

## CHAPTER 7

### M.I.S(UFOS)

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**SECTION 4****OPERATION****CAUTION:****4.1. Initialization**

*This clears all memories in the mounter. Before initiating it, make sure all mounter data has been backed up. The initialisation process also clears the operation time and running time in the M.I.S. data simultaneously.*

- 1) Press the MAIN MENU key.  
Pressing this key displays the MAIN MENU screen.

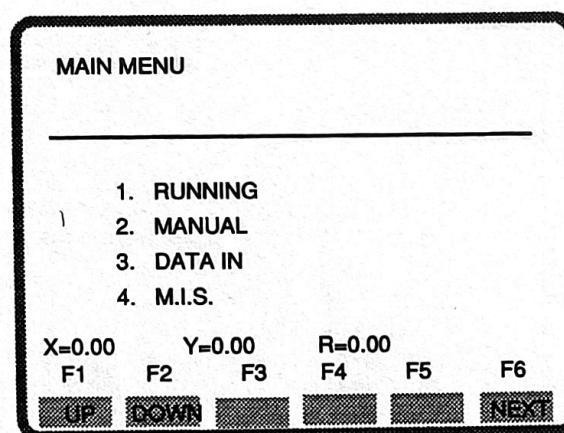
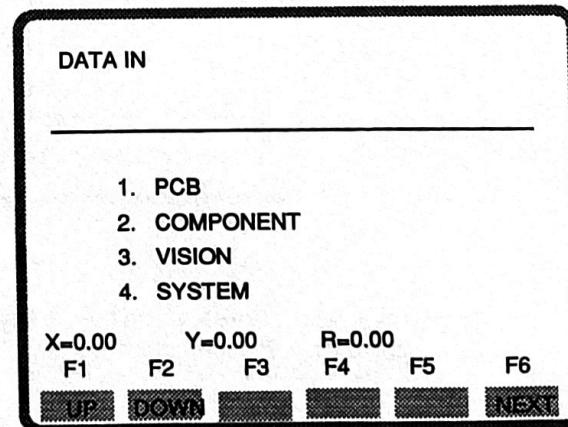


fig.1 MAIN MENU Display

- 2) Press the 3 key, or move the cursor (the highlighted display) to "3. DATA IN" and press the F6 (NEXT) key.  
Pressing this key displays the DATA IN screen.



**SECTION 3****M.I.S. DATA****3.1. Operation Time Information**

Cumulative Time	Single Time
Operation time *****H **M **S	Operation Time *****H **M **S
Running time *****H **M **S	Running Time *****H **M **S
Running rate ***.*%	Running rate ***.*%

**3.2. PCB Information**

NO.	PCB NAME	Q'TY	MR(%)	MT(S)	CT(S)	PQ	COMMENT
**	*****	*****	***	**.	***	***	*****
							:
**	*****	*****	***	**.	***	***	*****

**3.3. Feeder Information**

NO.	NAME	Q'TY	ERR	RATE(%)
**	*****	*****	***	****
				:
**	*****	*****	***	***.**

**3.4. Head Information**

NO.	Q'TY	ERR1	RATE1 (%)	ERR2	RATE2 (%)
1	*****	***	***.**	***	***.**
2					:
3	*****	***	***.**	***	***.**

#### 2.4. PCB Data

1. **No. of boards produced:** This indicates the total number of boards produced from the start of production to the present.
2. **Average mounting time:** This indicates the mounting time per component.
3. **Cycle time:** This is the cycle time per board.
4. **No. of parts:** This indicates the number of parts mounted per board.

#### 2.5. Feeder Data

This displays the number of parts supplied, the number of feed errors, and the feed rate for each feeder separately.

$$\text{Feed rate} = ((\text{No. of parts supplied} - \text{No. of feed errors}) / \text{No. of parts supplied}) \times 100\%$$

#### 2.6. Head Data

This displays the number of parts supplied, the number of feed errors, the feed rate, the number of mounting errors, and the mounting rate for each head separately.

$$\text{Feed rate} = ((\text{No. of parts supplied} - \text{No. of feed errors}) / \text{No. of parts supplied}) \times 100\%$$

$$\text{Mounting rate} = (((\text{No. of parts supplied} - \text{No. of feed errors}) - \text{No. of mounting errors}) / (\text{No. of parts supplied} - \text{No. of feed errors})) \times 100\%$$

**SECTION 1****INTRODUCTION**

The M.I.S. function allows you to monitoring of production conditions. Using this function, information such as the number of PCBs produced, the number of parts supplied, the parts feed rate, and the parts mounting rate can be displayed on the CRT screen. The number of parts supplied and the feed rate can be checked separately for each feeder and each head, allowing the user to check which heads and feeders are prone to erroneous operation. The parts mounting rate can also be checked separately for each head. The M.I.S. data can be output to an external device (personal computer, etc.) using asynchronous communication (RS-232C). M.I.S. data can be handled either as cumulative PCB data (CUMULA) or in single-board units (SINGLE).

**SECTION 2****DISPLAY ITEMS****2.1. Operation Time**

The M.I.S. data is automatically updated every time a board is processed. This allows the total time that the power supply was on, up to the point where the M.I.S. data of the selected board was updated, to be displayed for both cumulative operation time and single operation time.

Cumulative operation time or single operation time are cleared to zero when a reset occurs in Cumulative Data Mode or Single Data Mode.

**2.2. Running Time**

The M.I.S. data is automatically updated every time a board is processed. This allows the total time that the machine was operating in RUNNING Mode, up to the point where the M.I.S. data of the selected board was updated, to be displayed for both cumulative running time and single running time.

Cumulative running time or single running time are cleared to zero when a reset occurs in Cumulative Data Mode or Single Data Mode.

**2.3. Running Rate**

The running rate is expressed as a percentage indicating the operation time divided by the number of hours the machine is running. There are two types: the cumulative running rate and the single running rate.

$$\text{Running rate} = (\text{Running time} / \text{Operation hours}) \times 100\%$$

#### 4.2.2. Cumulative Data Display

In the cumulative data, the PCB name, number of boards produced, mounting rate, mounting time, cycle time, number of parts, and comments are displayed for each board separately.

##### 4.2.2.1. Cumulative PCB Data Display

- 1) On the screen shown in Fig. 2, press the F1 (CUMULA) key.

M.I.S CUMULATIVE						
NO.	PCB NAME	QTY.	MR[%]	MT[S]	CT[S]	PQ
1	PCB1	345	98.99	1.5	20.4	24
2	PCB2	137	99.01	1.6	14.9	22
3	PCB3	58	97.65	0.9	7.4	9
:						

Number      Name of the board      Number of boards produced      Mounting rate      Average mounting tim      Cycle time      Number of parts

fig.3 Cumulative Data by PCB (1)

- 2) Use the ↑ and ↓ keys, or press F1 (UP) or F2 (DOWN) to view up to the maximum of 14 cumulative data entries. (21 Series only)

M.I.S CUMULATIVE						
NO.	PCB NAME	QTY.	MR[%]	MT[S]	CT[S]	PQ
5	PCB5	45	99.99	1.4	20.7	14
6	PCB6	37	99.09	1.6	18.9	12
7	PCB7	58	99.65	0.9	7.5	8
:						

## 4.2. Production Data

Selecting "M.I.S" on the main menu displays the operation time. The Cumulative Data and Single Data modes can also be accessed from this screen.

### 4.2.1. Displaying Operation Time

The cumulative and single operation times and the running time and running rate are displayed.

- 1) Select "4. M.I.S." on the MAIN MENU screen shown in Fig. 1.

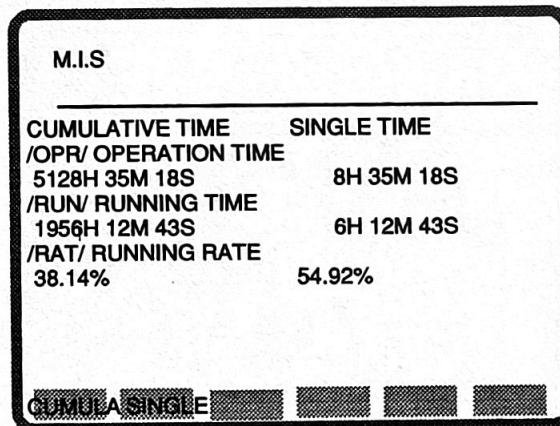
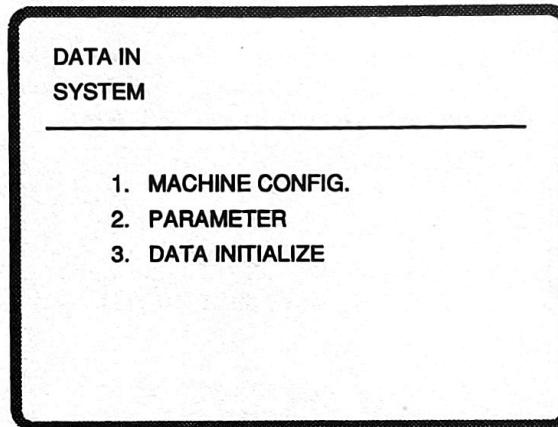


fig.2 Operation Time Diplay

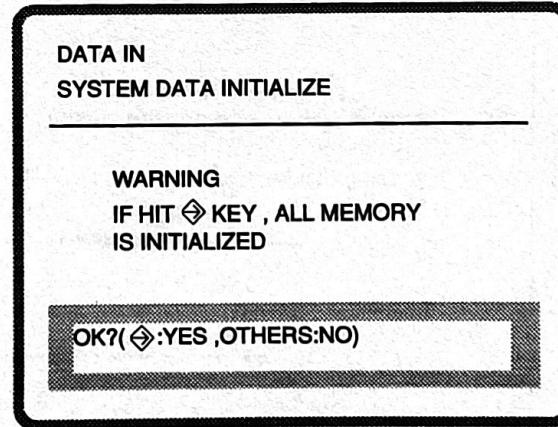
The operation time, running time, and running rate are displayed. The cumulative time is shown at the left, and the single time at the right.

Any existing labels and/or comments for each data item are displayed on the first line, with a value displayed on the line below. The operation time and running time are displayed in hours (H), minutes (M) and seconds (S). The running rate is displayed as a percentage figure.

- 3) Press the 4 key.  
Pressing this key displays the system menu screen.

**CAUTION:**

- 4) To initialise only the PCB data of the production data, reset the cumulative and single data in the respective modes. The operation time and running time will not be reset by doing this.
- 4b) Press the 3 key.  
A confirmation message is displayed, asking if it is all right to initialise the system.  
(Initialisation has not yet begun at this point.)



To go ahead and initialise, press the ⌂ key. (All memories will be cleared.)  
To cancel the initialisation, press any key other than the ⌂ key.

#### 4.2.2.3. Cumulative Head Data Display

This displays the cumulative data for each head of the specified PCB. Displayed data includes the head number, the number of parts supplied, the number of feed errors, the feed rate, the number of mounting errors, and the mounting rate.

- 1) On the screen shown in either Fig. 3 or Fig. 4, press the F4 (HEAD) key.  
Head data, classified by part number, will be displayed for the specified PCB. In the top right corner of the screen is the name of the selected PCB.

M.I.S		PCB NAME: PCB1				
CUMULATIVE HEAD						
Head number	NO.	QTY.	ERR1	RATE1	ERR2	RATE2
1	134	0	100.00%	0	100.00%	
2	510	1	99.80%	2	99.61%	
3	234	2	99.15%	1	99.57%	

Annotations pointing to specific columns:

- Head number: Points to the first column of the table.
- Number of parts supplied: Points to the second column of the table.
- Number of feed errors: Points to the third column of the table.
- Mounting rate: Points to the fourth column of the table.
- Feed rate: Points to the fifth column of the table.
- Number of mounting errors: Points to the sixth column of the table.

fig.6 Cumulative Data by Head

- 2) On the screen shown in Fig. 6, press the EXIT key.  
Pressing the EXIT key on the cumulative head data screen returns to the screen shown in Fig. 3, where cumulative data is displayed for each separate PCB.

#### 4.2.2.2. Cumulative Feeder Data Display

This displays the cumulative data for each feeder of the specified PCB. Displayed data includes the feeder number, the feeder name, the number of parts supplied, the number of feed errors, and the feed rate.

- 1) On the screen shown in either Fig. 3 or Fig. 4, press the F3 (FEEDER) key. Feeder data, classified by part number, will be displayed for the specified PCB. In the top right corner of the screen is the name of the selected PCB.

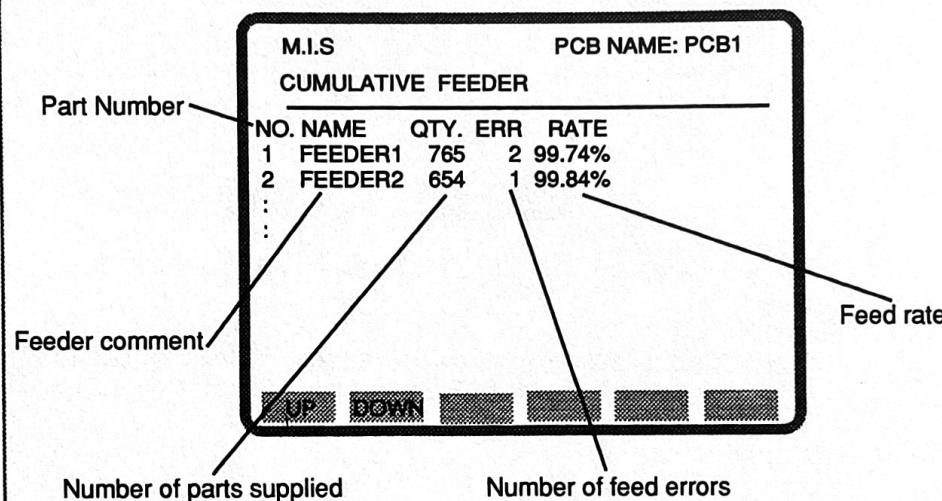
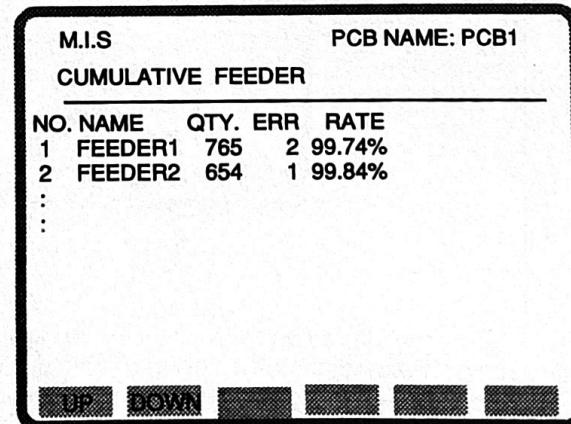


fig.5 Cumulative Data by Feeder

- 2) Use the ↑ and ↓ keys, or press F1 (UP) or F2 (DOWN) to view the cumulative data for the feeders used with the selected PCB

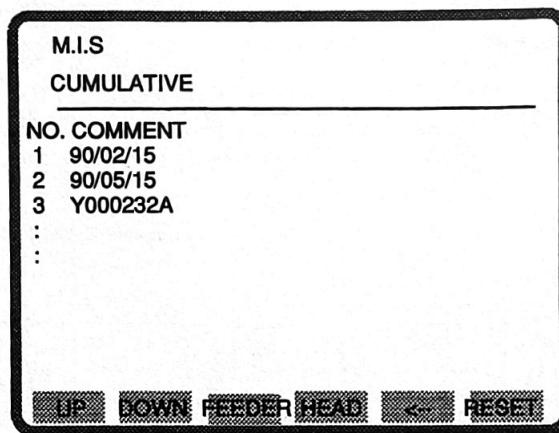
**NOTE:**

If "No Check" is specified for the pickup vaccum level of the parts in the feeder being used, the M.I.S. data will not be updated.



- 3) On the screen shown in Fig. 5, press the EXIT key. Pressing the EXIT key on the cumulative feeder data screen returns to the screen shown in Fig. 3, where cumulative data is displayed for each separate PCB.

- 3) On the screen shown in Fig. 3, press the F5 ( $\rightarrow$ ) key.



*fig.4 Cumulative Data by PCB (2)*

This displays comments concerning each of the PCBs. Comments displayed are those specified in the PCB Mode of the data input mode. (21 Series only)

- 4) On the screen shown in Fig. 4, press the F5 ( $\leftarrow$ ) key to return to the screen in Fig. 3.

M.I.S CUMULATIVE						
NO.	PCB NAME	QTY.	MR[%]	MT[S]	CT[S]	PQ
1	PCB1	345	98.99	1.5	20.4	24
2	PCB2	137	99.01	1.6	14.9	22
3	PCB3	58	97.65	0.9	7.4	9
:						
:						

At the bottom of the table is a horizontal menu bar with the following buttons: UP, DOWN, FEEDER, HEAD,  $\rightarrow$ , and RESET.

- 5) On the screen shown in Fig. 3 or Fig. 4, press the EXIT key.  
Pressing the EXIT key on the cumulative PCB data screen returns to the screen shown in Fig. 2, where operation time is displayed.

#### 4.2.3.2. Single Feeder Data Display

This displays the single data for each feeder of the PCB. Displayed data includes the feeder number, the feeder name, the number of parts supplied, the number of feed errors, and the feed rate.

- 1) On the screen shown in either Fig. 8, press the F3 (FEEDER) key. Feeder data, classified by part number, will be displayed for the PCB.

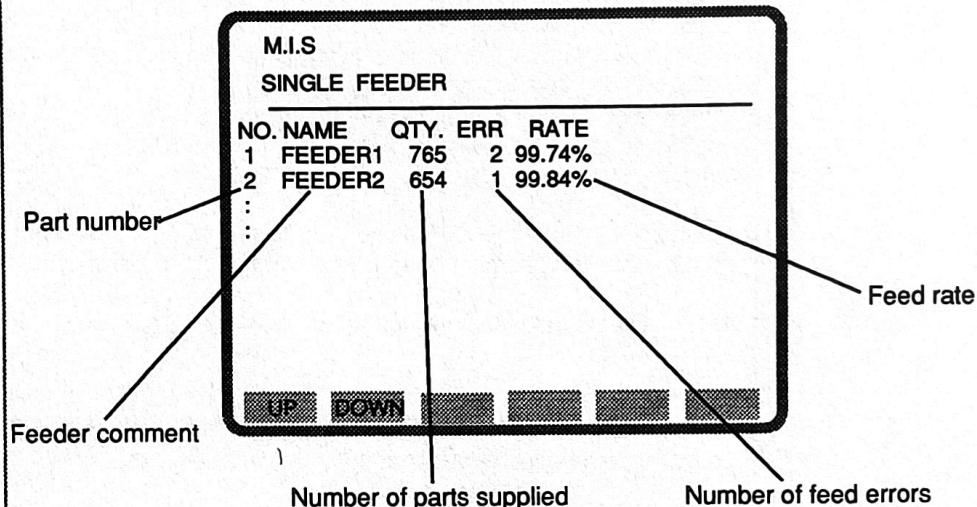
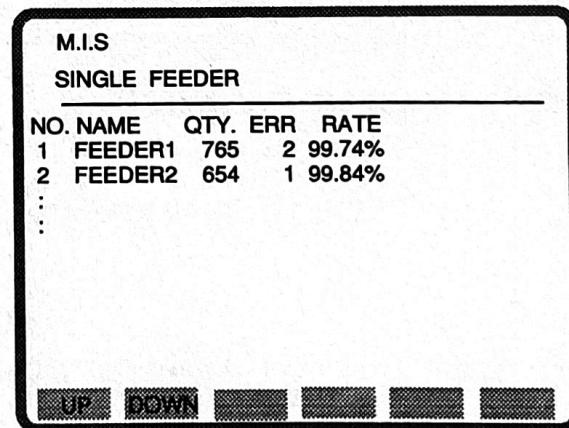


fig.9 Single Data by Feeder

- 2) Use the ↑ and ↓ keys, or press F1 (UP) or F2 (DOWN) to view the cumulative data for the feeders used with the selected PCB.

**NOTE:**

If "No Check" is specified for the pickup vacuum level of the parts in the feeder being used, the M.I.S. data will not be updated.



- 3) On the screen shown in Fig. 9, press the EXIT key. Pressing the EXIT key on the single feeder data screen returns to the screen shown in Fig. 8, where single data is displayed for PCB.

#### 4.2.3. Single Data

##### 4.2.3.1. Single PCB Data Display

This M.I.S. data is controlled simultaneously with single data pertaining only to PCBs currently in production, and is controlled separately from cumulative data displays. Cumulative data can be used to cover the entire process from the start of production, while single data applies only to a specific period of time. For example, when handling data in 1-day units, the single data can be used as the daily data, while the cumulative data can be used as the total data.

When PCBs are changed, the single data is erased and registration starts over again as production data for the new PCB. When this happens, all single data is set to initial values (0).

In the single data, the PCB name, number of boards produced, mounting rate, mounting time, cycle time, number of parts, and comments are displayed.

- 1) On the screen shown in Fig. 2, press the F2 (SINGLE) key.

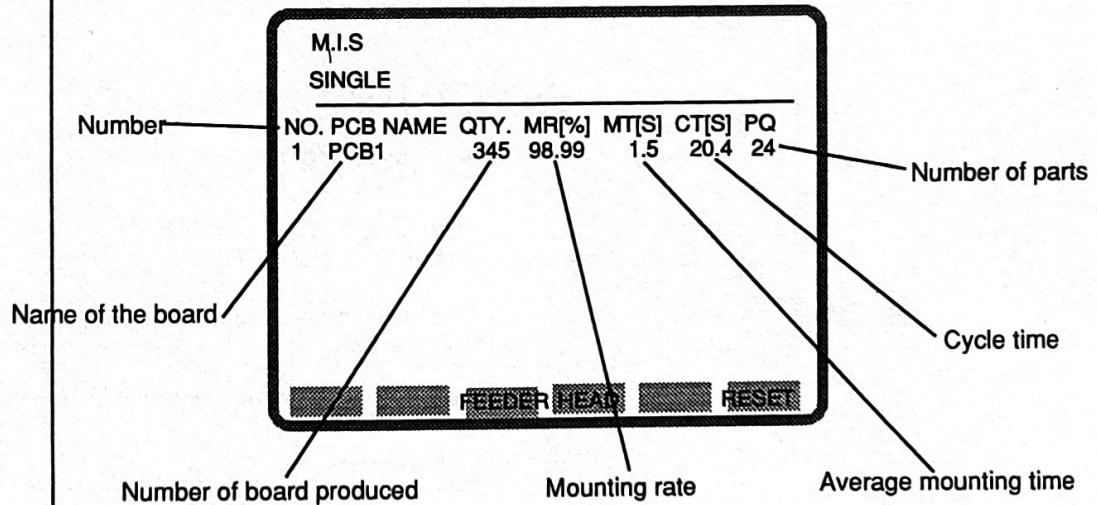


fig.8 Single Data by PCB

- 2) On the screen shown in Fig. 8 , press the EXIT key.  
Pressing the EXIT key on the single PCB data screen returns to the screen shown in Fig. 2, where operation time is displayed.

#### 4.2.2.4. Reset The Cumulative PCB Data

This resets the specified cumulative PCB data.

- 1) Press the F6 (RESET) key on the screen shown in either Fig. 3 or Fig. 4 (a reset has not actually been initiated at this point).

M.I.S		PCB NAME: PCB1				
CUMULATIVE						
NO.	PCB NAME	QTY.	MR[%]	MT[S]	CT[S]	PQ
1	PCB1	345	98.99	1.5	20.4	24
2	PCB2	137	99.01	1.6	14.9	22
3	PCB3	58	97.65	0.9	7.4	9
:						
OK? (⊖:YES ,OTHERS:NO)						

fig.7

To initiate the reset, press the ⊖ key.

To cancel the reset operation without resetting anything, press any key other than the ⊖ key.

- 2) Press the ⊖ key.

M.I.S		PCB NAME: PCB1				
CUMULATIVE						
NO.	PCB NAME	QTY.	MR[%]	MT[S]	CT[S]	PQ
1	PCB1	0	0.00	0.0	0.0	0
2	PCB2	137	99.01	1.6	14.9	22
3	PCB3	58	97.65	0.9	7.4	9
:						
UP		DOWN	FEEDER	HEAD	RESET	ESC

The production data for the PCB whose number is displayed in a reverse display will be reset.

This means that the number of boards produced, mounting rate, average mounting time, cycle time, number of parts, all feeder data and all head data for the specified PCB will be reset to zero.

With the Hyper Series, the cumulative operation time and cumulative running time are also reset to zero.



**SECTION 5****ERROR MESSAGES****5.1. Error Message(s)****63:WARNING:OVER FLOW**

*Meaning :* Remaining memory space for M.I.S data is running out. (not an error)

*Cause :* M.I.S data has exceeded 90% of maximum value.

*Solution :* Reset M.I.S data at appropriate point.

#### 4.2.3.4. Reset The Single PCB Data

This resets the specified single PCB data.

- 1) Press the F6 (RESET) key on the screen shown in either Fig. 8 (a reset has not actually been initiated at this point).

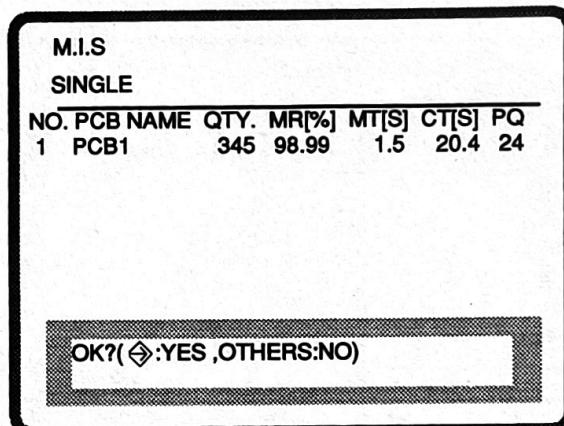
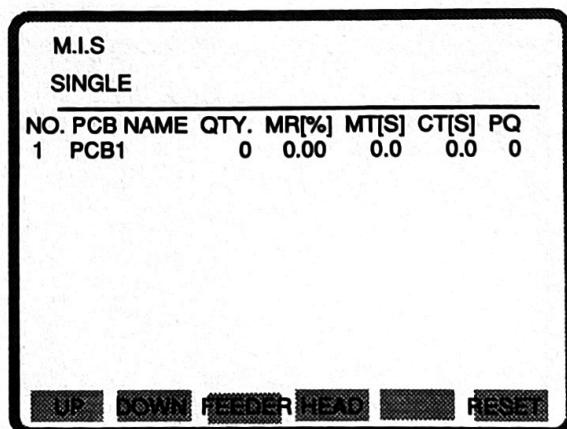


fig.11

To initiate the reset, press the  $\diamond$  key.

To cancel the reset operation without resetting anything, press any key other than the  $\diamond$  key.

- 2) Press the  $\diamond$  key.



The production data for the PCB whose number is displayed in a reverse display will be reset.

This means that the number of boards produced, mounting rate, average mounting time, cycle time, number of parts, all feeder data and all head data for the PCB will be reset to zero.

With the Hyper Series, the single operation time and single running time are also reset to zero.

#### 4.2.3.3. Single Head Data Display

This displays the single data for each head of the PCB. Displayed data includes the head number, the number of parts supplied, the number of feed errors, the feed rate, the number of mounting errors, and the mounting rate.

- 1) On the screen shown in either Fig. 8, press the F4 (HEAD) key.

M.I.S. SINGLE HEAD					
NO.	QTY.	ERR1	RATE1	ERR2	RATE2
1	134	0	100.00%	0	100.00%
2	510	1	99.80%	2	99.61%
3	234	2	99.15%	1	99.57%

fig.10 Single Data by Head

- 2) On the screen shown in Fig. 10, press the EXIT key.  
Pressing the EXIT key on the single head data screen returns to the screen shown in Fig. 8, where single data is displayed for PCB.