
14. Set the values for F4, F5, F7, and F8 as described in Chapter 5.
15. Press F1 to SEND the configuration data to the controller.

B.3.1 Final CON1 Notes

- Machine number 29 on the Random Bonus Jackpot system resets the system after a random hit occurs.
- Each coin-in signal is “tagged” by the game software based on its machine of origin and the order in which it registered.
- After a hit and during the RESET procedure, hold the key for **at least five seconds** in order for the reset to take effect.
- In a master/slave configuration, up to 116 machines may be connected for a single Random Bonus Jackpot. The fiber buss is synchronized and the master controller recognizes the sequence in which coins were entered into the machines, regardless of the master or slave that detected the coin.

B.4 CON2 Bonus Configuration

The CON2 Random Bonus game configuration is different from the CON1 configuration because the CON2 can use either a CHAMI or CHAMII, control multiple random games (up to eight), and mix random with regular progressive games. In addition, the CON2 allows for more game machines on a master/slave network.

B.4.1 CON2 with CHAMII Displays Procedures

1. Connect the CON2 to gaming devices and CHAMII displays.
2. Connect the PC to the CON2.
3. Access PSP via the CON2.BAT file. When the Main Menu displays, choose page 2, Jackpot Summary. See [Figure 6.2](#).
4. Use F5 to define the number of Random Bonus Jackpot games you plan to use. The selection range is from RAND1 to RAND8 (eight total, matching the number of jackpot groups available).

The relation of the Random Bonus game to the jackpot group is in reverse order. That is, if you define the number of Random Bonus games as one (RAND1), that game is configured for jackpot group 7 (JP7). Two Random Bonus games (RAND2) are associated with jackpot groups 7 and 6 (JP7 and JP6). The more Random Bonus games there are, the fewer jackpot groups are available for regular progressive jackpot games. The following table shows the relationship between Random Bonus Jackpot games and jackpot groups.

Table B.1 Relationship between Random JPOT to Normal JPOT

Number of Bonus Games	Used for Bonus Games	Jackpot Groups Available for Non-Bonus Progressives
RAND1	JP7	JP0, JP1, JP2, JP3, JP4, JP5, JP6
RAND2	JP7, JP6	JP0, JP1, JP2, JP3, JP4, JP5
RAND3	JP7, JP6, JP5	JP0, JP1, JP2, JP3, JP4
RAND4	JP7, JP6, JP5, JP4	JP0, JP1, JP2, JP3
RAND5	JP7, JP6, JP5, JP4, JP3	JP0, JP1, JP2
RAND6	JP7, JP6, JP5, JP4, JP3, JP2	JP0, JP1
RAND7	JP7, JP6, JP5, JP4, JP3, JP2, JP1	JP0
RAND8	JP7, JP6, JP5, JP4, JP3, JP2, JP1, JP0	NONE

5. Press F1 to SEND the data to the controller after you define the number of Random games that will be used and other data information programmable from this page.
6. Press F10 to exit the page.
7. Select page 1, Jackpot Programming. See [Figure 5.2](#).
8. Press F3 to set the jackpot type to MANY (multiple jackpots).
9. Press F6 and select JP7 (jackpot group 7), which corresponds to the first Random Bonus game.

NOTE:

If you use the COIN value for F7 instead of the \$\$\$\$ (currency) value, refer to the Increment Calculation Rate inset. The values you define for the BASE VALUE, CURRENT JP, HIDDEN JP, JP LIMIT, and INCREMENT1 data fields are markedly different for coin versus currency configuration.

10. Enter a value in the BASE VALUE, CURRENT JP, and HIDDEN JP data fields equal to the Minimum Random Bonus Jackpot amount.
11. This number should be rounded to zeros for system efficiency. For example, enter \$100.00 rather than \$99.99. This will always be the Random Bonus Jackpot reset value.

Note: if the Minimum Value (HIDDEN JP) is equal to or greater than the Maximum Value (JP LIMIT), a C18 error code displays. If the CURRENT JP value is greater than Maximum Value (JP LIMIT), a C19 error code displays.
12. Enter a value in the JP LIMIT data field equal to the Maximum Random Bonus Jackpot amount. This field is the Maximum Limit or upper value for the random bonus range from which the bonus number will be selected.

This number should **not** be rounded to zeros. An example maximum award would be entered as \$899.99.

Note: This sets the range for the Random Bonus Jackpot RNG (Random Number Generator). Per the examples above, the actual random number will fall between \$100.00 and \$899.99. When the random number generated by the EPROM is equal to the value of the CURRENT JP data field, a Random Bonus Jackpot hit occurs. The CURRENT JP value changes based on the increment value.
13. Enter a value in the INCREMENT1 data field. This is the contribution to the jackpot from coins wagered. In the example above, the contribution was set at 2%, so the data entry for this field would be 00.005 000 00 (that is, $\$.25 \times 2\% = \0.0005 , or 1/2 cent per quarter in a game set for currency configuration).
14. Make sure all the digits in the INCREMENT2 data field are set to zero (0). INCREMENT2 is not used in the Random Bonus Jackpot Game.
15. Verify that the F3 value is set to MANY, which is the game type for the Random Bonus game.
16. Set the values for F4, F5, F7, and F8 as described in Chapter 5.
17. Press F1 to SEND the configuration data to the controller.
18. Configure additional Random Bonus or regular progressive games for up to eight game types (with the CHAMII).
19. Press F1 when completely finished configuring all jackpot groups.

B.4.2 CON2 with CHAMI Displays

CHAMI displays are an older MIKOHN product that was used with the CON1. When the CON2 was developed, it was configured to work with this older display (see MIKOHN technical bulletin P.N. 950-200-01). The CHAMI display is configured to receive data from a CON1, which is limited to four jackpot groups, and it can receive data only for jackpot groups JP0 through JP3. Therefore, it can display four Random Bonus games configured for those four jackpot groups. This requires special programming for the CON2.

1. Connect the CON2 to gaming devices and CHAMI displays.
2. Connect the PC to the CON2.
3. Access PSP via the CON2.BAT file. When the Main Menu displays, choose page 2, Jackpot Summary. See [Figure 6.2](#).
4. Use F5 to define the number of Random Bonus Jackpot games you plan to use. The selection range is from RAND5 to RAND8 (four to match the number of jackpot groups available).

The relation of the Random Bonus game to the jackpot group is in reverse order. That is, if you define the number of Random Bonus games as one (RAND5), that game is configured for jackpot group 3 (JP3). Two Random Bonus games (RAND6) are associated with jackpot groups 3 and 2 (JP3 and JP2). The more Random Bonus games there are, the fewer jackpot groups are available for regular progressive jackpot games. The following table shows the relationship between Random Bonus Jackpot games and jackpot groups.

Table B.2 Relationship between Random JPOT to Normal JPOT

Number of Bonus Games	Used for Bonus Games	Jackpot Groups Available for Non-Bonus Progressives
RAND5	JP3	JP0, JP1, JP2
RAND6	JP3, JP2	JP0, JP1
RAND7	JP3, JP2, JP1	JP0
RAND8	JP3, JP2, JP1, JP0	NONE

5. Press F1 to SEND the data to the controller after you define the number of Random games that will be used and other data information programmable from this page.
6. Press F10 to exit the page.
7. Select page 1, Jackpot Programming. See [Figure 5.2](#).
8. Press F3 to set the jackpot type to MANY (multiple jackpots).
9. Set to NULL the values for jackpot groups JP4 through JP7 (because only JP0 through JP3 are available with CHAMI displays). For JP4 through JP7, enter zeros (0s) for BASE VALUE, CURRENT JP, HIDDEN JP, INCREMENT1, and INCREMENT2. Enter a value of 00,000,000.01 for the JP LIMIT field; it must have some value or a transmission error will occur during a SEND. These NULL entries make selections RAND1, RAND2, RAND3, and RAND4 unavailable.

10. Press F6 and select JP7 (jackpot group 7), which corresponds to the first Random Bonus game.

NOTE:

If you use the COIN value for F7 instead of the \$\$\$\$ (currency) value, refer to the Increment Calculation Rate inset. The values you define for the BASE VALUE, CURRENT JP, HIDDEN JP, JP LIMIT, and INCREMENT1 data fields are markedly different for coin versus currency configuration.

11. Enter a value in the BASE VALUE, CURRENT JP, and HIDDEN JP data fields equal to the Minimum Random Bonus Jackpot amount.

This number should be rounded to zeros for system efficiency. For example, enter \$100.00 rather than \$99.99. This will always be the Random Bonus Jackpot reset value.

Note: if the Minimum Value (HIDDEN JP) is equal to or greater than the Maximum Value (JP LIMIT), a C18 error code displays. If the CURRENT JP value is greater than Maximum Value (JP LIMIT), a C19 error code displays.

12. Enter a value in the JP LIMIT data field equal to the Maximum Random Bonus Jackpot amount. This field is the Maximum Limit or upper value for the random bonus range from which the bonus number will be selected.

This number should **not** be rounded to zeros. An example maximum award would be entered as \$899.99.

Note: This sets the range for the Random Bonus Jackpot RNG (Random Number Generator). Per the examples above, the actual random number will fall between \$100.00 and \$899.99. When the random number generated by the EPROM is equal to the value of the CURRENT JP data field, a Random Bonus Jackpot hit occurs. The CURRENT JP value changes based on the increment value.

13. Enter a value in the INCREMENT1 data field. This is the contribution to the jackpot from coins wagered. In the example above, the contribution was set at 2%, so the data entry for this field would be 00.005 000 00 (that is, $\$.25 \times 2\% = \0.0005 , or 1/2 cent per quarter in a game set for currency configuration).
14. Make sure all the digits in the INCREMENT2 data field are set to zero (0). INCREMENT2 is not used in the Random Bonus Jackpot Game.
15. Verify that the F3 value is set to MANY, which is the game type for the Random Bonus game.
16. Set the values for F4, F5, F7, and F8 as described in Chapter 5.
17. Press F1 to SEND the configuration data to the controller.
18. Configure additional Random Bonus or regular progressive games for up to four game types (with the CHAMI).
19. Press F1 when completely finished configuring all jackpot groups.

B.4.3 Final CON1 Notes

- Do not set the CON1 to run more Random Bonus games than are actually used because doing so will decrease system efficiency.
- There may be a short delay after PSP setup before the CON1 can recognize coin-in signals. After approximately 30 seconds, the CON2 logic chip should complete all random number calculations. If the CON1 still does not recognize coins after 30 seconds, see Chapter [18.3](#).
- Reset switches reset ALL jackpots, including progressives.
- Each coin-in signal is “tagged” by the game software based on its machine of origin and the order in which it registered.
- After a hit and during the RESET procedure, hold the key for **at least five seconds** in order for the reset to take effect.
- In a master/slave configuration, the fiber buss is synchronized and the master recognizes the sequence in which coins entered the machines, regardless of the master or slave that detected the coin.

Appendix C: PSP Security Options

NOTE:

This Appendix is for specific employees responsible for managing the jackpot system used in the casino. This information should be distributed carefully.

The PSP software includes security options that allow the system administrator to limit access to the program and to security configuration levels. Security levels exist to limit the number of people who can configure progressive jackpot systems to avoid unauthorized editing of the PSP parameters. This section first discusses how to configure PSP security options and then how to use the Security Upload page.

To access and configure the PSP software security options, perform the following steps:

1. After you open the program and run it via the correct .bat file (such as CON2), the password prompt appears. Enter the password **135642**. Press F10.
2. At the Configuration Screen prompt, press F1 Security Setup.
3. At the Security Entry Menu, configure user passwords as necessary. The following is the Security Entry display.



Figure C.1 Security Entry menu to choose password levels

4. Press a function key corresponding to any one of the eight passwords. A screen similar to the following will display.

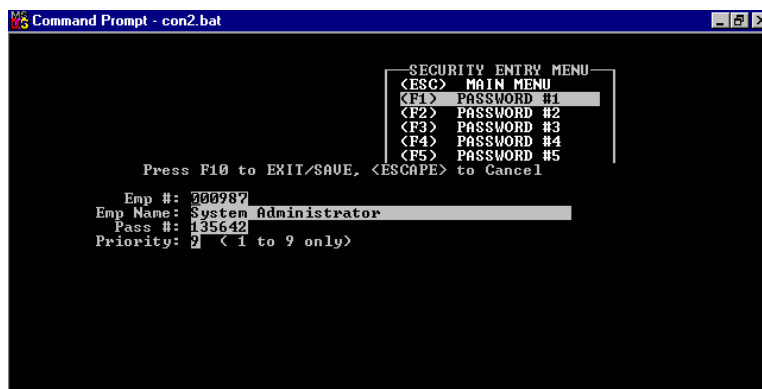


Figure C.2 Configure user password information

5. For each field complete the following information. Press the ENTER key after you complete each field to move to the next and to cycle back to the top of the list. Press the ESC key to exit without saving the configuration. Press F10 to save the configured data.

NOTE: After you enter and save data in a user record, you cannot delete that record's fields. However, until you have a new person for whom you can configure this record, you can edit it to give it a new password and raise the priority to 9.

- **Emp #:** A one- to six-digit numeric field to define a unique ID for each person who accesses and uses PSP.
- **Emp Name:** A one- to 40-character alphanumeric field to define a PSP user. Enter a name, title, or any other pertinent information in the space provided.
- **Pass #:** A six-digit numeric field to define a user password. Although you can use fewer than six digits, MIKOHN recommends you use the maximum number of characters to improve password security. Do not use a sequential series of numbers.
- **Priority:** A one-digit numeric field to define a user's program access level. Values from 0 to 5 allow users to load data from a controller to the computer and to save the data to a subdirectory, but they cannot send data to the controller from the computer. Values from 6 to 8 allow loading, editing, and sending data to and from the computer and controller. The value 9 allows loading, editing, and sending data to and from the computer and controller and to access the Security Entry Menu. A priority level 9 should be given only to users who are system administrators or designated alternatives.

C.1 Security Upload

When you select option D on the Main Menu, the Security Upload page displays. This page allows you to review the last 21 actions sent to the CON2. The controller holds in memory the SEND functions you have used such as date, time, user ID, and program page from which the SEND data originated. This page lets you upload that data to your computer and review the information. It is available only with the CON2, v3.x or higher.

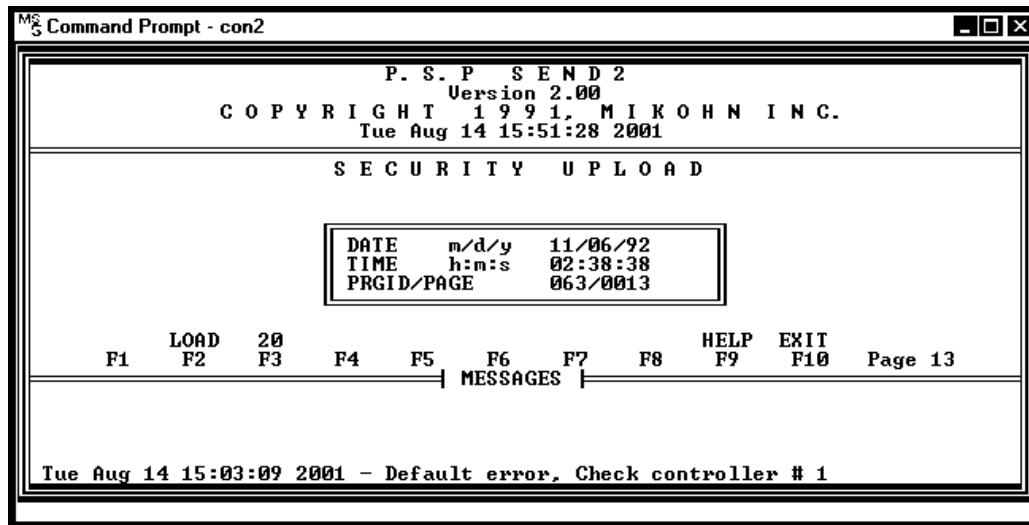


Figure 18.1 Security Upload

C.1.1 Security Upload Function Keys

This section outlines only those function keys unique to the Security Upload page. Standard keys, such as F2, are not discussed. Function keys F1 and F4 through F8 are inoperable.

F3 Actions

Use F3 to review the last 21 actions sent to the CON2. Press F3 to cycle through the available actions, numbered from 00 to 20, with 00 being the last SEND to occur. Hold down the SHIFT key and press F3 to cycle backwards through the numbers.

C.1.2 Security Upload Data Fields

There are three data fields for this page. Before entering values, press F3 to select the jackpot group to configure.

DATE

A six-character numeric field that defines the date the SEND transaction occurred, in MM/DD/YY format.

TIME

A six-character numeric field that defines the time the SEND transaction occurred, in HH:MM:SS (12-hour) format.

PRGID/PAGE

PRGID is the identification of the person who signed on to the PSP program with a password. It is a three-digit number always beginning with zero. The second digit is the security priority level of the person who made the associated SEND transaction (1 through 9). The last digit is the ordinal position of the person with the security priority on the Security Entry Menu. For example, a PRGID of 083 tells you that the third person assigned priority level 8 made the SEND transaction at a specific time and date. Access the Security Entry Menu to look up the name of the person with priority level 8.

PAGE refers to the PSP program page from which the SEND transaction was sent. The program page you are currently in shows in the lower right-hand area of all PSP display screens. For example, the Security Upload page shows Page 13 because it is the 13th page of PSP.