

MDM Metrosoft s.a.s.

di DENI Ing. Michele & C.

OFF LINE

User's Guide

EDITION MAY 2004

Copy Right MDM Metrosoft sas
Via IV Novembre , 22 - 40061 MINERBIO (BO) - ITALY
Tel. *39/ 051/6604001 Fax *39/051/6605543

INDEX

	Pag
INTRODUCTION	5
1. UTILISATION MODE	6
2. OPTIONS OF OFF-LINE	7
1 New program	7
2 Load program	7
3 Save program	9
4 Save with name	9
5 Insert measurements	9
6 Copy	10
7 Past	10
8 Printing on File	10
9 MIX menu dimension	11
10 Return to DOS	11
3. OPERATIVE MODES OF OFF-LINE	12
3.1. Window of printing	12
3.2. Modification of an existing procedure	13
3.3. Recording of a procedure	14
3.4. End	14
3.5. Example of creation of a new procedure	15

INTRODUCTION

OFF-LINE is an application that, born to change “*self-learning procedures*” (sequences of measurements or of calculations) obtained through MIX, has become an useful tool for the creation *ex-novo* of these *procedures*; later we will use the word “*procedure*” for indicating a “*self-learning procedure*”).

Its structure is an easy representation, in a block diagram, of the "language" used by MIX in phase of recording.

For these reasons for the use of OFF-LINE a good knowledge of of MIX is requested.

The flexibility of this allows :

- **To record "ex-novo" a *procedure***, with the elimination of long measuring operations and the possibility of order errors that cannot be corrected by MIX in phase of recording.
- **To change nominal values and tolerances** to be printed on the certificate of a measuring *procedure* previously recorded.
- **To change, eliminate or add instructions** of a measuring *procedure* previously recorded.

STRUCTURE OF MEMORISED *PROCEDURES*

The *procedures* of measurements and calculation are represented through a “tree structure” reproducing the options that MIX proposes in phase of recording.

This structure is characterised by blocks containing the information, and by ramifications that connect the blocks among them, showing the logical flow of the program.

There are different blocks for the type of information that they contain.

- **Entity block**
It contains the type of entity to declare (for example : point, straight line, distance, angle) and how to individualise it (for example : point intersection & plane, axis of a cylinder, distance of two points).
- **Printing block**
It contains the informations regarding the printing on the certificate of the value of a measurement or of a calculation.
- **Memorisation block**
It contains the name of the entity (point, straight or plane) that it saved on memory, or loaded from memory.
- **Measurement block**
It contains the informations of the modality of measurement of a entity, the probe and sensor used.
- **Reference system block**
- **Ending block**

Note : Informations on probe are included in Measurement block only in case of probe of type Tc2. In case of probe type PH10, these informations will be given through MIX in the modes M3 or M7.

1. UTILSATION MODE

1.1. OPERATION MODE

To understand this type of programming it is necessary know the meaning of the two modes of operation:

- **EDITING MODE**
In this mode it is possible to shift through the tree-structure, to select the blocks that must be changed or completed, and to select the editing options.
- **EMULATION MODE**
In this mode it is possible to give the information to the block using the the menu of MIX.

1.2. DEVICES OF SELECTION

Could be :

- **MOUSE**, that allows a very quick use, as we will see in succession.
- **KEYBOARD**, using its keys to select the icon or the key to be activated, and pushing the RETURN key.

1.3. DATA IMPUTED FROM KEYBOARD

The keyboard is also used to input the numerical data and the comments, that could be requested in these circumstances:

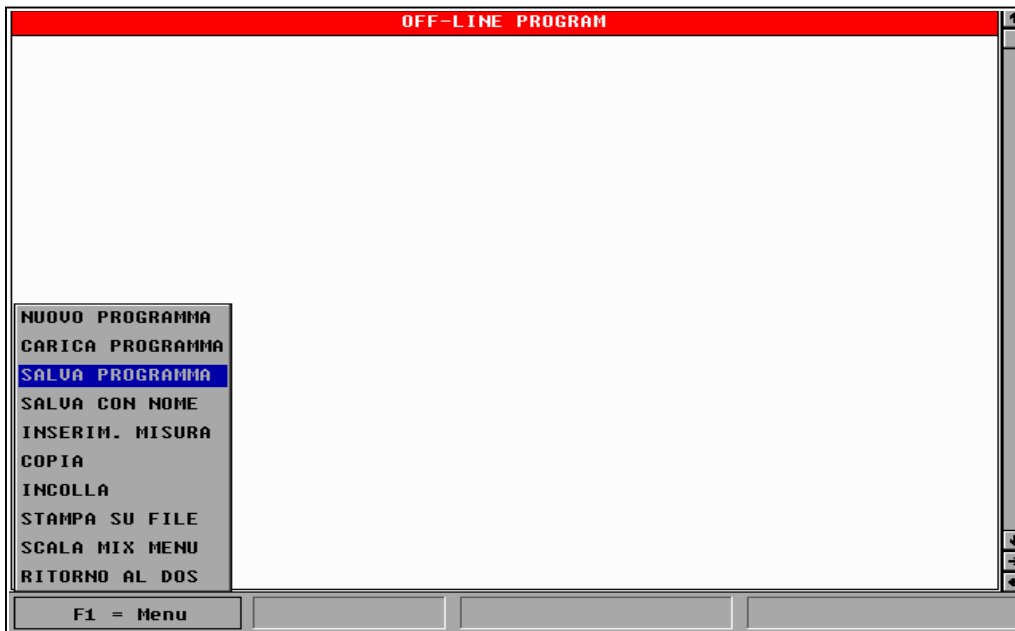
- When will be displayed a Window of **PRINTING** to give the description of the type of measurement and to input nominal values and tolerances.
- In case of presentation of a window of **INPUT-DATI**.
- To give a comment.

2. OPTIONS OF OFF-LINE

To load OFF-LINE see the Applications Manager User Guide.

Loading the program it will be displayed the video of Figure N. 1, containing the main menu.

Figure N. 1



We will examine the commands of **EDITING** menu .

1 = NEW PROGRAM

This command leaves a previously loaded or edited *procedure* and configure itself in emulation mode to create a new *procedure*.

2= LOAD PROGRAM

This is a command for loading a *procedure* that can be modified.

The sequence to follow is described in **Chapter N. 6 “FILE SYSTEM”** of the Applications Manager User Guide.

If in memory should be present another *procedure* (N.1), the new *procedure* (N.2) will be “appended” to the *procedure* N. 1, maintaining the name of the N.1 .

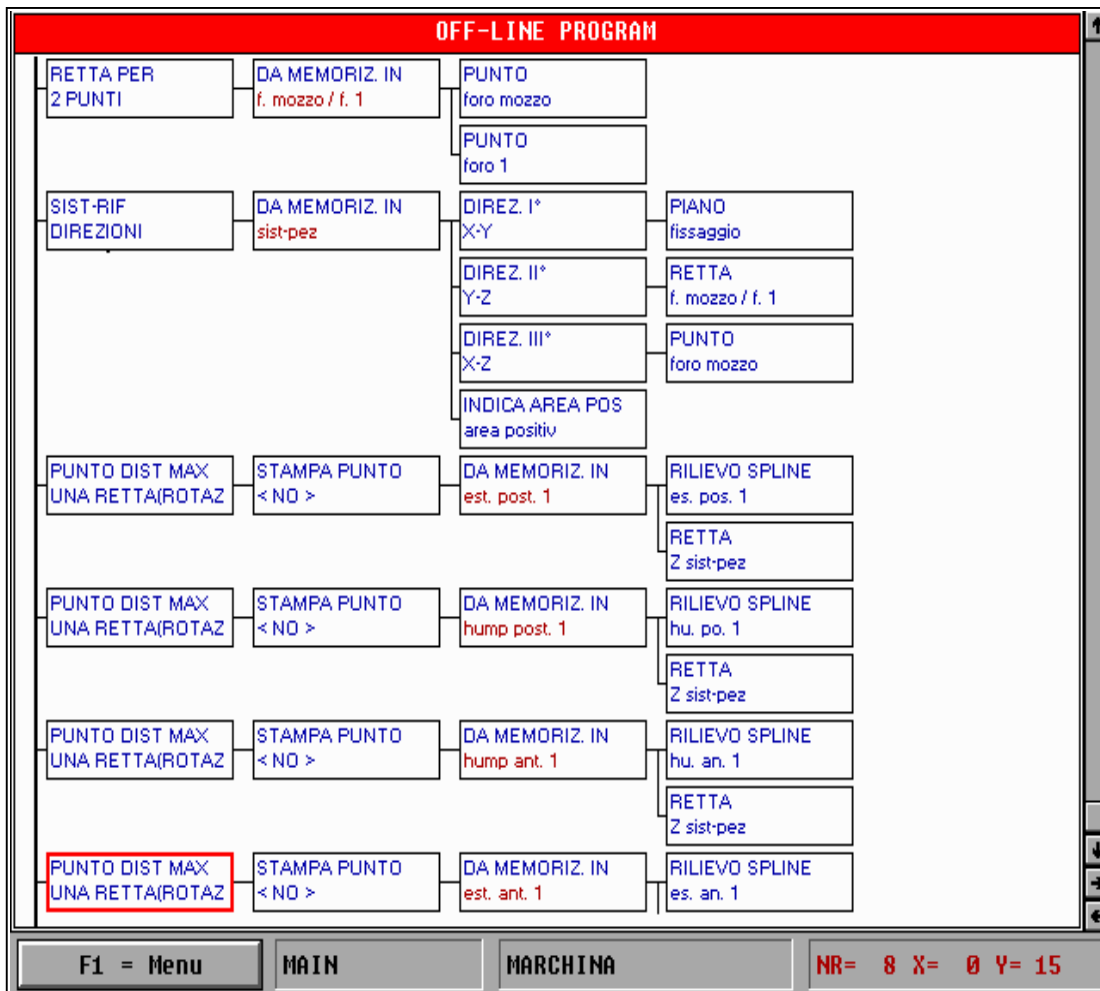
This possibility is used, with the opportune cautions, when it is necessary to have repetitive *procedures*.

A loaded *procedure* will be displayed on Video as a “tree structure” where it is possible to note :

1. **the trunk** , represented by a black vertical line on the left of the Video
2. **primary branches**, represented by blocks, departing from the trunk in right direction.
3. **knots**, represented by points, in correspondence of which:
 - a primary branch is divided in two or more secondary branches
 - a secondary branch is divided in two or more tertiary branches
 - etc.

Loading a structure will be displayed on left hand the trunk, and in the bottom the last branch. The Figure N.2 contains an example of the structure displayed on the Video in this phase.

Figure N. 2



On the *procedure* displayed in Figure N. 2 can be done the following operations :

- to flow the structure in vertical direction with a "scroll-bar" system by Mouse or, with more difficulty, from keyboard, with the vertical arrow keys.
- To flow the structure in horizontal direction by keyboard, with the horizontal arrow keys; blocks that, on right hand, are out to the video, could be reached scrolling all the block diagram to left hand, and losing therefore the trunk out of video.
- If on the video is displayed only a part of the structure, reach one of the visualised blocks simply by "clicking it" with the Mouse.

The frame of such it block will become, now, of red colour.

On the bottom , to the right of the label F1 will be displayed :

- name of the current index (see Applications Manager User Guide) .
- name of the current card (see Applications Manager User Guide) .
- three numbers (in red colour) that mean :
 1. **NR** numbers of the branches (for the first NR branch = 0).
 2. **X & Y** respectively numbers of line and of column of the generic block setting the origin in (X= 0, Y= 0) in correspondence of the beginning of the *procedure*.

3 = SAVE PROGRAM

This command records the *procedure* in index, maintaining the label with which it has been loaded.

The "saving" sequence is preceded from an automatic control of the same *procedure*, to avoid the recording of *procedures* not correct or incomplete.

4 = SAVE WITH NAME

This command is similar to the precedent, but it allows to change the name with which the *procedure* will be saved.

5= INSERT MEASUREMENTS

This command enables the insertion of a new instruction inside a *procedure*.

It is necessary to position on the first block (that branches out trunk) immediately following the point of insertion of the new instruction, and then push RETURN key.

For this reason it will not be possible insert an instruction after the last block: in fact, if we are positioned on the last block, the new instruction would be inserted before the last block.

If it is requested to insert an instruction after the last block it is necessary it needs to put the cursor in correspondence of the first block to left of the last branch, and "click" with the Mouse on the arrow in low, or push from keyboard with the vertical (directed in low) arrow key.

It will be displayed a Window YES-NO with the question :

DO YOU WANT TO ADD A MEASUREMENTS ?

6= COPY

This command, that works together the command **7 = PAST**, allows to put in a temporary memory the measurement that has been previously done in a branch of the "tree structure".

It is necessary to put the cursor in correspondence of the block that branches out to the trunk, to select the option **6= COPY**, and activate the selection or "clicking" with the left button of the Mouse, or pushing the RETURN key.

7= PAST

This command, that works together the command **6=COPY**, allows to insert, in a point of the "tree structure", the measurement that has been previously put in a temporary memory.

It is necessary to put the cursor in correspondence of the block before which the new block must be inserted, then select the option **7= PAST** and activate the selection or "clicking" with the left button of the Mouse, or pushing the RETURN key.

8= PRINTING ON FILE

This Command has been introduced to enable the printing on paper (as it is displayed on Video) of the block diagram of the *procedure*.

We suppose that the *procedure* that interests already is displayed on Video.

The sequence is the following :

- choose the general menu through the command F1.
- select the option 8 PRINTING On FILE
- display a Window of SAVING with which it is proposed to assign to the File that will be converted (and that it will have a .TXT extension) a label, that could also be different from that one with which it is defined.
In this Window will be underlined the others possible converted File, that will have, obviously, TXT extension.
- choose again the general menu through the command F1.
- go out OF off-line with the command **10 = COME BACK TO DOS**.
- Go back to DOS, with the option 5 of the general menu of Applications Manager.

The converted File that will have the assigned name, and the TXT extension, will be in the Root Menu, and it will be possible load it with the EDIT program; on video it will be displayed the saved *procedure* in blocks.

Using the option of printing of EDIT it will be possible to print on paper the block diagram.

If a block diagram is developed in width, it will be opportune to select on printing the option : **"CONDENSED PRINTING."**

9= MIX MENU DIMENSION

Using OFF-LINE will be proposed the menu and the submenus of MIX, and the user will do the selections on these menu and submenus, that will be displayed in zones where should not cover parts of the block diagram that at that time must be to read.

The menu and submenus can be proposed with two different scales, that they is possible select clicking on the option **9 =MIX MENU IN SCALE**; if necessary, can be selected in the low scale, so that the menu cover a little area of the video.

10 = RETURN TO DOS

This command allows to exit OFF-LINE, and go back to the main menu of Application Manager..

If this command should be selected in the following cases:

- creation of a new *procedure* without having it saved before.
- modification of a *procedure* previously loaded, and not saved (also the simple reading of the data of the block of printing, without the execution of modifications is considered a modification) the Command **10 = RETURN TO DOS** causes the displaying of a Window YES-NO with the following message :

**ATTENTION
THIS PROGRAM HAS BEEN MODIFIED
DO YOU WANT TO SAVE IT ?**

In both the cases, after a possible saving, OFF-LINE comes back to the main menu.

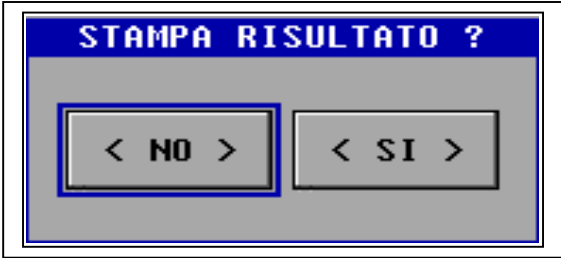
3. OPERATIVE MODES OF OFF-LINE

It is opportune to specify that the questions of OFF-LINE are the same of MIX in the modes M/ 1 or M/ 2, but the *procedure* with which they are put is inverted.

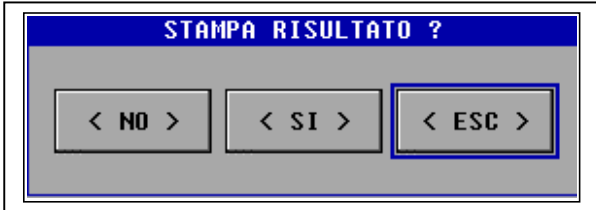

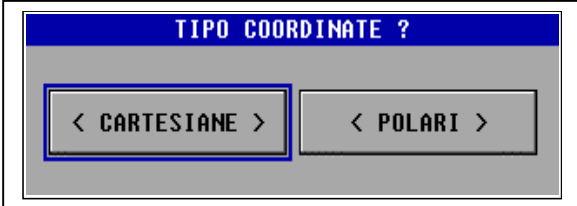
3.1. WINDOW OF PRINTING

This Window is displayed in these different modes :

Mode N. 1

<p>Creating a new <i>procedure</i>, or changing one existing, in which has not been previously fixed the printing of the measurements :</p> <p>Choosing :</p> <ol style="list-style-type: none"> 1. NO = printing is interdicted 2. YES = it is possible to print measurement. 	
---	--

Mode N. 2

<p>Changing an existing <i>procedure</i>, in which has been previously fixed the printing of the measurements :</p> <p>Choosing :</p> <ol style="list-style-type: none"> 1. ESC = is confirmed printing fixed 2. NO = printing is interdicted 3. YES = next question are displayed. <p>< NOM+ LIM>= The field of tolerance will be expressed through nominal value, higher deviation and lower deviation.</p> <p>< LIMITS>= The field of tolerance will be expressed through higher limit and lower limit.</p> <p>< CARTESIAN>= The measurement will be express in Cartesian co-ordinates.</p> <p>< POLAR>= The datum will be express in polar cylindrical co-ordinates.</p>	  
---	---

The questions go on for the introduction of nominal values and tolerances that will be given in different modes for a new *procedure* , or to change an existing *procedure*, as we will see later.

3.2. MODIFICATION OF AN EXISTING *PROCEDURE*

For the modification of a *procedure* follow this sequence :

- Select the command 1 NEW PROGRAM , (so that none *procedure* will be loaded in memory), then come back to the EDITMODE pushing ESC key.
- Select the command 2 LOAD PROGRAM, type the name of the desired *procedure*, push RETURN key, and wait for the display of the block diagram.

3.2.1. Modification of nominal values and tolerances

Select the block of printing that contains the information to modify and follow the sequence described in paragraph 3.2.

At the end will be displayed the Window of Printing, to which it will be possible carry the necessary modifications; here is shown an example.

STAMPA			
DESC	VALNOM	TOL+	TOL-
12 D. HUMP EST. XC? YC? ZC? SCARTO?	355 .5	0	-0 .95



3.2.2 Modification, elimination or addition of instructions

On a block diagram of an existing *procedure* it is possible to do the following operations on of a block that branches out of the trunk :

3.2.2.1 Modification of an instruction

The block containing the instruction must be displayed, and modifications can be done by using the available options.

3.2.2.2 Elimination of an instruction

Activating the block containing the instruction, will be displayed the following Window:

LA MISURA DEVE ESSERE CANCELLATA ?	
< NO >	< SI >

In case of negative answer the instruction will remain.

In case of positive answer the instruction will be erased.

3.2.2.3 Addition of an instruction

It must be clicked the block following that one after which instruction must be inserted and must be utilised the command 5. INSERT MEASUREMENT.

3.3. RECORDING OF A MODIFIED *PROCEDURE*

The modifications can be recorded with commands :

1. F3 SAVE PROGRAM (maintains the same label for the new *procedure*)
2. F4 SAVE WITH NAME (maintains the same label for the old *procedure*, and gives a new label for the new *procedure*).

3.4. END

It must be given the command "F10 Return to the DOS."

3.5. EXAMPLE OF CREATION OF A *PROCEDURE* THROUGH OFF-LINE

We give an example of creation through OFF-LINE of a *procedure* that can be executed with the M/ 3 or M/ 7 modes of MIX.

Let us suppose that this *procedure* must realise the printing of the distance of a point (centre1) to a straight line passing for two points (centre2, centre3).

It will be therefore necessary:

- Probe the plane (plan_1) where lie circumferences that we must measure.
- Probe the 3 circles, (centre1, centre2, centre3);
- Calculate the straight line passing through for centre2 and centre3, that we will call (axis);
- Calculate the distance of centre1 to axis;
- Print the result.

1.

Select the command 1 NEW PROGRAM.

It is proposed an empty block containing the first instruction; in proximity it will be displayed the menu of MIX)

2.

Selecting the option PROBED PLANE (options: 3= measurements, 3= plane).

It will be automatically predisposed the blocks of diagram :

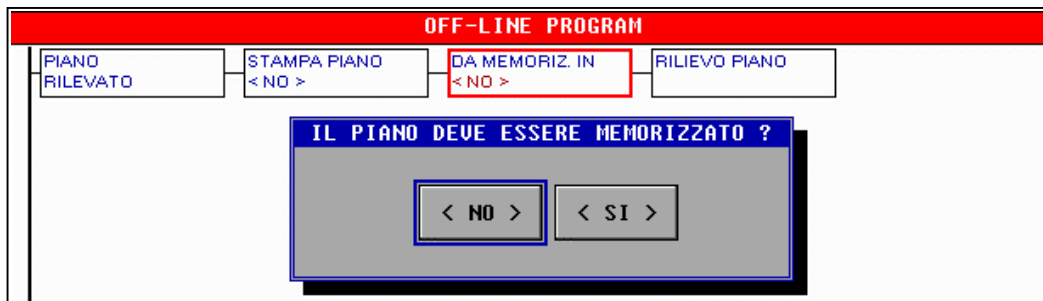


The cursor, that underlines the current block, will be positioned on the block of "PRINTING"
(See paragraph 3.1.).

The answer will be positive in case of printing the value of flatness of the plane (if measured with more than three points)

3.

The block of memorisation "TO MEMORISE IN," gives the possibility to memorise a geometric entity.



The block for the memorisation of the plane proposes of default < No> (doesn' t memorise the entity).

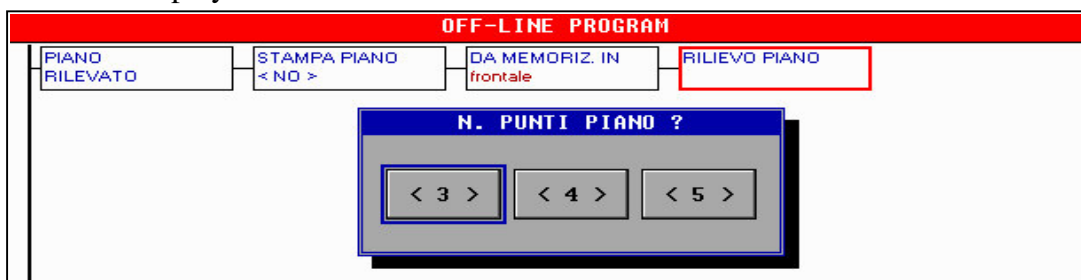
If we desire memorise the plane we must therefore change it in < Yes>.

4.

Let us select, after, the block "PLANE MEASUREMENT."

This block contains the information regarding the measurement of the plane, (number of points, probe, sensor and identification of the plane).

It will be displayed the Window :



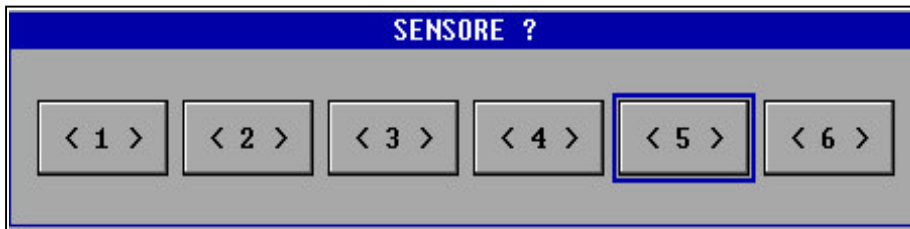
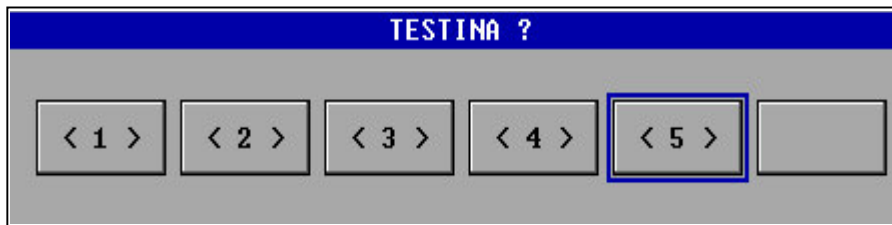
Will be confirmed the answer <3>.

It will be displayed a sequence of consecutive Window; the sequence may change for different types of probes.

The sensor and the head used it is the same through the 3 points?



If the answer is affirmative it will be requested in sequence, with the followings Windows, probe and sensor to use.



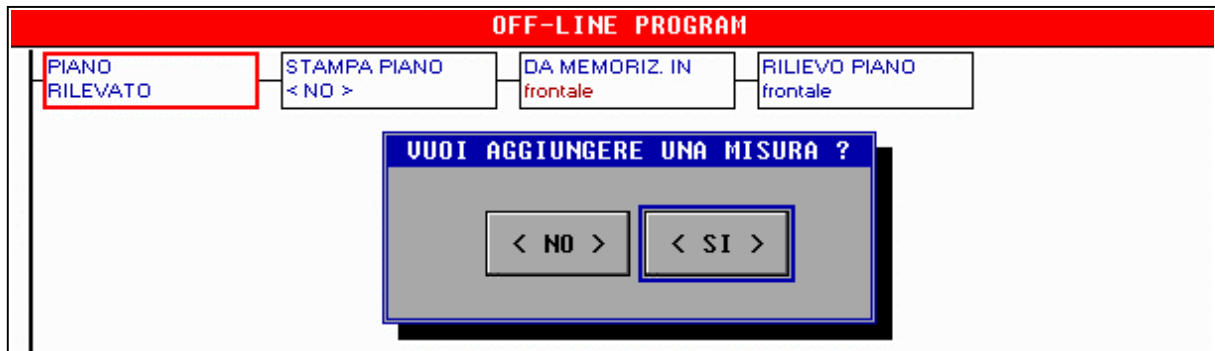
At the end it will be requested the name to assign to the plane and, if desired, a line of comment could be written.



5.

To insert the block containing the new instruction, position the cursor on the last block that, in the bottom, branches out of the trunk, and push ENTER.

It will be displayed the Window:



Answering <Yes> it will be added a block to the trunk.

6.

Following an analogous sequence select the word:

MEASUREMENT OF A CIRCLE (words: 3= measurements, 4= circle).

In analogous mode, will be displayed the followings Windows :

- Printing of the Circle
- Memorisation of the Centre of the Circle
- Selection of Sensory/ Heads through the measurement.
- Indication of the Frontal plane through the measurement of the Circle.

7.

Repeat the same sequences for "centre2" and "centre3."

8.

Select the straight-line passing for two points (4= calculations, 2= straight line, 1= for two points).

The block of memorisation through the straight line will be displayed and the two block through the points.

9.

Memorise the straight line as "AXIS."

10.

Select the first I block "POINT" that we will declare memorised in "CENTRE2."

11.

Select the second I block "POINT" that we will declare memorised in "CENTRE3."

12.

Select the word distance of point to straight line (voci : 5= relationships, 1= distances, 3= point to straight line).

It will be displayed the block of printing, the block of the straight line and the block of the point.

13.

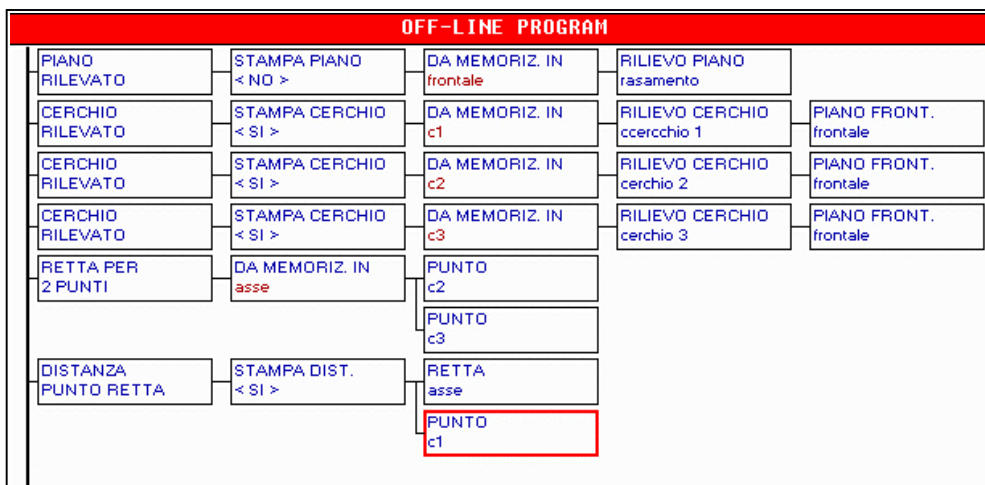
Select the answer <Yes> for printing and complete the informations.

14.

Declare the straight line as memorised in "AXIS" and the point as memorised in "CENTRE1."

15.

The block diagram that now will be displayed will be the following :



16.

Select the word 3. SAVE PROGRAM, to record the new *procedure*.