4. File Transfer

This is the command to transfer a program, with the following sub commands:

Item	Command	Functions
Read	READ	Registers a part program after reading it through the tape reader.
Punch	PUNCH	Punches out the part program stored in the memory.
Verify	VERIFY	Verifies the program in the memory with the program on the paper tape.
Copy	COPY	Copies the program file on memory.
Forward	FAST FORWARD	Tape reader rapid forward feed motion
Rewind	FAST REWIND	Tape reader rewinding
PIP quit	QUIT	Ends transfer mode and restores the program operation mode.
Macro program loading	MACRO LOADING	Copies files with extension .LIB from 3.5-inch floppy disk drive to MD1:.

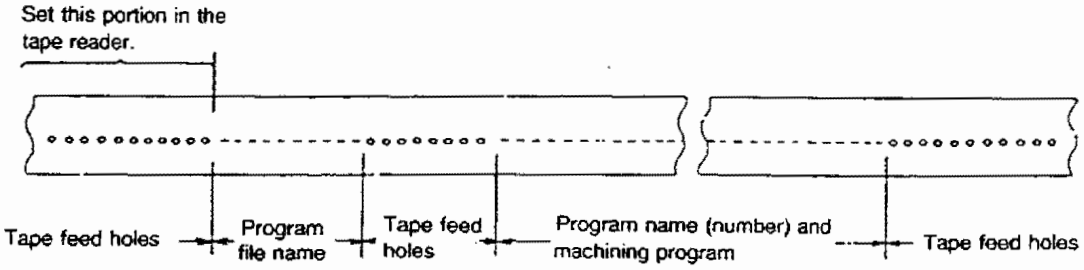
NOTICE : Never turn off power supply during the execution of file transfer or file editing. If it is turned off, the file contents will be unreliable.

4-1. Read

This is the operation to read a part program from program reading device such as tape reader and to store it in the memory.

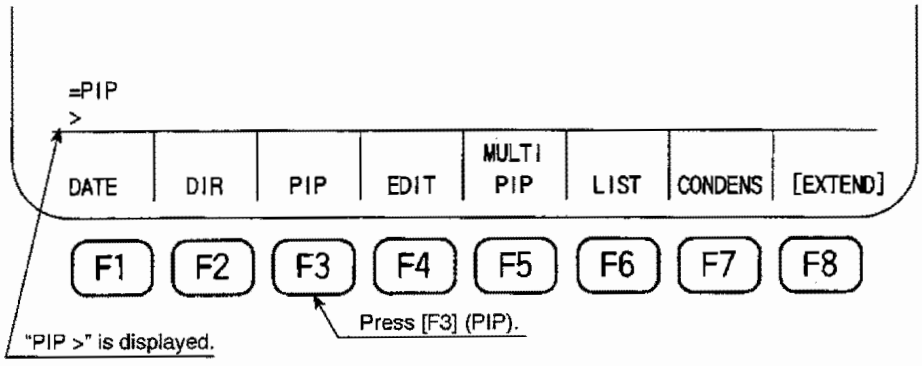
The following explanation is given assuming a taper reader.

(1) Set the program tape in the tape reader.

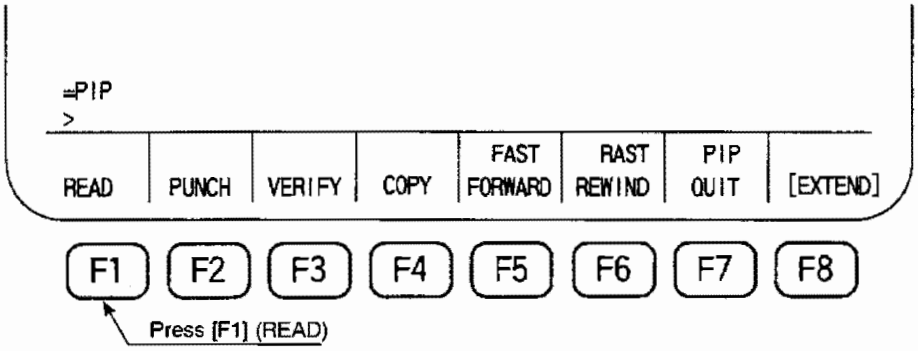


(2) Press function key [F3] (PIP).

The function names on the screen will change to those given in item (3) below.

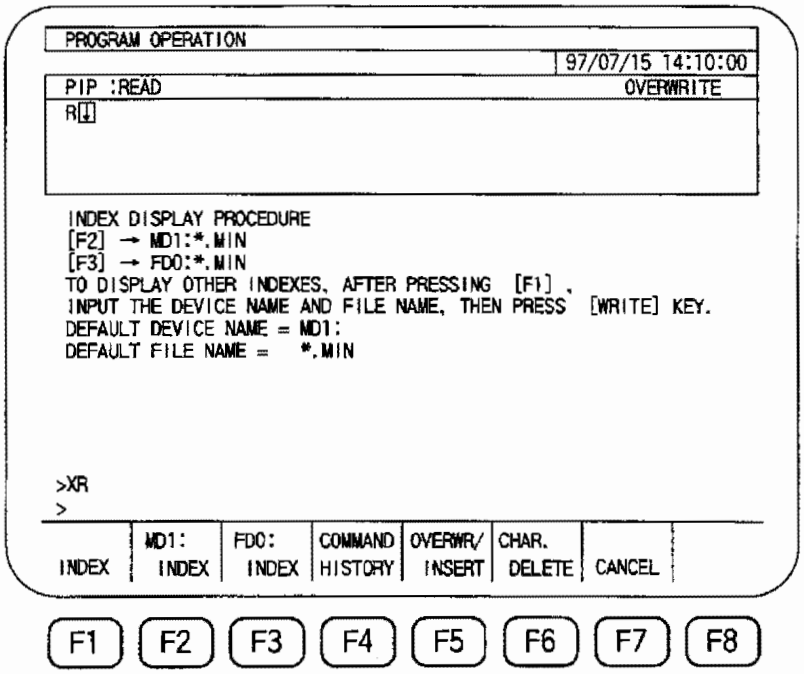


(3) Press function key [F1] (READ).



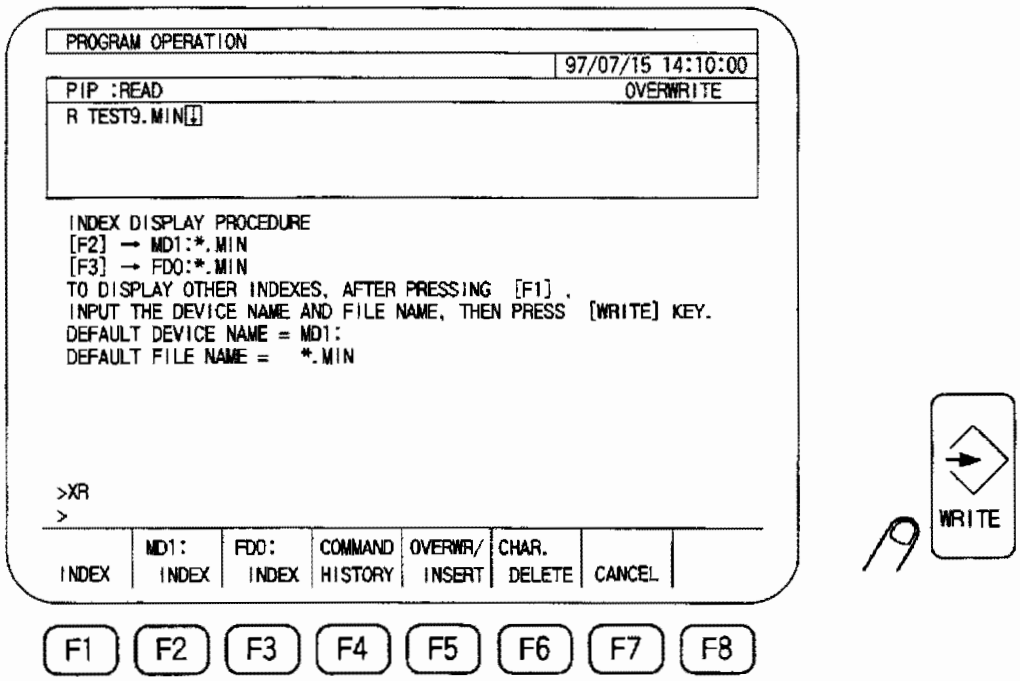
The screen changes to the directory-selection-based file operation screen and the following is displayed on the screen.

PIP:READ R



(4) Enter the file name of the file to be punch and press the WRITE key.

Example: TEST9.MIN



Pressing this key starts the tape reader. The commands on the tape are read and stored in memory.

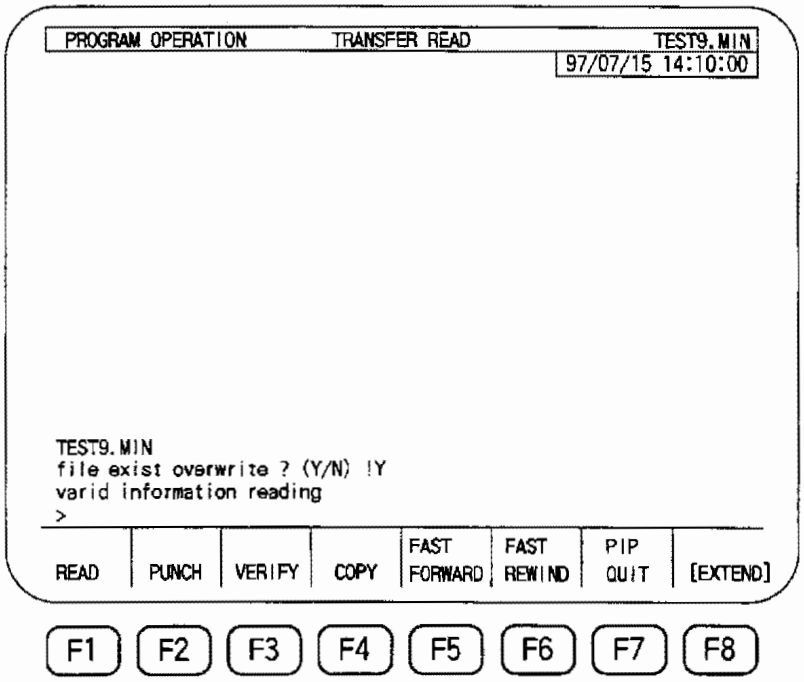
While the tape is being read, the screen displays "READ" along with the "file name" on the first line.

When the first EOB code appears after the start of the tape reading-in, the message "VALID INFORMATION READING" is displayed.

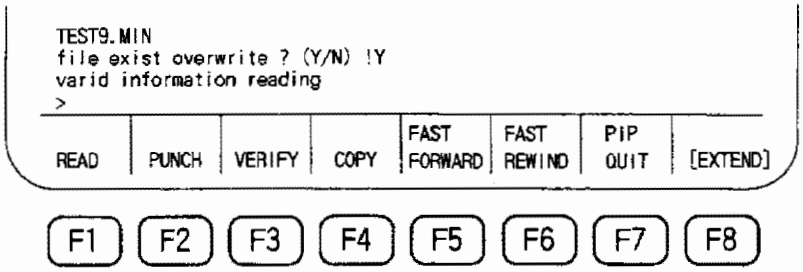
At the completion of the tape reading-in, the tape is then rewound and read in the reverse order to verify the read and stored program against the program on the tape.

When the tape reading-in and verification is completed, ">" appears on the console line.

[Supplement] Tape rewinding with or without tape verification is selectable by setting bits 4 and 5 of NC optional parameter (bit) No. 1.



(5) Press function key [F7] (PIP QUIT).



The screen returns to the one displayed in item (1). Details and precautions on this operation are given in 4-3-1. "Precautions for Tape Reading-in, Punching-out, and Verifying Operations". Be sure to read this item.

[Supplement] If an error occurs during tape reading, 31 characters preceding the error character are displayed on the console line of display screen.

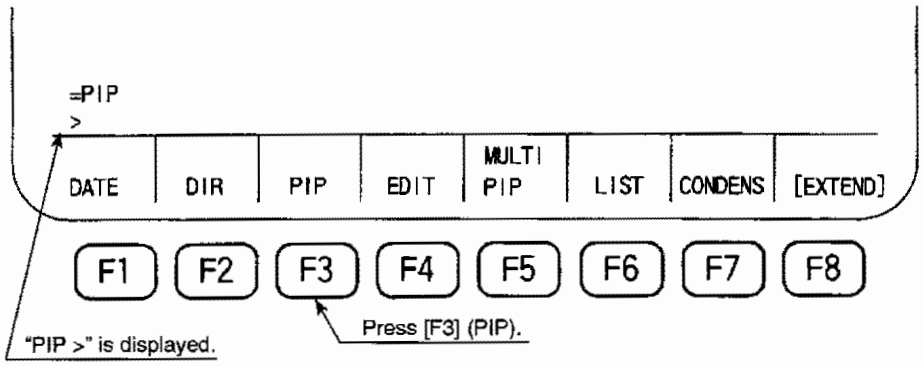
4-2. Punching Out Stored Program Data

This is the function to punch out the program data stored in the memory.

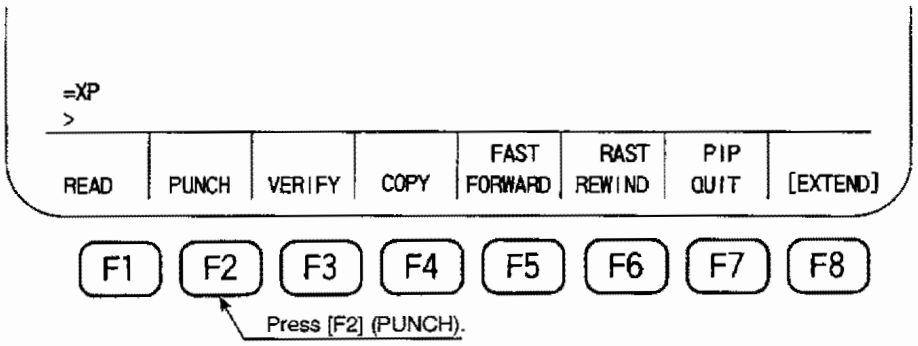
The procedure is as follows:

(1) Press function key [F3] (PIP).

The function names on the screen will change to those given in item (2) below.

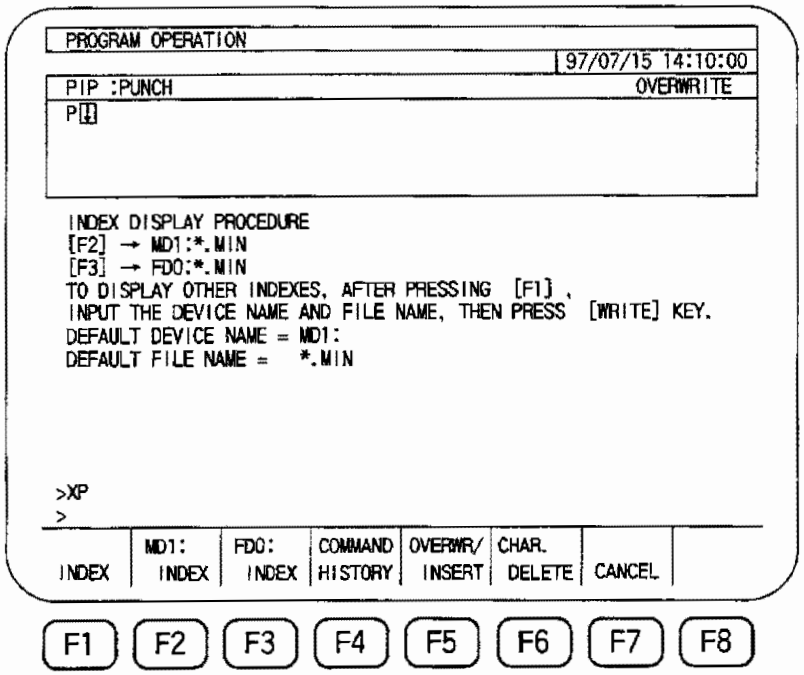


(2) Press function key [F2] (PUNCH).



The screen changes to the directory-selection-based file operation screen and the following is displayed on the screen.

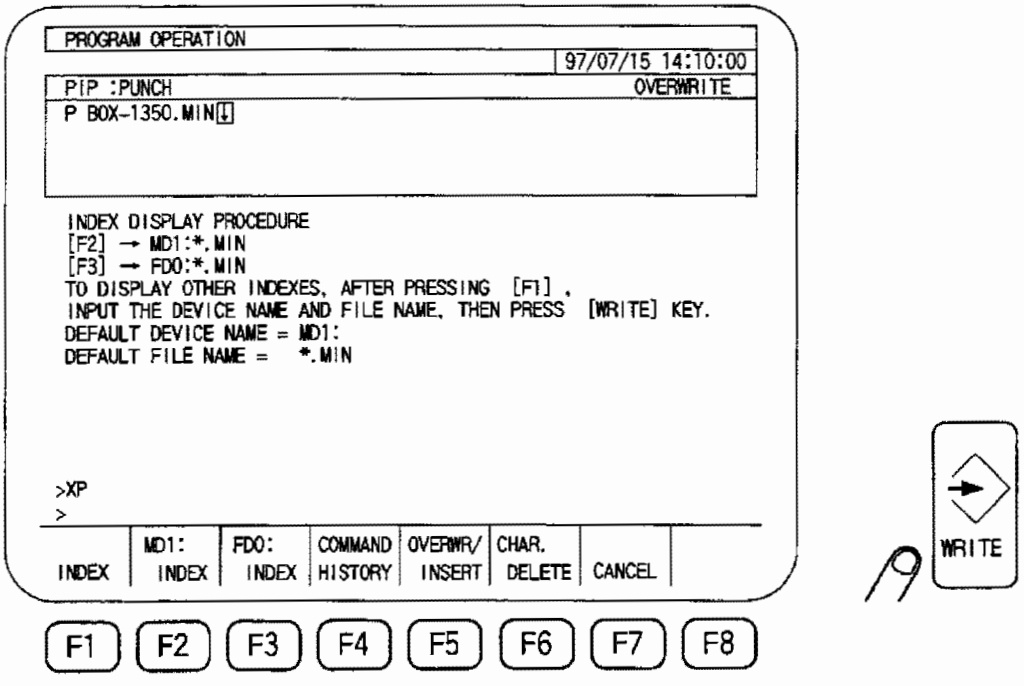
PIP:PUNCH P



(3) Enter the file name of the file to be punch and press the WRITE key.

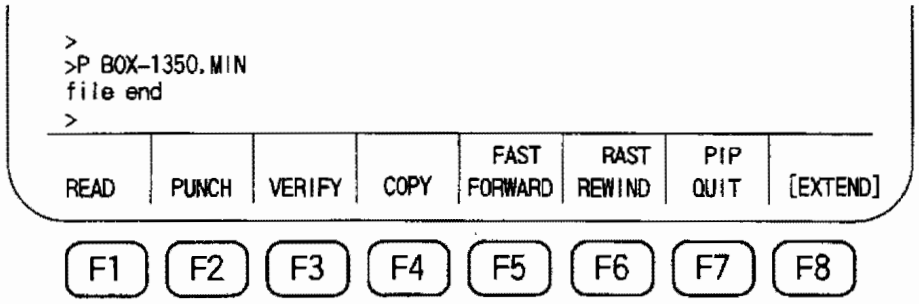
Example: BOX-1350.MIN

This step is unnecessary for a program without a file name, i.e., A.MIN.

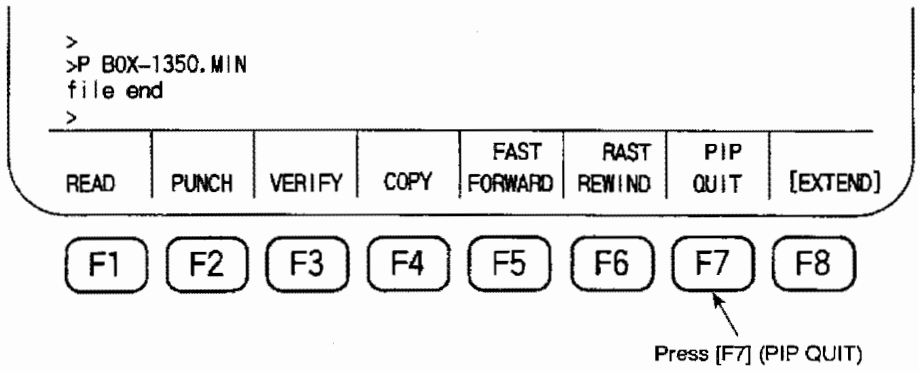


This starts the tape punching out operation, during which the screen displays "PUNCH" along with the "filename".

When tape punching-out is completed, the message "file-end" is given on the console line and ">" appears in the following line.



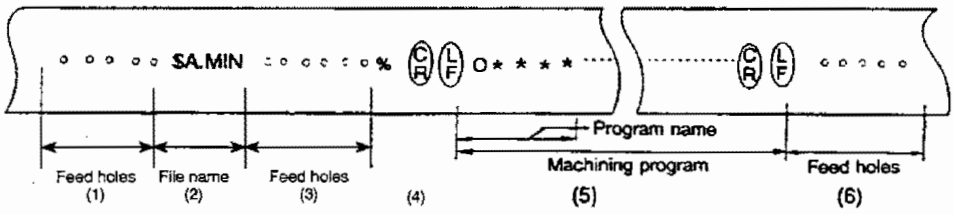
(4) Press function key [F7] (PIP QUIT).



This completes the tape punching out operation and the display returns to the mode as in step (1).

[Supplement] 1. That tape punching speed will be slowed down while machine operation is carried out simultaneously.

2. Tape Punching Out Format



(1) 600 tape feed holes are punched in the tape leader section.

The number of feed holes to be punched out can range, as needed, from 1 to 10000 with a parameter.

For details, refer to IV "PARAMETER", Section 4, 5. "NC Optional Parameter (Word)".

(2) The file name is punched out following the "$" code. (Program data is punched out in the ISO coding system.)

(3) 50 tape feed holes are punched out.

The number of the tape feed holes cannot be changed.

(4) "%", and "CR", "LF" codes are punched out.

(5) The part program data is punched out following the program name (number).

(6) The same number of tape feed holes as in (1) are punched out in the tape trailing section.

[Supplement] 1. When the program data is punched out in the EIA coding system, the "CR" code is punched instead of the "CR" and "LF" codes.

When the program data is punched out in the EIA code, the presence of a code not available in the EIA coding system causes an error. Tape punching-out halts and an error message is given on the display screen.

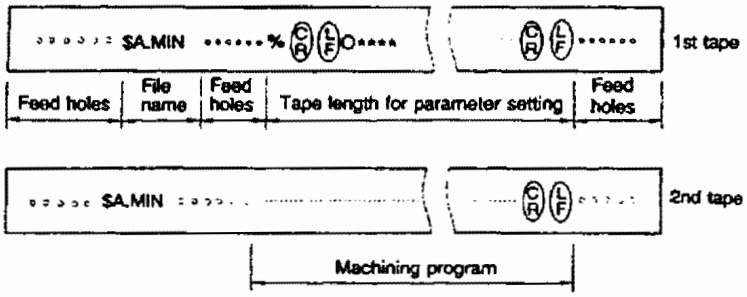
When the tape delimiting code is the "%" (ER) code, i.e., when bit 3 of parameter No. 1 of NC optional parameter (bit) is 1, the "%" code is punched out before feed holes.

2. The part program is split and punched out, if it is too long to be contained in one paper tape roll. Paper tape length may be changed from 1 to 300 meters (3 to 984 feed) using the NC optional parameter (word) No. 2.

As the format, the file name is also punched out, for the second tape and so on. Since the tape ends with "CR" or "LF", actual tape length is somewhat different from the tape length set using the parameter.

When designating paper tape punch out operation on more than one paper taper roll, specify option D in the following format:

P <file-name>, <device-name>:;D



Refer to 4-3-1, "Precautions for Tape Reading-in, Punching-out, and Verifying Operations" for details and cautions on this operation.

4-3. Verifying Punched Out Programs

This is the function for verifying the program transmitted to a target device or medium against the program stored in the source device between the paper tape and the floppy, the paper tape and the memory, the floppy and the memory, the floppy and the floppy, the memory and the memory.

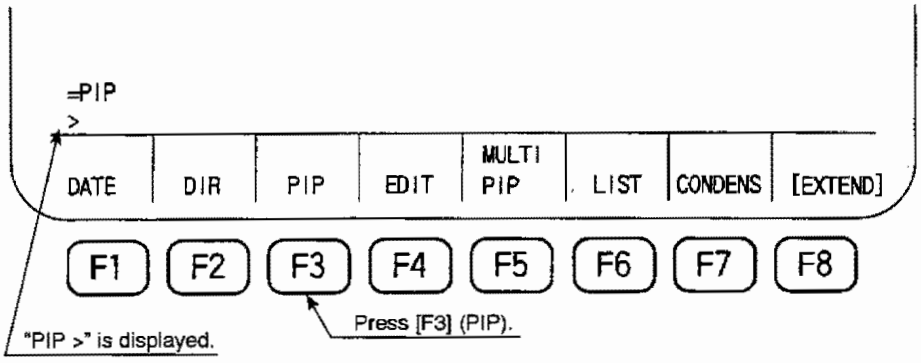
The following explanation is given for the verify operation made between the program punched on tape and the program stored in memory.

The procedure is as follows:

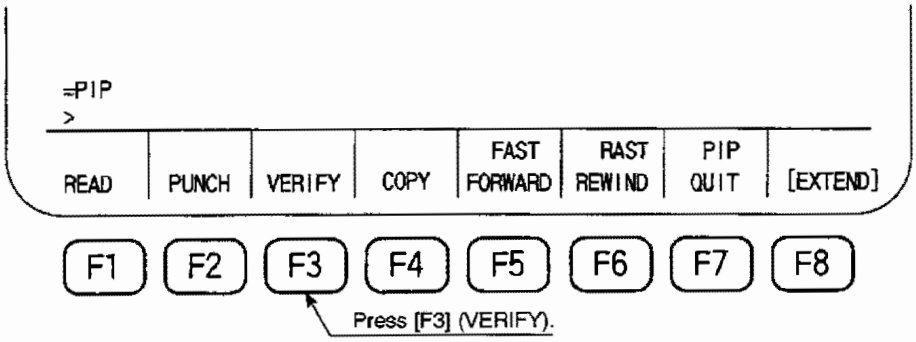
(1) Set the tape to be verified in the tape reader in the same manner as for storing a program from a tape to memory.

(2) Press function key [F3] (PIP).

The function names on the screen will change to those given in item (3) below.

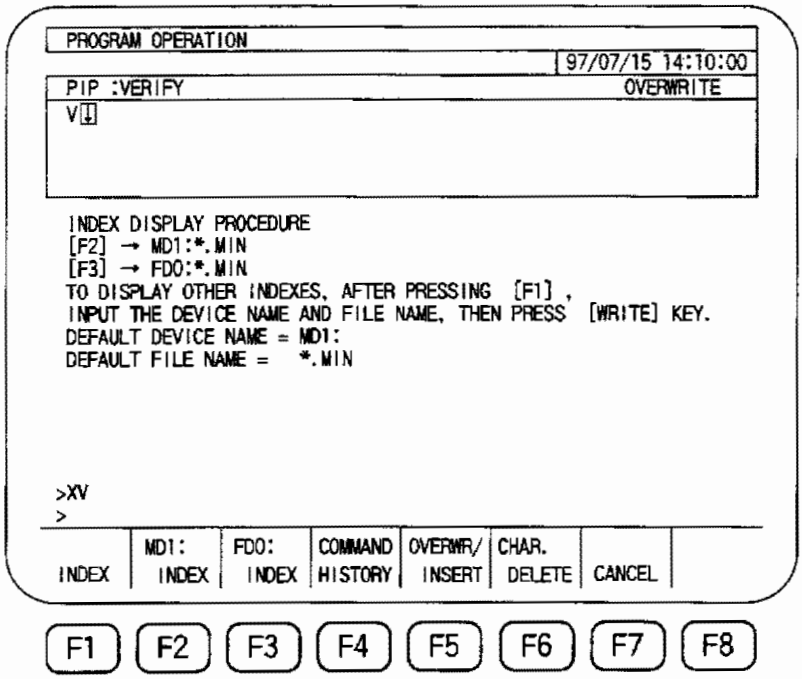


(3) Press function key [F3] (VERIFY).



The screen changes to the directory-selection-based file operation screen and the following is displayed on the screen.

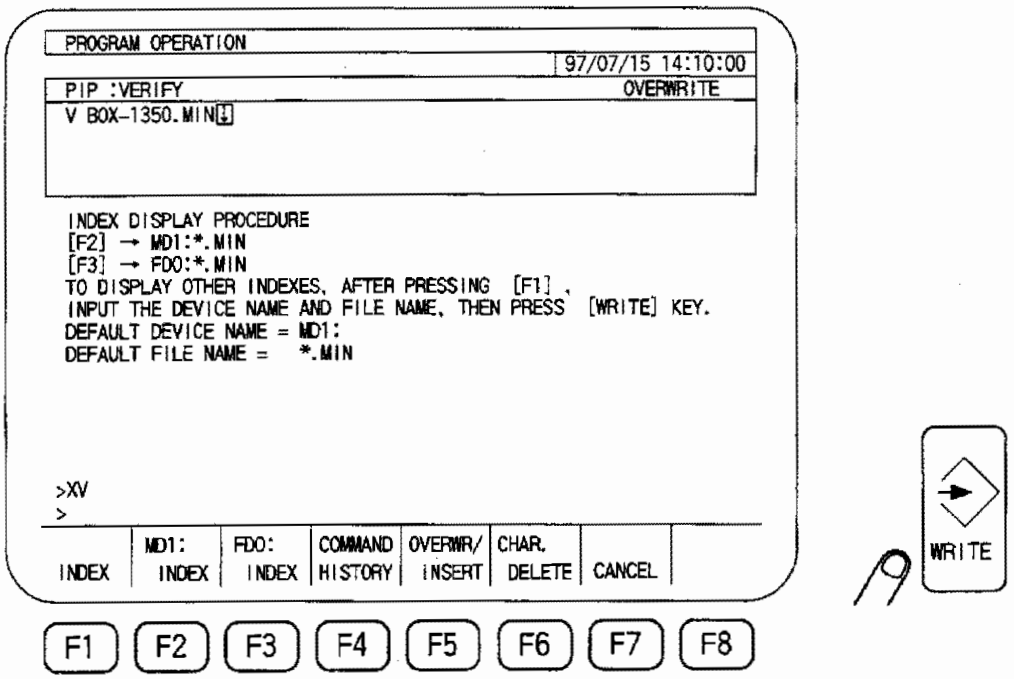
PIP:VERIFY V



(4) Enter the file name of the file to be verify and press the WRITE key.

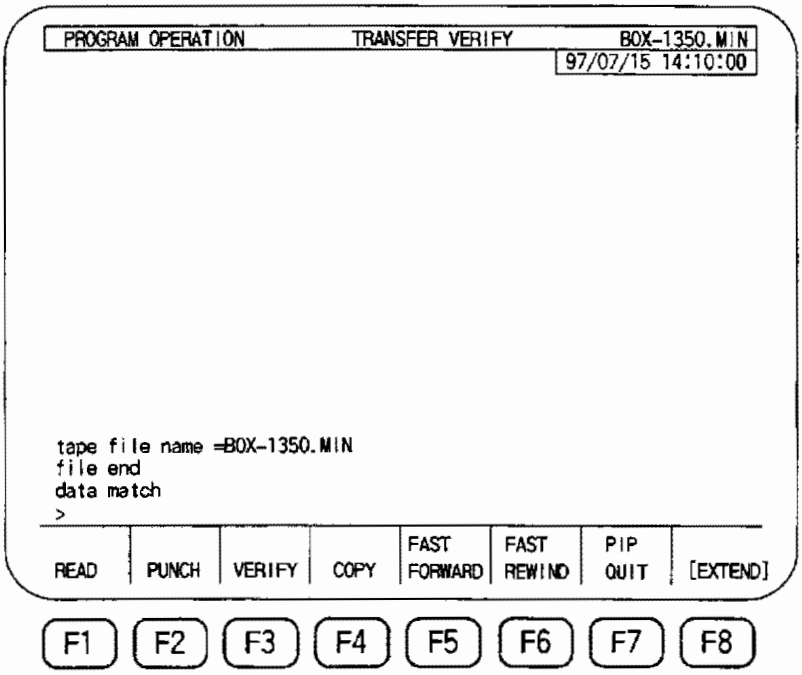
Example: BOX-1350.MIN.

This step is unnecessary for a program without a file name, i.e., A.MIN.

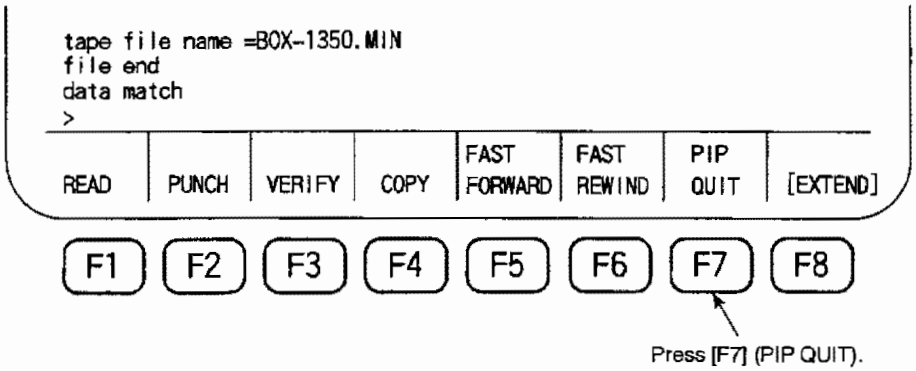


This starts the tape reader, and program data on the tape is read and compared with the stored program data.

While verifying operation, the screen displayed "VERIFY" along with the "file name".

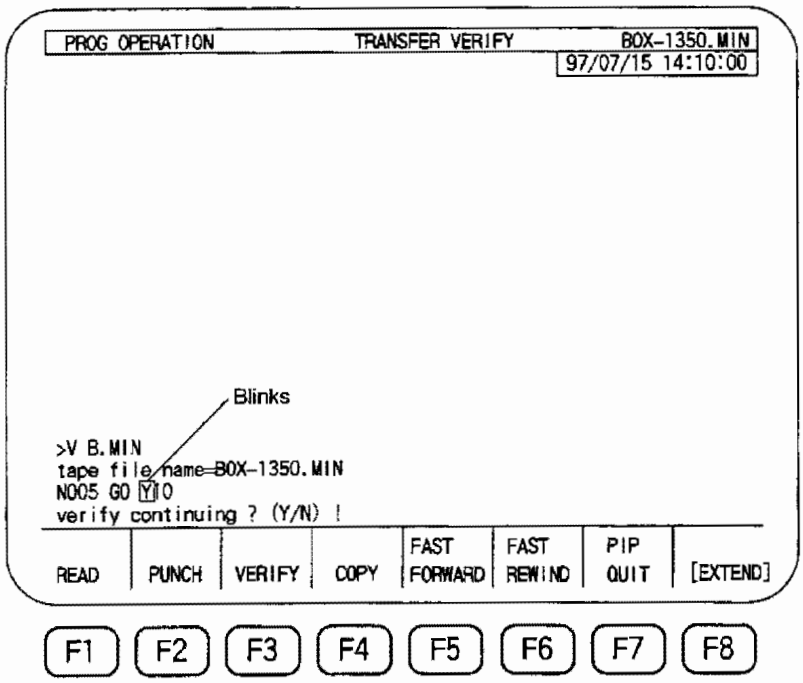


(5) Press function key [F7] (PIP QUIT).



This completes verification of the punched out program data and the display mode return to the one in step (1).

[Supplement] When a data mismatch is found during tape verification, the block (line) which contains inconsistent data is displayed on the screen and the inconsistent character flickers.



The following message is displayed, asking the operator if he wants to continue verification.

To continue verification, type "Y" and press the WRITE key.

To abort verification, type "N" and press the WRITE key.

When no data mismatch is found in verification operation, the following message will be displayed on the screen.

tape end
file end
data match

If data is left in the file after data on a tape has been read, the following messages will be displayed on the screen.

tape end
data match

If data is left in the tape after data on the file has been read, the following messages will be displayed on the screen.

file end
data match

Example 1: Verifying A.MIN in TR: (paper tape) against A.MIN in FD0: (floppy disk)

V␣ TR:A.MIN,FD0:A.MIN

Example 2: Verifying A.MIN in TR: (paper tape) against A.MIN in MD1: (memory)

V␣ TR:A.MIN,MD1:A.MIN

Example 3: Verifying A.MIN in FD0: (floppy disk) against A.MIN in MD1: (memory)

V␣ FD0:A.MIN,MD1:A.MIN

Example 4: Verifying A.MIN in FD0: (floppy disk) against B.MIN in FD0: (floppy disk)

V␣ FD0:A.MIN,FD0:B.MIN

Example 5: Verifying A.MIN in MD1: (memory) against B.MIN in MD1: (memory)

V␣ MD1:A.MIN,MD1:B.MIN

Note that the underlined device name MD1:, which is the default device name, can be omitted.

4-3-1. Precautions for Tape Reading-in, Punching-out, and Verifying Operations

(1) There are two tape coding systems, EIA and ISO. The selection of a coding system can be conducted by:

(a) Parameter setting

Bit 1 and bit 0 of NC optional parameter (bit) No. 1 are used to determine the tape coding system: bit 1 for tape code parity discrimination and bit 0 for tape code. The tape coding system is determined by the combination of these bits.

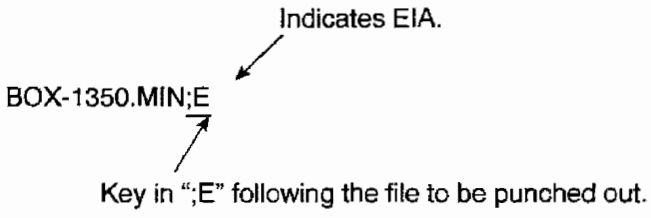
Refer to IV "PARAMETER", Section 4, "DESCRIPTION OF PARAMETER AND SETTING PROCEDURE" for the procedure to set parameters.

(b) ISO or EIA designation for READ, VERIFY, and PUNCH operations

Follow the steps below when conducting READ, VERIFY, and PUNCH operations. This will allow the operator to directly select the coding system regardless of the coding system set by the parameter.

Example: To punch out stored program data in the EIA code

Key in the following command in step (3) of the punch-out procedure of a stored program.



Designation of EIA ISO, and Verifying

;E ..... EIA code
;I ..... ISO code
;V ..... Verifying

(2) There are two different methods to operate the machine with stored programs.

(a) When one main program is stored in the memory

In this case, it is necessary to assign a file name to the program. In the memory, however, the program is assigned the file name "A.MIN".

(b) When more than one program is stored in the memory

In this case, a program can be executed in two different ways.

1) One file for one program

Only one program is registered in one file.

2) One file for several programs

More than one program is registered in one file.

In both cases, it is advisable to create the program by assigning a file name on the tape. If the file name is not assigned on the tape, follow the steps below and assign a file name when storing a program in the memory.

① Press function key [F1] (READ).

② Key in the file name following a comma.

",file-name"

③ Press the WRITE key.

With the steps above, the file name is specified and the program on the tape is stored in the memory.

To simplify program tape management, it is recommended to register one program in one file.

(3) To store program data following the program data already stored in the memory, follow the steps below.

① Press function key [F1] (READ)

② Key in the file name and ";A".

",file-name;A"

③ Press the WRITE key.

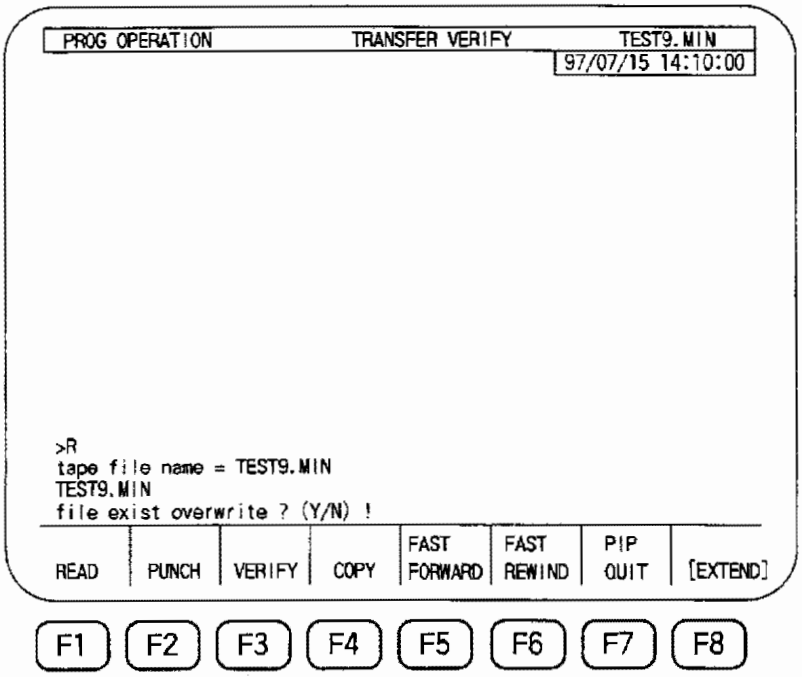
When the program is long and cannot be punched on one tape, the second and subsequent tapes should be read following the above steps.

(4) When the file name is already registered in the memory and when it is necessary to store a program with the same file name, follow the steps indicated below to erase the previous program and to store a new program.

① Press function key [F1] (READ), key in the file name and press the WRITE key.

② The following message will be displayed on the display screen.

file exist overwrite? (Y/N)



③ Type "Y" and press the WRITE key.

Data in the specified file is erased and new data is read from the tape reader and stored in the memory.

[Supplement] If data does not need to be stored, type "N" and press the WRITE key.

When a file name is not given on the tape while the name of the file stored in the memory is "A.MIN" (that is, the file is not assigned a file name), it is not necessary to specify the file name after pressing function key [F1] (READ).

(5) File names can be specified and changed as required by inputting the following.

[F1] (READ) "input file name", "output file name"

When an input file name has not been specified, the file name given on the tape is taken as the input file name. If no file name is given on the tape, the program is assigned the file name "A.MIN."

When an input file name is specified, it is necessary to check that the specified file name agrees with the file name on the tape. If the specified file name agrees with the file name on the tape, an error is generated. (An error message is displayed on the display screen.)

When an output file name has been specified, the specified file name is created in the memory.

When an output file name has not been specified, the input file name is used as the output file name.

In this case, the delimiter "," can be omitted.

To specify an output file name without entering an input file name, be sure to enter the delimiter ",".

Example 1: [F1] (READ) BOX-1.MIN, BOX-2.MIN [WRITE]

A program assigned the file name "BOX-1.MIN" is stored in the memory with its file name changed to "BOX-2.MIN".

Example 2: [F1] (READ), BOX-2.MIN [WRITE]

The program is stored in the memory assigned the file name "BOX-2.MIN" regardless of the current file name.

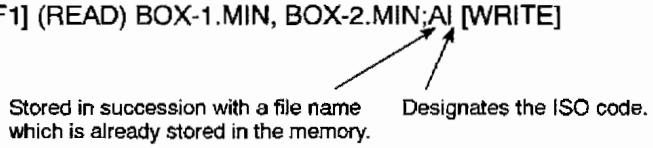
Example 3: [F1] (READ) BOX-2.MIN [WRITE]

The control first checks whether or not the file name given on the tape is "BOX-2.MIN". Then, the program is stored in the memory assigned with the file name "BOX-2.MIN".

Example 4: [F1] (READ) [WRITE]

The program is stored in the memory with a file name assigned on the tape. If not file name is given on the tape, the program is assigned the file name "A.MIN".

Example 5: [F1] (READ) BOX-1.MIN, BOX-2.MIN;AI [WRITE]



The ISO-coded program data which has the file name "BOX-1.MIN" is stored following the file which is already stored in the memory with the file name "BOX-2.MIN"

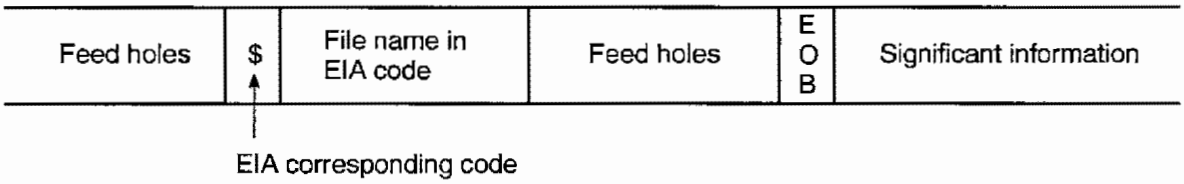
(6) The following command reads a tape which contains wrong codes up to the end while replacing them with "!".

[F1] (READ) file-name;C [WRITE]

The number of read wrong codes is counted and displayed after the completion of tape read operation. Correct them in the program edit mode.

(7) Reading of a Tape which has a File Name Punched in the EIA Code

The file name punched in the EIA code can be read if an EIA-coded character which corresponds to $ has been set at NC optional parameter (bit) No. 31.



The control recognizes the coding system of the file by the first "$" code.

The coding system employed for NC data within the significant information area is recognized by the first end-of-program code (EOB).

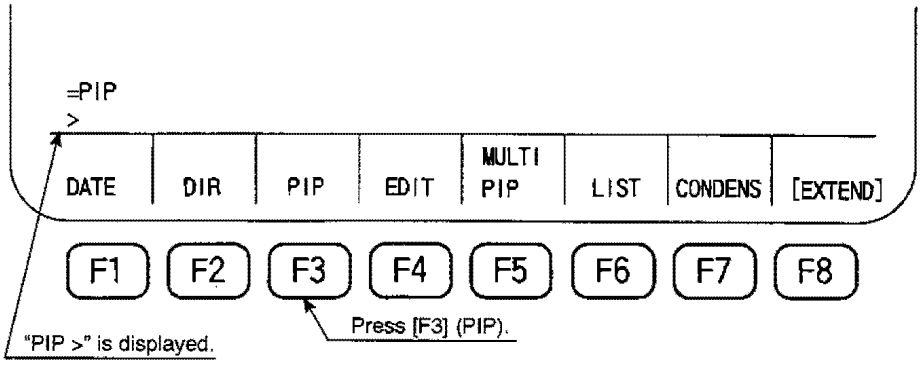
During tape punch operation, the file name is always punched in the ISO code irrespective of the coding system which is employed to punch NC data.

4-4. Duplication of Stored Program

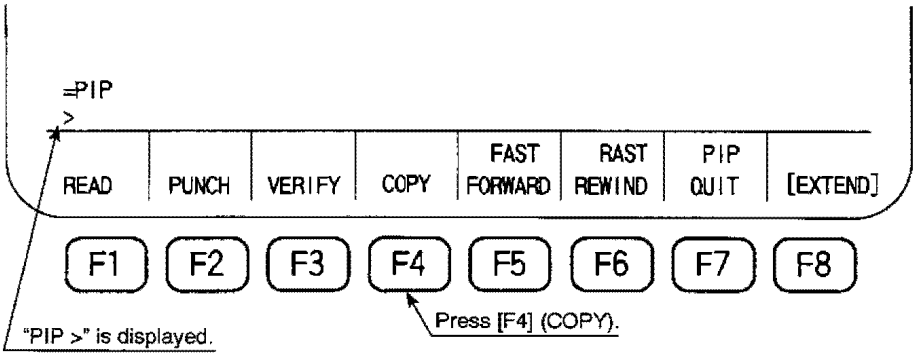
To duplicate a file in the memory (MD1:) or a floppy disk (FD0:), follow the steps below.

(1) Press function key [F3] (PIP).

The function names on the screen will change to those given in item (2) below.



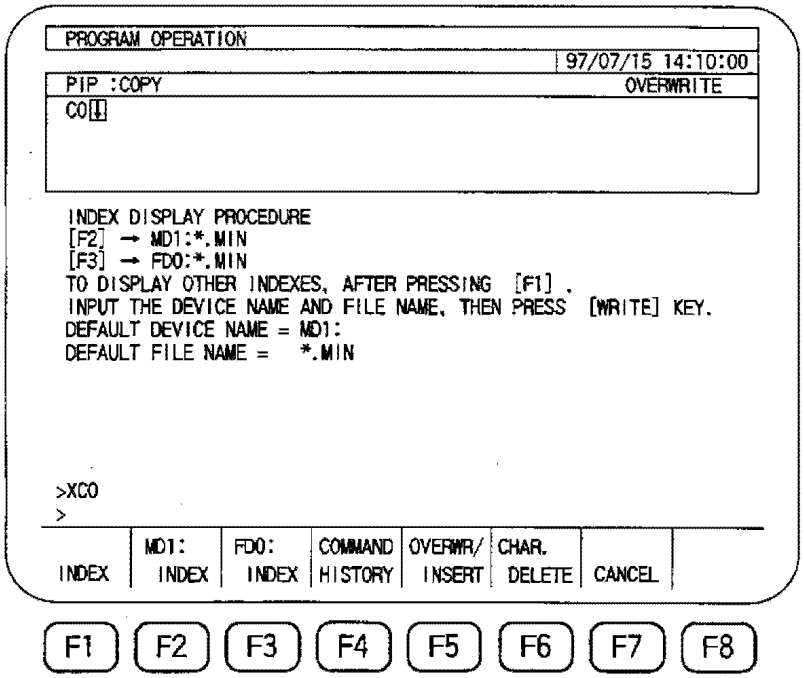
(2) Press function key [F4] (COPY).



The screen changes to the directory-selection-based file operation screen and the following is displayed on the screen.

PIP:COPY CO

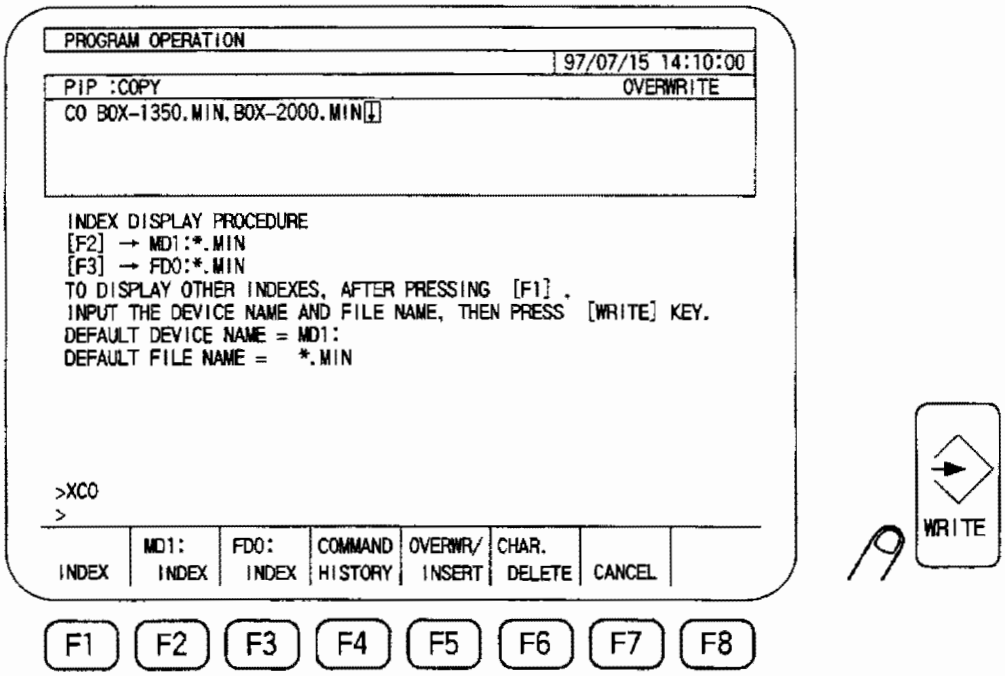
Enter the device name, MD1: or FD0:. (The default is MD1:.)



(3) Enter the file name of the file to be copy and press the WRITE key.

Example: BOX-1350.MIN, BOX-2000.MIN

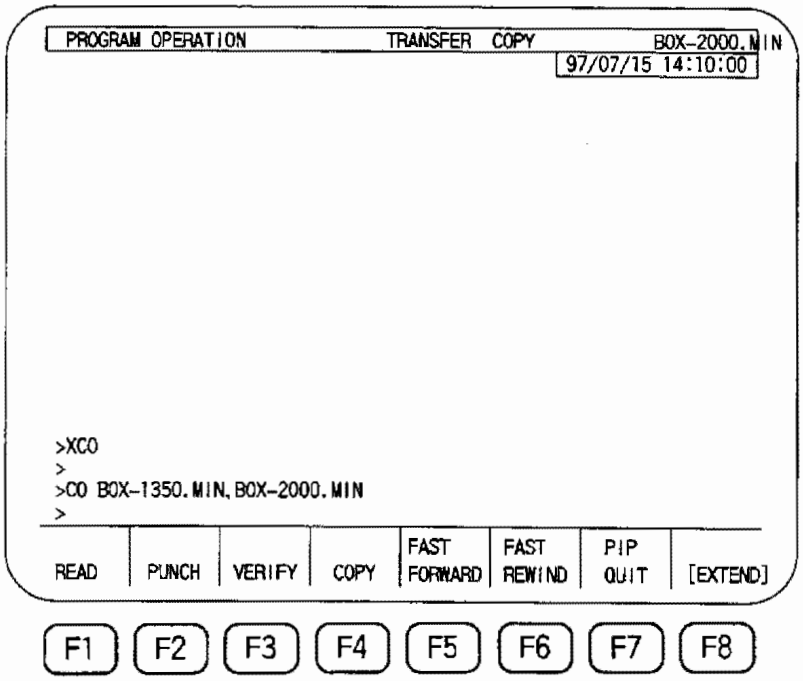
Input file name Output file name



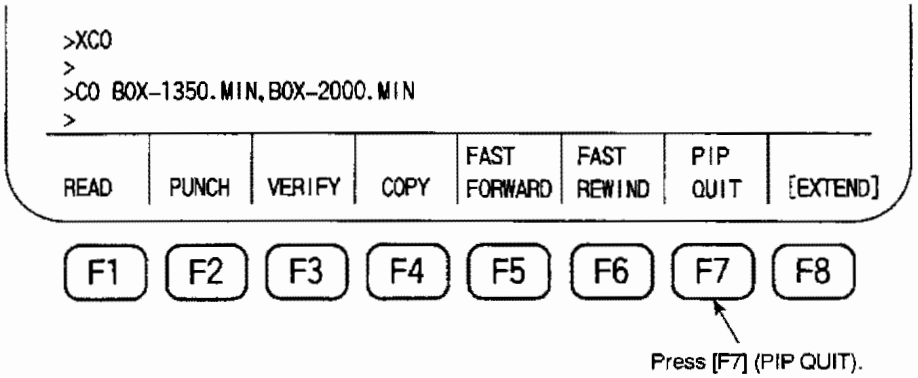
The program which has the file name "BOX-1350.MIN" is duplicated and stored in the memory with the file name "BOX-2000.MIN".

While the file is being copied, "COPY" and "file name" are displayed at the upper area of the screen.

At the completion of copying, ">" appears on the console line.



(4) Press function key [F7] (PIP QUIT).



The screen returns to the one displayed in item (1).

[Supplement]

1. When the specified file name "BOX-1350.MIN" is not found in the memory, the message "no file" will be displayed on the command line.
2. When the file name "BOX-2000.MIN" which has been specified as the output file name already exists in the memory, the following message will appear.

   BOX-2000.MIN

   file exist overwrite? (Y/N)

   To erase the currently stored program and store the duplicated one, type "Y" and press the WRITE key.
3. The output file name can be omitted when the output file name is the same as the input file name.
4. When the output file name is omitted, symbols "*" and "?" can be used in an input file name. In this case, all the corresponding files are duplicated. (Refer to Section 5, 3. "DIRECTORY".)
5. In addition to the above duplicating functions, the following functions are optionally available.

   (a) [COPY] input file name, output file name ;A

   Duplication is executed following the file which is specified as the output file name.

   (b) [COPY] input file name, output file name ;V

   The message "copy OK? (Y/N)" is displayed before starting program duplication.

   To start duplication, type "Y" and press the WRITE key.

   To abort the operation, type "N" and press the WRITE key.

Example 1: Copying A.MIN in MD1: (memory) to MD1: (memory) under the file name of B.MIN

CO␣ MD1:A.MIN,MD1:B.MIN

Example 2: Copying A.MIN in MD1: (memory) to FD0: (floppy disk) under the file name of B.MIN

CO␣ MD1:A.MIN,FD0:B.MIN

Example 3: Copying A.MIN in FD0: (floppy disk) to MD1: (memory) under the file name of B.MIN

CO␣ FD0:A.MIN,MD1:B.MIN

Example 4: Copying A.MIN in FD0: (floppy disk) to FD0: (floppy disk) under the file name of B.MIN

CO ␣ FD0:A.MIN,FD0:B.MIN

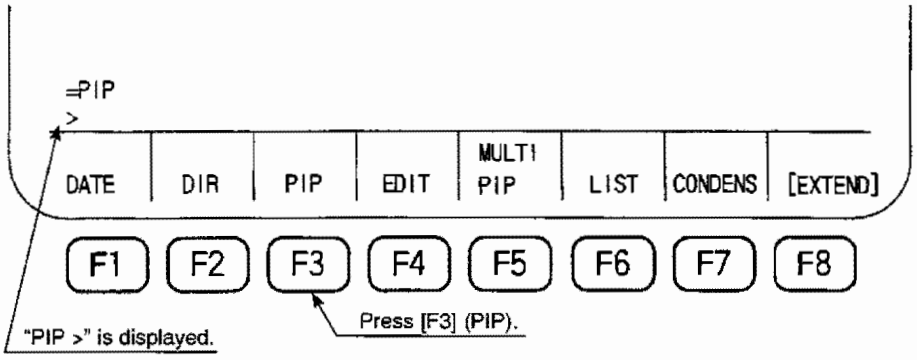
Note that the underlined device name MD1:, which is the default device name, can be omitted.

4-5. Tape Reader Operation – Fast Forward Feed

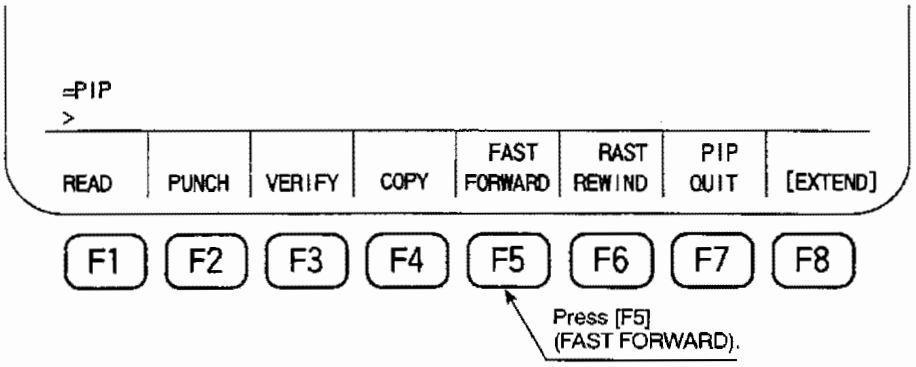
To feed the tape rapidly, follow the procedure below.

(1) Press function key [F3] (PIP).

The function names on the screen will change to those given in item (2) below.



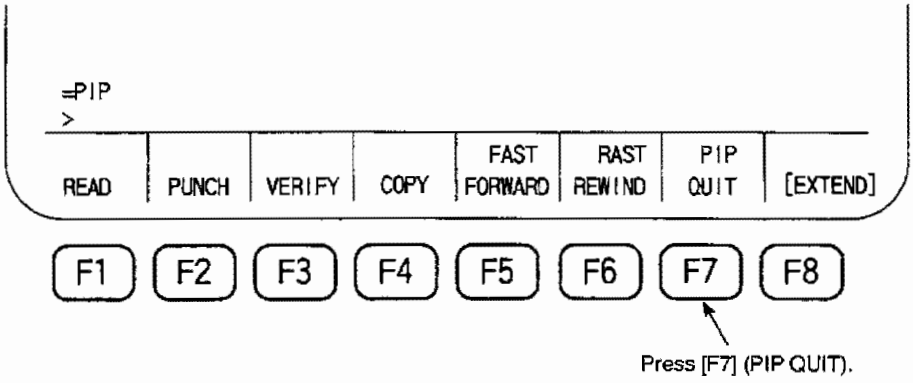
(2) Press function key [F5] (FAST FORWARD).



The prompt " > FF" will be displayed on the command line (21st line). The tape is fast forwarded to the end of the tape.

By setting corresponding data at NC optional parameter (bit) No. 1, bit 3, it is possible to select whether the control recognizes the end of a tape by feed holes or by a code. (% for ISO and ER for EIA).

(3) Press function key [F7] (PIP QUIT).

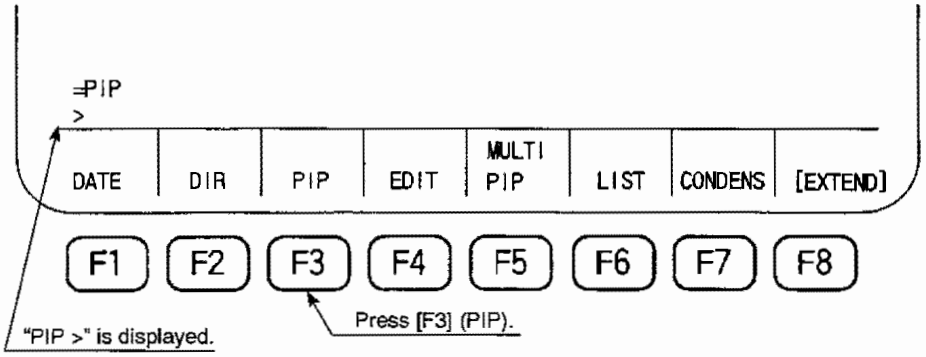


This completes verification of the punched out program data and the display mode return to the one in step (1).

4-6. Tape Reader Operation – Rewind

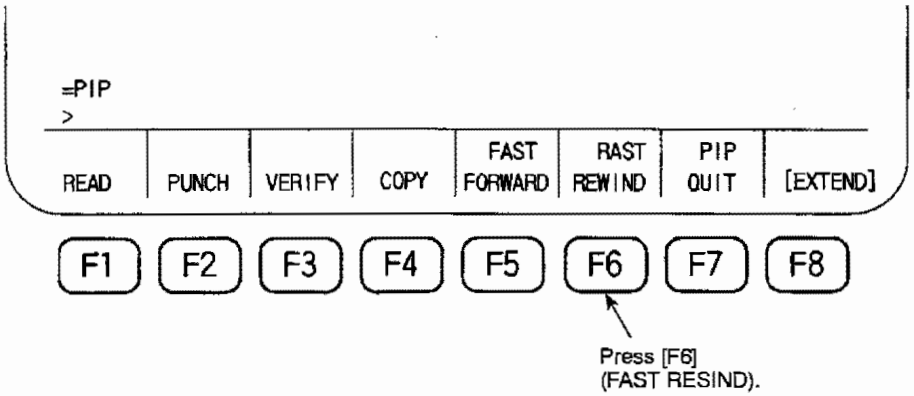
To rewind the tape, follow the procedure below.

(1) Press function key [F3] (PIP).



The function names on the screen will change to those given in item (2) below.

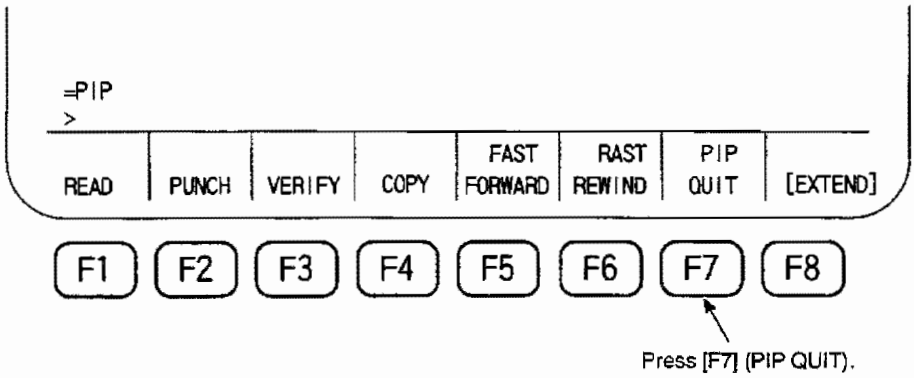
(2) Press function key [F6] (FAST REWIND).



The prompt " > FR" will be displayed on the line (21st line). The tape is rewound up to the beginning of the tape.

By setting corresponding data at NC optional parameter (bit) No. 1, bit 3, it is possible to select how the control recognizes the beginning of a tape; feed holes on a code. (% for ISO and ER for EIA.)

(3) Press function key [F7] (PIP QUIT).



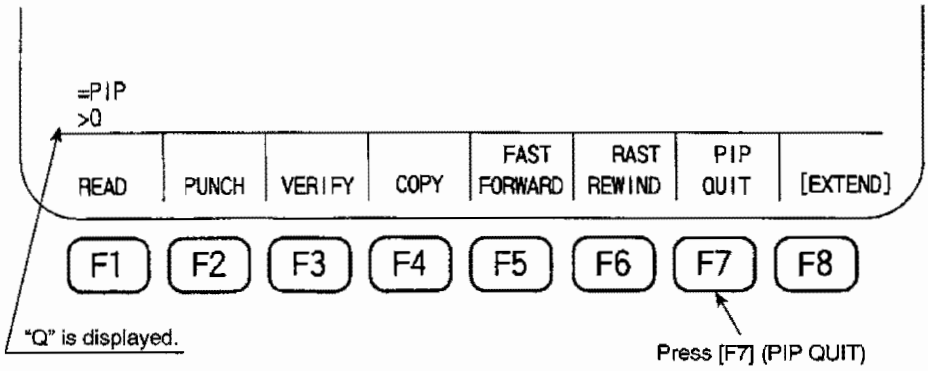
This completes verification of the punched out program data and the display mode return to the one in step (1).

4-7. PIP Quit

This sub command quits the transfer mode, and provides a return to the previous program operation mode.

The operating procedure is indicated below.

(1) Press function key [F7] (PIP QUIT).



The prompt " > Q" will be displayed on the command line. The transfer mode is quit and the previous program operation mode is restored.

The display screen will change as shown to the right with assigned function names also changed.