

VIII.4.2-PUC FORECAST COMPONENT OPERATION CARD PUNCH SUBROUTINE  
(PUCn)

Function: The card punch subroutine outputs the parameters, carryover and other information stored on the files for all versions of an Operation and punch card images with the same format as the input cards for the Operation [i.e., cards read by the input (PIN) subroutine].

Having a card punch subroutine for each Operation allows the Segment definition input to be created from the Forecast Component Data Base.

Arguments: The argument list for this subroutine is:

```
SUBROUTINE PUCn (PO,CO)
```

The arguments PO and CO are both real arrays dimensioned PO(\*) and CO(\*). The contents of PO and CO are set by the input subroutine for the Operation. The contents of PO and CO must not be changed by this subroutine.

For an Operation with no carryover the argument list is:

```
SUBROUTINE PUCn (PO)
```

Format Field Length: In the case of fixed format floating point variables there may be some problem insuring that the values generated by the card punch subroutine are the same as those originally read by the parameter input subroutine.

For example, with an F5.0 input card format, values which range from 99999 down to .0001 can be read and stored. However, it is impossible to punch out this full range of values with a fixed format. In many cases, the full range of significant values for a given parameter or variable are known and can be handled by a fixed format. For example, UZTWM in the Sacramento soil moisture Operation could be punched with an F5.1 format. Even though a user input 20.283 for UZTWM the punched value 20.3 would be adequate.

In other cases the significant digits that can be read with a fixed format cannot be punched back out with a fixed format of the same field length. For example, unit hydrograph ordinates of 9590. and 0.014 are both valid for different sizes areas, but both cannot be punched with a fixed format in a 5 column field length. The following are possible solutions to this problem:

- o make the field length for the quantity large enough in the input subroutine that all possible significant values can be punched with a fixed field width
- o set the field width based on the magnitude of the value
- o use subroutine UFF2A which converts the real values to character form and preserves maximum accuracy

A warning message should be printed if a value exceeds the field length or if significant digits are lost.

Special Common Block: Common block PUDFLT is needed in the card punch subroutine of all Operations that can have default carryover values. The listing of this common block is:

```
COMMON /PUDFLT/ IPDFLT
```

A complete description is in Section IX.3.3C.

If IPDFLT is equal to zero the values in the CO array are punched as the carryover values.

If IPDFLT is equal to one the cards are punched to indicate that default carryover values should be used.

Special Situation: Most Operations will store the input quantities in the same form that they are read or in a form which is directly linked to the input value (i.e., the value input on the card can be exactly determined from the value stored on the file). However, in a very few cases the values stored on the file (i.e., in the PO array) will be computed from the input values and it will be impossible to later work backwards and determine the exact input quantities. For example, cross-sectional data that are read from cards could be used to compute the hydraulic radius and wetted perimeter which are stored on the file. Later, it would be impossible to determine the cross-sectional data from the values on the files and recreate the input cards. In such cases, the card punch subroutine will have to punch the quantities stored in the PO and CO arrays. Then, in order for these cards to be used to recreate the files, the input subroutine will have to be able to accept this alternative input card form. Thus, in these cases the input subroutine for the Operation will have to be written to accept more than one form of input cards. A switch will have to be provided on one of the first cards for the user to indicate the form of the subsequent cards.