



OPERATING MANUAL

FOR



MAZAK
MAZATROL CAM
M-2

CENTRO DE MAQUINADO

Type

SERIAL NUMBER :



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Introduction:

The MAZATROL CAM M-2 is CNC equipment specially developed for machining centers. It allows easy and quick programming in daily conversational language. The MAZATROL CAM M-2 has various functions for reduction of set-up time and for many other purposes. Of course, it allows the conventional style of programming.

This manual describes the operating procedures of the MAZATROL CAM M-2 (excluding the EIA/ISO programming functions). For details of programming and EIA/ISO programming functions, please refer to:

1. MAZATROL CAM M-2 Programming Manual
2. MAZATROL CAM M-2 EIA/ISO Programming Manual.

NOTE: The specifications of the MAZATROL CAM M-2 may be subjected to change without previous notice for remodeling.



PART I OPERATION

1. NC

1.1 CYCLE START

This key switch is used to execute a program or command in the auto mode or MDI mode.

When the key is once depressed and released again, the command becomes valid, the CYCLE START lamp is illuminated, and the program and command are executed. When the command has been executed, the lamp goes out.

1.2 FEED HOLD

When the FEED HOLD signal is turned on during automatic operation (auto MDI), all the axes which have been being moved are decelerated and stopped. Re-starting can be performed with the automatic starting (CYCLE START) signal.

- ① Even when the FEED HOLD signal is valid, M, S, T and B are executed. Make a temporal stop of M or B, if so desired, on a single block basis.
- ② FEED HOLD is suspended when the mode is changed from the auto to the manual mode (HSx1, HSx10, JOG, RAPID, No. 1 ZERO, or No. 2 ZERO) during automatic operation.
- ③ When FEED HOLD is valid, interruption by the manual operation (HSx1, HSx10, JOG, RAPID, No. 1 ZERO or No. 2 ZERO) is possible.
- ④ FEED HOLD is invalid during the tap cycle. It becomes valid after the end of the tap cycle.

1.3 NC RESET

The reset function works when the **RESET** button on the control panel is pressed.

When the NC reset is pressed during machine operation, the machine feed speed is decelerated and the machine feed is stopped finally.

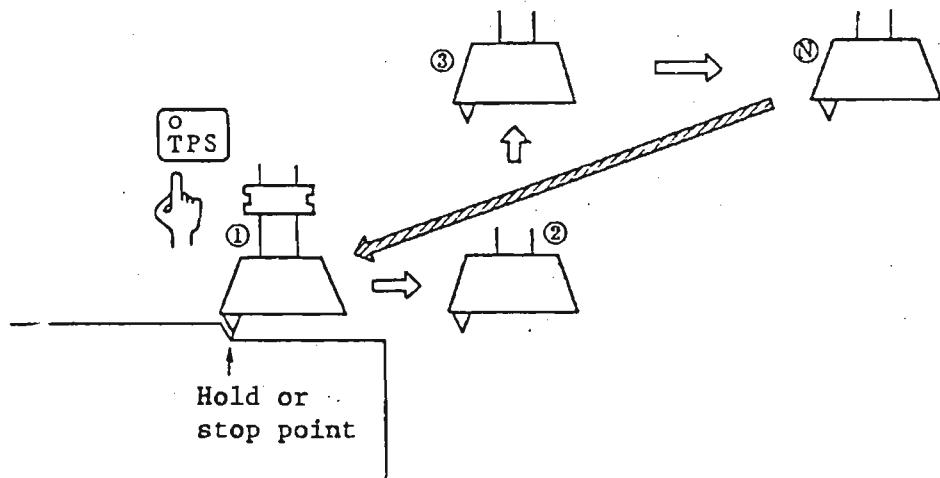


1.4 TPS

If the **TPS** (tip path storage) key is depressed before transfer (quick feed, slow feed, manual pulse generator or stepping) of the spindle according to the program when manual interruption is to be executed during an automatic operation to manually transfer the spindle, that position will be stored. When the **CYCLE START** key is depressed after returning to the auto mode, the spindle automatically returns to the former position and starts automatic operation. TPS is valid either in the MAZATROL Program or in the EIA/ISO Program. The TPS function is effective in a maximum of four positions.

(1) When a stop point only has been stored: * Tool path at interrupt ()

- a) Turn on the automatic pause (**FEED HOLD**) or automatic stop (**SINGLE BLOCK**)
- b) After making certain that the tool has stopped make a changeover to the manual mode and depress the **TPS** (tip path storage) key.
- c) Move the tool from ① to ② position in the manual mode.



* Tool path upon re-start of automatic operation (→)

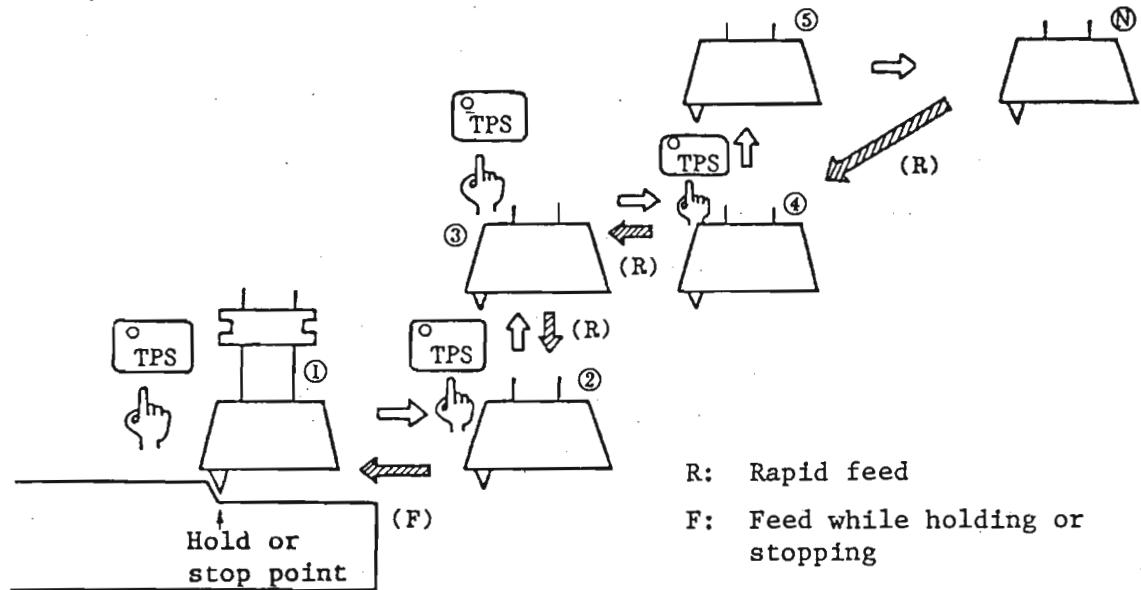
- a) Return to auto mode and depress the **CYCLE START** key.
- b) The tool approximates from ② to ① linearly at the same feedrate as it has paused or stopped. Then, the machine restarts the normal automatic operation.



(2) When stop point and turning points have been stored:

* Tool path at interrupt (→)

- a) Turn on the automatic pause (**FEED HOLD**) or automatic stop (**SINGLE BLOCK**)
- b) Move the tool from ① to ④ and further to ⑤ in the manual mode.
- c) While moving the tool to ⑤, depress the **TPS** key at points ①, ②, ③ and ④.



* Tool path at re-start of automatic operation (→)

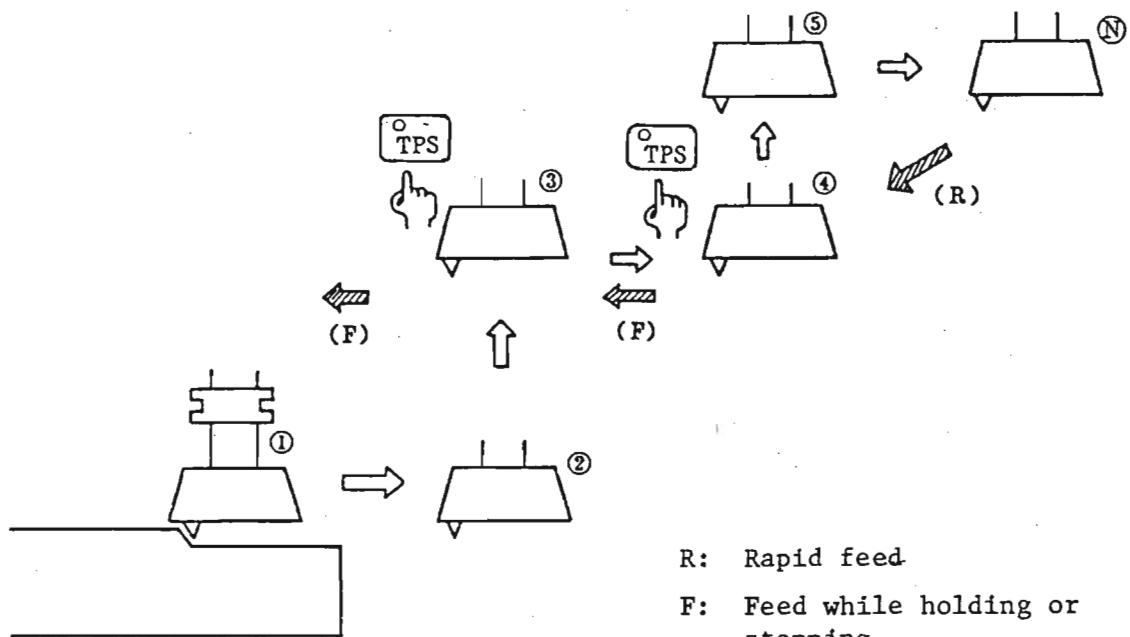
- a) Return to auto mode and depress **CYCLE START** key.
- b) The tool moves from ⑤ to ④ at the quick feed speed. Further, the tool moves from ④ to ② through ③ at the quick feed speed.
- c) When it reaches ②, it moves directly to ① at a speed equivalent to that before tool hold or stop and resumes automatic operation normally.



(3) When only turning points have been stored:

* Tool path at interrupt (→)

- Turn on the automatic pause (**FEED HOLD**) or automatic stop (**SINGLE BLOCK**).
- Move the tool from ① to ④ and further to ⑤ in the manual mode.
- While moving the tool to ⑤, depress the **TPS** at points ③ and ④ .



R: Rapid feed

F: Feed while holding or stopping

* Tool path re-start of automatic operation (↗)

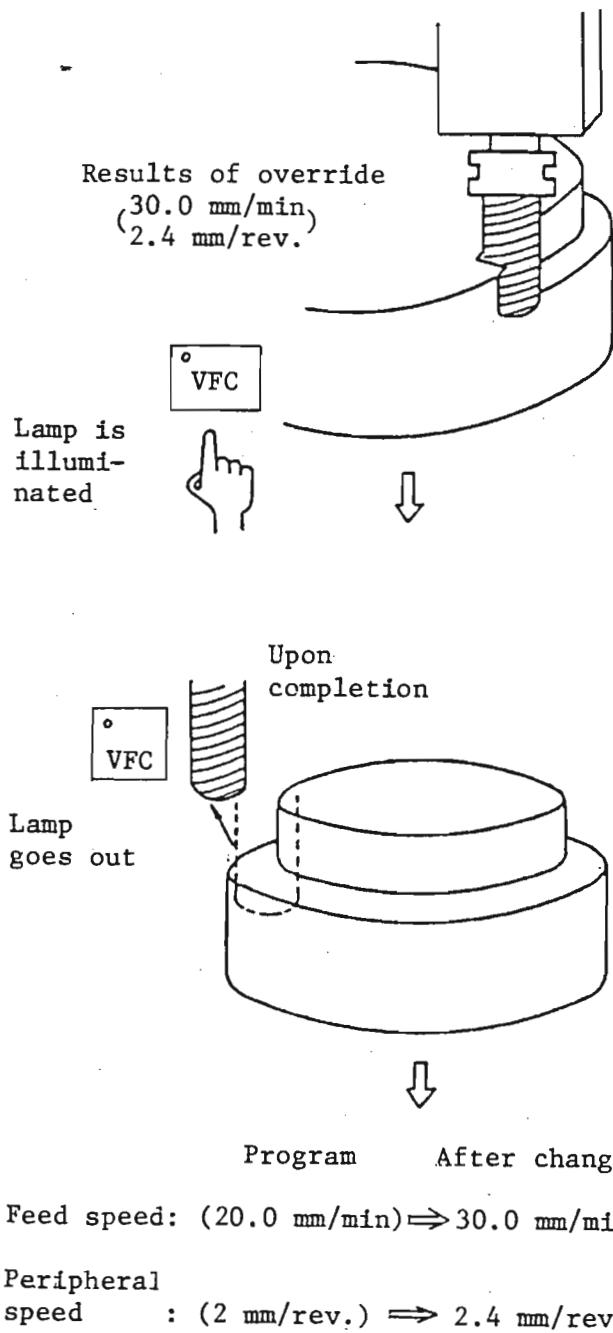
- Return to auto mode and depress the **CYCLE START** key.
- The tool moves from ⑤ to ④ at the quick feed speed.
- The tool moves from ④ to ③ at a speed equivalent to that before hold or stop.
- The automatic operation continues as if position ③ where **TPS** has been initially turned on were stop point ①. In other words, the machine goes on automatically operating after the coordinate system has been shifted from ① to ③.

NOTE: Except when deliberately shifting the tool path, do not fail to turn on the **TPS** key at the pause or stop point. If not, the cutting program with that tool will be executed at a position offset from the coordinate system already established.



1.5 VFC

This function may be effectively used when it is desired to alter a program to the cutting speed and feedrate, both already changed by overriding a spindle speed and feedrate during the automatic operation. This function is effective for both rough and finish machining. VFC is invalid in the EIA/ISO Program.



Example:

Program	Override
Feed speed : 20.0 mm/min	150% (30.0 mm/min)
Peripheral speed : 2 mm/rev.	120% (2.4 mm/rev.)

- ① Apply override and turn on the **VFC** key during cutting. - Lamp is illuminated
- ② When that machining sequence has been completed, the VFC lamp goes out and the programmed feed speed and peripheral speed are changed to the newly overridden speeds.

Note 1: The VFC function is invalid in the rapid feed mode, in the manual program mode or in the tap cycle.

Note 2: About override in the tap cycle

o Feed speed override

Although the varied speed is displayed, the actual cutting feed speed remains unchanged.

o Spindle override

This is valid even in the tap cycle. In this case, the feed speed is also automatically changed.

(See "Spindle Override".)



1.6 Measurement of Tool Length

For measurement of tool length, any of the following methods is used:

i) Fully automatic

If the tool whose length is to be measured is set in the MDI mode, its length will automatically be measured and entered in the "LENGTH" column in the tool data. (This method is applicable only to those tools whose tips are aligned with the centerline of the spindle.)

ii) Semi-automatic

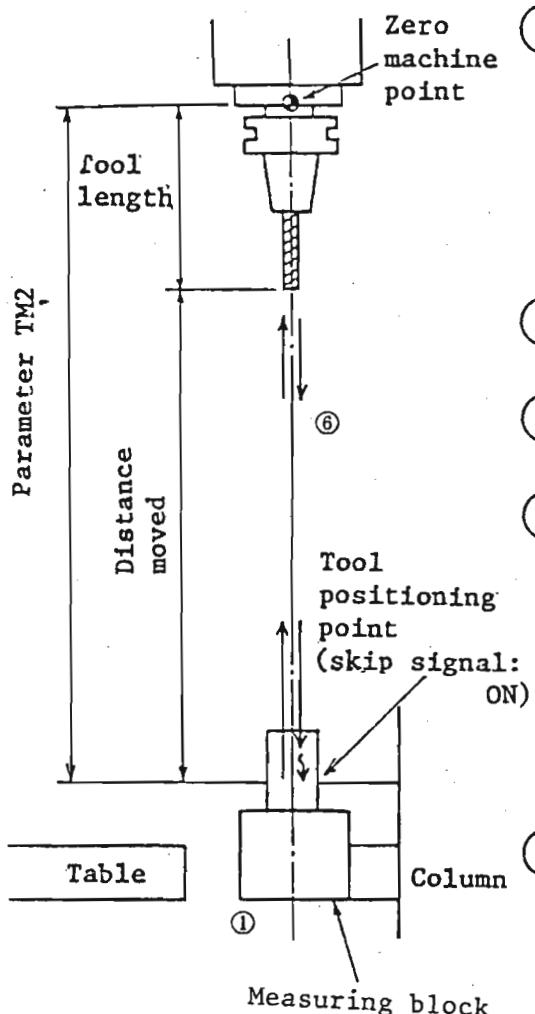
This method is effective for measuring length of tools whose tips are not aligned with the centerline of the spindle (face mill, etc.). After measurement, the tool length is added to the "LENGTH" column automatically.

iii) Manual

The tool length is measured manually using the TPS function. In this case, the measuring block is not used.



i) Fully automatic tool length measurement (with measuring block)



Note1: If the measuring block is not set, the T MSR AUTO will not be valid nor will the 7 pocket Nos. be inverted.

Note2: The single block is valid.

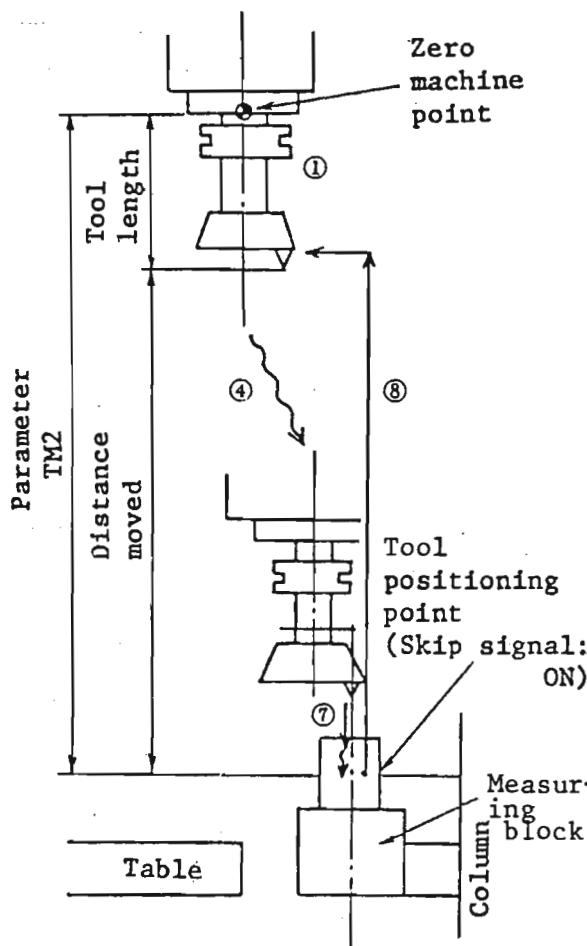
Note3: With the measuring block being set, switch to the automatic operation mode and the measuring block will return automatically. Since switching to the automatic operation mode with the plunger of the measuring block being in contact with the tool will mar the surface of the plunger, avoid such operation.

In such an instance, push the Z axis away after switching to the manual operation mode.

- ① In the MDI mode, position the measuring block.
(In a certain machine model, the measuring block is fixed. If so, this operation is unnecessary.)
* Turn on the MSR UNI OUT in the menu or input (INPUT) and start (CYCLE START) the M33 code and the measuring block will come out.
- ② Call the TOOL DATA screen. (Any other picture is also acceptable.)
- ③ Select and depress the T MSR AUTO key from the menu. (See Note 1)
- ④ A message will appear, asking "POCKET NUMBER?" Then, set the pocket Nos. of the tools whose lengths are to be measured.
Example:
To take measurements of the three tools in pockets Nos. 4, 5 and 6, input as follows:
4 . 5 . 6 INPUT
- ⑤ After setting, the pocket Nos. selected in ④ on the TOOL DATA screen will be inverted and the cursor will move to the "LENGTH" position for the applicable pocket Nos.
- ⑥ When the CYCLE START key is turned on ATC is executed automatically to measure the length of the specified tools.
When the length of each tool has been measured, the tool length is put automatically into the "LENGTH" sector of the tool data.
- ⑧ After completion of measurement, return the measuring block.
* Depress the MSR UNIT IN menu key or set M34 and depress the INPUT, CYCLE START.



ii) Semi-automatic tool length measurement (with measuring block)



- ⑨ After completion of measurement, restore the measuring block.

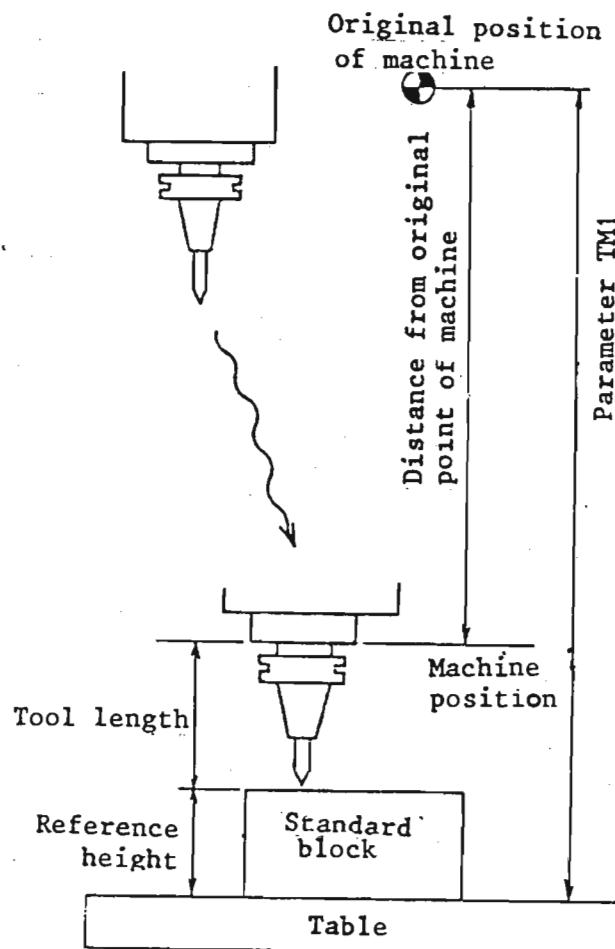
- ① Mount the tool whose length is to be measured to the spindle by executing ATC.
* In the MDI mode, depress the **TOOL CHANGE** menu key. Input the pocket number corresponding to the tool to be measured and turn on the **CYCLE START** key and tools will be automatically changed.
- ② Locate the measuring block. (On some machines the measuring block may be permanently mounted. In this case, skip this step.)
* In the MDI mode, depress the **MSR UNIT OUT** menu key. Otherwise, set M33 and depress the **INPUT**, **CYCLE START** and the measuring block will come out.
- ③ Call the **TOOL DATA** screen.
(Any other picture is also acceptable.)
- ④ Manually put the tool tip to the centerline of the measuring block.
- ⑤ Change to the MDI mode and depress the **T MSR MANUAL** menu key. (NOTE 1)
The question "MEAS.WITH SPINDLE TOOL<INPUT>" will appear on the screen. Then, depress the **INPUT** key.
The applicable pocket No. on the **TOOL DATA** screen will be inverted and the cursor will move to the "LENGTH" column.
- ⑥ Depress the **CYCLE START** key, and the axes will be moved automatically to measure the tool length.
- ⑧ After measurement, the Z-axis is automatically moved to the starting point and the measured value of the tool length is displayed.



- Note 1: If the measuring block is not located properly, the T MSR MANUAL menu key will not be effective or the pocket No. on the screen will not be inverted.
- Note 2: As started above, semi-automatic measurement of tool length will be impossible if the tool whose length is to be measured is not mounted in the spindle by ATC. ATC cannot be executed if a value of the tool length is put in the tool data. Therefore, a provisional numerical value must be put into the tool data as the tool length of such tool.
*Other in the fully automatic tool length measurement mode, are measurements made (ATC is executed) even when there is no data in "LENGTH".
- Note 3: Like i) fully automatic tool length measurement, the single block is valid.
- Note 4: Same as Note 3 of i)



iii) Manual tool length measurement (without measuring block)



Original position
of machine

Distance from original
point of machine

Parameter TM1

Machine
position

Tool length
Reference height

Standard
block

Table

- (1) Mount the tool whose length is to be measured in the spindle by operating ATC.
* In the MDI mode, depress the **TOOL CHANGE** menu key. Input the tool pocket No. and turn on the **CYCLE START** key.
Then, ATC will be executed.
See Note1.
- (2) In the manual mode (rapid feed, slow feed, step, manual impulse generator), move the axis until the tip of the tool touches the standard block or the workpiece whose height has been already determined.
- (3) Select the **TOOL DATA** screen with the display select key. Depress the **TEACH** menu key.
Then, the pocket No. of the tool mounted on the spindle will be inverted on the screen and the cursor will flicker at the LENGTH column.
- (4) Enter the height of the standard block (or the height of the workpiece) with the **TEACH** key inversed.
Example: When the height of the standard block (or the height of the workpiece) is 50mm:
TEACH 5 0 INPUT
- (5) After setting the measured value of the tool length is automatically displayed in the LENGTH column in the tool data.

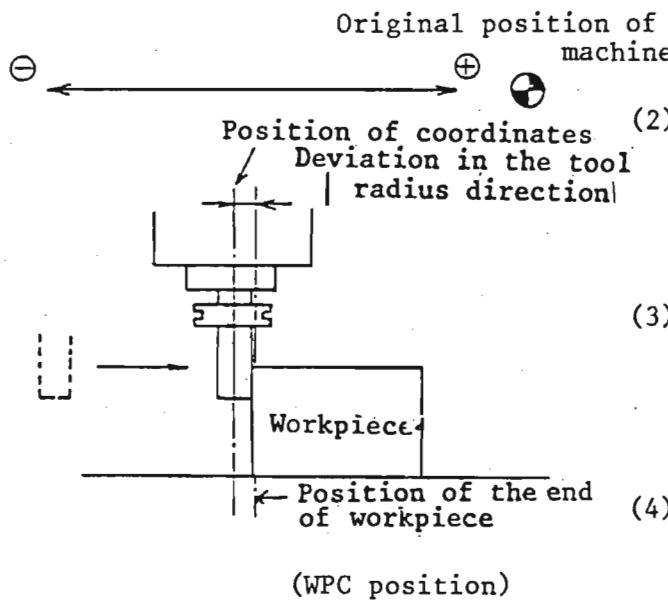


Note 1: As in ii) the semi-automatic tool length measurement , ATC can not be executed in manual tool length measurement unless a value is put in the LENGTH column in the tool data. It is necessary to input the approximate tool length beforehand.



1.7 Determination of Coordinate System by TPS function

- (1) Select the PROGRAM screen.



Turn on the menu key [WPC MSR START].

The menu will be changed.(Note 1)

- (2) To call the fundamental coordinate system(WPC) programmed for the applicable work No., turn on the [WPC SEARCH] and depress [INPUT].

- (3) The WPC unit is displayed at the top of the program screen.

The cursor flickers at the X-axis position.

- (4) Move the X-axis in the manual mode so that the tool may touch the workpiece.

- (5) With the tool touching the work-piece, turn on the [TEACH], and the menu will be inverted. Input the tool radius and depress the [INPUT]. (See Note 2). Then, the tool radius corrected at the current position will be set and displayed as the value on the X-axis of WPC. At the same time the cursor will flicker at the Y-axis position.

- (6) For the Y-axis, the system operates as referred to in (4) and (5). When WPC coordinate value of the Y-axis is displayed, the cursor flickers at the Z-axis position.

- (7) If it is desired to set WPC point on the Z-axis to Z=0 on the measured face of a workpiece, turn on menu [TEACH] after moving the cutting edge to the measured face of the workpiece. Then, input 0 ..

If 2 0 . 5 [INPUT] is input



instead of 0, the coordinates system of the Z-axis is determined in the position shifted by 20.5mm from the measuring surface of the workpiece in the positive direction.

Note 1: If no tool is mounted on the spindle, an alarm will result.

Note 2: When the tool is applied to the negative measuring end of the workpiece, the workpiece end is moved from the coordinate position by a distance equal to the tool radius in the positive direction. Therefore, input a positive tool radius.

Example: When the tool radius is 20mm as in the above figure, depress the keys to set:

[1] [0] [INPUT]

When measurement is made at the positive end of the workpiece, the negative sign is necessary because the workpiece end is moved from the current coordinate system position by the distance equal to the tool radius in the negative direction. depress the keys to set:

[-] [1] [0] [INPUT]



1.8 Re-starting:

In the automatic operation mode, turn on the RESTART menu key. Questions will appear on the screen, asking the unit No. and sequence No. for the work No. which has been selected. Input desired Nos.

1. Mode: Automatic operation
2. Select and turn on the RESTART
3. Input desired unit No., answering the message asking "UNIT NUMBER INPUT?"

Example: **[2]INPUT**

4. A question asking "SEQUENCE NUMBER INPUT ?" Input sequence No. in the unit set in the step 3 above.

Example: **[3]INPUT**

5. Press the CYCLE START key, and the program will be executed to the end, starting from the sequence of the machining unit so input. In the above example, the program starting at unit No. 2 and sequence No. 3 will be executed.

NOTE: Restarting will not execute in the sub-program.

Reason: Even when work No. of the sub-program is searched and re-starting is attempted, the execution will not return to the main program. Also, if the CONTINUE (CONTI) of the end mode for the sub-program is set to "1", execution will be repeated within the sub-program.

If WPC is not defined in the sub-program, the tool will not move according to the coordinate system for the main program because all the axes will work in the machine coordinate system.



1.9 Coolant:

When the **COOLANT** key on the control panel is depressed, the menu will be put in the coolant mode. (The coolant menu can be called in any mode and on any screen.)

The menu allows the three kinds of coolants--flood coolant, mist coolant and air blast. Each kind of coolant is provided with the AUTO, MANUAL and OFF modes.

AUTO: When the M code is used to control the coolant, this mode should be switched on.

MANUAL: When this mode is selected, each coolant is turned on, no matter if the machine is operating manually or automatically.

OFF: It cancels the AUTO or MANUAL mode.

* The **COOLANT** switch will be turned off if the key is depressed again. Then, the coolant menu will disappear and the menu will be put to the original status. Even when the coolant menu has disappeared the coolant mode once set is valid.

Note 1: With the **COOLANT** key ON, any menu other than the coolant menu cannot be operated normally. With the **F3** key on the operation panel kept depressed, however, any menu can be operated normally.



1.10 Tool select:

When the TOOL SELECT is selected in the MDI mode, the magazine can be rotated to the specified position.

Operating procedure :

Using the menu select key, select the TOOL SELECT in the MDI mode. A message asking "POCKET NUMBER?" will appear on the screen. Set the pocket No. of the magazine and turn on the CYCLE START switch. Then, the specified tool will rotate to the ATC reference position for positioning.

However, if no tool is entered for pocket No. specified by the TOOL SELECT or if there is no tool length data in the tool data entered, (100)"TOOL DAT ERROR(INCOMPLETE)" will be displayed and nothing will be executed.



1.11 ATC stop:

When the **ATC STOP** key on the control panel is turned on , the ATC operation currently being executed will continue to operate to the end. Upon execution of the next ATC operation, the machine will stop at the zero point of the machine. To re-start the machine, depress the **ATC STOP** key again to clear the **ATC STOP** status and turn on the **CYCLE START** key to resume ATC operation .



1.12 Tool change:

In the MDI mode, turn on the **TOOL CHANGE**, using the menu.

A message will ask "POCKET NUMBER?". Then, key in the pocket No. of the tool to be mounted in the spindle and **INPUT**. When the **CYCLE START** switch is turned on, the spindle is automatically returned to the zero point. If any tool has already been mounted on the spindle, the tool is returned to zero position and the specified tool is mounted on the spindle by execution of ATC.

If a pocket No. the same as that of the tool already mounted is inputted, no operation will appear to be performed and the cycle will terminate immediately.

If no tool data are entered for the tool specified by the tool change function or if there is no tool length in other data entered, the (100)"TOOL DATA ERROR" will displayed and no operation will be execited:

Note: During execution of ATC, a series of operations are performed even when the tool has been mounted in the spindle. If the **RESET** key is depressed when the **CYCLE START** lamp is on,note the following:

The NC unit is memorizing the pocket No. of the tool currently mounted on the spindle.

("TXX" on the CRT indicates the pocket No. of the tool on the spindle.)

In ATC operation, the pocket No. is updated immediately when execution of ATC has been completed.

(Then, the **CYCLE START** lamp will go out.) Even if a tool has been completely mounted onto the spindle, therefore, a pocket number or numbers prior to the ATC only is stored in the NC unit when the **RESET** key is depressed before the NC unit updates the pocket number.

In such a case input the new pocket No. by selecting the **TOOL NO. SET** from the menu in the MDI mode.

(See operating procedures for tool No. setting below.)



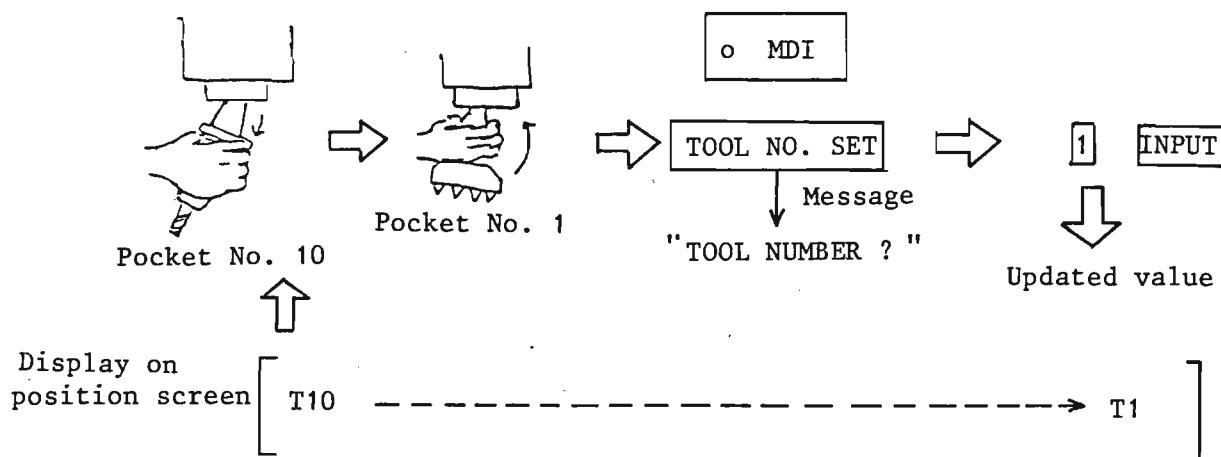
1.13 Tool No. Setting:

Depress the **MENU SELECT** key in the MDI mode, and call the **TOOL NO. SET** menu. When this key is turned on, "TOOL NUMBER?" will appear. Then, input a numerical value and INPUT and the "TXX" on the position screen will be updated to the numerical value inputted.

USE:

(1) This function is used when the tool on the spindle is manually replaced with a new one or when the tool has been removed from the spindle manually. In the former case, it is necessary to inform the N/C unit of the pocket No. of the newly replaced tool. In the latter case, the pocket No. "0" must be made known to the NC unit.

Reason: The NC unit can know the pocket No. of the tool mounted on the spindle only in the ATC mode. The NC unit can not get any pocket No. when the tool mounted on the spindle has been replaced or removed in the manual operation mode. Therefore, it is necessary to teach the NC unit such pocket number unit.



(2) This function may be used to input the pocket No. of a new tool when the NC unit is displaying the old pocket No. although the old tool has been replaced with a new one because the **RESET** key was depressed or the emergency stop switch was depressed during execution of ATC.

(See "Tool Change".)



1.14 Machine Lock:

Call the MACHINE LOCK menu. (The MACHINE LOCK menu can be called in any of the auto, MDI and manual modes,) Once the MACHINE LOCK is turned on, the position of each axis on the POSITION screen or the "CURRENT" (current position) on the COMMAND screen will be displayed as if the machine axis are moving according to the command if the axis trasfer command is given. The machine lock function is valid to G00, G01 (+F) send command for X-, Y-, Z- and (4) axes in the MDI mode, the axis transfer command in the manual mode and in the auto mode.

However, if the ATC command is given after machine locking, the axis transfer will normally not be displayed. Machine locking during execution of ATC is valid only when the block is terminated once (see NOTE 1) after completion of ATC and the CYCLE START switch is depressed again. To turn on the MACHINE LOCK not only on performance of ATC but also in the midcourse of a block in a certain program being run, stop the block once and then depress the CYCLE START key again and the machine will be effectively locked.

If the MACHINE LOCK menu key is depressed again when the machine lock function is valid, such function will be cleared . However, the machine lock function remains valid to the block under execution. If the CYCLE START switch is depressed again after a block stop, the axes will move according to the command.(See Note 2)

NOTE 1. Block stop

It means that the CYCLE START lamp goes out and the execution of a program stops when the block currently under execution comes to an end. This term is used for the automatic operation which is executed according to a series of blocks.

NOTE 2. Extreme care must be paid in transfer of axes after clearing of the machine lock function. In the automatic operation, the axes are going to move according to the instructions given by the next block, irrespective of the amount shifting of the machine during the time when the machine is being locked. Thus the tool might interfere with the workpiece.



NOTE 3: After clearing of the machine lock function, the displayed data may differ from the actual machine position in most cases. Correct the displayed data in the following manner:

- i) Call the COMMAND screen.
- ii) Correct the POSITION values for X-,Y-,Z- and (4) axis at the MACHINE at the left center of the screen. (*The values on the MACHINE stand for the actual position.) To do this, change the mode to the manual mode and put the cursor to the X-axis of the CURRENT with the cursor shift key. Input the value of the X-axis as displayed on the MACHINE and set (depress INPUT) it.

Practice the same steps for the Y-, Z- and (4) axis.

* POSITION on the COMMAND screen contains the same information as that in the position display on the POSITION screen. If POSITION on the COMMAND screen is corrected as described above, the position display on the POSITION screen will be automatically corrected too.



1.15 Single Block:

In the automatic operation mode (including MDI mode), call the SINGLE BLOCK by selecting the menu. When the SINGLE BLOCK is put to on, the cutting program after this in the auto mode will be executed by one block each time the CYCLE START switch is turned on.

If the SINGLE BLOCK is put on during execution of a block, that block will be terminated once and then the program will be executed by one block each time the CYCLE START switch is turned on.

If the SINGLE BLOCK is put off during execution of a block, that block will be terminated once. Then, the program will be executed continuously when the CYCLE START switch is depressed again.

NOTE 1: Once the SINGLE BLOCK is put to on, using the menu, the single block function remains valid even when the menu is changed. To put the single block function to off, the SINGLE BLOCK key may be depressed again.

NOTE 2: Because the command in the MDI mode is executed block by block, operation may not seemingly vary whether the SINGLE BLOCK key is turned on or off.

However, the full-automatic tool length measurement and semi-automatic tool length measurement are executed according to a plural number of blocks (equivalent to the operation according to the G code command). If measurement is made with the SINGLE BLOCK key turned on, only a single block may be executed.



1.16 Optional stop:

In the automatic operation or MDI mode, call and turn on the OPTIONAL STOP. If the automatic operation is started in this status, the machine will be block-terminated when the M01 of M code set in the program has been executed. Then, the CYCLE START lamp will go out. To restart the machine, depress the CYCLE START switch, and the remaining part of the program will be executed.

In case M01 of the M code is not set in the program although the OPTIONAL STOP menu has been selected or in case the OPTIONAL STOP menu is not selected although M01 is set properly, the machine will not block-terminated but will continue operation.

When the optional stop function is valid and the machine is block-terminated, the coolants stop temporarily. Upon re-starting of the machine, the coolants also start again.



1.17 Feed Speed Override:

This function allows to apply override to the cutting feed speed during the auto mode or MDI mode operation. Using the and keys, the amount of override can be increased and decreased. The effective range of override is 0% to 200%. Whenever the or key is depressed the amount of override varies by 10%. When either of these keys is held down, the amount of override continues to increase or decrease. The set value is displayed on the digital segment in %. The amount of override thus set is valid to all the three axes in common.

NOTE 1: When the VFC function is utilized, the override function is also valid. However, the VFC function is invalid during the tap cycle. (See "VFC")

NOTE 2: When the amount of override is 0%, the axes will not be shifted during cutting feed.

NOTE 3: Even if the amount of override is changed during the tap cycle the actual feed speed will not vary.



1.18 DRYRUN

When the DRYRUN signal is turned on, the feed speed controlled by the F code during automatic operation is changed to the set value for the feed speed in the manual mode. (See Table)

Table

Parameter Command	G00 dry run is not executed	G00 dry run is executed
G00, G28, G30	Set value for quick feed	Set value for manual feed speed
G01, G02, G03	Set value for manual feed speed	Set value for manual feed speed



1.19 Spindle Override :

During automatic operational override can be applied to the spindle r.p.m. Using the Δ and ∇ keys, the amount of override can be increased and decreased. The effective range of override is 0% to 150%. Whenever the Δ or ∇ key is depressed the amount of override varies by 10%. When either of these keys is kept depressed, the amount of override continues to increase or decrease the set value is displayed on the digital segment in percentage.

NOTE 1: When the VFC function is utilized, this function may also be valid. (See: "VFC")

NOTE 2: When the override is zero, the spindle will not rotate. When the spindle stops rotating during cutting, the axes also stop because of the synchronous feeding.

NOTE 3: Although this function is valid in the tap cycle, it should not be utilized in principle. In case override is applied to the spindle speed before tap machining, put the set value of the override to 100%. Since the feed is synchronized, overriding the spindle speed in a tapping cycle will automatically change the feedrate. In the spindle feed speed is changed too much or spindle feed speed is changed during tap machining overload will be applied to the tapping tool, resulting in damage to the tool or in abnormal cutting.



1.20 Rapid Feed:

When the [RAPID] mode key on the control panel is depressed once, the mode is changed into the rapid feed mode. When axis direction select key (+X, -X, +Y, -Y, +Z(+4) or -Z(-4)) is depressed, the axis thus selected moves in the specified direction at the rapid feed speed as long as such key is kept depressed. The rapid feed speed can be set with the parameters. (See Note 1)

For safety, however, the rapid feed speed is reduced to 50% of the value set with the parameters until the zero point return has been accomplished after switching-on of the power source.

When the axis direction keys for two or three axes are put to on at a time in the rapid feed mode, the axes also moves at a time.

The rapid feed mode will be cancelled if any other mode (automatic operation, MDI, No. 1 zero point return, No. 2 zero point return, HSx1 or HSx10 or slow feed mode) is selected.

NOTE 1: Parameter: MACHINE CONSTANT NO.2

RF1 through RF 4 (X-axis through 4-axis)

Unit: mm/min (0.1 inch/min)



1.21 Slow Feed:

When the [JOG] mode key on the control panel is depressed once, the mode is changed into the slow feed mode. When the axis direction select key (+X,-X,+Y,-Y,+X(+4) or -Z(-4)) is depressed, the axis thus selected moves in the specified direction at the slow feed speed as long as such key is kept depressed.

The slow feed speed can be set in the range of 0 between 2000.0mm/min with the and keys. Such speed is displayed on the digital segment on the control panel.

: Speed increase key

: Speed decrease key

NOTE: Upon switching on the power source, the slow feed speed is 0mm/min. At the speed of 0mm/min, the axes will not move even if the axis direction select key is depressed.

* When the dry run function is valid, the cutting feed speed during automatic operation is changed into the set value of the slow feed speed. If the axes stop at the cutting feed block despite the fact that the dry run function is valid, take care because the set value of the slow feed speed might possibly be left at 0mm/min.

The slow feed mode will be cancelled if any other mode (automatic operation, MDI, No.1 zero point return, No.2 zero point return, rapid feed, HSx1, or HSx10 mode) is selected.



1.22 Rapid Feed Speed Deceleration:

When the **RAPID REDUCE** mode key on the control panel is depressed once, the mode is changed into the rapid feed speed deceleration mode. When this mode is selected, the zero point return speed, positioning speed during the auto mode or MDI mode operation as well as the shifting of axes in the **RAPID FEED** mode are all decelerated.

The rapid feed speed deceleration mode is cleared when the **RAPID REDUCE** mode key is depressed again.

NOTE: Decelerated rapid feed speed is determined in the following manner:

$$\text{Decelerated rapid feed speed (X-axis)} = \text{RF1} \times \frac{\text{RFR}}{100}$$

RF1: Parameter (set value of rapid feed speed for X-axis)

(For Y-axis and Z-axis(or 4-axis), RF2 and RF3 (or RF4) are respectively used instead of RF1. Generally, RF1 = RF2 = RF3.)

RFR: Parameter (Deceleration rate of decelerated rapid feed speed)

The value is set in %.

Example:

If the rapid feed speed is 12 m/min. and RFR is 50%, the decelerated quick feed speed will be:

$$12 \text{ m/min} \times \frac{50}{100} = 6 \text{ m/min.}$$



1.23 Return to No.1 zero point

Depressing No.1 zero point return key on the operation panel will put the system into No.1 zero point return mode. Just after the machine has been switched on or if the machine coordinate system data owned inside the NC unit have been destroyed due to emergency stop etc., use this function for positioning to teach the NC unit the zero point of the machine coordinate system. Once the machine coordinate system zero point has been set, moreover, the machine can be returned to the zero point at a high speed in this mode by use of No. 1 zero point (machine coordinate system zero point) axis selection key (-X, -Y, -Z or -4) or of the all axis zero point return key.

a) Cradle type zero point return

With the machine positioned at the zero point when switched on, depress the negative axis direction selecting key in No.1 zero point return mode and the machine will move a little in the negative direction. After that, it will move automatically in the positive direction and will be decelerated so that No.1 zero point will be positioned. (In this case, the machine coordinate system will be set inside the NC unit.)

b) Straight type zero point return

Unless the machine is positioned at the zero point when switched on, depress the negative axis direction selecting key and let the machine move 100 thru 150mm.

Then depress the positive key and move the machine. Thus the machine will be decelerated near to the zero point so that the zero point will be positioned.(In this case, the machine coordinate system is set inside the NC unit.)

NOTE: Soft limit and No.2 zero point are unavailable until completion of the initial zero point return, such as just after switching on the machine.



1.24 Screen off

In the auto mode or MDI mode, what is displayed on the screen can be erased and blacked out. To do this, push the **SCREEN OFF** key on the auto mode menu when the position/command/graphic screen is being displayed.

WORK NO. SEARCH	WORK LIGHT	MACHINE LOCK	SINGLE BLOCK	OPTIONAL STOP	DRYRUN	BLOCK SKIP	SCREEN OFF	RESTART	← Auto mode menu
--------------------	---------------	-----------------	-----------------	------------------	--------	---------------	---------------	---------	---------------------

The screen is recovered when either menu key, reset key, run key or cursor key is pushed. Also, the screen will be recovered if any alarm is caused.

NOTE) The shape and tool path on the graphic display remain cancelled even when the screen is recovered after erasion.



2. Display

2.1 General

This instruction manual mainly describes the operation of displays. For display specifications, programming methods and NC operation methods using displays, see the other sections.

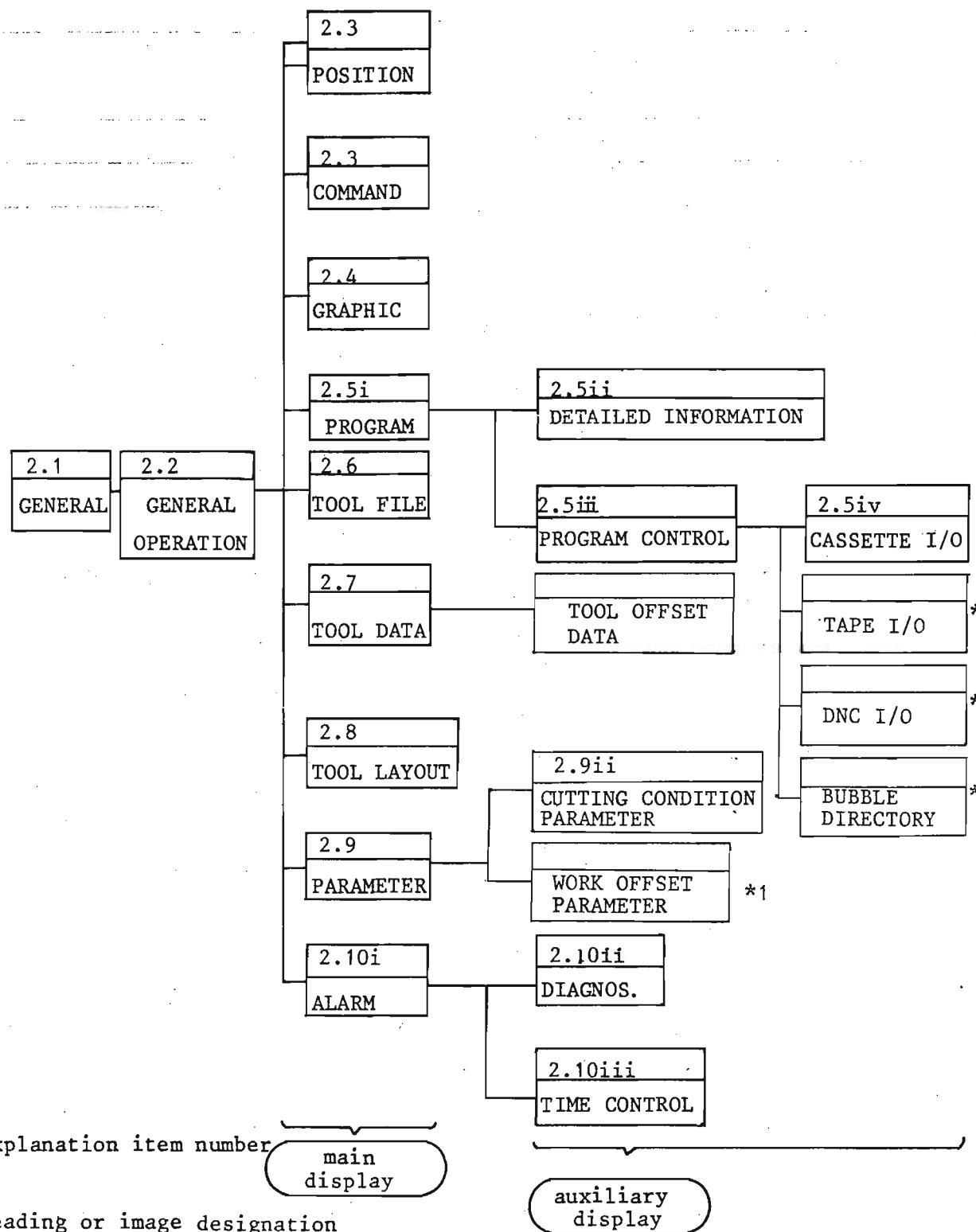
The present NC system is a dialogue type.

Almost all operations are displayed, therefore, progress can be made merely by answering question messages from the NC unit. For those operations which emerge from display, (including the selection of a display), however, positive performance thereof is merely required.

The present NC system can be operated without any particular problem if the description of the operation display configuration diagram given on the next page, including display functions, is observed.

Displays are available in 19 types, i.e. 9 main displays and 10 auxiliary. There are a total of 58 display types based on form, though their objectives and functions are identical. The main display which has an auxiliary display is limited to two types only, i.e., PROGRAM display and ALARM display. To display the main display on the CRT, first depress the **DISPLAY SELECT** key which will cause the menu to be displayed, then depress the applicable menu key. The main display selection menu cannot be displayed from the main display, nor to speak of from the auxiliary display, but only by depressing the **DISPLAY SELECT** key.

The auxiliary display can be generally called out of the main display.



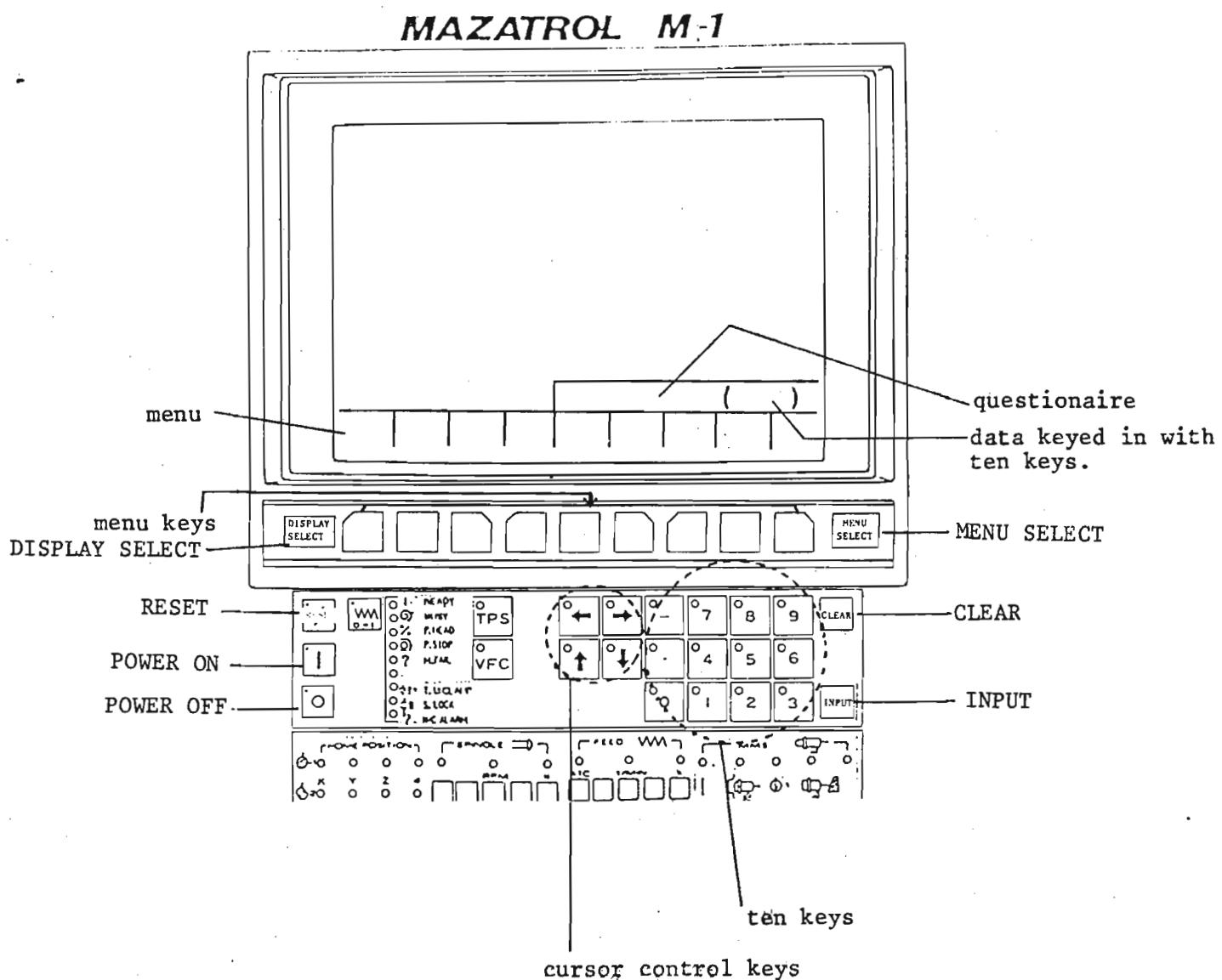
Operation Description/Display Configuration Diagram

*1 Please refer to EIA/ISO Operating Manual.
*2 Please refer to Optional Manual.



2.2 General Operation

1) Displays and keys employed in Display operations



NOTE) After switching on the power, it takes five to ten seconds before the screen gets ready for checking of the status of the interior of the NC.



2) Usage

A MENU

The menu indicates the information which can be taken for the operator's response to the question displayed. Then, the operator must select the menu which will vary from time to time, including a type of data to be inputted, a command to change the flow of operation or an instruction to put the machine into operation. On the menu, if the frame only is displayed without any information to be selected, use ten keys and others to operate the system.

(Example) Menu displayed in response to the tool name data on the tool file display

ENDMILL	FACE MILL	CHAMF. CUTTER	BALL ENDMILL		ALL ERASE	ERASE	PAGE	RETURN
---------	-----------	------------------	-----------------	--	--------------	-------	------	--------

Data to be inputted
(names and types of tools)

To cancel the registration of a tool

Operation controls
PAGE: To change the display to another 32 pieces.

RETURN: To return the display from which the tool file display has been called.



B	MENU keys
---	-----------

Nine keys have the same funtion as the menu displayed on the screen. Whenever the menu changes, as a matter of course, the function of each key will also vary.

In other words, one key will perform the functions of several types of key.

C	MENU SELECT key
---	-----------------

On the same display, a wide variety of operations and/or controls are available, so many data may be inputted for a certain item. If nine menus are insufficient, the displayed menu will be divided.

Depressing the MENU SELECT key will permit a menu not yet displayed to be displayed.

D	CURSOR CONTROL key
---	--------------------

Four keys are available to move the cursor. Every time any of the keys is depressed, the cursor will move to the next stop position(an item which can be normally inputted.)



Note :

If the cursor is not displayed on the screen when needed (i.e. the display to which data are to be keyed in), depress $\boxed{\uparrow}$ or $\boxed{\downarrow}$ and the cursor will appear.

E INPUT key

This key is used to inform the NC unit that a numerical input or menu selection has been completed correctly. The computer in the NC unit receives the information and proceeds to execute the process (setting check, setting display for related items, menu-selected processing, etc.)

(Example) **SNO** TOOL NOM- ϕ Transferred by means of
R1 F-MILL **INPUT**

NOM- ϕ ? (100)

F CLEAR key

o Canceling data being inputted (**CLEAR**)

The data which are being inputted with ten keys (as long as the **INPUT** key is not depressed) can be cleared by depressing the **CLEAR** key.

o Erasing data already inputted (**.** + **CLEAR**)

If data have been inputted for an item, which may not require an input or which cannot be inputted, depress the "Decimal point" key and **CLEAR** key in that order. Then, the data can be erased.

o Erasing an alarm message (**CLEAR**)



An alarm message can be erased by the [CLEAR] key. (Some alarm messages, however, are not erasable. See the alarm picture.)

G RESET key

This key is used to initialize the NC unit. It may also be used to turn off an alarm. (See the alarm picture.)

H DISPLAY SELECT key

With the picture selecting menu displayed, the system is ready to receive a menu key input.

This key can be depressed, with any display or under any condition, except when the computer is executing, e.g. an external input or output is being processed or program control status being renewed.

2.3 POSITION/COMMAND Display

Function outline	o Displaying operations to display machine operations
------------------	--

1) How to call :

- ① Depress the [DISPLAY SELECT].
- ② For the menu displayed in the lower part of the picture, depress the key corresponding to [POSITION] or [COMMAND].

POSITION	COMMAND	GRAPHIC	PROGRAM	TOOL FILE	TOOL DATA	TOOL LAYOUT	PAR	DIAGNOS.
----------	---------	---------	---------	-----------	-----------	-------------	-----	----------



To display the POSITION image



To display the COMMAND image



2) Image

X: - 12345.678	W: 9999
Y: - 12345.678	9998
Z: - 12345.678	U: 9999
A: - 12345.678	T: 999
< ACTUAL DATA >	
SPINDL 10000 RPM	< TOOL > DRILL NO. 1
(3) 500 CMT-SP	TWO. 0 TWO. 0 SPINDL
FR 12000. 1.2 FM/MIN	UNIT COUNTER 9999 (9999) X-AXIS
*** POSITION ***	
INITIALIZE []	
WORK NO. WORK LIGHT MACHINE LOCK SINGLE BLOCK OPTIONAL STOP DYNAMIC BLOCK SKIP SCREEN OFF RESTART	

POSITION image

WORK NO. 9999(9999)	UNIT NO. 9999	
POSITION	BUFFERS	NEXT COMMAND
X-12345.678	X 12345.678	C 0
Y-12345.678	Y 12345.678	R 16
Z-12345.678	Z 12345.678	T 22
A-12345.678	A 12345.678	B 9
MACHINE	RENAME	WP (MORE PIECE COORD.)
X-12345.678	X-12345.678	X-12345.678
Y-12345.678	Y-12345.678	Y-12345.678
Z-12345.678	Z-12345.678	Z-12345.678
A-12345.678	A-12345.678	A-12345.678
< ACTUAL DATA >		< LOAD METER >
SPINDL 10000 RPM	< TOOL > DRILL NO. 1	0 50 100 150 200
(3) 500 CMT-SP	TWO. 0 TWO. 0 SPINDL	50 Z
FR 12000. 1.2 FM/MIN	UNIT COUNTER 9999 (9999) X-AXIS	10 Z
*** COMMAND ***		[]
WORK NO. WORK LIGHT MACHINE LOCK SINGLE BLOCK OPTIONAL STOP DYNAMIC BLOCK SKIP SCREEN OFF RESTART		

COMMAND image

The menu display is necessary for operating the machine.

3) Operation

A Current position change

- 1 Move the cursor to the axis (x,y, z or A) to be changed.
 - 2 Key in a new value and depress the **INPUT**.
- The new value will be displayed.

B Parts counter change

- 1 Move the cursor to a counter to be changed (two types of values available, i.e. field-proven integrating value and setting.)

Parts count

12

(16)

↑
Field-proven
integrating
value

↑
Setting

- 2 Key in a new value and depress the **INPUT**.

→ The display will change to the new value.



Note : The parts count is meaningful at the end unit of program only when the COUNT is set to 1.(Start counting.)

2.4 Graphic Display

Function Outline	<ul style="list-style-type: none">o To display a programmed shape or tool path two-dimensionally(single plane display and simultaneous double plane display) or three-dimensionally.o To permit a partial enlargement or reduction and a three-dimensional viewpoint change ando Tracing(interlocked with the machine) can be displayed.
------------------	--

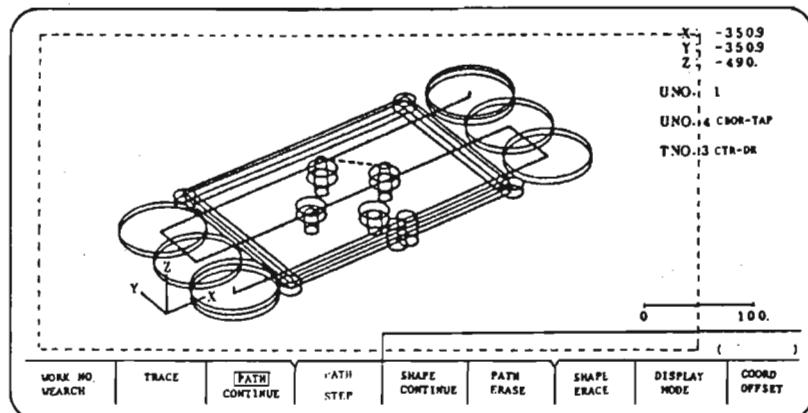
1) How to call :

- 1 Depress the **DISPLAY SELECT** .
- 2 Depress the key corresponding to **[GRAPHIC]** from the menu displayed in the lower part of the screen.

POSITION	COMMAND	GRAPHIC	PROGRAM	TOOL FILE	TOOL DATA	TOOL LAYOUT	PAR	DIAGNOS.
----------	---------	---------	---------	-----------	-----------	-------------	-----	----------



2) Display



(A three dimensional display)

① Initial display menu

WORK NO. SEARCH	TRACE	PATH CONTINUE	PATH STEP	SHAPE CONTINUE	PATH ERASE	SHAPE ERASE	DISPLAY MODE	COORD OFFSET
--------------------	-------	------------------	--------------	-------------------	---------------	----------------	-----------------	-----------------

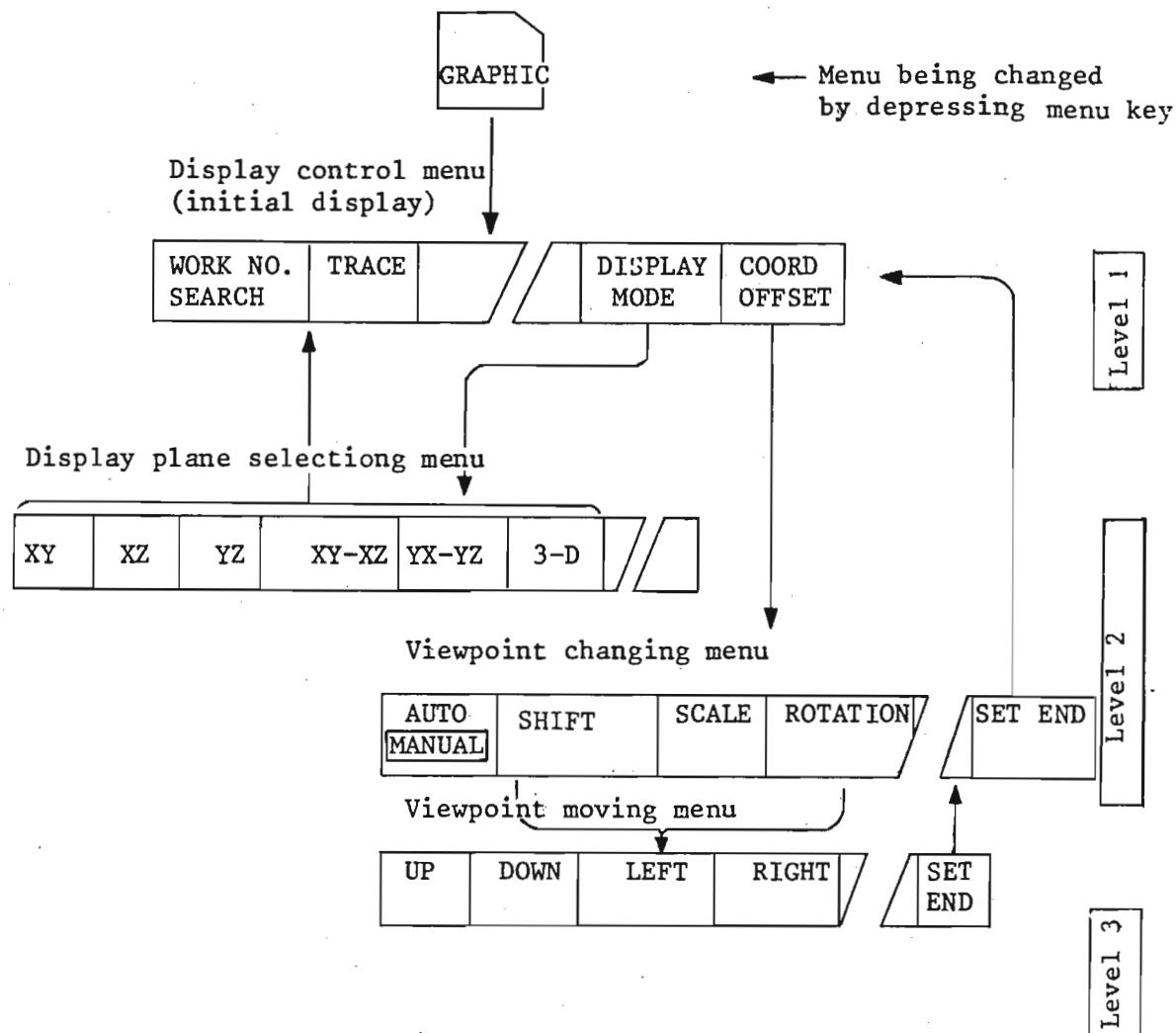


(Note 1): Upon call, the preceding graphic status is displayed.

(" 2): No tool path for a tool not subjected to the tool layout can be displayed.

3) Operation

This picture is displayed in a variety of forms and operations are complicated. Operational outlines are illustrated below:



All figures and other data displayed by operation on Level 1 are effected, based on the display area, scale, etc. inputted on Level 2 and 3. To change the display method, therefore, it is necessary to operate on Levels 2 and 3.



A | SELECTING A DISPLAY PROGRAM

- (1) Depress the menu key corresponding to WORK NO. SEARCH in menu ①.
- (2) Key in a work number and depress INPUT.
→ The work number displayed will change.

B | TRACE DISPLAY

- (1) Depress the menu key corresponding to TRACE in menu ①.
- (2) Depress CYCLE START on the control panel (during the automatic operation mode.)
→ The motion of tools will be displayed according to the actual machine operation, including the automatic tool changer. (Even with the machine locked, the display operates) In a single block operation, therefore, the display will be also operated on a single step basis.
→ Unless a product shape is displayed, it will be pointless to display a tool motion. It is recommended, therefore, to perform operation E in advance.
→ It is necessary to record, beforehand, the length of a tool to be traced.
→ Too high a feedrate can result in a display showing the tool motion combined with the next block movement.

C | CONTINUOUS TOOL PATH DISPLAY

- (1) Depress the menu key corresponding to PATH CONTINUE in menu 1.
→ The movement of a tool controlled by the program is displayed continuously until completion of the machining. This display may be changed to an intermittent display



during this period with the TOOL STEP menu beside it.

— displays cutting feed (yellow)
---- displays rapid feed. (yellow)

- The yellow circle or ellipse given from place to place represents the tool diameter.(In the sectional display the tool diameter is indicated with a line equivalent to the diameter.)
- The operation referred to in (1) above will cause the ground of characters PATH CONTINUE to purple. Disappearance of the purple color indicates that the display data has ended.

D	INTERMITTENT TOOL PATH DISPLAY
---	--------------------------------

- (1) Depress the menukey correspoinding to PATH STEP in menu.
 - In hole drilling, up to the next positioning point will be displayed. In milling, up to the next tool diameter display position will be displayed. Depressing the menu key again will cause up to the next position to be displayed. Every time when the menu key is so depressed, the tool path is displayed little by little.
 - During the continuous tool path display, it can not be changed to the intermittent display immediately even if the menu key is depressed. While holding the key down, wait for the menu character background to turn purple.
 - During the continuous display, it may not advance even if the menu key is depressed, because the circular portion is being calculated. This is not a fault.
 - The same information as that during the continuous display is displayed.



E | CONTINUOUS SHAPE DISPLAY

(1) Depress the menu key corresponding to **[PATH CONTINUE]** key in menu.

→ A finished shape which has been programmed is displayed.

Purple solid line : hole shape

Blue solid line : contour to be milled(for the machining with removal allowance z, a thickness will appear in the three dimensional display and a sectional view.)

F | ERASE TOOL PATH

(1) Depress the menu key corresponding to **[PATH ERASE]** in menu.

→ Only the tool path will be erased. When both shape and tool path displays are overlapped, this operation will leave the shape only on the picture.

→ This function remains available either during the tool path continuous display or during the intermittent display. It is convenient when the tool path display is too complicated to be read easily.

G | SHAPE ERASE

(1) Depress the menu key corresponding to **[SHAPE ERASE]** in menu ①.

→ Only the shape will be erased while others remain unchanged.

→ This function is available even during the shape display.

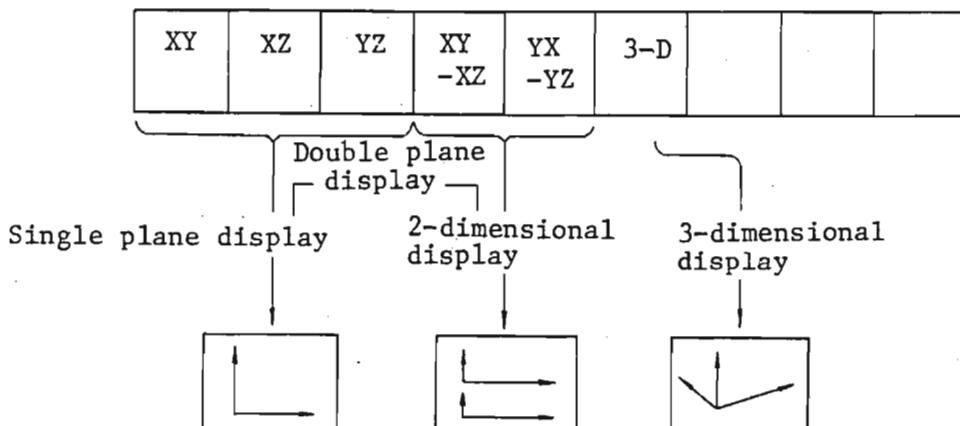
H | PLANE SELECT DISPLAY

(1) Depress the menu key corresponding to **[DISPLAY MODE]** in menu ①.

→ The following menu will be displayed :



Plane select menus to be displayed:



(2) Depress the menu key for a desired plane to be displayed from menu

②

→ A new coordinate axis will be displayed while the
tool path will be erased.

The menu will return to ①

I CHANGE VIEWPOINT TO BE DISPLAYED

(1) Depress the menu key corresponding to COORD OFFSET in menu ① .

→ The following menu will be displayed :

③ Menu to change a viewangle.

AUTO	SHIFT	SCALE	ROTATION						SET
MANUAL									END

→ To change the angle of viewing(exclusively
for 3 dimensional)

→ To change the position(distance) of a view-
point

→ To change the position(intra-plane coordinates)
of a viewpoint(exclusively for 2 dimensional)

→ To switch the viewpoint positional adjust-
ment between automatic and manual operations



I-1 SELECT VIEWPOINT POSITIONAL ADJUSTMENT AUTO/MANUAL

- (2) Depress the menu key corresponding to AUTO MANUAL in menu ③.
- The background of either AUTO or MANUAL characters will turn red. Thus the current status will appear.
 - In the manual mode, the viewpoint can be changed.
 - In the automatic operation mode, the viewpoint will automatically determined so that the tool path and the final shape will be entirely displayed. (The value set manually will subsequently be invalid. The viewpoint angle, however, will continue to be valid even if the menu key is updated at AUTO.)

I-2 CHANGE VIEWPOINT POSITION(Intra-plane coordinates)

- (2) Change the viewpoint positional adjustment to the manual position.
- (3) Depress the menu key corresponding to SHIFT in menu ③.
- With the 3 dimensional display plane this operation is not possible.
 - The flashing cursor will appear in the center of the screen while the following menu will be displayed :

④ Menu to move the viewpoint :

UP	DOWN	LEFT	RIGHT					SET END
----	------	------	-------	--	--	--	--	------------

(*1)

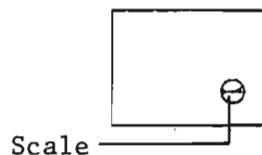
- (4) Depress the menu key for the motion direction in menu ④. When the viewpoint (position at which the cursor is flashing) subsequently indicates the shape or tool path, the viewpoint must be positioned near the center of the screen.
With this in mind, carry out operations.
- The cursor will move as commanded.
- (5) Depress SET END in menu ④.
- The figure displayed on the screen will disappear and menu ③ will be displayed instead.



*1 Moving the cursor directly with the cursor control key will produce the same result.

I-3 CHANGE VIEWPOINT POSITION(DISTANCE)

- (2) Change the viewpoint positional adjustment to the manual position.
- (3) Depress the menu key corresponding to SCALE in menu ③.
- (4) Key in the length equivalent to the scale in the lower right of the screen (but 20mm and above) and depress INPUT.



→ Both scale and axial readings will change while the figure will disappear.
The menu remains unchanged.

I-4 CHANGE VIEWPOINT ANGLE

- (2) Depress the menu key corresponding to ROTATION in menu ③.

The function is possible only when the display plane is specified as 3 dimensional. In the 2-dimensional display, the operation is not possible. A 3-dimensional figure will appear on the screen and menu ④ will be displayed.

- (3) Depress the menu key for the motion direction in menu ④ to move the viewpoint.

Together with the viewpoint move, the displayed three-dimensional object direction will be changed. (If the viewpoint is raised, for instance, the 3-dimensional object will turn toward the operator so that the top surface can be seen).

- (4) Depress the menu key corresponding to SET END in menu ④.

The displayed cubical object will disappear and menu ③ will return.

I-5 COMPLETE DISPLAY VIEWPOINT CHANGE



(2) Depress the menu key corresponding to **SET END** in menu ③

→ The menu will return to ① and tool path, shape, etc. will be ready for display.

2.5 Program

1. PROGRAM display

Function outline	o To display, prepare and correct a program
	o To measure coordinates. (MAZATROL Program only)

1) How to call

1 Depress the **DISPLAY SELECT**.

2 Depress the **PROGRAM** from the following menu displayed in the lower part of the screen

POSITION	COMMAND	GRAPHIC	PROGRAM	TOOL FILE	TOOL DATA	TOOL LAYOUT	PAR	DIAGNOS.



2) Display

UNO MAT INITIAL-Z MULTI FITCH-X FITCH-T	0 S45C 10. 000000000 0. 0.						
UNO X Y Z	1 PRM-1 -500. -500. 0. -500. 4 0						
UNO UNIT DEPTH SRV-Z SRV-R BTM HAL FIN-Z FIN-R	2 F-MILL 0. 5. 3 0.						
SNO TOOL NOM-# APRCH-X APRCH-T TYPE DEP-Z WID-R C-SP FR M M	3 F-MILL 100. A -60. 20. 61-DIR-X 5. 70. 24 135 M M						
FIG PTN PIX/CX PIY/CY P3X/R P3Y CN1	CN2 CN3 CN4						
UNO UNIT WORK NO.	3 SUB PRO 9000						
*** WORK PROGRAM NO.1 ***							
WORK NO. SEARCH	UNIT NO. SEARCH	PROGRAM			DETAILED INFORM.	WPC MSR	PROGRAM FILE

MAZATROL Program Screen

Menu initially displayed

WORK NO. SEARCH	UNIT NO. SEARCH	PROGRAM			DETAILED INFORM.	WPC MSR	PROGRAM FILE



While preparing a program, many other menu types will appear to permit a variety of system applications. See Section II "PROGRAMMING".

3) Operations

A CHANGE DISPLAYED PROGRAM

- (1) Depress the menu key corresponding to WORK NO. SEARCH.
- (2) Key in the work number of a program to be displayed and depress INPUT
 - If the work number has been recorded, its program will be displayed from the top (UNO 0). If the work number has not been recorded, the machine will wait for a new program to be prepared and the portion where the program would be displayed will turn dark.

B FEED IMAGES ACCORDING TO UNIT NUMBER SPECIFIED ON PROGRAM DISPLAYED

- (1) Depress the menu key corresponding to UNIT NO. SEARCH.
- (2) Key in the unit number to be displayed first and depress INPUT.
 - With the unit number specified at the top the program will be displayed.(Image can also be fed using the cursor.)

C PREPARE(CORRECT) PROGRAM

- (1) Put the PROGRAM switch in the valid position(ENABLE).
- (2) Depress the PROGRAM.
 - The menu at the lower part of the screen will change so that an input will be possible for the item where the cursor is flashing.
 - See "PROGRAMMING".

D CALL HELP PICTURE

- (1) When the cursor is located on the line for the machining unit in the MAZATROL Program, depress the menu key corresponding to DETAILED INFORM.
 - Then, the DETAILED INFORM screen for the machining unit concerned will be displayed.



will be displayed in the lower part of the screen. (At this stage, the display has not changed yet.)

E MESURE COORDINATES

(1) Depress the menu key corresponding to WPC MSR.

→ The menu to measure coordinates will be displayed in the lower part of the screen.

⇒ For subsequent operations, see 1.7 in "PROGRAMMING".

F CALL PROGRAM CONTROL PICTURE

(1) Depress the menu key corresponding to PROGRAM FILE.

→ The display will be changed over to PROGRAM CONTROL picture.

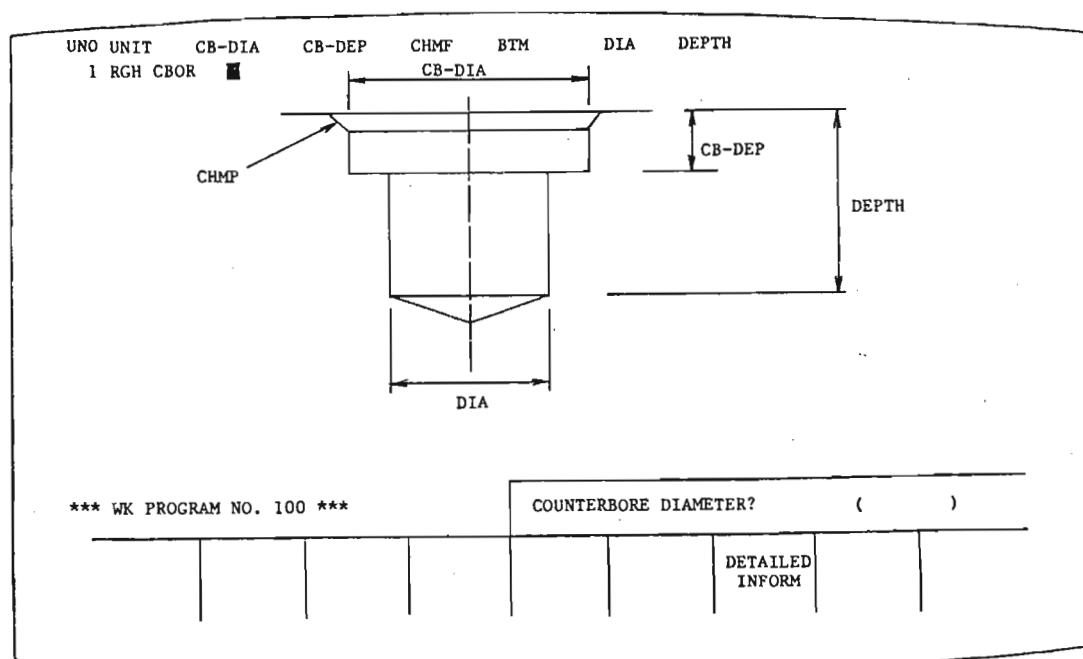


ii DETAILED INFORMATION Display

Function Outline

To illustrate definitions of various quantities used in programming (only for machining unit of MAZATROL programs)

- 1) How to call
 - (1) Call the PROGRAM display.
 - (2) Press the MENU KEY corresponding to the DETAILED INFORM when the cursor is positioned at the machining unit.
- 2) Display





3) Operation

A DEFINITION CHART DISPLAY

- ① Move the cursor to the unit position to be displayed while programming or being displayed.
- ② Press the MENU KEY corresponding to the DETAILED INFORM (If the menu of DETAILED INFORM is not displayed, display it with the menu selection key).
→ The detailed information picture corresponding to the unit will be displayed (the "DETAILED INFORM" menu is inversed while the detailed information picture is displayed).

B RETURN TO PROGRAM DISPLAY

- ① Move the cursor upper or lower, or press the MENU KEY corresponding to the "detailed information".
→ The PROGRAM display will come out.



iii. Program Control

Function Outline

- o To display a program registration status.
- o To erase a registered program and
- o To change a work number.

1) How to call:

- (1) Call the PROGRAM picture.
- (2) Depress the PROGRAM FILE key from the following menu displayed in the lower part of the screen.

WORK NO. SEARCH	UNIT NO. SEARCH	PROGRAM				DETAILED INFORM	WPC MSR	PROGRAM FILE
--------------------	--------------------	---------	--	--	--	--------------------	------------	-----------------



2) Display

WORK NO. SIZE	
1	14
2	9000
3	50
4	51
5	52
6	53
7	54
8	55
9	56
10	57
11	58
12	59
13	60
14	61
15	62
16	63

USED 72 /580 BLOCK

*** PROGRAM FILE ***

CMT I/O	RENUMBER	BUBBLE DIRECT.	PROGRAM ERASE	ALL ERASE		DNC I/O	TAPE I/O	PROGRAM
------------	----------	-------------------	------------------	--------------	--	------------	-------------	---------

Menu initially displayed.

CMT I/O	RENUMBER	BUBBLE DIRECT.	PROGRAM ERASE	ALL ERASE		DNC I/O	TAPE I/O	PROGRAM
------------	----------	-------------------	------------------	--------------	--	------------	-------------	---------



(3) Operations

A CALL CASSETTE I/O DISPLAY

- (1) Depress the menu key corresponding to **CMT I/O**.
- The cassette I/O menu will be displayed in the lower part of the screen.

B CHANGE WORK NUMBER

- (1) Depress the menu key corresponding to **RENUMBER**.
- (2) Move the cursor to the position of a work number to be changed.
- (3) Key in a new work number and depress **INPUT**.
- The work number will become the one set by the work number loaded with the cursor.

C INDIVIDUALLY ERASE PROGRAMS

- (1) Put the PROGRAM switch to ENABLE.
- (2) Depress the menu key corresponding to **PROGRAM ERASE**.
- (3) Key in the work number of a program to be erased and depress **INPUT**.
- Both the specified work number and the program size will disappear.

D ERASE ALL PROGRAM

- (1) Throw the PROGRAM switch to ENABLE.
- (2) Depress the menu key corresponding to **ALL ERASE**.
- (3) Depress **INPUT**.
- All work numbers and program sizes will disappear.



E

RETURN TO PROGRAM PICTURE

(1) Depress the menu key corresponding to PROGRAM.

→ The program whose work number was displayed prior to the call of the PROGRAM CONTROL display will be displayed again from the top.



iv. CASSETTE I/O Picture

Function Outline

To transfer and check data between a cassette tape and the memory in the NC unit.

1) How to call:

- (1) Call the PROGRAM CONTROL display.
- (2) Depress the CMT I/O key from the menu displayed in the lower part of the picture.

CMT I/O	RENUMBER	BUBBLE DIRECT.	PROGRAM ERASE	ALL ERASE		DNC I/O	TAPE I/O	PROGRAM
------------	----------	-------------------	------------------	--------------	--	------------	-------------	---------



2) Display

WORK NO.	SIZE	CMT I/O						
1	1	MODE (0)						
2	9000	WORK NO. (0) (0) (0) (0)						
3	50	(0) (0) (0) (0)						
4	51	(0) (0) (0) (0)						
5	52	(0) (0) (0) (0)						
6	53	(0) (0) (0) (0)						
7	54	(0) (0) (0) (0)						
8	55	(0) (0) (0) (0)						
9	56	(0) (0) (0) (0)						
10	57	(0) (0) (0) (0)						
11	58	(0) (0) (0) (0)						
12	59	(0) (0) (0) (0)						
13	60	(0) (0) (0) (0)						
14	61	(0) (0) (0) (0)						
15	62	(0) (0) (0) (0)						
16	63	(0) (0) (0) (0)						
USED 72 / 580 BLOCK		TOOL DATA (0) (0) (0) (0)						
*** PROGRAM FILE ***		TOOL FILE (0)						
		PARAMETER (0)						
		TOOL OFFSET (0)						
		WORK OFFSET (0)						
LOAD CMT→NC	SAVE INC→CMT	COMPARE INC=CMT	LOAD ALL PROGRAM					

Menu initially displayed

LOAD CMT→NC	SAVE INC→CMT	COMPARE INC=CMT	LOAD ALL PROGRAM					
----------------	-----------------	--------------------	---------------------	--	--	--	--	--



3) Operation

A READ, REGISTER DATA FROM CASSETTE TAPE

- (1) Load the deck with a cassette tape.
- (2) Check that the menu initially displayed is now displayed.
→ If not, depress the **MENU SELECT** and recall the initial display menu.
- (3) Depress the menu key corresponding to **LOAD CMT->NC**.
→ The image will change to cassette I/O while the menu will be as follows:

PROGRAM	TOOL DATA	TOOL FILE	PAR	TOOL OFFSET	WORK OFFSET	ERASE		START
---------	-----------	-----------	-----	-------------	-------------	-------	--	-------

- (4) If the data to be transferred are a program, set a work number (*) in the parentheses. If the data are other than a program, call for the transfer of (1 or 2) in the parentheses. If the drum changer is provided, however, use a drum number to input tool data.
→ The six columns to the left of the menu are used to control the cursor. Depressing a related menu key, therefore, will allow the cursor to move to the corresponding top position.
The **ERASE** menu, moreover, is used to return a set work number to 0. In this case, however, all set data including the work number will return to 0. This should be remembered. A specific work number only cannot be set to zero.
 - (5) For all data to be transferred, repeat procedure (4) above.
 - (6) Depress the menu key corresponding to **START**.
→ The cassette tape will start to turn and to transfer data
→ The cursor will move to the data being transferred.
- (*) Make the input sequence coincide with the order of data on the tape.



B WRITE DATA IN TO CASSETTE TAPE

Depress the menu key corresponding to SAVE NC→CMT in place of LOAD CMT→NC in operation (3) of A;"READ/REGISTER". For other operation, follow the same procedure.

* Data are written into the tape, with priority given to the parentheses positioned in the upper part and to the left side in an identical line. This is irrespective of the work number significance.

C CHECK CASSETTE TAPE DATA AGAINST NC DATA

Depress the menu key corresponding to COMPARE NC→CMT in place of LOAD CMT→NC in operation (3) of A;"READ/REGISTER". For other operations, follow the same procedure.

→ A data discrepancy, if detected, would cause an alarm to be displayed on the spot, and interrupt the check.

D READ AND REGISTER ALL PROGRAM DATA IN CASSETTE TAPE

Depress the menu key corresponding to the PROGRAM ALL LOAD rather than LOAD CMT→NC as referred to in operation (3) of A; "READ/REGISTER". Then, do not carry out (4) and (5) but (6). In other words, depress the menu key corresponding to START.

→ Thus, the cassette tape will begin turning and all the program data in the tape will be transferred to the NC unit.

NOTE) The EIA/ISO Program can also be registered.



2.6 TOOL FILE Display

Function Outline

To register and control face mills, end mills and chamfering end mills to be used.

1) How to call:

- (1) Depress the **DISPLAY SELECT**.
- (2) Depress the **TOOL FILE** key from the menu displayed in the lower part of the screen.

POSITION	COMMAND	GRAPHIC	PROGRAM	TOOL FILE	TOOL DATA	TOOL LAYOUT	PAR	DIAGNOS

NOTE: For how to call during programming, see II "PROGRAMMING".

2) Display

NO.	TOOL	MON-#	MIN-#	MAT	DEPTH	NO.	ANG.	NO.	TOOL	MON-#	MIN-#	MAT	DEPTH	NO.	ANG.
1	F-MILL	100.	A	◆	NSS	10.	6	◆	17						
2										18					
3										19					
4										20	CHMF	20.	A	5.	NSS
5										21					◆ 4 45.
6										22					
7										23					
8										24					
9	E-MILL	10.	A	◆	NSS	10.	2	◆	25						
10	E-MILL	20.	A	◆	CDD	20.	4	◆	26						
11	E-MILL	30.	A	◆	NSS	15.	3	◆	27						
12										28					
13										29					
14										30					
15										31					
16										32					

*** TOOL FILE ***

()
ALL ERASE PAGE RETURN

◇ Menu initially displayed

						ALL ERASE		PAGE	RETURN
--	--	--	--	--	--	-----------	--	------	--------



② Menu to select a tool name

ENDMILL	FACE MILL	CHAFF CUTTER	BALL ENDMILL		ALL ERASE	ERASE	PAGE	RETURN
---------	-----------	--------------	--------------	--	-----------	-------	------	--------

③ Menu to select a suffix

A	B	C	D	E	F	G	H	J
---	---	---	---	---	---	---	---	---

④ Menu to select a tool material

HSS	CARBIDE							
-----	---------	--	--	--	--	--	--	--

3) Operation

A TURN PAGES

- (1) Depress the menu key corresponding [PAGE] in menu ① or ②.
→ The tool number not displayed will be displayed.
(Two pages are available, with one image comprising 32 tools.)

B REGISTER AND CORRECT TOOL DATA

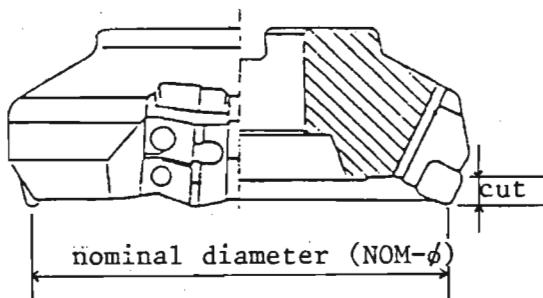
- (1) Move the cursor to the data desired position.
→ Depending on the type of data, the menu will vary as follows:
tool name ----- Menu ②
nominal diameter ----- Menu ③ (with identifier keyed in)
material ----- Menu ④
others ----- Menu ①

NOTE: When data are recently registered, the cursor initially will move only to a tool name position.

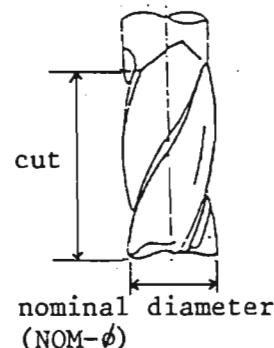


(2) Depress the menu key or key with a numerical value.

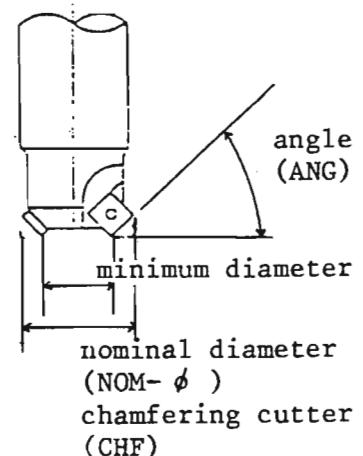
Then, depress **INPUT**.



face milling cutter
(F-MILL)



end milling cutter
(CHF)



chamfering cutter
(CHF)

C CANCEL TOOL REGISTRATION

(1) Move the cursor to the position of a tool number to be cancelled.

(2) Depress **ERASE** in menu and then **INPUT**.

→ Data relating to that tool will disappear from the screen.

D ALL CANCEL TOOL REGISTRATION

(1) Push the **ALL ERASE** menu key and push the **INPUT** key.

→ Then, all the tools registered in the tool file will be cancelled.

NOTE: RETURN in menu is valid when called from the PROGRAM display.



2.7 Tool Data Display

Function Outline

- o Data required for the system are displayed concerning the tools set in a tool drum. Setting is also possible.
- o To measure tool lengths.

1) How to call

(1) Depress the **DISPLAY SELECT**.

(2) Depress the **TOOL DATA** key from the menu displayed in the lower part of the screen.

POSITION	COMMAND	GRAPHIC	PROGRAM	TOOL FILE	TOOL DATA	TOOL LAYOUT	PAR	DIAGNOS
----------	---------	---------	---------	-----------	-----------	-------------	-----	---------



2) Display

DRUM NO.									
PNNO	TOOL	NOM-#	ACT-#	LENGTH	CORP.	THRUST	HP	LIFE	TIME IN CUT
1-0	E-MILL	10. A	10.	100.	0.	30	20	0'	0'
2-0	F-MILL	50. A	50.	100.	0.	*	100	0'	0'
3-0	CHF-N	25. A	*	100.	0.	*	*	0'	0'
4-0		25. A	25.	100.	0.	30	20	0'	0'
5-0	OTHER	25. A	25.	100.	0.	30	20	0'	0'
6-0	T.SEMS.	10.	*	100.	*	*	*	*	*
7-0	CTR-DR	10.	*	100.	0.	*	*	0'	0'
8-0	DRILL	10.	*	100.	3.	30	30	0'	0'
9-0	BK FACE	50.	*	100.	0.	*	*	0'	0'
10-0	REAM	10.	*	100.	0.	*	*	0'	0'
11-0	TAP N	10.	10.	100.	0.	*	*	0'	0'
12-0	BAR BAR	50.	*	100.	0.	*	100	0'	0'
13-0	B-B BAR	50.	*	100.	0.	*	*	0'	0'
14-0	CHF VAC	10.	*	100.	*	*	*	*	*
15-0									
16-0									

*** TOOL DATA ***

DRUM NO.	TEACH	TOOL CHANGE	INCR.	TOOL ASSIGN	TOOL OFFSET	PREVIOUS PAGE	NEXT PAGE
----------	-------	-------------	-------	-------------	-------------	---------------	-----------

Menu initially displayed

DRUM NO.	TEACH	TOOL CHANGE	INCR.	TOOL ASSIGN		TOOL OFFSET	PREVIOUS PAGE	NEXT PAGE
----------	-------	-------------	-------	-------------	--	-------------	---------------	-----------

(NOTE) Data displayed in this display relates the tools which are being loaded in to the drum. Therefore, the TOOL DATA picture is significantly affected by operations of the TOOL LAYOUT display on which a tool is deleted and/or registered.



3) Operations

A TURN PAGES

- (1) To see the data for subsequent 16 tools, depress the menu key corresponding to NEXT PAGE. To reverse the data, depress PREVIOUS PAGE.

→ With pocket No.1 displayed, depress PREVIOUS PAGE and the display will include the tool belonging to the final pocket number.

B CHANGE DRUM NUMBER

- (1) Depress the menu key corresponding to DRUM NO..

→ (With the NC unit set to 1 DRUM, the operation is unavailable.)

- (2) Using ten keys, input the drum number and then depress INPUT.

→ The tool with pocket No.1 corresponding to the drum number so inputted will be displayed on the screen first.

NOTE: On this picture, only those tools which are attached to the drum specified in this operation are handled. If it is desired to operate a tool in another drum, it is necessary to change the drum number again.

C MEASURE TOOL LENGTH

The length of a tool can be actually measured and entered on the screen. In this case, if the tool is a drill, the cutting edge position compensation data will be also displayed automatically.

→ See Section "NC unit" in Section I "Operations."

D INPUT TOOL DATA

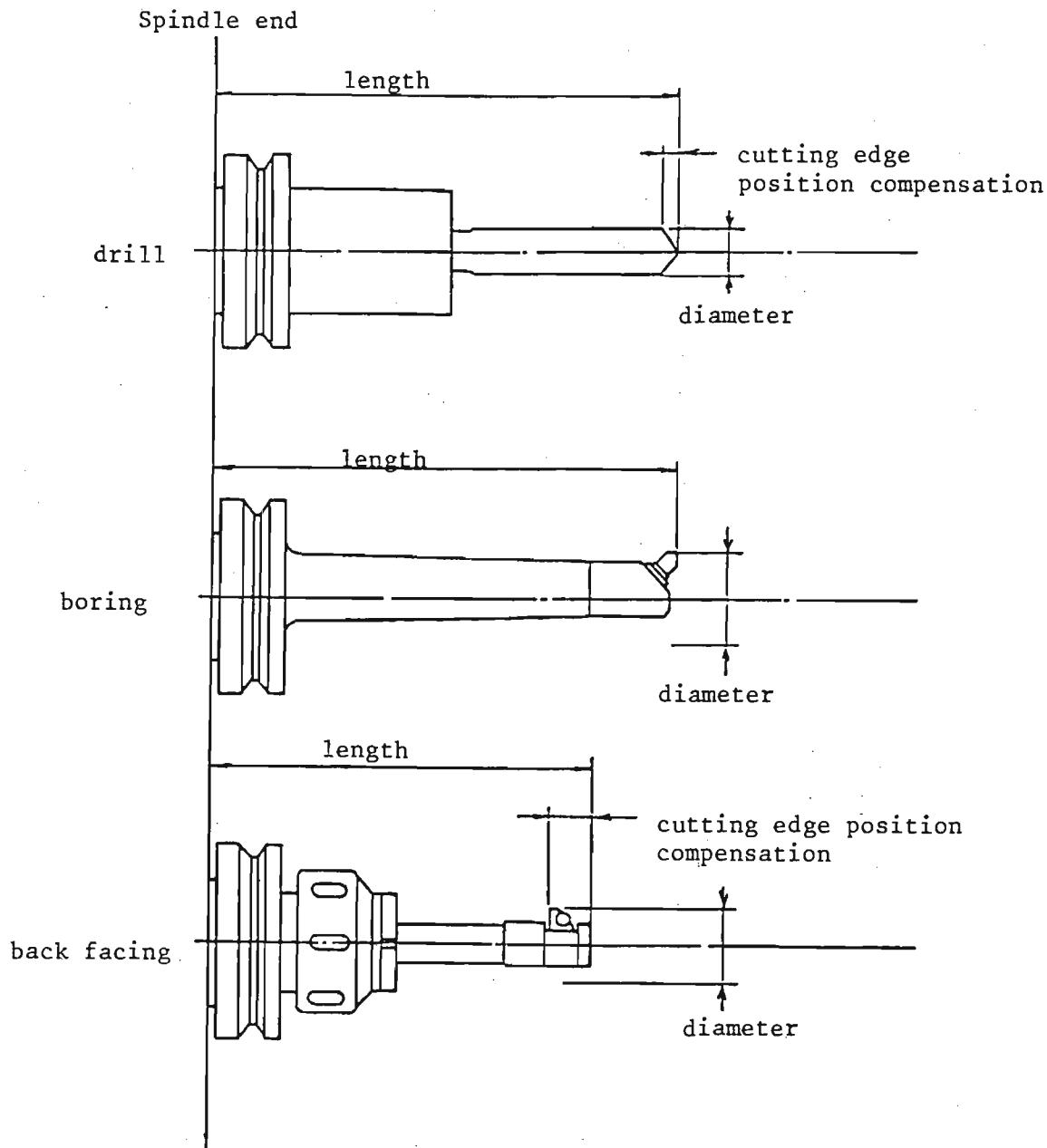
- (1) Place the cursor onto the item desired to be inputted.
(2) Key in numerical values and depress the INPUT.

Data name	Tool diameter	Length	Cutting edge position compensation	Thrust	Horse-power	Life (Hours)	Service (Hours)
Unit	mm	mm	mm	%	%	min.	mim.
Form	XXX,XXX	XXX,XXX	X,XX,XXX	XXX	XXX	XXX	XXX



NOTE: Input the tool diameter and/or length data while the menu is being inverted with **[INCR.]** menu depressed. Then, the tool diameter and/or length data so inputted will be added to the data entered previously.

NOTE: To input thrust and/or horsepower data, depress **[AUTO SET]** and the NC unit will automatically calculate and input optimum numerical values. (These values, however, are validified only while the AFC is operating).





E TOOL EXCHANGE

Pocket Nos. for already registered tool can be exchanged with each other in the following manner:

- (1) Slide the cursor to the position where the tool is located.
- (2) Push the menu key for "tool change".
- (3) Key in the pocket No. for the other tool and push the SET key.

Then, the tools registered in the two pockets will be exchanged.

F TOOL REGISTRATION

For execution of the EIA/ISO Program, it is necessary to register the tool to be allotted to the T code (pocket No.) as part of the tool data. This function permits registration of any desired tool.

- (1) Slide the cursor to the position of the pocket No. to be registered.
- (2) Push the menu key for "tool registration".

→ Then, the following menu will be displayed:

END MILL	FACE MILL	CHANF. CUTTER	BALL ENDMILL	OTHER TOOL	TOUCH SENSOR	NO TOOL	NEXT (1/2)
CENTER DRILL	DRILL	BACK SPOT FACER	REAMER	TAP	BORING BAR	BACK BOR.BAR	CHIP VACUUM

- (3) Push the menu key for the tool to be registered.
- (4) Key in the nominal diameter of the tool and push the **[INPUT]** key.
- (5) Enter the suffix, using a menu key.

→ Then, the tool will be registered.

NOTE: It sometimes happens that no data is displayed when the rightmost data is entered in the course of input of data for display of the tool data screen. In such a case, change the screen into another and again call the tool data screen.



2.8 Tool Layout Display

Function Outline

To display the intra-drum (tool magazine) layout of tools used in a program

To control the tools set in the drum.

1) How to call:

(1) Depress the **DISPLAY SELECT**.

(2) Depress the **TOOL LAYOUT** key from the menu displayed in the lower part of the screen.

POSITION	COMMAND	GRAPHIC	PROGRAM	TOOL FILE	TOOL DATA	TOOL LAYOUT	PAR	DIAGNOS
----------	---------	---------	---------	-----------	-----------	--------------------	-----	---------

2) Display

CURRENT				NEXT				WORD NO. 1			
PENO	TOOL	NOH-6	PKNO	TOOL	NOH-6	PKNO	TOOL	NOH-6	PKNO	TOOL	NOH-6
1-0	F-MILL	100. A	17-0					0-0	F-MILL	100. A	
2-0	E-MILL	20. A	18-0					0-0	E-MILL	20. A	
3-0	CTR-DR	20.	19-0					0-0	CTR-DR	20.	
4-0	DRILL	10.4	20-0					0-0	DRILL	10.4	
5-0	CMDT	20. A	21-0					0-0	CMDT	20. A	
6-0	RAP N	12.	22-0					0-0	TAP N	12.	
7-0	E-MILL	30. A	23-0								
8-0	E-MILL	10. A	24-0								
9-0	DRILL	10.	25-0								
10-0			26-0								
11-0			27-0								
12-0			28-0								
13-0			29-0								
14-0			30-0								
15-0			31-0								
16-0			32-0								

*** TBN. LAYOUT ***

PKNO. SHIFT OR ASSIGN <MENU> ? ()											
WORK NO.	DRUM NO.	SPARE T ERASE	PKNO. CLEAR	PKNO. SHIFT	PKNO. ASSIGN	SPARE T ADDITION	LAYOUT FINISH	NEXT PAGE			

(The number of tools that can be displayed at one time is 32 pieces, including both "CURRENT" and "NEXT.")

① Menu initially displayed (layout menu)

WORK NO.	DRUM NO.	SPARE T ERASE	PKNO. CLEAR	PKNO. SHIFT	PKNO. ASSIGN	SPARE TOOL	LAYOUT FINISH	NEXT PAGE
----------	----------	------------------	----------------	----------------	-----------------	---------------	------------------	--------------



② Tool control menu

						TOOL ERASE	LAYOUT CANCEL	CURRENT PAGE
--	--	--	--	--	--	---------------	------------------	-----------------

3) Operation

A DISPLAY TOOLS LAYOUT(TOOLS TO BE USED.)

(1) Depress the menu key corresponding to WORK NO. in menu ①.

(The operation is not required because immediately after the call, the system is ready for keying in a work number.)

(2) Key in the work number and depress INPUT.

- All the tools used in a specified program will be displayed on the right half of a screen. Any tool exceeding 32, however, will be displayed on another page.
- When the drum changer is available, the tool which has the drum number specified in the program will be displayed.

B ALLOCATE POCKET NUMBERS TO TOOLS BEING USED(AUTOMATIC)

(1) Depress the menu key corresponding to PKNO. ASSIGN in menu ①.

- From the tools to be used on the preparation side those which have pocket No.0 will be numbered sequentially from the top, except for those to which pocket numbers have been already assigned.

(2) Depress INPUT

PKNO

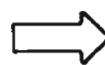
0 - 0 CTR-DR 20

3 - 0 DRILL 22

0 - 0 F-MILL 125

Group number

Pocket number



PKNO

1 - 0 CTR-DR

3 - 0 DRILL 22

2 - 0 F-MILL 125



C ALLOCATE POCKET NUMBERS TO TOOLS BEING USED(MANUAL)

- (1) Place the cursor on the position of a tool pocket number to be allocated.
- (2) Key in the pocket number and depress **INPUT**.
→ Any pocket number that is already allocated cannot be keyed in redundantly.

D RESET POCKET NUMBERS ALLOCATED

- (1) Depress the menu key corresponding to **[PKNO. CLEAR]** in menu ①.
- (2) Depress **INPUT**.
→ All pocket numbers of tools used will become 0.

E SHIFT AND ALLOCATE POCKET NUMBERS TO TOOLS USED

- (1) Depress the menu key corresponding to **[PKNO,SHIFT]** in menu ①.
- (2) Depress **INPUT**.
→ From the tools employed, those which may coincide with any of the tools currently loaded in the drum will automatically have its pocket number allocated. (The background of a pocket number is purple.)
→ This function allows a decrease in the risk of redundantly allocating a pocket number or in the work of allocation.



F	PREPARE SPARE TOOLS
---	---------------------

- (1) Put the cursor to the position of a tool pocket number in which a spare tool is employed.
- (2) Depress the menu key corresponding to SPARE TOOL in Menu ①
- (3) Depress INPUT.
→ An identical tool will appear just below the tool for which a spare tool is employed. This tool has had a group number automatically allocated together with the main tool, though its pocket number is zero. It is necessary, therefore, to input only the pocket number later.

NOTE: This function corresponds to the spare tool replacement function (optional).



G ERASE SPARE TOOL

- (1) Fit the cursor to the position of the pocket number for a spare tool to be erased.
- (2) Depress the menu key corresponding to **TOOL ERASE** in menu ①.
- (3) Depress the **INPUT**.
→ The spare tool above the cursor will disappear from the picture.

H ACCOPLISH LAYOUT.

- (1) Depress the menu key corresponding to **LAYOUT FINISH** in menu ①.
- (2) Depress the **INPUT**.
→ The tool to which a pocket number has been allocated will move to the position of an identical pocket number on the left side of the screen. (The status on the right side of the picture remain unchanged.)
→ If there is already a tool in the corresponding pocket number, that tool will be replaced by a new tool.

PKNO	
1 - 0	E-MILL 30A
2 - 0	
3 - 0	
4 - 0	BOR BAR 100
5 - 0	REAM 25

PKNO	
2 - 0	CTR-DR 20
4 - 1	DRILL 19.6
25 - 1	DRILL 19.6
9 - 0	CHF-M

PKNO
→ 1 - 0 E-MILL 30.A
→ 2 - 0 CTR-DR 20
→ 3 - 0
→ 4 - 1 DRILL 19.6
5 - 0 REAM 25

PKNO
2 - 0 CTR-DR 20
4 - 1 DRILL 19.6
25 - 1 DRILL 19.6
9 - 0 CHF-M 20

- 3) With the drum change available, depress the **INPUT** once more to lay out a subsequent drum.

→ The tool being currently laid out and belonging to the subsequent drum number is displayed on the left half and the tool having a drum number next to that specified in the program on the right half.



I	ERASE DRUM-SETTING TOOL
---	-------------------------

- 1) Depress the menu key corresponding to TOOL ERASE in menu ②.
- 2) Key in the pocket number of a tool to be erased and depress INPUT.
→ The tool with that pocket number will disappear (drum-setting tool display range).

J	CANCEL LAYOUT
---	---------------

- 1) Depress the menu key corresponding to LAYOUT CANCEL in menu ②.
- 2) Depress INPUT.
→ All the tools currently loaded in the drum will disappear and the pocket number will be also reset to 0. Any other tools (on the right side of the picture) are not affected.

K	TURN EMPLOYED TOOL DISPLAYING PAGES
---	-------------------------------------

- 1) Depress the menu key corresponding to NEXT PAGE in menu ①.
→ 32 tools next to the tool group currently displayed on the right side of the picture will be displayed. (Others remain unchanged.)

L	TURN PAGES TO DISPLAY TOOLS BEING LOADED INTO DRUM
---	--

- 1) Depress the menu key corresponding to CURRENT PAGE in menu ②.
→ 32 tools next to the tool group currently displayed on the left side of the picture will be displayed. (Others remain unchanged.)

M	CHANGE DRUM NUMBER TO BE LAID OUT
---	-----------------------------------

- 1) Depress the menu key corresponding to DRUM NUMBER in menu ①.
→ This operation is invalid as long as the NC unit is set to 1 drum.
- 2) Key in a drum number and depress the INPUT.
→ The tool being currently laid out in the set drum number is displayed on the left half and the tool corresponding to the set drum number in the program on the right half.



2.9 Parameter Display

2.9-1 Cutting Condition Parameter Display

Function Outline	<ul style="list-style-type: none">o To display and register the parameters which automatically determine the cutting condition for a specific material.o The cutting condition for a specific material is determined by multiplying the cutting conditions which is automatically determined for the referential material by the compensation ratio for each tool.
------------------	---

1) How to call:

- (1) Press the **DISPLAY SELECT** key.
- (2) Press the **PARAMETER** key in the following menu displayed in the lower part of the screen.

POSITION	COMMAND	GRAPHIC	PROGRAM	TOOL FINE	TOOL DATA	TOOL LAYOUT	PAR	DIAGNOS.
----------	---------	---------	---------	-----------	-----------	-------------	-----	----------

1 Menu initially displayed

							PREVIOUS PAGE	NEXT PAGE
--	--	--	--	--	--	--	---------------	-----------

2 Menu referentially material selected

CAST IRN	DUCTILE CAST IRN	CARBON STEEL	ALLOY STEEL	STAINLES STEEL	ALMINIUM	COPPER ALLOY		OTHER
----------	------------------	--------------	-------------	----------------	----------	--------------	--	-------



3) Operation

A REFERENTIAL MATERIAL REGISTER

- (1) Place the cursor on the referential material to be registered.
- (2) Register the material to be referential (material qualitatively closest to the material to be registered.)

B CUTTING CONDITION COMPENSATION RATIO REGISTER

- (1) Place the cursor on the tool to be compensated.
- (2) Input the applicable compensation percentage.

Note: Erasure of the registered referential material or inputting of zero as a compensating ratio is not possible. Such operation, however, will not adversely affect any other operation.



2.9-2 Parameter Display

Function Outline	o To display and register the parameters used for system control
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1) How to call:

- (1) Depress the **DISPLAY SELECT**.
- (2) Depress the **PAR** key from the following menu displayed in the lower part of the screen.

POSITION	COMMAND	GRAPHIC	PROGRAM	TOOL FILE	TOOL DATA	TOOL LAYOUT	PAR	DIAGNOS.
----------	---------	---------	---------	-----------	-----------	-------------	-----	----------



2) Display

IN2 0 EM2 3 RM3 100
DR1 20 EM3 60 RM4 2
DR2 3 EM4 6 RM5 20
DR3 10 EM5 0 BS1 3
DR4 0 EM6 20 BS2 5
DR5 3 BR1 3 BTD 100
DR6 5 BR2 10 PS1 100
DR7 32 BR3 5 PS2 100
DR8 45 BR4 0 PS3 0
DR9 50 BR5 0 PS4 0
DL1 10 BR6 5 PY1 100
DL2 5 TP1 5 PY2 0
DL3 10 TP2 2 PY3 2
DL4 3 TP3 3 PY4 10
DL5 5 BB1 10 PY5
CC1 3 BB2 0 PY6
CC2 10 RM1 20 PY7
EM1 0 RM2 100 PY8

*** POINT CUTTING PARAMETER ***

()

PREVIOUS PAGE NEXT PAGE

Menu initially displayed

							PREVIOUS PAGE	NEXT PAGE
--	--	--	--	--	--	--	---------------	-----------



3) Operation

A	REGISTER PARAMETERS
---	---------------------

- (1) Place the cursor on the parameter to be registered.
- (2) Key in the value to be registered and depress **INPUT**.
- (3) Turn the power switch off and on.

B	TURN PAGES
---	------------

- (1) If a page is to scroll forward and backward, depress the **PREVIOUS PAGE** and **NEXT PAGE** keys respectively, in the menu the menu.
→ The page will change and new parameters will be displayed. Since the top page is linked with the last page, the display will appear as an endless sequence.

- Note 1) For parameter specifications, see the section of parameters.
- Note 2) Even if a parameter has been inputted from the display, it will not be available without turning the power switch on and off once.



2.10 Alarms

i. Alarm Display

Function Outline	<ul style="list-style-type: none">o To hold and display alarms which have not yet been checkedo To check alarms
------------------	--

1) How to call:

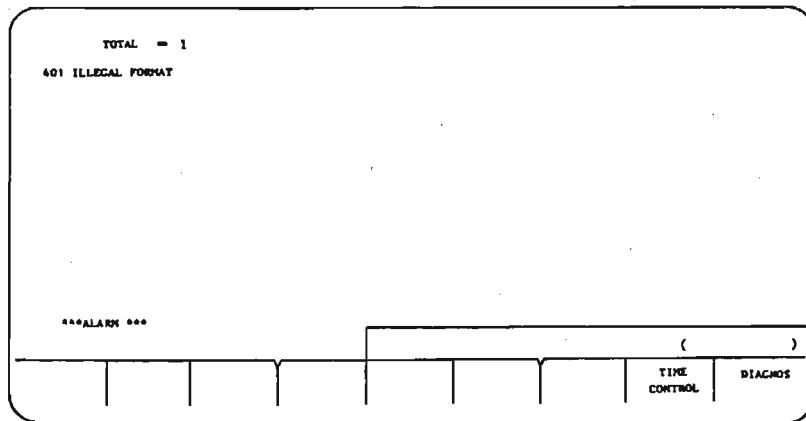
- (1) Depress the **DISPLAY SELECT**.
- (2) Depress the **DIAGNOS** key from the following menu displayed in the lower part of the screen:

POSITION	COMMAND	GRAPHIC	PROGRAM	TOOL FILE	TOOL DATA	TOOL LAYOUT	PAR	DIAGNOS.
----------	---------	---------	---------	-----------	-----------	-------------	-----	----------



(Note) A call from the diagnosis or time control display is also possible.

2) Display



Menu initially displayed

							TIME CONTROL	DIAGNOS.
--	--	--	--	--	--	--	--------------	----------



3) Operation

A CHECK ALARM

(1) Depress the **CLEAR** or **RESET**.

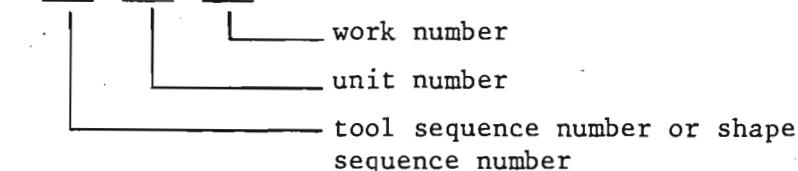
→ The alarm displayed will disappear and a total number of alarms will change.

(NOTE) The method of checking (clearing) a displayed alarm varies with the type of alarm. It is not dependent upon the alarm's display color alone.

<u>How to Check</u>	<u>Type of Alarm</u>
Turn on power switch again	Mainly alarms No 1-99
RESET	" 100 ~ 199
RESET after eliminating cause	" 200 ~ 299
CLEAR	" 300 ~ 499

The information parenthesized in alarms 301 thru 399 mainly represents the location where a program error has taken place.

(, ,)





ii Diagnosis Display

Function Outline	<ul style="list-style-type: none"> o To display and write the information in memory, o To input and output to and from a peripheral device, o To provide servo adjustment data, o To indicate a version number.
------------------	---

1) How to call:

- (1) Call the alarm picture.
- (2) Depress the **DIAGNOS** key from the following menu displayed in the lower part of the screen :

								TIME CONTROL	DIAGNOS.
--	--	--	--	--	--	--	--	--------------	----------

NOTE: This display can also be called from the time control display.

2) Display

I/O CHECK				MEMORY MONITOR (2)				MEMORY MONITOR (10)			
H0000	0000	0000	00	SH030F00	0010	1010	2A	MD0030F00.1	42		
0001	0000	0000	00	030F01	0000	0000	00				
0002	0000	0000	00	030F02	1111	0111	F7	MD003010E-2	7681		
0003	0000	0000	00	030F03	1110	0001	E1				
								MD00302D0-4	-660930552		
H00F0	0000	0000	00	MH							
00F1	0000	0000	00								
00F2	0000	0000	00								
00F3	0000	0000	00								
Q0110	0000	0000	00	UH030F00 0010 1010 2A							
0111	0000	0000	00								
DROOP	GRID	GAIN	PHASE	VERSION							
X	0	0	0	1300	1-1	B01:A	1-5	D04:A	2	101:C	6 JPN:A
Y	0	0	768	4000	1-2	D01:A	1-6	D05:A	3	200:K	
Z	0	0	1536	4000	1-3	D02:A	1-7	D06:A	4	435:B	
4	0	0	2304	4000	1-4	D03:A	1-8		5	300:A	
*** DIAGNOSIS ***											
A	B	C	D	E	F	ADDR +	ADDR -	ADJ			

Menu initially displayed

A	B	C	D	E	F	ADDR +	ADDR -	ADJ
---	---	---	---	---	---	--------	--------	-----



iii Time Control

Function Outline

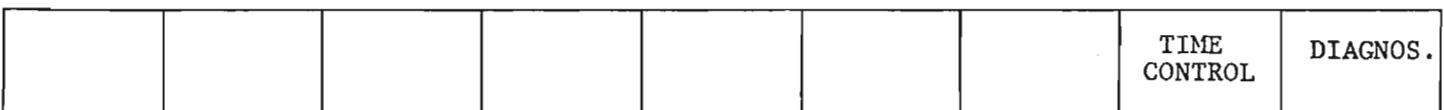
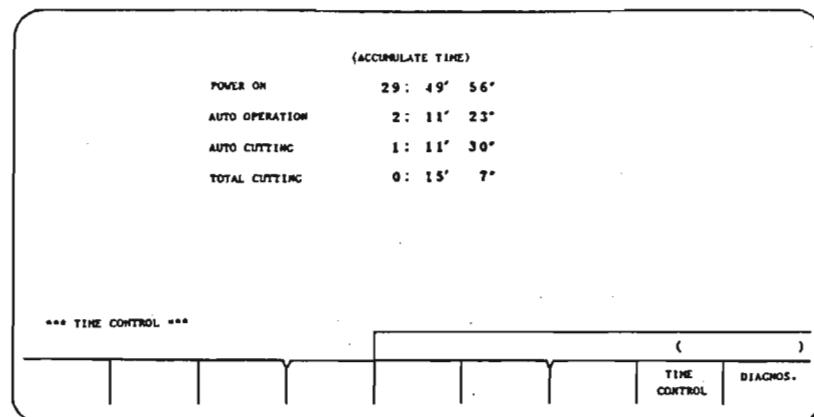
- o To display and reset integrated values of live time and automatic operation time

1) How to call:

- (1) Call the alarm display
- (2) Depress the menu key corresponding to **TIME CONTROL** from the following menu displayed in the lower part of the screen:



2) Display





3) Operation

A **RESET INTEGRATED TIME**

- (1) Move the cursor to the display position of a time to be reset.
- (2) Key in the time and depress **INPUT**.

→ The display will change to the time keyed in.
→ Using the next format, key in.

hour	.	min.	.	sec.
------	---	------	---	------

Input a numerical value in the most significant unit only and no numerical values in any other unit will be required.
(They will reckoned as 0.)

(Example) **7** **3** **INPUT** same as 73:00'00"

B **RETURN TO ALARM PICTURE**

- (1) Depress the **MENU SELECT**.

→ The display will change over to the alarm display.

C **CALL DIAGNOSIS DISPLAY**

- (1) Depress the menu key corresponding to **DIAGNOS**.

→ The display will change to the diagnosis display.

NOTE: POWER ON time:	Electrically live time
Automatic operation time:	A period during an automatic operation, ranging from start to the end of a program.
Automatic machining time:	A period during which the CYCLE START lamp is on (except for feed stop and fast feed)
Cutting time:	A period during which a cutting feed continues in the automatic operation mode



3. APPENDIX 1 LIST OF PARAMETERS



NOTE: Parameters whose address numbers are asterisked should have their values reset after an inch/millimeter change.

PARAMETERS, Cutting No. 1 (1/4)

Address	Setting	Minimum Unit	Setting Range	Description
A1	100	0.01	0 ~ 999	Tool material quality factor for drills
A2	200	0.01	0 ~ 999	
A3	100	0.01	0 ~ 999	Tool material quality factor for reamers
A4	180	0.01	0 ~ 999	
A5	100	0.01	0 ~ 999	Tool material quality factor for taps
A6	100	0.01	0 ~ 999	
A7	50	0.01	0 ~ 999	Tool material quality factor for boring bars
A8	100	0.01	0 ~ 999	
A9	50	0.01	0 ~ 999	Tool material quality factor for back facing bars
A10	100	0.01	0 ~ 999	
A11	20	0.01	0 ~ 999	Tool material quality factor for face milling cutters
A12	100	0.01	0 ~ 999	
A13	100	0.01	0 ~ 999	Tool material quality factor for end milling cutters and chamfering cutters
A14	400	0.01	0 ~ 999	
B1	100	0.01	0 ~ 999	Work material quality factor for drills and spot drills
B2	72	0.01	0 ~ 999	
B3	100	0.01	0 ~ 999	
B4	68	0.01	0 ~ 999	
B5	48	0.01	0 ~ 999	
B6	240	0.01	0 ~ 999	
B7	200	0.01	0 ~ 999	
B8	100	0.01	0 ~ 999	Work material quality factor for reamers
B9	78	0.01	0 ~ 999	



PARAMETERS, Cutting No. 1 (2/4)

Address	Setting	Minimum Unit	Setting Range	Description
B10	78	0.01	0 ~ 999	Work material quality factor for reamers
B11	80	0.01	0 ~ 999	
B12	80	0.01	0 ~ 999	
B13	143	0.01	0 ~ 999	
B14	180	0.01	0 ~ 999	
B15	100	0.01	0 ~ 999	Work material quality factor for taps
B16	75	0.01	0 ~ 999	
B17	100	0.01	0 ~ 999	
B18	88	0.01	0 ~ 999	
B19	75	0.01	0 ~ 999	
B20	225	0.01	0 ~ 999	
B21	225	0.01	0 ~ 999	
B22	100	0.01	0 ~ 999	Work material quality factor for boring bars
B23	88	0.01	0 ~ 999	
B24	100	0.01	0 ~ 999	
B25	80	0.01	0 ~ 999	
B26	80	0.01	0 ~ 999	
B27	225	0.01	0 ~ 999	
B28	150	0.01	0 ~ 999	
B29	100	0.01	0 ~ 999	Work material quality factor for back facing bars
B30	88	0.01	0 ~ 999	
B31	100	0.01	0 ~ 999	
B32	80	0.01	0 ~ 999	
B33	80	0.01	0 ~ 999	
B34	225	0.01	0 ~ 999	
B35	150	0.01	0 ~ 999	



PARAMETERS, Cutting No. 1 (3/4)

Address	Setting	Minimum Unit	Setting Range	Description
B36	100	0.01	0 ~ 999	Work material quality factor for milling cutters
B37	95	0.01	0 ~ 999	
B38	135	0.1	0 ~ 999	
B39	75	0.1	0 ~ 999	
B40	90	0.1	0 ~ 999	
B41	600	0.01	0 ~ 999	
B42	200	0.01	0 ~ 999	
B43	100	0.01	0 ~ 999	Work material quality factor for end milling cutters and chamfering cutters
B44	80	0.01	0 ~ 999	
B45	90	0.01	0 ~ 999	
B46	85	0.01	0 ~ 999	
B47	90	0.01	0 ~ 999	
B48	350	0.01	0 ~ 999	
B49	200	0.01	0 ~ 999	
C1	85	0.01	0 ~ 999	Tool diameter factor for drills
C2	100	0.01	0 ~ 999	
C3	90	0.01	0 ~ 999	Tool diameter factor for taps 1
C4	0	0.01	0 ~ 999	
C5	0	0.01	0 ~ 999	
C6	260	0.01	0 ~ 999	Tool diameter factor for taps 2
C7	800	0.01	0 ~ 999	
C8	680	0.01	0 ~ 999	
C9	89	0.01	0 ~ 999	Tool diameter factor for boring bars 1
C10	0	0.01	0 ~ 999	
C11	44	0.01	0 ~ 999	Tool diameter factor for boring bars 2
C12	80	0.01	0 ~ 999	



PARAMETERS, Cutting No. 1 (4/4)

Address	Setting	Minimum Unit	Setting Range	Description
D1	120	0.01	0 ~ 999	Diameter notch factor for boring bars
D2	110	0.01	0 ~ 999	
D3	100	0.01	0 ~ 999	
D4	100	0.01	0 ~ 999	Diameter notch factor for end milling cutters
D5	95	0.01	0 ~ 999	
D6	80	0.01	0 ~ 999	
E1	125	0.01	0 ~ 999	Axial notch factor for face milling cutters
E2	100	0.01	0 ~ 999	
E3	100	0.01	0 ~ 999	Axial notch factor for end milling cutters
E4	90	0.01	0 ~ 999	
E5	80	0.01	0 ~ 999	
F1	100	0.01	0 ~ 999	L/D factor for drills
F2	90	0.01	0 ~ 999	
F3	70	0.01	0 ~ 999	
CJ1	20	1	0 ~ 999	Spot drill factor
CJ2	25	1	0 ~ 999	Drill factor
CJ3	14	1	0 ~ 999	Reamer factor
CJ4	16	0.01	0 ~ 999	Back facing bar factor 1
CJ5	36	1	0 ~ 999	Back facing bar factor 2
CJ6	90	1	0 ~ 999	Face mill factor
CJ7	20	1	0 ~ 999	End mill factor
CJ8	30	1	0 ~ 999	Chamfering cutter factor



PARAMETERS, Cutting No. 2 (1/6)

Address	Setting	Minimum Unit	Setting Range	Description
G1	200	0.001	0 ~ 999	Spot drill factor
G2	0	-	0 ~ 999	(Not used)
G3	150	0.001	0 ~ 999	Chamfering cutter factor
H1	100	0.01	0 ~ 999	Tool material quality factor for end milling cutters
H2	83	0.01	0 ~ 999	
I1	100	0.01	0 ~ 999	Work material quality factor for drills
I2	100	0.01	0 ~ 999	
I3	90	0.01	0 ~ 999	
I4	80	0.01	0 ~ 999	
I5	80	0.01	0 ~ 999	
I6	100	0.01	0 ~ 999	
I7	80	0.01	0 ~ 999	
I8	100	0.01	0 ~ 999	Work material quality factor for reamers
I9	100	0.01	0 ~ 999	
I10	100	0.01	0 ~ 999	
I11	100	0.01	0 ~ 999	
I12	80	0.01	0 ~ 999	
I13	100	0.01	0 ~ 999	
I14	140	0.01	0 ~ 999	
I15	100	0.01	0 ~ 999	Work material quality factor for boring bars
I16	100	0.01	0 ~ 999	
I17	100	0.01	0 ~ 999	
I18	100	0.01	0 ~ 999	
I19	100	0.01	0 ~ 999	
I20	100	0.01	0 ~ 999	
I21	100	0.01	0 ~ 999	



PARAMETERS, Cutting No. 2 (2/6)

Address	Setting	Minimum Unit	Setting Range	Description
I22	100	0.01	0 ~ 999	Work material quality factor for back facing bars
I23	100	0.01	0 ~ 999	
I24	63	0.01	0 ~ 999	
I25	60	0.01	0 ~ 999	
I26	60	0.01	0 ~ 999	
I27	100	0.01	0 ~ 999	
I28	100	0.01	0 ~ 999	
I29	100	0.01	0 ~ 999	Work material quality factor for face milling cutters
I30	73	0.01	0 ~ 999	
I31	75	0.01	0 ~ 999	
I32	75	0.01	0 ~ 999	
I33	60	0.01	0 ~ 999	
I34	100	0.01	0 ~ 999	
I35	120	0.01	0 ~ 999	
I36	100	0.01	0 ~ 999	Work material quality factor for end milling cutters
I37	93	0.01	0 ~ 999	
I38	70	0.01	0 ~ 999	
I39	70	0.01	0 ~ 999	
I40	50	0.01	0 ~ 999	
I41	100	0.01	0 ~ 999	
I42	120	0.01	0 ~ 999	
J1	130	0.0001	0 ~ 999	Tool diameter factor for drills 1
J2	76	0.0001	0 ~ 999	
J3	46	0.0001	0 ~ 999	
J4	16	0.001	0 ~ 999	Tool diameter factor for drills 2
J5	71	0.001	0 ~ 999	



PARAMETERS, Cutting No. 2 (3/6)

Address	Setting	Minimum Unit	Setting Range	Description
J6	180	0.001	0 ~ 999	Tool diameter factor for drills 2
J7	34	0.0001	0 ~ 999	Tool diameter factor for boring bars 1
J8	0	0.0001	0 ~ 999	
J9	30	0.001	0 ~ 999	Tool diameter factor for boring bars 2
J10	200	0.001	0 ~ 999	
J11	50	0.0001	0 ~ 999	Tool diameter factor for back facing bars 1
J12	0	0.0001	0 ~ 999	
J13	0	0.01	0 ~ 999	Tool diameter factor for back facing bars 2
J14	40	0.01	0 ~ 999	
K1	50	0.01	0 ~ 999	Diameter notch factor for boring bars
K2	70	0.01	0 ~ 999	
K3	100	0.01	0 ~ 999	
K4	86	0.01	0 ~ 999	Diameter notch factor for end milling cutters
K5	100	0.01	0 ~ 999	
K6	86	0.01	0 ~ 999	
K7	56	0.01	0 ~ 999	
L1	33	0.01	0 ~ 999	Axial notch factor for face milling cutters
L2	100	0.01	0 ~ 999	
L3	100	0.01	0 ~ 999	Axial notch factor for end milling cutters
L4	70	0.01	0 ~ 999	
L5	50	0.01	0 ~ 999	
M1	100	0.01	0 ~ 999	L/D factor for drills
M2	90	0.01	0 ~ 999	
M3	80	0.01	0 ~ 999	
N1	82	0.001	0 ~ 999	Work material quality factor relating to power of drills
N2	51	0.001	0 ~ 999	



PARAMETERS, Cutting No. 2 (4/6)

Address	Setting	Minimum Unit	Setting Range	Description
N3	53	0.001	0 ~ 999	Work material quality factor relating to power of drills
N4	71	0.001	0 ~ 999	
N5	57	0.001	0 ~ 999	
N6	8	0.001	0 ~ 999	
N7	46	0.001	0 ~ 999	
N8	71	0.001	0 ~ 999	Work material quality factor relating to boring bar power
N9	37	0.001	0 ~ 999	
N10	57	0.001	0 ~ 999	
N11	71	0.001	0 ~ 999	
N12	63	0.001	0 ~ 999	
N13	13	0.001	0 ~ 999	
N14	51	0.001	0 ~ 999	
N15	57	0.001	0 ~ 999	Work material quality factor relating to power of face and end milling cutters
N16	32	0.001	0 ~ 999	
N17	57	0.001	0 ~ 999	
N18	77	0.001	0 ~ 999	
N19	71	0.001	0 ~ 999	
N20	17	0.001	0 ~ 999	
N21	51	0.001	0 ~ 999	
01	(190) 243	1	0 ~ 9999	Spindle speed range 1
02	(2415) 3087	1	0 ~ 9999	Spindle speed range 2
03	(3150) 4000	1	0 ~ 9999	Spindle speed range 3
04	(39) 22	0.001	0 ~ 999	Constant torque range (range 1) power calculation factor 1
05	1000	0.001	0 ~ 9999	Constant torque range (range 1) power calculation factor 2



PARAMETERS, Cutting No. 2 (5/6)

Address	Setting	Minimum Unit	Setting Range	Description
06	(75) 55	0.1	0 ~ 999	Constant horsepower range (range 2) power calculation factor (= horsepower)
07	(181) 170	100	0 ~ 999	Range 3 power calculation factor 1
08	1000	-0.001	0 ~ 999	Range 3 power calculation factor 2
09	90	0.01	0 ~ 999	Machine efficiency
P1	130	0.01	0 ~ 999	Work material quality factor relating to drill thrust
P2	130	0.01	0 ~ 999	
P3	222	0.01	0 ~ 999	
P4	240	0.01	0 ~ 999	
P5	240	0.01	0 ~ 999	
P6	130	0.01	0 ~ 999	
P7	240	0.01	0 ~ 999	
P8	10	100	0 ~ 999	Maximum allowable thrust
FK1	26	0.001	0 ~ 999	Reamer factor relating to feed 1
FK2	16	0.01	0 ~ 999	Reamer factor relating to feed 2
FK3	30	0.01	0 ~ 999	Face mill factor relating to feed
FK4	31	0.0001	0 ~ 999	End mill factor relating to feed 1
FK5	24	0.001	0 ~ 999	End mill factor relating to feed 2
FK6	4000	1	0 ~ 9999	Drill factor relating to power
FK7	1000	1	0 ~ 9999	Boring bar, face mill and end mill factors relating to power
FK8	5795	0.01	0 ~ 9999	Factor relating to thrust 1
FK9	118	0.01	0 ~ 999	Factor relating to thrust 2
FKA	0	-	0 ~ 9999	(Not used)
Q1	386	0.01	0 ~ 9999	Face and end milling cutter factors relating to roughness
Q2	274	0.01	0 ~ 9999	



PARAMETERS, Cutting No. 2 (6/6)

Address	Setting	Minimum Unit	Setting Range	Description
Q3	196	0.01	0 ~ 9999	Face and end milling cutter factors relating to roughness
Q4	140	0.01	0 ~ 9999	
Q5	100	0.01	0 ~ 9999	
Q6	80	0.01	0 ~ 9999	
Q7	64	0.01	0 ~ 9999	
Q8	51	0.01	0 ~ 9999	
Q9	41	0.01	0 ~ 9999	



PARAMETERS, Spot Machining

Address	Setting	Minimum Unit	Setting Range	Description
INZ			0 ~ 999	(Not used)
* DR1	10 20	0.1 inch 1 mm	0 ~ 99	Maximum spot drill diameter (spot drill diameter value automatically determined)
DR2	3	1 rev.	0 ~ 9	Spindle turning (DR2) component, factor to determine a dwelling time
* DR3	4 10	0.01 inch 0.1 mm	0 ~ 99	Spot drill diameter allowance
DR4	0	10 inch/ min 100 mm/min	0 ~ 9	MAZATROL: Z-axis feeding rate in back facing (0.5 mm/rev. for 0) EIA/ISO : G77 (back facing cycle) Z-axis feeding rate (Z-axis is fed according to the rate determined by the program when the setting is zero.)
DR5	3	1	0 ~ 9	Factor to determine a drilling cycle (drill cycle, high-speed deep hole cycle, deep hole cycle).
DR6	5	1	0 ~ 9	Hole depth/hole diameter \leq DR5 ... Drill cycle DR5 < Hole depth/hole diameter \leq DT6 ... High-speed deep hole cycle DR6 < Hole depth/Hole diameter ... Deep hole cycle
* DR7	13 32	0.1 inch 1 mm	0 ~ 99	Maximum diameter for one-shot drilling
* DR8	18 45	0.1 inch 1 mm	0 ~ 99	Maximum diameter for double-shot drilling
* DR9	20 50	0.1 inch 1 mm	0 ~ 99	Maximum diameter for triple-shot drilling
* DL1	4 10	0.01 inch 0.1 mm	0 ~ 99	Overtravel in drilling a hole and in tapping a bottom hole
* DL2	2 5	0.01 inch 0.1 mm	0 ~ 99	Hole depth clearance in drilling a bottom hole not drilled



PARAMETER, Spot Machining

Address	Setting	Minimun Unit	Setting Range	Description
* DL3	4 10	0.1 inch 1 mm	0 ~ 99	Center hole diameter value fixed
DL4	3	0.1	0 ~ 10	Cut depth factor per cycle of drilling (A δ) $q = \text{Tool diameter} \times \text{DL4}$
DL5	5	0.1	0 ~ 10	Cut depth factor per cycle of drilling (other material) $q = \text{Tool diameter} \times \text{DL5}$
CC1	3	1 rev.	0 ~ 9	Spindle (CC1) turning component, factor to determine the time of tapping a hole on the bottom for chamfering cutters
* CC2	4 10	0.01 inch 0.1 mm	0 ~ 99	Chamfering cutter diameter interference allowance
EM1	0		0 ~ 9	(Not used)
EM2	3	1 rev.	0 ~ 9	Spindle (EM2) turning component, factor to determine the time of dweling a hole on the bottom with an end milling cutter
EM3	60	1%	0 ~ 100	Factor to determine the stroke of a cut per cycle of machining with an end milling cutter, tool diameter x EM3/100
* EM4	2 6	0.01 inch 0.1 mm	0 ~ 99	End milling standard finish allowance
EM5	0		0 ~ 99	(Not used)
* EM6		0.1 inch 1 mm		MAZATROL: Bottom hole diameter allowance in positioning an end milling cutter on the Z-axis EIA/ISO : Bottom hole diameter allowance in positioning on Z-axis in G71 and G72 (roundness cycle)
BR1	3	1 rev.	0 ~ 9	Time of dwelling a hole on the bottom boring
* BR2	4 10	0.01 inch 0.1 mm	0 ~ 99	Relief on XY plane in rapidly feeding the Z-axis during boring



PARAMETERS, Spot Machining

Adress	Setting	Minimum Unit	Setting Range	Description
*	BR3 2 5	0.01 inch 0.1 mm	0 ~ 99	MAZATROL: Relief during working of boring. EIA/ISO: G76 (fine boring) } Relief cycle) G87 (back boring } on Z axis cycle)
	BR4 0		0 = +X 1 = -X 2 = +Y 3 = -Y	MAZATROL: Relief on XY plane in rapid feeding of Z-axis during boring EIA/ISO : Direction of relief on XY plane in rapid feeding of Z-axis in G75 and G76 (fine boring cycle)
	BR5 2 5	0.01 inch 0.1 mm	0 ~ 99	MAZATROL: Amount of bottom finish in boring EIA/ISO : Amount of bottom finish in G75 (fine boring cycle)
	BR6 3	1 sec.	0 ~ 99	Chip remover dwell time
	TP1 5	1	0 ~ 9	Number of threads imperfectly tapped
	TP2 2	1 rev.	0 ~ 9	Tapper elongation allowance
	TP3 3	1 rev.	0 ~ 99	Number of revolutions until the spindle stops after receipt of the SPINDLE STOP command
*	BB1 4 10	0.01 inch 0.1 mm	0 ~ 99	Relief on XY plane in rapidly feeding a back bore on the Z-axis
	BB2 0		0 = +X 1 = -X 2 = +Y 3 = -Y	MAZATROL: Direction of relief on XY plane in rapid feeding of a back bore on Z-axis EIA/ISO : Direction of relief on XY plane in rapid feeding of Z-axis in G87 (back boring cycle)
*	RM1 8 20	0.001 inch 0.01 mm	0 ~ 999	Prerreaming drill diameter determinant (drilling)



PARAMETERS, Spot Machining

Address	Setting	Minimum Unit	Setting Range	Description								
RM2	40 100	0.001 inch 0.01 mm	0 ~ 999	Preraming drill diameter determinant (boring)								
* RM3	40 100	0.001 inch 0.01 mm	0 ~ 999	Preraming drill diameter determinant (end milling)								
* RM4	1 2	0.001 inch 0.01 mm	0 ~ 999	Preraming boring/end milling diameter determinant (boring and end milling)								
* RM5	8 20	0.001 inch 0.01 mm	0 ~ 999	Preraming end mill diameter determinant (end milling cutter)								
BS1	3	1 rev.	0 ~ 9	Back facing dwell time								
* BS2	2 5	0.1 inch 1 mm	0 ~ 99	Positioning clearance (spot machining only)								
BTD				<table border="1" style="margin-left: 20px;"> <tr><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr> </table> <p> G73, G74 tapping cycle M code is outputted after dweling at hole bottom. G73, G74 tapping cycle Dweling at dweling after output of M code G73, G74 tapping cycle Dweling after return to the R point Back boring cycle Bottom finish: 1, Yes; 0, No End mill (roundness) Shortcut in finish bit 0 ~ 2,4 1, Yes; 0, No </p>	7	6	5	4	3	2	1	0
7	6	5	4	3	2	1	0					
* PS1	40 100	0.0001 inch 0.001 mm	0 ~ 999	One-directional positioning overrun on the X-axis								
* PS2	40 100	0.0001 inch 0.001 mm	0 ~ 999	One-directional positioning overrun on the Y-axis								
PS3	0		0 = +X 1 = -X	One-directional positioning overrun in direction X								
PS4	0		0 = +Y 1 = -Y	One-directional positioning overrun in direction Y								

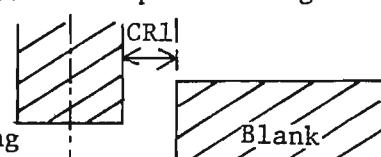
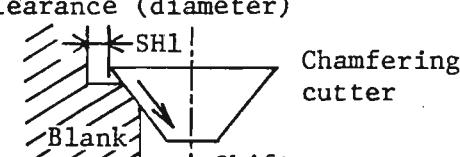
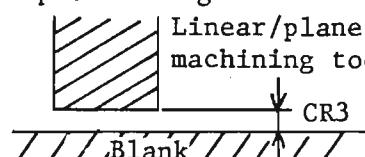


PARAMETERS, Spot Machining

Address	Setting	Minimum Unit	Setting Range	Description
* PY1	40 100	0.001 inch 0.01 mm	0 ~ 999	Reamer bottom hole depth overrun
PY2	0			<p>One directional positioning valid/invalid (0/f)</p> <p>8 7 6 5 4 3 2 1 0</p> <p>Spot Drill Reamer Tap Back facing Boring Back bore Chamfering End mill</p>
* PY3	1 2	0.01 inch 0.1 mm	0 ~ 999	MAZATROL: Pecking relief in high speed deep hole cycle EIA/ISO : Pecking relief in G73 (high speed deep hole cycle)
* PY4	4 10	0.01 inch 0.1 mm	0 ~ 999	MAZATROL: Pecking relief in deep hole cycle EIA/ISO : Pecking relief in G74 (deep hole cycle)
PY5	0			(Not used)
PY6	0			(Not used)
PY7	0			(Not used)
PY8	0			(Not used)



PARAMETERS, Linear and Plane Machining (1/3)

Address	Setting	Minimum Unit	Setting Range	Description																								
CRC	0			(Not used)																								
* CR1	20 50 3	0.01 inch 0.1 mm	0 ~ 999	End mill diameter positioning clearance  End milling cutter Blank																								
CR2	0			(Not used)																								
* AR3	2 6	0.01 inch 0.1 mm		Diameter standard finish allowance (at roughness 4) <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Roughness</td> <td>1~3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> </tr> <tr> <td>Finish allowance</td> <td>0</td> <td>AR3</td> <td>0.7</td> <td>0.7²</td> <td>0.7³</td> <td>0.7⁴</td> <td>0.7⁵</td> </tr> <tr> <td></td> <td>xAR3</td> <td>xAR3</td> <td>xAR3</td> <td>xAR3</td> <td>xAR3</td> <td>xAR3</td> <td>xAR3</td> </tr> </table>	Roughness	1~3	4	5	6	7	8	9	Finish allowance	0	AR3	0.7	0.7 ²	0.7 ³	0.7 ⁴	0.7 ⁵		xAR3						
Roughness	1~3	4	5	6	7	8	9																					
Finish allowance	0	AR3	0.7	0.7 ²	0.7 ³	0.7 ⁴	0.7 ⁵																					
	xAR3	xAR3	xAR3	xAR3	xAR3	xAR3	xAR3																					
AR5	0			(Not used)																								
* AZ3	2 6	0.01 inch 0.1 mm		Spindle standard finish allowance(at roughness 4) <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Roughness</td> <td>1~3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> </tr> <tr> <td>Finish allowance</td> <td>0</td> <td>AZ3</td> <td>0.7</td> <td>0.7²</td> <td>0.7³</td> <td>0.7⁴</td> <td>0.7⁵</td> </tr> <tr> <td></td> <td>xAZ3</td> <td>xAZ3</td> <td>xAZ3</td> <td>xAZ3</td> <td>xAZ3</td> <td>xAZ3</td> <td>xAZ3</td> </tr> </table>	Roughness	1~3	4	5	6	7	8	9	Finish allowance	0	AZ3	0.7	0.7 ²	0.7 ³	0.7 ⁴	0.7 ⁵		xAZ3						
Roughness	1~3	4	5	6	7	8	9																					
Finish allowance	0	AZ3	0.7	0.7 ²	0.7 ³	0.7 ⁴	0.7 ⁵																					
	xAZ3	xAZ3	xAZ3	xAZ3	xAZ3	xAZ3	xAZ3																					
AZ5	0			(Not used)																								
* SH1	4 10	0.01 inch 0.1 mm	0 ~ 999	Chamfering cutter interference shift clearance (diameter)  Chamfering cutter Shift																								
* CR3	20 50	0.01 inch 0.1 mm	0 ~ 999	Axial positioning clearance  Linear/plane machining tool CR3																								
RCR	7	10%	0 ~ 9	Determinant of cutting width per cycle of face milling and end milling with main unit $\text{Cutting stroke } R = \text{Tool diameter} \times \frac{\text{RCR}}{10}$																								



PARAMETERS, Linear and Plane Machining (2/3)

Address	Setting	Minimum Unit	Setting Range	Description
*	SH2 4 10	0.01 inch 0.1 mm	5 ~ 40	Chamfering cutter interference shift clearance (axial)
*	CR4 40 100	0.01 inch 0.1 mm	0 ~ 999	Face milling cutter diameter positioning clearance Face milling cutter
CR5	2	10%	1 ~ 9	Clearance for shape compensation in calculating tool paths of end mill main unit Tool path $(\text{Tool diameter} \times \frac{\text{CR5}}{10})$ Blank
CR6	6	10%		Pocket milling cut width determinant per cycle Cutting stroke R = Tool diameter $\times \frac{\text{CR6}}{10}$
CR7	1	10%		Clearance for shape compensation of tool path in face mill round stroke $(\text{Tool diameter} \times \frac{\text{CR7}}{10})$ Blank Tool path
S1	5	1/1	1 ~ 20	Cutting rapid feed factor, Cutting fast feedrate (/rev.) = currently effective feedrate $\times S1$
Changed S2 → ③ to 1		10%	0 ~ 9	End mill Z-axial cutting feed factor (but going 10 when set to 0) Z-axial feedrate (/rev.) = currently effective feedrate $\times S2/10$



PARAMETERS, Linear and Plane Machining (3/3)

Address	Setting	Minimum Unit	Setting Range	Description
S3	0			
S4	1			
S5	0			
S6				(Not used)
S7				(Not used)
S8				(Not used)
S9				(Not used)
SA				(Not used)
SB				(Not used)
SC				(Not used)
SD				(Not used)
SE				(Not used)
SF				(Not used)
S10				(Not used)
S11				(Not used)



PARAMETERS 3D - EIA/ISO (1/2)

Address	Setting	Minimum Unit	Setting Range	Description								
T01				3D Tolerance 1								
T02				Tolerance 2								
T03				Tolerance 3								
T04				Tolerance 4								
T05				Tolerance 5								
T06				Tolerance 6								
T07				Tolerance 7								
T08				Tolerance 8								
T09				Tolerance 9								
DG1				(Not used)								
DG2				(Not used)								
CA1				(Not used)								
CA2				(Not used)								
CA3				(Not used)								
CH1				(Not used)								
CHC				(Not used)								
OP1				(Not used)								
OP2				<table border="1"><tr><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> <p>—> Tape puncher (1, EIA; 0, ISO) —> Tool length offset (1, Valid to any desired axis; 0, Valid to Z-axis only) —> Tool position offset (1, H code command; 0, D code command) —> Tool diameter offset (1, Tool data valid; 0, Invalid)</p>	7	6	5	4	3	2	1	0
7	6	5	4	3	2	1	0					
OP3				# code during of EIA code punching								
OP4				(Not used)								
OP5				(Not used)								
OP6				(Not used)								
OP7				(Not used)								
OP8				(Not used)								



PARAMETERS 3D - EIA/ISO (2/2)

Address	Setting	Minimum Unit	Setting Range	Description
OP9				(Not used)
OP10				(Not used)
OP11				(Not used)
OP12				(Not used)
OP13				(Not used)
OP14				(Not used)
OP15				(Not used)
OP16				(Not used)
OP17		0.001 mm 0.0001 inch	-999 ~ 999	Amount of one-directional positioning on Z-axis (G60)
OP18		0.001° 0.001 mm 0.0001 inch	-999 ~ 999	Amount of one-directional positioning on A-axis (G60)
OP19				(Not used)
OP20			0 ~ 65535	No. of feeds before starting of punching of program in punch output
OP21			0 ~ 65535	No. of space between program No. and data in punch output
OP22			0 ~ 65535	No. of feeds after completion of punching of last program in punch output
OP23	16			Tape reader baud rate 16 4800 32 2400 64 1200
OP24	16			Tape puncher baud rate 128 600 256 300 512 150



PARAMETERS, Measurements (1/2)

Address	Setting	Minimum Unit	Setting Range	Description
* TM1		0.0001 inch 0.001 mm	0 ~ 9999999	Distance between spindle end at No. 1 zero point on the Z-axis and table face
* TM2		0.0001 inch 0.001 mm	0 ~ 9999999	Distance between spindle end at No. 1 zero point on the Z-axis and surface of tool length measurement
* TM3	40 100	0.1 inch/ min 1 mm/min	0 ~ 9999999	Tool length measurement skip speed
* TM4	14173 36000	0.0001 inch 0.001 mm	0 ~ 9999999	Tool length measurement deceleration distance limit
* TM5		0.1 inch/ min 1 mm/min	0 ~ 9999999	Tool length measurement fast feedrate (from measurement starting point to sensor on)
* TS1		0.0001 inch 0.001 mm	0 ~ 9999999	Touch sensor probe offset X
* TS2		0.0001 inch 0.001 mm	0 ~ 9999999	Touch sensor probe offset Y
* TS3		0.0001 inch 0.001 mm	0 ~ 9999999	Touch sensor measurement compensation X
* TS4		0.0001 inch 0.001 mm	0 ~ 9999999	Touch sensor measurement compensation Y
* TS5		0.0001 inch 0.001 mm	0 ~ 9999999	Touch sensor maximum measurement move
* TS6		0.1 inch 1 mm/min		MMS skip speed
TS7				(Not used)
* SK1		0.0001 inch 0.001 mm	0 ~ ±9999999	Tool length measurement, measurement starting point X coordinate
* SK2		0.0001 inch 0.001 mm	0 ~ ±9999999	Tool length measurement, measurement starting point Y coordinate



PARAMETERS, Measurements (2/2)

Address	Setting	Minimum Unit	Setting Range	Description
* SK3		0.0001 inch 0.001 mm	0 ~ ±9999999	Tool length measurement, measurement starting point Z
SK4				(Not used)
* SK5		0.0001 inch 0.001 mm		Distance to judge a tool breakage
SK6				(Not used)
SK7			1 ~ 3	To select a mode upon tool breakage (1:SBK 2:Jump to END 3:Jump to END&SBK)
SK8				(Not used)
SK9				(Not used)
SKA				(Not used)
SKB				(Not used)
SKC				(Not used)

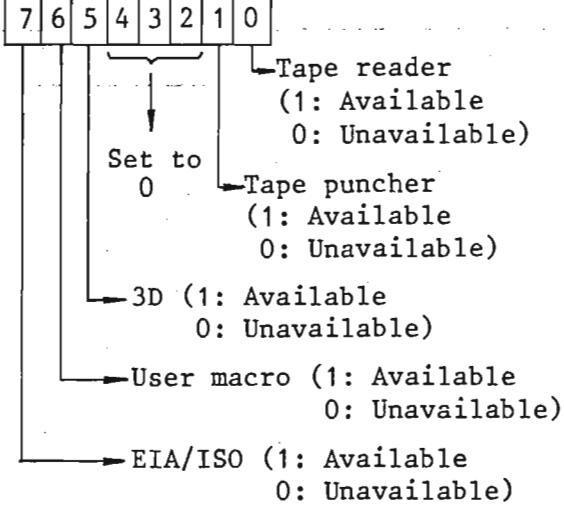
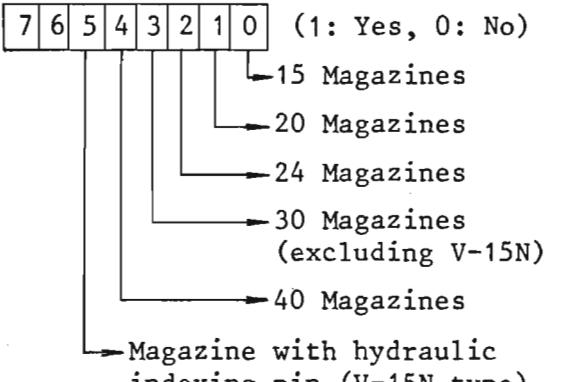


PARAMETERS, Machine Multipliers 1

Address	Setting	Minimum Unit	Setting Range	Description																								
GDR	11			<table><tr><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td colspan="4" style="text-align: center;">Set to 0</td><td></td><td></td><td></td><td></td></tr><tr><td colspan="8"><ul style="list-style-type: none">→ G00 dry run (1: available 0: unavailable)→ (1: 3 axes 0: 4 axes)→ Number of pulses manually generated (1: 1 pulse 0: 3 pulses)→ Manual pulse generator (1: available 0: unavailable)→ No. 2 zero point returning function (1: unavailable 0: available)</td></tr></table>	7	6	5	4	3	2	1	0	Set to 0								<ul style="list-style-type: none">→ G00 dry run (1: available 0: unavailable)→ (1: 3 axes 0: 4 axes)→ Number of pulses manually generated (1: 1 pulse 0: 3 pulses)→ Manual pulse generator (1: available 0: unavailable)→ No. 2 zero point returning function (1: unavailable 0: available)							
7	6	5	4	3	2	1	0																					
Set to 0																												
<ul style="list-style-type: none">→ G00 dry run (1: available 0: unavailable)→ (1: 3 axes 0: 4 axes)→ Number of pulses manually generated (1: 1 pulse 0: 3 pulses)→ Manual pulse generator (1: available 0: unavailable)→ No. 2 zero point returning function (1: unavailable 0: available)																												
*	IMC		0: millimeter 1: inch	Inch/millimeter changeover																								
OTM			0 ~ 4	<p>How to stop at the stroke end:</p> <p>0 or 1: Linear deceleration stop</p> <p>2: Velocity loop step stop (unguaranteed)</p> <p>3: Velocity loop step stop (guaranteed)</p> <p>4: Position loop step stop (unguaranteed)</p>																								
Y00				Bubble memory (0: None, 1: 128 KB, 2: 512 KB, 3: 1 MB)																								
TLN		1 pc.	~ 80	Max. number of tools accommodated in magazine																								
Y02			0: without changing the drum 1: with the drum changed	Drum changing function available/ unavailable																								



PARAMETER, Machine Multipliers 1

Address	Setting	Minimum Unit	Setting Range	Description
Y03				
Y04				Bit 0 DNC I/O (1: Available 0: Unavailable)
PC0	33			Hardware for substantial production (33), plot (32)
PC1				
PC2	0			Bit 90 in the case of stand
PC3				
PC4				
PC5				
PC6				
PC7	0			Sequence (main) from version C
SQ0				



Address	Setting	Minimum Unit	Setting Range	Description
SQ1				<p>7 6 5 4 3 2 1 0 (1: Yes, 0: No)</p> <ul style="list-style-type: none"> → With two pallet changes → Feed hold stopping upon detection of pallet gap → Auto coolant door option → Door interlock used → Multi-layer pallet used → End signal is given to PC by means of external control. → Program is ended by single block signal from external control. <p>1: M code decimals of M70-89 are given to the external device.</p> <p>0: B code BCD is given to the external device.</p>
SQ2				<p>7 6 5 4 3 2 1 0 (1: Yes, 0: No)</p> <ul style="list-style-type: none"> → Tap coolant is used (ON-M52) → 2nd air blast is used (ON-M53) <ul style="list-style-type: none"> 1: 2nd air blast 0: Air blast for removal of chips → ATC air blast → With NC rotary table option → 5° index table used → Condition of end are inverted by means of the additional index table. → Machining of high workpieces (H-12 only)



Address	Setting	Minimum Unit	Setting Range	Description								
SQ3				<table border="1"><tr><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> (1: Yes, 0: No) — Operation end lamp (illuminated upon receiving of M00 or M012) — Dai-Showa-produced MMS used — Swining type tool measuring table — FLEX robot attached — Additional I/O board used — Pallet changer for Mino-Kamo used — M100 and M101 are used as additional index table commands. — Alarm 79 (NEXT TOOL NO. DATA ERROR) is ignored.	7	6	5	4	3	2	1	0
7	6	5	4	3	2	1	0					
SQ4				<table border="1"><tr><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> (1: Yes, 0: No) — FR-SX — Four V-20 pallet changers — Recessing tool used — X-axis is returned to second zero point upon execution of ATC. — Spindle speed: 10,000 r.p.m. — Auxiliary head option (YMS type) — Three drum changers (YMS type) — Abnormal temperature alarm cancellation	7	6	5	4	3	2	1	0
7	6	5	4	3	2	1	0					



Address	Setting	Minimum Unit	Setting Range	Description
SQ5				<p>7 6 5 4 3 2 1 0 (1: Yes, 0: No)</p> <p>— Auxiliary head coolant used</p> <p>— Automatic return to zero point is not executed by EIA/ISO Program ATC.</p> <p>— EIA/ISO Program ATC method (1: M06 0: T code)</p> <p>— Before execution of ATC, the tool shifter should be loaded. (Applicable to V Series excepting VQC)</p> <p>— Stacker pallet changer option</p> <p>— Unorient after completion of ATC</p> <p>— When ATC returns to zero point, both Y and Z axes are moved simultaneously (horizontal MC other than HQC).</p> <p>— Spindle is oriented by means of four-stage gear.</p>

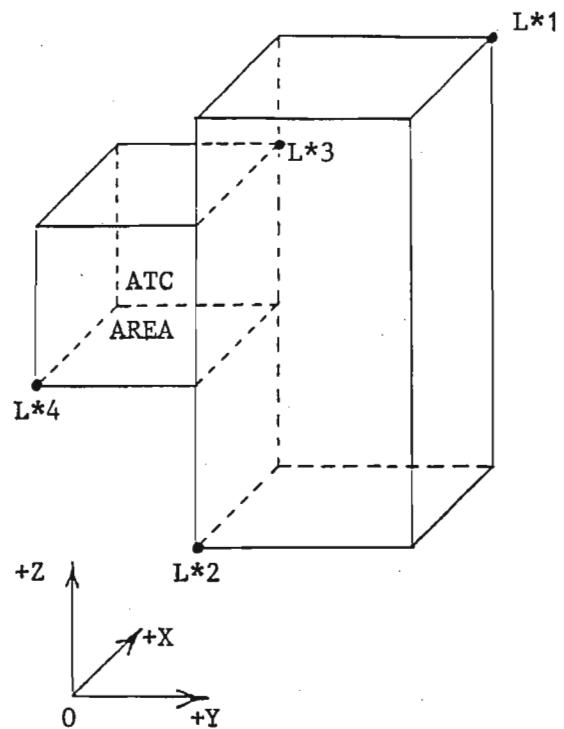


Address	Setting	Minimum Unit	Setting Range	Description
CS 0				FX 84A 0 - 7FFF Check sum value,"
CS 1				8000 - FFFF "
CS 2				10000 - 17FFF "
CS 3				18000 - 1FFFF "
CS 4				20000 - 27FFF "
CS 5				28000 - 2FFFF "
CS 6				30000 - 37FFF "
CS 7				38000 - 3FFFF "
CS 8				40000 - 47FFF "
CS 9				48000 - 4FFFF "
CS10				50000 - 57FFF "
CS11				58000 - 5FFFF "
CS12				FX 84A-1 70000 - 77FFF "
CS13				78000 - 7FFFF "
CS14				D0000 - D7FFF "
CS15				D8000 - DFFFF "
CS16				E0000 - E7FFF "
CS17				E8000 - EFFFF "
CS18				F0000 - F7FFF "
CS19				ROM address when check sum error is caused
CS20				Error data
CS21				
CS22				
CS23				
CS24				
CS25				
CS26				
CS27				



PARAMETERS, Machine Multipliers 2 (1/6)

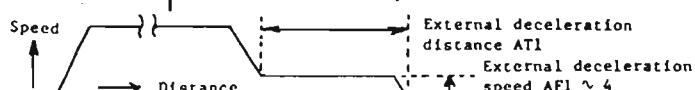
Address	Setting	Minimum Unit	Setting Range	Description
* LX1		0.0001 inch 0.001 mm	0 ~ ±99999999	Software limit
* LY1		"	"	
* LZ1		"	"	
* LX2		"	"	
* LY2		"	"	
* LZ2		"	"	
* LX3		"	"	
* LY3		"	"	
* LZ3		"	"	
* LX4		"	"	
* LY4		"	"	
* LZ4		"	"	
* ZP1	0	"	"	Machine zero point coordinates X (upon return to zero point, with a machine coordinate system set)
* ZP2	0	"	"	Machine zero point coordinates Y (upon return to zero point, with a machine coordinate system set)
* ZP3	0	"	"	Machine zero point coordinates Z (upon return to zero point, with a machine coordinate system set)
* ZP4	0	"	"	Machine zero point coordinates 4 (upon return to zero point, with a machine coordinate system set)
* RP1		"	"	No. 2 zero point coordinate X (machine coordinate system basis)
* RP2		"	"	No. 2 zero point coordinate Y (machine coordinate system basis)
* RP3		"	"	No. 2 zero point coordinate Z (machine coordinate system basis)





PARAMETERS, Machine Multipliers 2 (2/6)

Address	Setting	Minimum Unit	Setting Range	Description
* RP4		0.0001 inch 0.001 mm	0 ~ 9999999	No. 2 zero point coordinate 4 (machine coordinate system basis)
* ZS1		"	0 ~ 99999	Zero point shift stroke X
* ZS2		"	"	Zero point shift stroke Y
* ZS3		"	"	Zero point shift stroke Z
* ZS4		"	"	Zero point shift stroke 4
* ZC1		0.1 inch/ min 1 mm/min	0 ~ 500	Dog type zero point return creep speed (velocity after deceleration) X
* ZC2		"	"	Dog type zero point return creep speed (velocity after deceleration) Y
* ZC3		"	"	Dog type zero point return creep speed (velocity after deceleration) Z
* ZC4		"	"	Dog type zero point return creep speed (velocity after deceleration) 4
ZD1		1: + direction 2: - direction		Zero point returning direction X
ZD2			"	Zero point returning direction Y
ZD3			"	Zero point returning direction Z
ZD4			"	Zero point returning direction 4
* AF1		0.1 inch/ min 1 mm/min		External deceleration speed X
* AF2		"		External deceleration speed Y
* AF3		"		External deceleration speed Z
* AF4		"		External deceleration speed 4 (Manual mode: operating upon return to No. 2 zero point) (Automatic mode: operating upon move to G00)





PARAMETERS, Machine Multipliers 2 (3/6)

Address	Setting	Minimum Unit	Setting Range	Description
*	RF1	0.1 inch/ min 1 mm/min	0 ~ 20000	Fast feedrate X
*	RF2	"	"	Fast feedrate Y
*	RF3	"	"	Fast feedrate Z
*	RF4	"	"	Fast feedrate 4
	RT1	1 m sec.	0 ~ 999	Fast feedrate constant X
	RT2	"	"	Fast feedrate constant Y
	RT3	"	"	Fast feedrate constant Z
	RT4	"	"	Fast feedrate constant 4
	RFR	1%	0 ~ 100	Fast feedrate deceleration speed
*	SFC	0.1 inch/ min 1 mm/min	0 ~ 6000	Clamping speed in cutting feed
	STC	1 m sec.	0 ~ 999	Cutting feed time constant
	SMP	-	bit 0: unavailable bit 1: available	bit 0 (for stand) bit 1 (spindle at 10,000 rpm) bit 2 (pitch error compensation) bit 3 (with power on, SPHDL, FED ... 100 (automatic) 0 (manual)) (0: available 1: unavailable)
	GH4	1 rpm	0 ~ 9999	Gear H(4) or H(3) or H(2): Spindle speed upper limit
	GH3	"	"	Gear M(3) or M(2) or L(1): Spindle speed upper limit
	GH2	"	"	Gear ML(2) or L(1): Spindle speed upper limit
	GH1	"	"	Gear L(1): Spindle speed upper limit



PARAMETERS, Machine Multipliers 2 (4/6)

Address	Setting	Minimum Unit	Setting Range	Description								
GL4		1 rpm	0 ~ 9999	Gear H(4) or H(3) or H(2): Spindle speed lower limit								
GL3		"	"	Gear M(3) or M(2) or L(1): Spindle speed lower limit								
GL2		"	"	Gear ML(2) or L(1): Spindle speed lower limit								
GL1		"	"	Gear L(1): Spindle speed lower limit								
SPI		"	"	Spindle inching speed								
SPO				Spindle speed factor upon gear shift: Set value = $\frac{\text{Spindle motor speed upon gear shift}}{\text{Spindle motor maximum speed}} \times 4095$								
GYN			2 ~ 4	Single speed number of speeds								
EX2		1 rpm		Stepped value of spindle manual velocity switch (10 rpm at 0)								
MA1		-		Servo constant X								
MA2		-		Servo constant Y								
MA3		-		Servo constant Z								
MA4		-		Servo constant 4								
				<table border="1"><tr><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> <p>→ Servo off error correction (0: available 1: unavailable) → Type of axis (0: linear axis 1: rotary axis) → Motor turning speed (0: CW, 1: CCW) → Initial backlash direction (0: -, 1: +)</p>	7	6	5	4	3	2	1	0
7	6	5	4	3	2	1	0					



PARAMETERS, Machine Multipliers 2 (5/6)

Address	Setting	Minimum Unit	Setting Range	Description																
BL1		0.001 mm	0 ~ 999	Backlash compensation stroke X (available upon move to G00)																
BL2		"	"	Backlash compensation stroke Y (available upon move to G00)																
BL3		"	"	Backlash compensation stroke Z (available upon move to G00)																
BL4		"	"	Backlash compensation stroke 4 (available upon move to G00)																
MC1		-		Servo factor X																
MC2		-		Servo factor Y																
MC3		-		Servo factor Z																
MC4		-		Servo factor 4																
				<table border="1"><tr><td>F</td><td>E</td><td>D</td><td>C</td><td>B</td><td>A</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> $\tau \times 8$ Linear zone 0: 16000 4: 32000 1: 4000 5: 64000 2: 8000 6: 128000 3: 16000 7: 16000	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0
F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0					
MD1		0.001 mm	0 ~ 65535	Backlash compensation stroke X (available upon move to G01)																
MD2		"	"	Backlash compensation stroke Y (available upon move to G01)																
MD3		"	"	Backlash compensation stroke Z (available upon move to G01)																
MD4		"	"	Backlash compensation stroke 4 (available upon move to G01)																
*	AT1	0 0.0001 inch 0.001 mm	0 ~ 65530	External deceleration distance (Automatic: upon move to G00) (Manual: positioning before AT1 at speed AF1 thru AF4 in that order upon return to No. zero point)																
	AT2	0.001sec	0~10000	Time study, M code execution time																

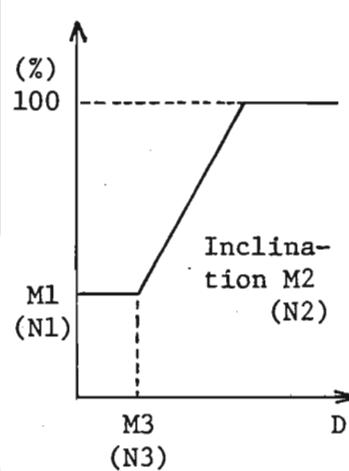


PARAMETERS, Machine Multipliers 2 (6/6)

Address	Setting	Minimum Unit	Setting Range	Description
AT3		0.001sec	0~10000	Time study B code execution time
AT4		"	"	Time study ATC execution time

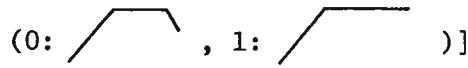
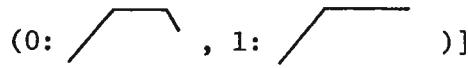


PARAMETERS, Machine Multipliers 3 (1/5)

Address	Setting	Minimum Unit	Setting Range	Description	
FM1	100	1%	0 ~ 999	AFC spindle Face milling cutter M1	AFC spindle
*	FM2	0 0	0.1%/ 0.1 inch 0.1%/mm	" " M2	Horsepower (%) = M1 + M2 (D - M3) where
*	FM3	20 50	0.1 inch 1 mm	" " M3	Maximum value 100% Minimum value M1 (D < M3)
	EM1	20	1%	" AFC spindle End milling cutter M1	D: Tool diameter
*	EM2	102 40	0.1%/ 0.1 inch 0.1%/mm	" " M2	
*	EM3	4 10	0.1 inch 1 mm	" " M3	M1 (N1) M2 (N2)
	BM1	40	1%	" AFC spindle Boring bar M1	M3 (N3) D
*	BM2	51 20	0.1%/ 0.1 inch 0.1%/mm	" " M2	AFC Z-axis
*	BM3	8 20	0.1 inch 1 mm	" " M3	Thrust (%) = N1 + N2 (D - N3) where
	DM1	30	1%	" AFC spindle Drill M1	Maximum value 100% Minimum value N1 (D < N3)
*	DM2	114 45	0.1%/ 0.1 inch 0.1%/mm	" " M2	D: Tool diameter
*	DM3	4 10	0.1 inch 1 mm	" " M3	
	DN1	30	1%	" AFC Z-axis Drill N1	
*	DN2	51 20	0.1%/ 0.1 inch 0.1%/mm	" " N2	
*	DN3	4 10	0.1 inch 1 mm	" " N3	



PARAMETERS, Machine Multipliers 3 (2/5)

Address	Setting	Minimum Unit	Setting Range	Description	
EN1	30	1%	0 ~ 999	AFC Z-axis End milling cutter N1	
*	EN2	51 20	0.1%/ 0.1 inch 0.1%/mm	"	" N2
*	EN3	4 10	0.1 inch 1 mm	"	" N3
AC1	0			(Not used)	
AC2	0			(Not used)	
AC3	0			(Not used)	
MP1	7	-		bit 0 [Feed AFC (0: unavailable, 1: available)] bit 1 [Spindle AFC (0: unavailable, 1: available)] bit 2 [Spindle performance curves (0:  , 1: )]	
MP2	50	1%		Spindle AFC minimum value (clamp value)	
MP3	50	1%		Feed AFC minimum value (clamp value)	
MP4	5	1 sec.		Maximum clamp time at minimum AFC (an excess would result in a feed hold)	
MP5	1	1%		AFC override stepped value	
MP6	10	1%		AFC insensible zone upper	
MP7	10	1%		AFC insensible zone lower	
MP8				(Not used)	
MP9				(Not used)	
MPA				(Not used)	
MPB				(Not used)	



PARAMETERS, Machine Multipliers 3 (3/5)

Address	Setting	Minimum Unit	Setting Range	Description
TH0		-	0: unavailable 1: available	Thermal displacement compensation available/unavailable switch bit 0 (X), bit 1 (Y), bit 2 (Z)
TH1		0.1 $\mu\text{m}/^\circ\text{C}$	0 ~ ± 399	Thermal displacement coefficient X_1
TH2		"	"	" X_2
TH3		"	"	" Y_1
TH4		"	"	" Y_2
TH5		"	"	" Z_1
TH6		"	"	" Z_2
TH7				(Not used)
TH8				(Not used)
TH9				(Not used)
THA				(Not used)
THB				(Not used)
THC				(Not used)
THD				(Not used)
THE				(Not used)
THF				(Not used)
* A1X		0,0001 inch 0,001 mm	0~ ± 9999999	External control position No.1
* A1Y		"	"	
* A1Z		"	"	

Compensation data
 $\Delta X:$
$$\Delta X = X_1(T_{X1}-T_0) + X_2(T_{X2}-T_0)$$
where, input signals;
 T_{X1}, T_{X2}
X-axis temperature
 T_{Y1}, T_{Y2}
Y-axis temperature
 T_{Z1}, T_{Z2}
Z-axis temperature
 T_0
Reference temperature



PARAMETERS, Machine Multipliers 3 (4/5)

Address	Setting	Minimum Unit	Setting Range	Description
* A14		0,0001 inch 0,001 mm	0~±9999999	
* A2X		"	"	External control position No.2
* A2Y		"	"	
* A2Z		"	"	
* A24		"	"	
* A3X		"	"	External control position No.3
* A3Y		"	"	
* A3Z		"	"	
* A34		"	"	
* A4X		"	"	External control position No.4
* A4Y		"	"	
* A4Z		"	"	
* A44		"	"	
* A5X		"	"	External control position No.5
* A5Y		"	"	
* A5Z		"	"	
* A54		"	"	
* A6X		"	"	External control position No.6
* A6Y		"	"	
* A6Z		"	"	
* A64		"	"	
* A7X		"	"	External control position No.7
* A7Y		"	"	
* A7Z		"	"	
* A74		"	"	
* A8X		"	"	External control position No.8



PARAMETERS, Machine Multipliers 3 (5/5)

Address	Setting	Minimum Unit	Setting Range	Description
* A8Y		0.0001 inch 0.001 mm	0~±9999999	External control position No.8
* A8Z		"	"	
* A84		"	"	
DP0				Parameter for DNC
DP1				
DP2				
DP3				
DP4				
DP5				
DP6				
DP7				
DP8				
DP9				
DPA				
DPB				
DPC				
DPD				
DPE				
DPF				



PARAMETERS, Pitch Error Compensation

Address	Setting	Minimum Unit	Setting Range	Description
				<p>(i) With the zero point taken for the reference point, reckon compensation stroke thereof as 0.</p> <p>(ii) In the case of rotary axis, compensate so that the stroke will be zero with a turn made.</p> <p>(iii) A minimum interval of measurements is to be set on the fast feedrate set.</p> <p>A compensating operation is to be effected every 35 microseconds.</p> <p>At a fast feedrate of 12 m/min.,</p> <p>Min. = 12 m/min. × 35 msec. = 7 mm</p>
PP1		0.001 mm	60000	Pitch error compensation interval X
PP2		"	"	Pitch error compensation interval Y
PP3		"	"	Pitch error compensation interval Z
PP4		"	"	Pitch error compensation interval 4
PZ1			0 ~ 127	Pitch error compensation reference point number (X)
PZ2			"	Pitch error compensation reference point number (Y)
PZ3			"	Pitch error compensation reference point number (Z)
PZ4			"	Pitch error compensation reference point number (4)
PSL		-	0 ~ 15	Pitch error compensation available/unavailable switch bit 0 (X), bit 1 (Y), bit 2 (Z), bit 3 (4)
0 127		0.001 mm	-128 ~ 127 -128 ~ 127	Each compensation stroke; Incremental stroke



4. APPENDIX 2. LIST OF ALARMS



No.	Message	Description	No.	0
0	1 5 10 15 20 25 29		P1	
ENGLISH			P2	
			P3	
		Occurrence		
		Status of Stop		
		How to Release		
1	SERVO LAG EXCESS X AXIS ZU GROSSE ABWEICHUNG X ACHSE ECART TROP IMPORTANT AXE X EXCESO ERROR EN SERVO EJE X ERRORE IUSEG ECCESSIVO ASSEX TE GROTE AFWIJKING SERVO X-AS FOR STOR EFTERSLAPN SERVO X HOYT SERVOSLEP X AKSE	A lag of the machine to follow a commanded move value on the X-axis has exceeded the rating.	No.	1
GERMAN			P1	
FRENCH			P2	
SPANISH			P3	
ITALIAN		Occurrence	Servo amplifier/detector	
DUTCH				
SWEDISH				
NORWAY				
		Status of Stop	Emergency stop	
		How to Release	Switch off once and then on the machine again.	
2	SERVO LAG EXCESS Y AXIS ZU GROSSE ABWEICHUNG Y ACHSE ECART TROP IMPORTANT AXE EXCESO ERROR EN SERVO EJE Y ERRORE INSEG ECCESSIVO ASSEY TE GROTE AFWIJKING SERVO Y-AS FOR STOR EFTERSLAPN SERVO Y HOYT SERVOSLEP Y AKSE	A lag of the machine to follow a commanded move value on the Y-axis has exceeded the rating.	No.	2
ENGLISH			P1	
GERMAN			P2	
FRENCH			P3	
SPANISH		Occurrence	Servo amplifier/detector	
ITALIAN				
DUTCH				
SWEDISH				
NORWAY				
		Status of Stop	Emergency stop	
		How to Release	Switch off once and then on the machine again.	



No.	Message	Description	No.
3	1 5 10 15 20 25 29 ENGLISH SERVO LAG EXCESS Z AXIS GERMAN ZU GROSSE ABWEICHUNG Z ACHSE FRENCH ECART TROP IMPORTANT AXE Z SPANISH EXCESO ERROR EN SERVO EJE Z ITALIAN ERRORE INSEG ECCESSIVO ASSEZ DUTCH TE FROTE AFWIJKING SERVO Z-AS SWEDISH FOR STOR EFTERSLAPN SERVO Z NORWAY HOYT SERVOSLEP Z AKSE	A lag of the machine to follow a commanded move value on the Z-axis has exceeded the rating.	No. P1 P2 P3 Occurrence Servo amplifier/detector Status of Stop Emergency stop How to Release Switch off once and then on the machine again.
4	1 5 10 15 20 25 29 ENGLISH SERVO LAG EXCESS 4TH AXIS GERMAN ZU GROSSE ABWEICHUNG 4 ACHSE FRENCH ECART TROP IMPORTANT AXE 4 SPANISH EXCESO ERROR EN SERVO EJE 4 ITALIAN ERRORE INSEG ECCESSIVO 4ASSE DUTCH TE FROTE AFWIJKING SERVO 4-AS SWEDISH FOR STOR EFTER SERVO 4:E AXEL NORWAY HOYT SERVOSLEP 4-AKSE	A lag of the machining to follow commanded move values on fourth axis has exceeded the rating.	No. P1 P2 P3 Occurrence Servo amplifier/detector Status of Stop Emergency stop How to Release Switch off once and then on the machine again.
5	1 5 10 15 20 25 29 ENGLISH SERVO OSCILLATION X AXIS GERMAN X ACHSE SERVO MOTOR VIBRIERT FRENCH ERREUR DU SERVO AXE X SPANISH OSCILACION SERVO EJE X ITALIAN OSCILLAZIONE SERVO ASSE X DUTCH OSCILLATIE SERVO X-AS SWEDISH SVANGNING SERVO X-AXEL NORWAY SERVO OSCILLERING X AKSE	Upon move on the X-axis, the machine does not stop at a specified position but overruns or underruns repeatedly.	No. P1 P2 P3 Occurrence Servo amplifier/detector Status of Stop Emergency stop How to Release Switch off once and then on the machine again.



No.	Message							Description			
6	1	5	10	15	20	25	29	No.	6	P1	
ENGLISH	SERVO OSCILLATION Y AXIS							P2			
GERMAN	Y ACHSE SERVO MOTOR VIBRIERT							P3			
FRENCH	ERREUR DU SERVO AXE Y							Occurrence	Servo amplifier/detector		
SPANISH	OSCILACION SERVO EJE Y							Status of Stop	Emergency stop		
ITALIAN	OSCILLAZIONE SERVO ASSE Y							How to Release	Switch off once and then on the machine again.		
DUTCH	OSCILLATIE SERVO Y-AS										
SWEDISH	SVANGNING SERVO Y-AXEL										
NORWAY	SERVO OSCILLERING Y AKSE										
7								No.	7	P1	
ENGLISH	SERVO OSCILLATION Z AXIS							P2			
GERMAN	Z ACHSE SERVO MOTOR VIBRIERT							P3			
FRENCH	ERREUR DU SERVO AXE Z							Occurrence	Servo amplifier/detector		
SPANISH	OSCILACION SERVO EJE Z							Status of Stop	Emergency stop		
ITALIAN	OSCILLAZIONE SERVO ASSE Z							How to Release	Switch off once and then on the machine again.		
DUTCH	OSCILLATIE SERVO Z-AS										
SWEDISH	SVANGNING SERVO Z-AXEL										
NORWAY	SERVO OSCILLERING Z AKSE										
8								No.	8	P1	
ENGLISH	SERVO OSCILLATION 4TH AXIS							P2			
GERMAN	4.ACHSE SERVO MOTOR VIBRIERT							P3			
FRENCH	ERREUR DU SERVO AXE 4							Occurrence	Servo amplifier/detector		
SPANISH	OSCILACION SERVO EJE 4							Status of Stop	Emergency stop		
ITALIAN	OSCILLAZIONE SERVO 4:ASSE							How to Release	Switch off once and then on the machine again.		
DUTCH	OSCILLATIE SERVO 4-AS										
SWEDISH	SVANGNING SERVO 4:E AXEL										
NORWAY	SERVO OSCILLERING 4.AKSE										



No.	Message	Description	No.
9	1 5 10 15 20 25 29	In response to a command from the NC unit, no feedback signal is available from the X-axis resolver.	P1 P2 P3 Occurrence Servo amplifier/detector Status of Stop Emergency stop How to Release Switch off once and then on the machine again.
10	ENGLISH DETECTING NO SIGNAL X AXIS GERMAN X UBERWACHUNG KEIN SIGNAL FRENCH PAS DE SIGNAL DETECT. AXE X SPANISH SENAL NO DETECTADA EN EJE X ITALIAN NESSUN SEGNALE RILEV. ASSE X DUTCH GEEN SIGNAALDETECTIE X-AS SWEDISH INGEN SIGNAL FRAN X-AXEL NORWAY IKKE SIGNAL FRA X AKSE	In response to an NC command, no feedback signal is available from the Y-axis resolver.	P1 P2 P3 Occurrence Servo amplifier/detector Status of Stop Emergency stop How to Release Switch off once and then on the machine again.
11	ENGLISH DETECTING NO SIGNAL Y AXIS GERMAN Y UBERWACHUNG KEIN SIGNAL FRENCH PAS DE SIGNAL DETECT. AXE Y SPANISH SENAL NO DETECTABA EN EJE Y ITALIAN NESSUN SEGNALE RILEV ASSE Y DUTCH GEEN SIGNAALDETECTIE Y-AS SWEDISH INGEN SIGNAL FRAN Y-AXEL NORWAY IKKE SIGNAL FRA Y AKSE	In response to an NC command, no feedback signal is available from the Z-axis resolver.	P1 P2 P3 Occurrence Servo amplifier/detector Status of Stop Emergency stop How to Release Switch off once and then on the machine again.



No.	Message	Description	No.	12
12	1 5 10 15 20 25 29	In response to an NC command, no feedback signal is available from the fourth axis resolver.	No.	12
ENGLISH	DETECTING NO SIGNAL 4TH AXIS		P1	
GERMAN	4. UBERWACHUNG KEIN SIGNAL		P2	
FRENCH	PAS DE SIGNAL DETECT. AXE 4		P3	
SPANISH	SEÑAL NO DETECTADA EN EJE 4		Occurrence	Servo amplifier/detector
ITALIAN	NESSUN SEGNAL RILEV. 4 ASSE		Status of Stop	Emergency stop
DUTCH	GEEN SIGNAALDETECTIE 4-AS		How to Release	Switch off once and then on the machine again.
SWEDISH	INGEN SIGNAL FRAN 4:E AXEL			
NORWAY	IKKE SIGNAL FRA 4.AKSE			
13			No.	13
ENGLISH	DRIVE ALARM X AXIS	In the X-axis servo amplifier, the thermal relay has tripped or the no-fuse breaker has functioned.	P1	
GERMAN	SERVO ALARM X ACHSE		P2	
FRENCH	ALARME SYST. ENTRAIN. AXE X		P3	
SPANISH	SERVO TRANSMISION SLARM EJE X		Occurrence	Servo amplifier/detector
ITALIAN	ALLARME SERVO ASSE X	An error on the X-axis is excessively significant or the feedback signal from the resolver has become unavailable.	Status of Stop	Emergency stop
DUTCH	ALARM AANERIJVING X-AS		How to Release	Switch off once and then on the machine again.
SWEDISH	DRIVNINSALARM X-AXEL			
NORWAY	DRIFT ALARM X AKSE			
14			No.	14
ENGLISH	DRIVE ALARM Y AXIS	In the Y-axis servo amplifier, the thermal relay has tripped or the no-fuse breaker has functioned.	P1	
GERMAN	SERVO ALARM Y ACHSE		P2	
FRENCH	ALARME SYST. ENTRAIN. AXE Y		P3	
SPANISH	SERVO TRANSMISION ALARM EJE Y		Occurrence	Servo amplifier/detector
ITALIAN	ALLARME SERVO ASSE Y	An error on the Y-axis is excessively significant or the feedback signal from the resolver has become unavailable.	Status of Stop	Emergency stop
DUTCH	ALARM AANDRIJVING Y-AS		How to Release	Switch off once and then on the machine again.
SWEDISH	DRIVNINSALARM Y-AXEL			
NORWAY	DRIFT ALARM Y AKSE			



No.	Message	Description	No.
15	1 5 10 15 20 25 30	In the Z-axis servo amplifier, the thermal relay has tripped or the no-fuse breaker has functioned. An error on the Z-axis is excessively significant or the feedback signal from the resolver has become unavailable.	P1 P2 P3 Occurrence Status of Stop How to Release
16	DRIVE ALARM 4TH AXIS SERVO ALARM 4. ACHSE ALARME SYST. ENTRAIN. AXE 4 SERVO TRANSMISSION ALARM EJE 4 ALLARME SERVO 4ASSE ALARM AANDRIJVING 4-AS DRIVNINGSALARM 4:E AXEL DRIFT ALARM 4.AKSE	In the fourth axis servo amplifier, the thermal relay has tripped or the no-fuse breaker has functioned. An error on fourth axis is excessively significant or the feedback signal from the resolver has become unavailable.	P1 P2 P3 Occurrence Status of Stop How to Release
17	MCU MALFUNCTION MCU FEHLER MALFONCTION MCU MALFUNCIONAMIENTO MCU MALFUNKZIONAMENTO MCU MCU-STORING MCU DEFECT FEIL MCU	The watchdog timer (which is normally reset repeatedly in a cycle shorter than the monitoring period) to detect an abnormality in hardware has not been reset, with the servo control unit (MCU) malfunctioning.	P1 P2 P3 Occurrence Status of Stop How to Release



No.	Message							Description			
18	1	5	10	15	20	25	29	No.	18		
ENGLISH	NMI POWER OFF							P1			
GERMAN	NMI KEIN STROM							P2			
FRENCH	PAS D'ALIMENTATION NMI							P3			
SPANISH	NO LLEGA CORRIENTE AL NMI							Occurrence	Abnormality in NC unit		
ITALIAN	NESSUNA ALIMENTAZ. AL NMI							Status of Stop	Emergency stop		
DUTCH	NMI-STROOMONDERVREKING							How to Release	Switch off once and then on the machine again.		
SWEDISH	NMI SPANNING FRAN										
NORWAY	NMI STROM AV										
19								No.	19		
ENGLISH	NMI EMERGENCY STOP (PROGRAM)							P1			
GERMAN	NMI NOT AUS (PROGRAMM)							P2			
FRENCH	ARRET D'URGENCE (PROG.) NMI							P3			
SPANISH	PARADA EMERGENCIA (PROG. NMI)							Occurrence	Abnormality in NC unit		
ITALIAN	ARRESTO D'EMERGENZA NMI (RROG)							Status of Stop	Emergency stop		
DUTCH	NMI-NOODSTOP (PROGRAMMA)							How to Release	Turn on RESET after releasing the cause of trouble.		
SWEDISH	NMI NODSTOPP (PROGRAM)										
NORWAY	NMI NODSTOPP (PROGRAM)										
20								No.	20		
ENGLISH	NMI EMERGENCY STOP							P1			
GERMAN	NMI NOT AUS							P2			
FRENCH	ARRET D'URGENCE NMI							P3			
SPANISH	PARADA DE EMERGENCIA NMI							Occurrence	Abnormality in NC unit		
ITALIAN	ARRESTO D'EMERGENZA NMI							Status of Stop	Emergency stop		
DUTCH	NMI-NOODSTOP							How to Release	Turn on RESET after releasing the cause of trouble.		
SWEDISH	NMI NODSTOPP										
NORWAY	NMI NODSTOPP										



No.	Message	Description	No.
21	1 5 10 15 20 25 30	Main CPU has malfunctioned and the watchdog timer (which is normally reset repeatedly to detect an abnormality in hardware) has not been reset.	P1
ENGLISH	NMI WATCH DOG ALARM		P2
GERMAN	NMI UBERWACHUNGS ALARM		P3
FRENCH	ALARME SURVEILLANCE NMI		Occurrence Abnormality in NC unit
SPANISH	ALARMA CONTROLADOR NMI		Status of Stop Emergency stop
ITALIAN	ALLARME SORVEGLIANZA NMI		How to Release Switch off once and then on the machine again.
DUTCH	NMI-BEWAKINGSALARM		
SWEDISH	NMI OVERVAKNING ALARM		
NORWAY	NMI ENDESTOPP		
22		The results to which the data in the main CPU system memory were added upon starting of the NC differ from what have been registered.	No. 22
ENGLISH	NMI SUM CHECK ERROR		P1
GERMAN	NMI SPEICHER PARITY		P2
FRENCH	PARITE MEMOIRE NMI		P3
SPANISH	PARIDAD DE MEMORIA NMI		Occurrence Abnormality in NC unit
ITALIAN	PARITA' DI MEMORIA NMI		Status Emergency stop
DUTCH	NMI-GEHEUGENP ARITEIT		How to Release Switch off once and then on the machine again.
SWEDISH	NMI MINNESPARITET		
NORWAY	NMI LARGER PARITET		
23		Voltage of the battery connected to the system circuit board has dropped below rated value.	No. 23
ENGLISH	NMI BATTERY ALARM		P1
GERMAN	NMI BATTERIE ALARM		P2
FRENCH	ALARME BATTERIE NMI		P3
SPANISH	ALARMA DE BATERIA NMI		Occurrence Abnormality in NC unit
ITALIAN	ALLARME BATTERIA NMI		Status Emergency stop
DUTCH	NMI-BATTERIJALARM		How to Release Turn on RESET after releasing the cause of trouble.
SWEDISH	NMI BATTERIALARM		
NORWAY	NMI BATTERIALARM		



No.	Message	Description	No.
24	1 5 10 15 20 25 29	With the CPU malfunctioning or the self-diagnosis function operating (data writing function), data have been entered in the ROM area or in the address area where no memory exists.	P1
ENGLISH	NMI MEMORY GUARD		P2
GERMAN	NMI SPEICHER SCHUTZ		P3
FRENCH	PROTECTION MEMOIRE NMI		Occurrence
SPANISH	PROTECCION DE MEMORIA NMI		Abnormality in NC unit
ITALIAN	PROTEZIONE MEMORIA NMI		Status of Stop
DUTCH	NMI-GEHEUGENBESCHERMING		Emergency stop
SWEDISH	NMI MINNESSKYDD		How to Release
NORWAY	NMI PROGRAMBESKYTT.		Switch off once and then on the machine again.
25		In any of X-, Y-, Z- and 4th axis servo amplifiers, the thermal relay has tripped or the no-fuse breaker has functioned. On any of the X, Y, Z and 4th axis, an error is excessively significant or the feedback signal from the resolver has become unavailable.	No.
ENGLISH	NMI SERVO DRIVE ALARM		P1
GERMAN	NMI SERVO ALARM		P2
FRENCH	ALARME SERVO NMI		P3
SPANISH	ALARMA SERVO NMI		Occurrence
ITALIAN	ALLARME SERVO NMI		Servo amplifier/detector
DUTCH	NMI SERVO-AANDRIJVINGALARM		Status of Stop
SWEDISH	NMI ALARM SERVODRIVNING		Emergency stop
NORWAY	NMI SERVO DRIFT ALARM		How to Release
26			No.
ENGLISH			P1
			P2
			P3
			Occurrence
			Status of Stop
			How to Release



No.	Message	Description														
27 ENGLISH	1 5 10 15 20 25 29	<table border="1"><tr><td>No.</td><td>27</td></tr><tr><td>P1</td><td></td></tr><tr><td>P2</td><td></td></tr><tr><td>P3</td><td></td></tr><tr><td>Occurrence</td><td></td></tr><tr><td>Status of Stop</td><td></td></tr><tr><td>How to Release</td><td></td></tr></table>	No.	27	P1		P2		P3		Occurrence		Status of Stop		How to Release	
No.	27															
P1																
P2																
P3																
Occurrence																
Status of Stop																
How to Release																
28 ENGLISH		<table border="1"><tr><td>No.</td><td>28</td></tr><tr><td>P1</td><td></td></tr><tr><td>P2</td><td></td></tr><tr><td>P3</td><td></td></tr><tr><td>Occurrence</td><td></td></tr><tr><td>Status of Stop</td><td></td></tr><tr><td>How to Release</td><td></td></tr></table>	No.	28	P1		P2		P3		Occurrence		Status of Stop		How to Release	
No.	28															
P1																
P2																
P3																
Occurrence																
Status of Stop																
How to Release																
29 ENGLISH		<table border="1"><tr><td>No.</td><td>29</td></tr><tr><td>P1</td><td></td></tr><tr><td>P2</td><td></td></tr><tr><td>P3</td><td></td></tr><tr><td>Occurrence</td><td></td></tr><tr><td>Status of Stop</td><td></td></tr><tr><td>How to Release</td><td></td></tr></table>	No.	29	P1		P2		P3		Occurrence		Status of Stop		How to Release	
No.	29															
P1																
P2																
P3																
Occurrence																
Status of Stop																
How to Release																



No.	Message							Description		
	1	5	10	15	20	25	29	No.	100	
100	ENGLISH	TOOL DATA ERROR (INCOMPLETE)						No.		
	GERMAN	FEHLENDE WERKZEUGDATEN						P1		
	FRENCH	ERR. INFORMATIONS OUTILS						P2		
	SPANISH	LISTA DE UTILES INCOMPLETA						P3		
	ITALIAN	LISTA UTENSILI INCOMPLETA						Occurrence	Machining program defective	
	DUTCH	GEREEDSCHAPSDATA (ONVOLLEDIG)								
	SWEDISH	VERKTYGSDATAFEL (OFULLSTAND)						Status of Stop	Feed hold	
	NORWAY	VKT.DATA FEIL (UFULLSTENDIG)								
								How to Release	Turn on RESET after eliminating the cause.	
101	ENGLISH	STORED STROKE LIMIT +X						No.		
	GERMAN	WEGBEGRENZUNG X ENDE NC						P1		
	FRENCH	FIN DE COURSE SOFT X						P2		
	SPANISH	LIMITE CARRERA MEMORIZADA X						P3		
	ITALIAN	FINECORS A MEMORIZZATO X						Occurrence	Machining program defective	
	DUTCH	SOFT-EINDSCHAKELAAR X								
	SWEDISH	LAGRAD RORELSEBEGRANSNING X						Status of Stop	Feed hold	
	NORWAY	ENDEBEGRENSNING X								
								How to Release	Turn on RESET after eliminating the cause.	
102	ENGLISH	STORED STROKE LIMIT -X						No.		
	GERMAN	WEGBEGRENZUNG -X ENDE NC						P1		
	FRENCH	FIN DE COURSE SOFT -X						P2		
	SPANISH	LIMITE CARRERA MEMORIZADA -X						P3		
	ITALIAN	FINECORS A MEMORIZZATO -X						Occurrence	Machining program defective	
	DUTCH	SOFT-EINDSCHAKELAAR -X								
	SWEDISH	LAGRAD RORELSEBEGRANSNING -X						Status of Stop	Feed hold	
	NORWAY	ENDEVEGRENSNING -X								
								How to Release	Turn on RESET after eliminating the cause.	



No.	Message	Description	No.	
103	1 5 10 15 20 25 29 ENGLISH STORED STROKE LIMIT +Y GERMAN WEGBEGRENZUNG +Y ENDE NC FRENCH FIN DE COURSE SOFT +Y SPANISH LIMITE CARRERA MEMORIZADA +Y ITALIAN FINECORSE MEMORIZZATO +Y DUTCH SOFT-EINDSCHAKELAAR +Y SWEDISH LAGRAD RORELSEBEGRANSNING +Y NORWAY ENDEBEGRENSNING +Y	Upon move, the axis reaches the stroke limit restricted area which has been set with parameters. (Y-axis positive direction) The alarm can be turned off by moving along the Y-axis in the negative direction by handle or by manual feed.	P1 P2 P3 Occurrence Status of Stop How to Release	103 Machining program defective Feed hold Turn on RESET after eliminating the cause.
104	1 5 10 15 20 25 29 ENGLISH STORED STROKE LIMIT -Y GERMAN WEGBEGRENZUNG -Y ENDE NC FRENCH FIN DE COURSE SOFT -Y SPANISH LIMITE CARRERA MEMORIZADA -Y ITALIAN FINECORSO MEMORIZZATO -Y DUTCH SOFT-EINDSCHAKELAAR -Y SWEDISH LAGRAD RORELSEBEGRANSNING -Y NORWAY ENDEBEGRENSNING -Y	Upon move, the axis reaches the stroke limit restricted area which has been set with parameters. (Y-axis negative direction) The alarm can be turned off by moving along the Y-axis in the positive direction by handle or by manual feed.	P1 P2 P3 Occurrence Status of Stop How to Release	104 Machining program defective Feed hold Turn on RESET after eliminating the cause.
105	1 5 10 15 20 25 29 ENGLISH STORED STROKE LIMIT +Z GERMAN WEGBEGRENZUNG +Z ENDE NC FRENCH FIN DE COURSE SOFT +Z SPANISH LIMITE CARRERA MEMORIZADE +Z ITALIAN FINECORSO MEMORIZZATO +Z DUTCH SOFT-EINDSCHAKELAAR +Z SWEDISH LAGRAD RORELSEBEGRANSNING +Z NORWAY ENDEBEGRENSNING +Z	Upon move, the axis reaches the stroke limit restricted area which has been set with parameters. (Z-axis positive direction) The alarm can be turned off by moving along the Z-axis in the negative direction by handle or by manual feed.	P1 P2 P3 Occurrence Status of Stop How to Release	105 Machining program defective Feed hold Turn on RESET after eliminating the cause.



No.	Message	Description	No.	
106	1 5 10 15 20 25 29 ENGLISH STORED STROKE LIMIT -Z GERMAN WEGBEGRENZUNG-Z ENDE NC FRENCH FIN DE COURSE SOFT-Z SPANISH LIMITE CARRERA MEMORIZADA -Z ITALIAN FINECORS A MEMORIZZATO -Z DUTCH SOFT-EIUDSCHAKELAAR -Z SWEDISH LAGRAD RORELSEBEGRANSNING -Z NORWAY ENDEBEGRENSNING -Z	Upon move, the axis reaches the stroke limit restricted area which has been set with parameters. (Z-axis negative direction) The alarm can be turned off by moving along the Z-axis in the positive direction by handle or by manual feed.	P1 P2 P3 Occurrence Status of Stop How to Release	106 Machining program defective Feed hold Turn on RESET after eliminating the cause.
107	ENGLISH VELOCITY COMMAND ZERO GERMAN GESCHWINDIGKEIT NULL FRENCH COMMANDE VELOCITE ZERO SPANISH ORDEN DE VELOCIDAD ITALIAN COMANDO VELOCITA' ZERO DUTCH SNELHEIDSIGNAAL NUL SWEDISH RORELSEORDER NOLL NORWAY HASTIGHETSKOMMANDO NULL	No feedrate or 0 is specified by the initial CUT FEED command. Specify the feedrate.	P1 P2 P3 Occurrence Status of Stop How to Release	107 Machining program defective Feed hold Press CLEAR.
108	ENGLISH PC DATA ERROR GERMAN PC DATEN FEHLER FRENCH ERREUR DE DONNEES PC SPANISH ERROR DE DATOS PC ITALIAN ERROR NEI DATI PC DUTCH PC-DATA FOUTIEF SWEDISH PC DATAFEL NORWAY PC DATA FEIL	The data transferred from PC to NC are incorrect.	P1 P2 P3 Occurrence Status of Stop How to Release	108 Machine/high voltage panel Feed hold Turn on RESET after eliminating the cause.



No.	Message	Description	No.
109	1 5 10 15 20 25 29		109
ENGLISH	OVER TRAVEL +X		P1
GERMAN	ENDBEGRENZUNG +X		P2
FRENCH	FIN DE COURSE +X		P3
SPANISH	FUERA DE CARRERA +X		Occurrence
ITALIAN	OLTRECORSA +X	After movement along the axis, the stroke limit switch at the positive end of the X-axis is activated.	Machine/high voltage panel
DUTCH	OVERSCHRIJD. EINDSCHAKEL +X	The alarm can be turned off by moving along the X-axis in the negative direction by handle or by manual feed.	Status of Stop
SWEDISH	OVERRORELSE +X		Feed hold
NORWAY	ENDEBRYTER +X		How to Release
			Turn on RESET after eliminating the cause.
110			110
ENGLISH	OVER TRAVEL +Y		P1
GERMAN	ENDBEGRENZUNG +Y		P2
FRENCH	FIN DE COURSE +Y		P3
SPANISH	FUERA DE CARRERA +Y		Occurrence
ITALIAN	OLTRECORSA +Y	After movement along the axis, the stroke limit switch at the positive end of the Y-axis is activated.	Machine/high voltage panel
DUTCH	OVERSCHRIJD. EINDSCHAKEL +Y	The alarm can be turned off by moving along the Y-axis in the negative direction by handle or by manual feed.	Status of Stop
SWEDISH	OV ERRORELSE +Y		Feed hold
NORWAY	ENDEBRYTER +Y		How to Release
			Turn on RESET after eliminating the cause.
111			111
ENGLISH	OVER TRAVEL +Z		P1
GERMAN	ENDBEGRENZUNG +Z		P2
FRENCH	FIN DE COURSE +Z		P3
SPANISH	FUERA DE CARRERA +Z		Occurrence
ITALIAN	OLTRECORSA +Z	After movement along the axis, the stroke limit switch at the positive end of the Z-axis is activated.	Machine/high voltage panel
DUTCH	OVERSCHRIJD. EINDSCHAKEL. +Z	The alarm can be turned off by moving along the Z-axis in the negative direction by handle or by manual feed.	Status of Stop
SWEDISH	OVERRORELSE +Z		Feed hold
NORWAY	ENDEBRYTER +Z		How to Release
			Turn on RESET after eliminating the cause.



No.	Message	Description	No.
112	1 5 10 15 20 25 29		112
ENGLISH	OVER TRAVEL +4TH	After movement along the axis, the stroke limit switch at the positive end of the fourth axis is activated.	P1
GERMAN	ENDBEGRENZUNG +4		P2
FRENCH	FIN DE COURSE +4		P3
SPANISH	FUERA DE CARRERA +4 EJE		Occurrence
ITALIAN	OLTRECORSA +4		Machine/high voltage panel
DUTCH	OVERSCHRIJD. EINDSCHAKEL +4	The alarm can be turned off by moving along the fourth axis in the negative direction by handle or by manual feed.	
SWEDISH	OVERRORELSE +4		Status of Stop
NORWAY	ENDEBRYTER +4		Feed hold
113			113
ENGLISH	OVER TRAVEL -X	After movement along the axis, the stroke limit switch at the negative end of the X-axis is activated.	P1
GERMAN	ENDBEGRENZUNG -X		P2
FRENCH	FIN DE COURSE -X		P3
SPANISH	FUERA DE CARRERA -X		Occurrence
ITALIAN	OLTRECORSA -X		Machine/high voltage panel
DUTCH	OVERSCHRIJD. EINDSCHAKEL. -X	The alarm can be turned off by moving along the X-axis in the positive direction by handle or by manual feed.	
SWEDISH	OVERRORELSE -X		Status of Stop
NORWAY	ENDEBRYTER -X		Feed hold
114			114
ENGLISH	OVER TRAVEL -Y	After movement along the axis, the stroke limit switch on the negative end of the Y-axis is activated.	P1
GERMAN	ENDBEGRENZUNG -Y		P2
FRENCH	FIN DE COURSE -Y		P3
SPANISH	FUERA DE CARRERA -Y		Occurrence
ITALIAN	OLTRECORSA -Y		Machine/high voltage panel
DUTCH	OVERSCHRIJD. EINDSCHAKEL -Y	The alarm can be turned off by moving along the Y-axis in the positive direction by handle or by manual feed.	
SWEDISH	OVERRORELSE -Y		Status of Stop
NORWAY	ENDEBRYTER -Y		Feed hold



No.	Message	Description	No.
115	1 5 10 15 20 25 29		115
ENGLISH	OVER TRAVEL -Z		P1
GERMAN	ENDBEGRENZUNG -Z		P2
FRENCH	FIN DE COURSE -Z		P3
SPANISH	FUERA DE CARRERA -Z		Occurrence
ITALIAN	OLTRECORSA -Z	After movement along the axis, the stroke limit switch on the negative end of the Z-axis is activated.	Machine/high voltage panel
DUTCH	OVERSCHRIJD.EINDSCHAKEL.-Z	The alarm can be turned off by moving along the Z-axis in the positive direction by handle or by manual feed.	Status of Stop
SWEDISH	OVERRORELSE -Z		Feed hold
NORWAY	ENDEBRYTER -Z		How to Release
			Turn on RESET after eliminating the cause.
116			116
ENGLISH	OVER TRAVEL -4TH		P1
GERMAN	ENDBEGRENZUNG -4		P2
FRENCH	FIN DE COURSE -4		P3
SPANISH	FUERA DE CARRERA -4 EJE		Occurrence
ITALIAN	OLTRECORSA -4	After movement along the axis, the stroke limit switch at the negative end of the fourth axis is activated.	Machine/high voltage panel
DUTCH	OVERSCHRIJD.EINDSCHAKEL. -4	The alarm can be turned off by moving along fourth axis in the positive direction by handle or by manual feed.	Status of Stop
SWEDISH	OVERRORELSE -4		Feed hold
NORWAY	ENDEBRYTER -4		How to Release
			Turn on RESET after eliminating the cause.
117			117
ENGLISH	HELICAL INTERPOL. DATA ERROR		P1
GERMAN	SCHRAUBENLINIEN EINGABEFEHLER		P2
FRENCH	ERREUR DONNEES INTERP. HELIC.		P3
SPANISH	ERROR DATOS INTERP HELICOIDAL		Occurrence
ITALIAN	ERRORI DATI INTERP. ELICOID.	The path which is drawn at a specified pitch in helical cutting does not pass the specified terminal.	Machine/high voltage panel
DUTCH	SCHROEFVORM. INTERP. DATAFOUT	The alarm can be turned off by reviewing and correcting the input data (coordinates, pitch, etc.)	Status of Stop
SWEDISH	SPIRALINTERPOLERING DATAFEL		Feed hold
NORWAY	SKRUEINTERPOL. DATAFEIL		How to Release
			Turn on RESET after eliminating the cause.



No.	Message	Description	No.
118	! 5 10 15 20 25 29 ENGLISH PARAMETER ERROR (PP1-4,PZ1-4) GERMAN PARAM FEHLER (PP1-4,PZ1-4) FRENCH ERREUR PARAM. (PP1-4,PZ1-4) SPANISH ERROR PARAM. (PP1-4,PZ1-4) ITALIAN ERRORE PARAM (PP1-4,PZ1-4) DUTCH PARAMETERFOUT (PP1-4,PZ1-4) SWEDISH PARAMETERFEL (PP1-4,PZ1-4) NORWAY PARAMETERFEIL (PP1-4, PZ1-4)	Parameters for correcting a pitch error (PP1~4, PZ1~4) are not set properly. The alarm can be turned off by reviewing and correcting the parameters set.	P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.
119	STOP PROX MALFUNCTION MESS.HALT SENSOR ES DEFEKT MALF.ARRET PALPEUR MESUR. MALFUNCION PROX TOPE MSR MALF.PROX MISURA STRING EINDSCH. MEETUITR. MATSTATIV STOPP AVKANN DEFECT MAAL.STOP FEIL(BRYTERFEIL)	During the measurement of a tool length, no skip signal is available after the SKIP DECELERATE signal has appeared.	P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.
120	T-MSR DATA INEFFECTIVE WKZLAENGENDWERT N.GESPEICHERT DONNEES MES.OUTIL INEFFECT. DATOS INEFECTIVOS T-MSR DATI INEFFETTIVI MIS. UT DATAGEREEDSCH-MET.WERKEN NT VERKTYGSH DATA INTE AKTIV INEFEKTIVE DATA VKT.MAALING	After measuring a tool length, the tool has not been automatically changed. The alarm can be turned off by setting coordinates after carrying out an ATC once.	P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.



No.	Message	Description	No.
121	1 5 10 15 20 25 29 ENGLISH TOOL MEASURING STAND NOT OUT GERMAN NRKG MESSTAND NICHT FRENCH DISPOS. DE MESURE NON SORTI SPANISH MEDIDOR DE UTIL NO SALIO ITALIAN DISPOS. MIS. UT. NON USCITO DUTCH GER-MEETTOESTEL NIET UIT SWEDISH MATSTATIV FOR VERKT INTE UTE NORWAY VKT. MAALESTASJON IKKE UTE	The measuring block has not come out upon measurement of a tool length.	P1 P2 P3 Occurrence Status of Stop How to Release
122	122 ENGLISH DECELERATION PROX MALF. GERMAN EILGANGUMSCHALT ES DEFECT FRENCH MALF. INT. DECELERATION SPANISH MAL. PROX DECELERAR ITALIAN MAL. DECELERAZ. PROX DUTCH STOR. AFREM-EINDSCH. SWEDISH STOPP AVKANN DEFECT NORWAY DEFECT NEDBREMSING	Upon measurement of a tool length, the SKIP signal has appeared although the SKIP DECELERATE signal is unavailable.	P1 P2 P3 Occurrence Status of Stop How to Release
123	123 ENGLISH CYCLE-START ON COMMAND DPL GERMAN ZYKLUS-START AN KOMMAND ANZEIGE FRENCH DEPART CYCLE SUR VISUAL COMMAND SPANISH EMPUJ. CICLO-SALIDA EN MANDO ITALIAN C-START NON POSSIBILE DUTCH CYCL. ST. ONMOG. M/DIT SCHERM SWEDISH C-START VID KOMMAND NORWAY ELLER SYKL. START PAA KOMMANDO	The automatic operation has been started with a display other than POSITION, COMMAND and GRAPHIC.	P1 P2 P3 Occurrence Status of Stop How to Release





No.	Message	Description	No.	200
200	1 5 10 15 20 25 29 ENGLISH THERMAL SENSOR EXCEED	The thermal sensor for FX-27 has sensed the temperature of above 55 or 65°C. (The CPU is very likely to run out of order.)	No.	200
			P1	
			P2	
			P3	
		Occurrence	Machine/high voltage panel	
		Status of Stop	Feed hold	
		How to Release	Turn on RESET after eliminating the cause.	
201	HYDRAULIC PRESSURE TOO LOW ENGLISH ZU NIEDRIGER HYDR DRUCK GERMAN PRESSION HYDRAUL.TROP BASSE FRENCH PRESION HIDRAULICA BAJA SPANISH PRESSIONE IDRAULICA BASSA ITALIAN PRESSIONE IDRAULICA BASSA DUTCH HYDRAULISCHE DRUK IS TE LAAG SWEDISH FOR LAGT HYDRAULTRYCV NORWAY FOR LAVT HYDR. TRYKK	Hydraulic pressure has dropped for 2 or more consecutive seconds. (After the lapse of one minute, the spindle stops moving.)	No.	201
			P1	
			P2	
			P3	
		Occurrence	Machine/high voltage panel	
		Status of Stop	Feed hold	
		How to Release	Turn on RESET after eliminating the cause.	
202	DRUM INDEX PROX OFF MALF. ENGLISH MAGAZIN INDEX ENDS.AUS FEHLER GERMAN MALF INT INDEX MAG POS AR FRENCH MALF INT PROX DIVI TAM EN OFF SPANISH MALF PROX.MAGAZZINO UT. ITALIAN STORING NAB-SCH.MAG-UIT DUTCH DEF NLB FRAN FOR INDEXN MAGAS SWEDISH TROMMEL INDEKS BRYTER AV FEIL NORWAY	With the MAGAZINE-IN-POSITION proximity switch OFF, the TOOL LOAD/UNLOAD command has been given. Or the proximity switch was turned off while the command is being given. (The tool can be neither loaded nor unloaded.)	No.	202
			P1	
			P2	
			P3	
		Occurrence	Machine/high voltage panel	
		Status of Stop	Feed hold	
		How to Release	Turn on RESET after eliminating the cause.	



No.	Message	Description	No.	203
			P1	
203	1 5 10 15 20 25 29		P2	
ENGLISH	ARM 0° PROX ON MALF.		P3	
GERMAN	ARM ROTATION ENDS AN FEHLER		Occurrence	Machine/high voltage panel
FRENCH	MALF INT ROT BRAS 0 POSMA		Status of Stop	Feed hold
SPANISH	MALF PROX ROTA BRA 0 ON		How to Release	Turn on RESET after eliminating the cause.
ITALIAN	MALF PROX ROTAZ.BRACCIO 0 ON			
DUTCH	STORING NAB-SCH.ARM 0 -AAN			
SWEDISH	VAXLARAH 0 DEF NLB TILL			
NORWAY	ARM 0 FEIL VEDR, BRYTER PAA			
204			No.	204
ENGLISH	ARM 0° PROX OFF MALF.		P1	
GERMAN	ARM ROTATION ENDS.AUS FEHLER		P2	
FRENCH	MALF INT ROT BRAS 0 POS AR		P3	
SPANISH	MALF PROX POTA BRA 0 OFF		Occurrence	Machine/high voltage panel
ITALIAN	MALF PROX ROTAZ.BRACC.O OFF		Status of Stop	Feed hold
DUTCH	STORING NAB-SCH.ARM 0 -UIT		How to Release	Turn on RESET after eliminating the cause.
SWEDISH	VAXLARARM 0 DEF NLB FRAN			
NORWAY	ARM 0 FEIL VEDR.BRYTER AV			
205			No.	205
ENGLISH	ARM 45° PROX ON MALF.		P1	
GERMAN	ARM 45 ENDSCHALT.AN FEHLER		P2	
FRENCH	MALF INT ROT BRAS 45 POS MA		P3	
SPANISH	MALF PROX ROTA BRA 45 ON		Occurrence	Machine/high voltage panel
ITALIAN	MALF PROX ROTAZ BRA 45 ON		Status of Stop	Feed hold
DUTCH	STORING NAB-SCH.ARM 45 -AAN		How to Release	Turn on RESET after eliminating the cause.
SWEDISH	VAXLARARM 45 DEF NLB TILL			
NORWAY	ARM 45 FEIL VEDR. BRYTER PAA			



No.	Message	Description	No.
206	1 5 10 15 20 25 29 ENGLISH ARM 45° PROX OFF MALF. GERMAN ARM 45 ENDSCHALT.AUS FEHLER FRENCH MALF INT ROT BRAS 45 POS AR SPANISH MALF PROX ROTA BRA 45 OFF ITALIAN MALF PROX ROTAZ BRA 45 OFF DUTCH STORING NAB-SCH.ARM 45 -UIT SWEDISH VAXLARARM 45 DEF NLB FRAN NORWAY ARM 45 FEIL VEDR.BRYTER AV	Although the arm has swung 45°, the 45° proximity switch has not been turned off for 5 or more consecutive seconds after being commanded. (The completion signal does not return while the automatic tool changer stops operating on the way.)	P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.
207	1 5 10 15 20 25 29 ENGLISH ARM 0° PROX ON MALF. GERMAN ARM ROTATION ENDS.AUS FEHLER FRENCH MALF INT ROT BRAS 0 POS MA SPANISH MALF PROX ROTA BRA 0 ON ITALIAN MALF PROZ ROTAZ.BRA.0 ON DUTCH STORING NAB-SCH.ARM 0 -AAN SWEDISH VAXLARARM 0 DEF NLB TILL NORWAY ARM 0 BRYTER PAA FEIL	Although the arm has swung 180°, the 0° (180°) proximity switch did not turn off for 5 or more consecutive seconds after being commanded. (CRT display only)	P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.
208	1 5 10 15 20 25 29 ENGLISH ARM 0° PROX OFF MALF. GERMAN ARM ROTATION ENDS.AUS FEHLER FRENCH MALF INT ROT BRAS 0 POS AR SPANISH MALF PROX ROTA BRA 0 OFF ITALIAN MALF PROX ROTAZ.BRA.0 OFF DUTCH STORING NAB-SCH.ARM 0 -UIT SWEDISH VAXLARARM 0 DEF NLB FRAN NORWAY ARM 0 BRYTER AV FEIL	Although the arm has returned to 0°, the 0° (180°) proximity switch did not turn on for 5 or more consecutive seconds after commanded. (The completion signal does not return while the automatic tool changer stops operating on the way.)	P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.



No.	Message	Description	No.	209
209	1 5 10 15 20 25 29	Although the arm has returned to 0°, the 180° proximity switch did not turn off for 5 or more consecutive seconds after commanded. (CRT display only)	P1	
ENGLISH	ARM 180° PROX ON MALF.		P2	
GERMAN	ARM 180 ENDSCHALT.AN FEHLER		P3	
FRENCH	MALF INT ROT BRAS 180 POS MA		Occurrence	Machine/high voltage panel
SPANISH	MALF PROX ROTA BRA 180 ON		Status of Stop	Feed hold
ITALIAN	MALF PROX ROTAZ.BRA.180 ON		How to Release	Turn on RESET after eliminating the cause.
DUTCH	STORING NAB-SCH.ARM 180 -AAN			
SWEDISH	VAXLARARM 180 DEF NLB TILL			
NORWAY	ARM 180 BRYTER PAA FEIL			
210		Although the arm has swung 180°, the 180° proximity switch did not turn on for 5 or more consecutive seconds after being commanded. (The completion signal does not return while the automatic tool changer stops operating on the way.)	No.	210
ENGLISH	ARM 180° PROX OFF MALF.		P1	
GERMAN	ARM 180 ENDSCHALT.AUS FEHLER		P2	
FRENCH	MALF INT ROT BRAS 180 POS AR		P3	
SPANISH	MALF PROX ROTA BRA 180 OFF		Occurrence	Machine/high voltage panel
ITALIAN	MALF PROX ROTAZ.BRA 180 OFF		Status of Stop	Feed hold
DUTCH	STORING NAB-SCH.ARM 180 -UIT		How to Release	Turn on RESET after eliminating the cause.
SWEDISH	VAXLARARM 180 DEF NLB FRAN			
NORWAY	ARM 180 BRYTER AV FEIL			
211		When the arm which is positioned at RETRACT (IN) end swings 180°, the arm-reversing proximity switch did not operate for 10 or more consecutive seconds after being commanded. (The completion signal does not return while the automatic tool changer stops operating on the way.)	No.	211
ENGLISH	ARM REVERSE PROX ON,OFF MALF.		P1	
GERMAN	ARM RU.WART ES AN.AUS FEHLER		P2	
FRENCH	MALF INT.RO INV BRS POS MAAR		P3	
SPANISH	MALF PROX ROTA INV BRA ON/OFF		Occurrence	Machine/high voltage panel
ITALIAN	MALF PROX ROTA INV BRA ON/OFF		Status of Stop	Feed hold
DUTCH	STOR.NAB-SCH.ARM-ACHT.A/U		How to Release	Turn on RESET after eliminating the cause.
SWEDISH	VAXLARARM RB TILL,FRAN DEF			
NORWAY	ARM REVERS BRYTER PAA FEIL			



No.	Message	Description	No.
212	1 5 10 15 20 25 29		212
ENGLISH			P1
			P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	
213			213
ENGLISH	ARM RETRACT PROX ON MALF.	With the arm positioned at EXTEND (OUT) end, the arm retract proximity switch did not turn off for 5 or more consecutive seconds.	P1
GERMAN	ARM HUB RUCK ES AN FEHLER		P2
FRENCH	MALF INT RETR BRAS POS MA		P3
SPANISH	MALF PROX RETRACT BRA ON		Occurrence
ITALIAN	MALF PROX RETRACT BRA ON		Machine/high voltage panel
DUTCH	STOR.NAB-SCH.ARM-TERUG-AAN		
SWEDISH	VAXLARARM RETUR DEF NLB TILL		
NORWAY	ARM TILBAKE BRYTER PAA FEIL		
214			214
ENGLISH	ARM RETRACT PROX OFF MALF.	With the arm retracted (IN), the arm retract proximity switch did not turn on for 5 or more consecutive seconds after being commanded. (The completion signal does not return while the automatic tool change stops operating on the way.)	P1
GERMAN	ARM HUB AUSFA.ES AN FEHLER		P2
FRENCH	MALF INT RETR BRAS POS AR		P3
SPANISH	MALF PROX RETRACT BRA OFF		Occurrence
ITALIAN	MALF PROX RETRACT BRA OFF		Machine/high voltage panel
DUTCH	STOR.NAB-SCH.ARM-TERUG UIT		
SWEDISH	VAXLARARM RETUR DEF NLB FRAN		
NORWAY	ARM TILBAKE BRYTER AV FEIL		



No.	Message	Description	No.
215	1 5 10 15 20 25 29	With the arm positioned at RETRACT (IN) end, the arm extend proximity switch did not turn off for 5 or more consecutive seconds.	P1 P2 P3
ENGLISH	ARM EXTEND PROX ON MALF.	Occurrence	Machine/high voltage panel
GERMAN	ARM HUB AUSFA.ES AN FEHLER	Status of Stop	Feed hold
FRENCH	MALF INT EXT BRAS POS MA	How to Release	Turn on RESET after eliminating the cause.
SPANISH	MALF PROX SALIDA BRAZO ON		
ITALIAN	MALF PROX ESTENS.BRA.ON		
DUTCH	STOR.NAB-SCH.ARM-UITL.-AAN		
SWEDISH	VAXLARARM UT DET NLB TILL		
NORWAY	ARM UT BRYTER PAA FEIL		
216		With the arm positioned at EXTEND (OUT) end, the arm extend proximity switch did not turn on for 5 or more consecutive seconds. (The completion, signal does not return while the automatic tool changer stops operating on the way.)	P1 P2 P3
ENGLISH	ARM EXTEND PROX OFF MALF.	Occurrence	Machine/high voltage panel
GERMAN	ARM HUB AUSFA.ES AUS FEHLER	Status of Stop	Feed hold
FRENCH	MALF INT EXT BRAS POS AR	How to Release	Turn on RESET after eliminating the cause.
SPANISH	MALF PROX SALIDA BRAZO OFF		
ITALIAN	MALF PROX ESTENS.BRA.OFF		
DUTCH	STOR.NAB-SCH.ARM-UITL.-UIT		
SWEDISH	VAXLARARM UT DEF NLB FRAN		
NORWAY	ARM UT BRY TER AV FEIL		
217		With the shifter positioned at UNLOAD end, the tool load proximity switch did not turn off for 5 or more consecutive seconds after being commanded.	P1 P2 P3
ENGLISH	TOOL LOAD PROX ON MALF.	Occurrence	Machine/high voltage panel
GERMAN	NZ.LADER ENDS.AN FEHLER	Status of Stop	Feed hold
FRENCH	MALF INT CHAR OUT POS MA	How to Release	Turn on RESET after eliminating the cause.
SPANISH	MALF PROX CARGA UTIL ON		
ITALIAN	MALF PROX CARICO UT.ON		
CUTCH	STOR.NAB-SCH.GER.LAD.-AAN		
SWEDISH	LADDA VERKTYG DEF NLB TILL		
NORWAY	VKT.LADING BRYTER PAA FEIL		



No.	Message	Description	No.
218	1 5 10 15 20 25 29 ENGLISH TCOL LOAD PROX OFF MALF. GERMAN WZ.LADER ENDS.AUS FEHLER FRENCH MALF INT CHAR OUT POS AR SPANISH MALF PROX CARGA UTIL OFF ITALIAN MALF PROX CARICO UT.OFF DUTCH STOR.NAB-SCH.GER.LAD.-UIT SWEDISH LADDA VERKTYG DEF NLB FRAN NORWAY VKT. LADING BRYTER AV FEIL	With a tool loaded by the shifter, the tool load proximity switch did not turn on for 12 or more consecutive seconds after being commanded. (The completion signal does not return while the operation of loading is not completed.)	P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.
219	TOOL UNLOAD PROX ON MALF. ENGLISH GERMAN WZ.ENTLADER ENDS.AN FEHLER FRENCH MALF INT DECH OUT POS MA SPANISH MALF PROX DESCARGA UTIL ON ITALIAN MALF PROX SCARICO UT.ON DUTCH STOR.NAB-SCH.GER.AFLAD.-A SWEDISH VERKTYG URLADDA DEF NLB TILL NORWAY VKT.FJERNE BRYTER PAA-FEIL	With the shifter positioned at LOAD end, the tool unloading proximity switch did not turn off for 12 or more consecutive seconds after being commanded.	P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.
220	TOOL UNLOAD PROX OFF MALF. ENGLISH GERMAN NZ.ENTLADER ENDS.AUS FEHLER FRENCH MALF INT DECH OUT POS AR SPANISH MALF PROX DESCARGA UTIL OFF ITALIAN MALF PROX SCARICO UT.OFF DUTCH STOR.NAB-SCH.GER.AFLAD.-U SWEDISH VERKTYG URLADDA DEF NLB FRAN NORWAY VKT.FJERNE BRYTER AV FEIL	With a tool unloaded by the shifter, the tool unloading proximity switch did not turn off for 12 seconds or more consecutive seconds after being commanded. (The completion signal does not return while the operation of unloading is not completed.)	P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.



No.	Message	Description	No.	221
221	1 5 10 15 20 25 29	With the spindle not oriented, the tool unloading proximity switch did not turn off for 20 or more consecutive seconds after being commanded.	P1	
ENGLISH	SPINDLE ORIENT PROX ON MALF.		P2	
GERMAN	SPINDELORIENT ENDS.AN FEHLER		P3	
FRENCH	MALF INT OR BROCHE POS MA		Occurrence	Machine/high voltage panel
SPANISH	MALF PROX ORIEN-HUSILLO ON		Status of Stop	Feed hold
ITALIAN	MALF PROX ORIEN.MANDR.ON		How to Release	Turn on RESET after eliminating the cause.
DUTCH	STOR.NAB-SCH.SPILORIEN.-AAN			
SWEDISH	SPINDELORIENT DEF NLB TILL			
NORWAY	SPNDL.ORIENT.BRYTER PAA FEILR			
222		With the spindle oriented, the orientation proximity switch did not turn on for 20 or more consecutive seconds after commanded. (The completion signal does not return while the operation of orienting is not completed.)	No.	222
ENGLISH	SPINDLE ORIENT PROX OFF MALF.		P1	
GERMAN	SPINDELORIENT ENDS.AUS FEHLER		P2	
FRENCH	MALF INT OR BROCHE POS AR		P3	
SPANISH	MALF PROX ORIEN-HUSILLO OFF		Occurrence	Machine/high voltage panel
ITALIAN	MALF PROX ORIEN.MANDR OFF		Status of Stop	Feed hold
DUTCH	STOR.NAB-SCH.SPILORIEN.-UIT		How to Release	Turn on RESET after eliminating the cause.
SWEDISH	SPINDELORIENT DEF NLB FRAN			
NORWAY	SPNDL.ORIENT.BRYTER AV FEIL			
223		With the spindle oriented, the disorientation proximity switch did not turn off for 20 or more consecutive seconds after being commanded.	No.	223
ENGLISH	ORIENT PIN RET PROX ON MALF.		P1	
GERMAN	NICHT ORIENT ENDS.AN FEHLER		P2	
FRENCH	MALF INT N-OR BROCHE POS MA		P3	
SPANISH	MALF PROX PIN OREN HUSI ON		Occurrence	Machine/high voltage panel
ITALIAN	MALF PROX ORIENT PIN RET ON		Status of Stop	Feed hold
DUTCH	STOR.NAB-SCH.ORIENT-PEN-AAN		How to Release	Turn on RESET after eliminating the cause.
SWEDISH	DEF NLB T FOR ORIENTSTIFT RET			
NORWAY	ORIENT.BOLT BRYTER PAA FEIL			



No.	Message	Description	No.
224	1 5 10 15 20 25 29 ENGLISH ORIENT PIN RET PROX OFF MALF. GERMAN NICHT ORIENT ENDS.AUS FEHLER FRENCH MALF INT N-OR BROCHE POS AR SPANISH MALF PROX PIN ORIEN HUSI OFF ITALIAN MALF PROX ORIENT PIN RET OFF DUTCH STOR NAB-SCH.ORIENT-PEN-UIT SWEDISH DEF NLB F FOR ORIENTSTIFT RET NORWAY ORIENT.BOLT BRYTER AV-FEIL	With the spindle not oriented, the disorientation proximity switch did not turn on for 20 or more consecutive seconds after being commanded. (The completion signal does not return while the operation of unorienting is not completed.)	No. 224 P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.
225	TOOL CLAMP PROX ON MALF. ENGLISH TOOL CLAMP PROX ON MALF. GERMAN WZ.SPANNEN ENDS.AUS FEHLER FRENCH MALF INT BLOC OUTIL POS MA SPANISH MALF PROX AMARRE UTIL ON ITALIAN MALF PROX BLOCCAGGIO UT.ON DUTCH STOR.NAB-SCH.GER.-KLEM-AAN SWEDISH VERKTYG SPANNA DEF NLB TILL NORWAY VKT.LASS BRYTER PAA FEIL	With a tool unclamped, the tool clamping proximity switch did not turn off for 5 or more consecutive seconds after being commanded.	No. 225 P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.
226	TOOL CLAMP PROX OFF MALF. ENGLISH TOOL CLAMP PROX OFF MALF. GERMAN WZ.SPANNEN ENDS.AUS FEHLER FRENCH MALF INT BLOC OUTIL POS AR SPANISH MALF PROX AMARRE UTIL OFF ITALIAN MALF PROX BLOCCAGGIO UT.OFF DUTCH STOR.NAB-SCH.GER.-KLEM-UIT SWEDISH VERKTYG SPANNA DEF NLB FRAN NORWAY VKT.LAAS BRYTER AV FEIL	With a tool clamped, the tool clamping proximity switch did not turn on for 5 or more consecutive seconds after being commanded. (The completion signal does not return while the automatic tool changer stops operating on the way.)	No. 226 P1 P2 P3 Occurrence Machine/high voltage panel Status to Release Feed hold How to Release Turn on RESET after eliminating the cause.



No.	Message	Description	No.
227	1 5 10 15 20 25 29 ENGLISH TOOL UNCLAMP PROX ON MALF. GERMAN WZ ENTSPANNEN ENDS.AN FEHLER FRENCH MALF INT DEBLOC OUTIL POS MA SPANISH MALF PROX SOLTAR UTIL ON ITALIAN MALF PROX SBLOCCAGGIO UT ON DUTCH STOR.NAB-SCH.GER.-ONTKL.-A SWEDISH VERKTYG LOSSA DEF NLB TILL NORWAY VKT. LOS BRYTER PAA FEIL	With a tool clamped, the tool unclamping proximity switch did not turn off for 5 or more consecutive seconds after being commanded.	No. P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.
228	ENGLISH TOOL UNCLAMP PROX OFF MALF. GERMAN WZ ENTSPANNEN ENDS.AUS FEHLER FRENCH MALF INT DEBLOC OUTIL POS AR SPANISH MALF PROX SOLTAR UTIL OFF ITALIAN MALF PROX SBLOCCAGGIO UT OFF DUTCH STOR.NAB-SCH.GER.-OUTKL.-U SWEDISH VERKTYG LOSSA DEF NLB FRAN NORWAY VKT.LOS BRYTER AV FEIL	With a tool unclamped, the tool unclamping proximity switch did not turn on for 5 or more consecutive seconds after being commanded. (The completion signal does not return while the automatic tool changer stops operating on the way.)	No. P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.
229	ENGLISH HIGH GEAR PROX ON MALF. GERMAN O-DREHZ.ENDS.AN FEHLER FRENCH MALF INT SEL.GAMME M POS MA SPANISH MALF PROX SELEC GAMA ALTA ON ITALIAN MALF PROX GAMMA ALTA ON DUTCH STOR.NAB-SCH.H-GAMMA-AAN SWEDISH HOG VAXEL DEF NLB TILL NORWAY HOYT GEAR BRYTER PAA FEIL	With the gear shifted to the LOW or NEUTRAL position, the high-speed gear proximity switch did not turn off for 20 or more consecutive seconds after being commanded.	No. P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.



No.	Message	Description	No.	230
230	1 5 10 15 20 25 29	With the gear shifted to the HIGH position, the high-speed gear proximity switch did not turn on for 20 or more consecutive seconds after being commanded. (The completion signal does not return while the gear stops being shifted on the way.)	No.	230
ENGLISH	HIGH GEAR PROX OFF MALF.		P1	
GERMAN	O-DREHZ.ENDS.AUS FEHLER		P2	
FRENCH	MALF INT SEL.GAMME M POS AR		P3	
SPANISH	MALF PROX SELEC GAMA ALTA OFF		Occurrence	Machine/high voltage panel
ITALIAN	MALF PROX GAMMA ALTA OFF		Status of Stop	Feed hold
DUTCH	STOR.NAB-SCH.H-GAMMA UIT		How to Release	Turn on RESET after eliminating the cause.
SWEDISH	HOG VAXEL DEF NLB FRAN			
NORWAY	HOYT GEAR BRYTER AV FEIL			
231		With the gear shifted to the HIGH/LOW or NEUTRAL position, the middle-speed gear proximity switch did not turn off for 20 or more consecutive seconds after being commanded.	No.	231
ENGLISH	MIDDLE GEAR PROX ON MALF.		P1	
GERMAN	M-DREHZ.ENDS.AN FEHLER		P2	
FRENCH	MALF INT SEL.GAMME H POS MA		P3	
SPANISH	MALF PROX ESLEC GAMA MADIA ON		Occurrence	Machine/high voltage panel
ITALIAN	MALF PROX GAMMA MEDIA ON		Status of Stop	Feed hold
DUTCH	STOR.NAB-SCH.M-GAMMA-AAN		How to Release	Turn on RESET after eliminating the cause.
SWEDISH	MELLANVAXEL DEF NLB TILL			
NORWAY	MIDTRE GEAR BRYTER PAA FEIL			
232		With the gear shifted to the MIDDLE position, the middle speed gear proximity switch did not turn on for 20 consecutive seconds after being commanded. (The completion signal does not return while the gear stops being shifted on the way.)	No.	232
ENGLISH	MIDDLE GEAR PROX OFF MALF.		P1	
GERMAN	M-DREHZ.ENDS.AUS FEHLER		P2	
FRENCH	MALF INT SEL.GAMME H POS AR		P3	
SPANISH	MALF PROX SELEC GAMA MEDI OFF		Occurrence	Machine/high voltage panel
ITALIAN	MALF PROX GAMMA MEDIA OFF		Status of Stop	Feed hold
DUTCH	STOR.NAB-SCH.M-GAMMA-UIT		How to Release	Turn on RESET after eliminating the cause.
SWEDISH	MELLANVAXEL DEF NLB FRAN			
NORWAY	MIDTRE GEAR BRYTER AV FEIL			



No.	Message	Description	No.
233	1 5 10 15 20 25 29 ENGLISH NEUTRAL GEAR PROX ON MALF. GERMAN NEUTRAL ENDS.AN FEHLER FRENCH MALF INT SEL.NEUFRE POS MA SPANISH MALF PROX SELEC GAMA NEU ON ITALIAN MALF PROX GAMMA NEUTRA ON DUTCH STOR.NAB-SCH.N-GAMMA-AAN SWEDISH NEUTRAL VAXEL DEF NLB TILL NORWAY NOYTRAL GEAR BRYTER PAA FEIL	With the gear shifted to the HIGH or LOW (or MIDDLE) position, the neutral gear proximity switch did not turn off for 20 or more consecutive seconds after being commanded.	P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.
234	NEUTRAL GEAR PROX OFF MALF. NEUTRAL ENDS.AUS FEHLER MALF INT SEL.NEUFRE POS AR MALF PROX SELEC GAMA NEU OFF MALF PROX GAMMA NEUTRA OFF STOR.NAB-SCH.N-GAMMA-UIT NEUTRAL VAXEL DEF NLB FRAN NOYTRAL GEAR BRYTER AV-FEIL	With the gear shifted ($L \rightarrow H$, $H \rightarrow L$) or to the NEUTRAL position, the neutral proximity switch did not turn on for 20 or more consecutive seconds after being commanded. (The completion signal does not return while the gear stops being shifted on the way.)	P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.
235	LOW GEAR PROX ON MALF. U-DREHZ.ENDS.AN FEHLER MALF INT SEL GAMME B POS MA MALF PROX SELEC GAMA BAJA ON MALF PROX GAMMA BASSA ON STOR.NAB-SCH.L-GAMMA-AAN LAG VAXEL DEF NLB TILL LAVT GEAR BRYTER PAA FEIL	With the gear shifted to the HIGH or NEUTRAL (or MIDDLE) position, the low-speed gear proximity switch did not turn on for 20 or more consecutive seconds after being commanded.	P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.



No.	Message	Description	No.	236
236	1 5 10 15 20 25 29		P1	
ENGLISH	LOW GEAR PROX OFF MALF.	With the gear shifted to the LOW position, the low-speed gear proximity switch did not turn on for 20 or more consecutive seconds after being commanded.	P2	
GERMAN	U-DREHZ.ENDS.AUS FEHLER	(The completion signal does not return while the gear stops being shifted on the way.)	P3	
FRENCH	MALF INT.SEL.GAMME B POS AR		Occurrence	Machine/high voltage panel
SPANISH	MALF PROX SELEC GAMA BAJA OFF		Status of Stop	Feed hold
ITALIAN	MALF PROX GAMMA BASSA OFF		How to Release	Turn on RESET after eliminating the cause.
DUTCH	STOR.NAB-SCH.L-GAMMA-UIT			
SWEDISH	LAG VAXEL DEF NLB FRAN			
NORWAY	LAVT GEAR BRYTER AV FEIL			
237			No.	237
ENGLISH	IND TABLE CLAMP PROX ON MALF.	With the index table unclamped, the index table clamping proximity switch did not turn off or 10 or more consecutive seconds after being commanded.	P1	
GERMAN	INDEXTISCH KLEM ES AN FEHLER	(The fourth axis does not move.)	P2	
FRENCH	MALF INT BL TABLE INDX POS MA		P3	
SPANISH	MALF PROX AMAR MESA GIRA ON		Occurrence	Machine/high voltage panel
ITALIAN	MALF PROX BLOCC.TAVOLA ON		Status of Stop	Feed hold
DUTCH	STOR.NAB-SCH.KL.DR-TAF-AAN		How to Release	Turn on RESET after eliminating the cause.
SWEDISH	INDEXBORD LASA DEF NLB TILL			
NORWAY	IND.BORD LAAS BRYTER PAA FEIL			
238			No.	238
ENGLISH	IND TABLE CLAMP PROX OFF MALF.	With the index table clamped, the index table clamping proximity switch did not turned on for 10 or more consecutive seconds after being commanded.	P1	
GERMAN	INDEXTISCH KLEM ES AUS FEHLER	(Neither X, Y nor Z axis moves.)	P2	
FRENCH	MALF INT BL TABLE INDX POS AR		P3	
SPANISH	MALF PROX AMAR MESA GIRA OFF		Occurrence	Machine/high voltage panel
ITALIAN	MALF PROX BLOCC.TAVOLA OFF		Status of Stop	Feed hold
DUTCH	STOR.NAB-SCH.KL.DR-TAF-UIT		How to Release	Turn on RESET after eliminating the cause.
SWEDISH	INDEXBORD LASA DEF NLB FRAN			
NORWAY	IND.BORD LAAS BRYTER AV FEIL			



No.	Message	Description	No.
239	1 5 10 15 20 25 29 ENGLISH PALLET CLAMP PROX ON MALF. GERMAN PALETTEN KLEM ES AN FEHLER FRENCH MALF INT BL PALLETTE POS MA SPANISH MALF PROX AMARRE PALLET ON ITALIAN MALF PROX BLOCC PALLET ON DUTCH STOR.NAB-SCH. KL.PALLET-AAN SWEDISH PALETTBORD LASA DEF NLB TILL NORWAY PALETT LAAS BRYTER PAA-FEIL	With the pallet unclamped, the pallet clamping proximity switch did not turn off for 6 or more consecutive seconds after being commanded.	239 P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.
240	PALLET CLAMP PROX OFF MALF. PALETTEN KLEM ES AUS FEHLER MALF INT BL PALLETTE POS AR MALF PROX AMARRE PALLET OFF MALF PROX BLOCC PALLET OFF STOR.NAB-SCH.KL.PALLET UIT PALETTBORD LASA DEF NLB FRAN PALETT LAAS BRYTER AV FEIL	With the pallet clamped, the pallet clamping proximity switch did not turn on for 6 or more consecutive seconds after being commanded. (The completion signal does not return while the operation of clamping the pallet is not completed.)	240 P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.
241	PALLET UNCLAMP PROX ON MALF. PALETTEN ENTSPA ES AN FEHLER MALF INT.DEBL PALLET POS MA MALF PROX SOLTER PALLET ON MALF PROX SBLOCC.PALLET ON STOR.NAB-SCH.ONTKL.PAL.-A LOSSA PALETTBORD DEF NLB TILL PALETT LOS BRYTER PAA FEIL	With the pallet clamped, the pallet unclamping proximity switch did not turn off for 6 or more consecutive seconds after being commanded.	241 P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.



No.	Message	Description	No.
242	1 5 10 15 20 25 29 ENGLISH PALLET UNCLAMP PROX OFF MALF. GERMAN PALETTEN ENTSPA ES AUS FEHLER FRENCH MALF INT DEBL PALLET POS AR SPANISH MALF PROX SOLTAR PALLET OFF ITALIAN MALF PROX SBLOCC.PALLET OFF DUTCH STOR.NAB-SCH.OUTKL.PAL.-U SWEDISH PALETT LOSSA DEF NLB FRAN NORWAY PALETT LOS BRYTER AV FEIL	With the pallet unclamped, the pallet unclamping proximity switch did not turn on for 6 or more consecutive seconds after being commanded. (The completion signal does not return while the operation of unclamping is not completed.)	P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.
243	SPINDLE RPM MALF. SPINDEL-DREHZahl FEHLER MALF VITESSE DE BROCHE MALF REVOLUCIONES HUSILLO MALF ROTAZIONE MANDRINO STORING SPILSUELHEIDSBEREIK DEF SPINDELVARVTAL PINDELTURT.FEIL	Within 3.. seconds of giving the SPINDLE RUN command, the SPINDLE SPEED ZERO (SZ) signal was detected. Or the SPINDLE SPEED ZERO (SZ) signal was detected while the spindle was running.	P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.
244	ORIENT MALF. 1 SPINDELORIENTIERUNG FEHLER 1 MALF ORIENT.1 MALF ORIENTACION HUSILLO 1 MALF ORIENTAM.MANDRIND 1 STORING SPILORENTATIE 1 ORIENTERING DEFECT 1 ORIENT.FEIL 1	With no command, the ORIENT ALIVE signal disappeared.	P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.



No.	Message	Description	No.	245
245	1 5 10 15 20 25 29		P1	
ENGLISH	ORIENT MALF. 2	The orientation unit did not activate within 10 seconds of being commanded.	P2	
GERMAN	SPINDELORIENTIERUNG FEHLER 2	(The power supply is interrupted.)	P3	
FRENCH	MALF ORIENT. 2		Occurrence	Machine/high voltage panel
SPANISH	MALF ORIENTACION HUSILLO 2		Status of Stop	Feed hold
ITALIAN	MALF ORIENTAM, MANDRINO 2		How to Release	Turn on RESET after eliminating the cause.
DUTCH	STORING SPILORENTATIE 2			
SWEDISH	ORIENTERING DEF 2			
NORWAY	ORIENT.FEIL 2			
246		With the ORIENT command given, the spindle was oriented once. After that, both ALIVE and ZERO SPEED signals turned off.	No.	246
ENGLISH	ORIENT MALF. 3		P1	
GERMAN	SPINDELORIENTIERUNG FEHLER 3		P2	
FRENCH	MALF ORIENT.3		P3	
SPANISH	MALF ORIENTACION HUSILLO 3		Occurrence	Machine/high voltage panel
ITALIAN	MALF ORIENTAM MANDRINO 3		Status of Stop	Feed hold
DUTCH	STORING SPILORENTATTE 3		How to Release	Turn on RESET after eliminating the cause.
SWEDISH	ORIENTERING DEF 3			
NORWAY	ORIENT.FEIL 3			
247		With the gear shift command given, the gear shifting was done while failing to make certain that the gear shift has been completed. (Gear shift is discontinued.)	No.	247
ENGLISH	GEAR SHIFT MALF.		P1	
GERMAN	DREHZAHL WECHSEL FEHLER		P2	
FRENCH	MALF SELECT GAMME		P3	
SPANISH	MALF SELECCION DE GAMA		Occurrence	Machine/high voltage panel
ITALIAN	MALF SELEZIONE GAMMA		Status of Stop	Feed hold
DUTCH	STORING GAMMA-OVERSCHAKELING		How to Release	Turn on RESET after eliminating the cause.
SWEDISH	DEF VAXLING			
NORWAY	GEARSKIFTE FEIL			



No.	Message	Description	No.
248	1 5 10 15 20 25 29 ENGLISH ATC ARM VALVE OFF MALF. GERMAN ATC ARM VENTIL ES AUS FEHLER FRENCH MALF SOL.BRAS CHANG.POS AR SPANISH MALF SOL BRAZO CAMBIADOR OFF ITALIAN MALF ELETTROVALV.BRACCIO OFF DUTCH STOR.GER-WISSELARMVENT.-UIT SWEDISH VAXLARARM DEF VENTIL FRAN NORWAY VKT.ARM VENTIL AV FEIL	Both arm-retracting and -extending solenoid valves turned off. (CRT display only)	No. 248 P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.
249	DRUM OR TABLE MOTOR MALF. ENGLISH DRUM OR TABLE MOTOR MALF. GERMAN MAGAZIN ODER INDEXTISCH MOTOR FRENCH MALF MAGAS.OUT OU MOT TABLE SPANISH MALF MOTOR DE TAMBOR O DE MESA ITALIAN MALF MOTORE TAMBURNO O TAVOLA DUTCH STORING MAG-OF TAFFLMOTOR SWEDISH MOTOR FOR MAGAS EL BORD DEF NORWAY TRML ELR BORD MOTORFEIL	An alarm signal was given by the magazine controller. Or the table motor became overheated. (Discontinuance on the way)	No. 249 P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.
250	ARM HOME POSIT PROX ON MALF. ENGLISH ARM HOME POSIT PROX ON MALF. GERMAN ARM ENDPOS.ENDS.AN FEHLER FRENCH MALF INT LOCAL BRAS POS MA SPANISH MALF PROX BRAZO REPOSO ON ITALIAN MALF PROX BRACCIO RIPOSO ON DUTCH STOR.NAB-SCH.EINDP.ARM-AAN SWEDISH NLB FOR VAXLARA UTGANGSL DEF NORWAY ARM REF.PKT.BRYTER PAA FEIL	With the arm standing by or extended, the stationary proximity switch did not turn off for 5 or more consecutive seconds after being commanded.	No. 250 P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.



No.	Message	Description		
		No.	P1	P2
251	1 5 10 15 20 25 29	An alarm signal was given by the spindle controller.	P3	251
ENGLISH	SPINDL MOTOR CONTROLLER MALF.	Occurrence	Machine/high voltage panel	
GERMAN	SPINDELMOTOR KONTROLLER ALARM			
FRENCH	MALF CONTR.MOTEUR BROCHE			
SPANISH	MALF CONTROLAD.MOTOR HUSILLO			
ITALIAN	MALF CONTROLLO MOTORE MANDR			
DUTCH	STORING SPILMOTORBESTURING			
SWEDISH	STYRNING SPINDELMOTOR DEF			
NORWAY	SPINDEL MOTOR KONTROLLER FEIL			
252		Status of Stop	Feed hold	
ENGLISH	MACHINE FUSE MALF.			
GERMAN	MASCHINEN SICHERUNGEN ALARM			
FRENCH	DEFAILLANCE FUSIBLE MACHINE			
SPANISH	FUSIBLE MAQUINA			
ITALIAN	MALF FUSIBILI MACCNINA			
DUTCH	STORING MACHINESMELTVEILIGH			
SWEDISH	DEF MASKINSAKRING			
NORWAY	MASKIN SIKR.FEIL			
253		How to Release	Turn on RESET after eliminating the cause.	
ENGLISH	MOTOR THERM. TRIP MACH.-FUSE			
GERMAN	MOTOR UBERHITZUNG,SICHERUNG			
FRENCH	DECL.PROT.THERM,FUSIBLE			
SPANISH	DESCONEXION TERMICO MOTOR			
ITALIAN	PROTEZIONE TERMICA MOTORE			
DUTCH	STORING THERMOST RELATS MOTOR			
SWEDISH	TERMOUTLOSNING MOTOR			
NORWAY	MOTOR TERMOVERN MASKIN SIRKR.			



No.	Message	Description	No.	254
254	1 5 10 15 20 25 29	In the slideway, the lubricant level dropped. (Single block stop)	No.	
ENGLISH	LUBRICATION MALF.		P1	
GERMAN	SCHMIERUNGS ALARM		P2	
FRENCH	DEFAILLANCE LUBRIFICATION		P3	
SPANISH	FALLO LUBRICACION		Occurrence	Machine/high voltage panel
ITALIAN	MALF LUBRIFICAZIONE		Status of Stop	Feed hold
DUTCH	STORING SMEERINRICHTING		How to Release	Turn on RESET after eliminating the cause.
SWEDISH	SMORJFEL			
NORWAY	SMOREFEIL			
255		During the automatic operation, the machine door opened. (The spindle stops.)	No.	255
ENGLISH	MACHINE DOOR INTERLOCK MALF.		P1	
GERMAN	MASCHTUR IST OFFEN		P2	
FRENCH	VERROUILLAGE PROTECTEUR		P3	
SPANISH	MALF INTERRUP PUERTA PROTEC		Occurrence	Machine/high voltage panel
ITALIAN	MALF INTERBLOCCO PORKA		Status of Stop	Feed hold
DUTCH	STOR.MACHINEDEURGRENDELINR.		How to Release	Turn on RESET after eliminating the cause.
SWEDISH	DEF OVERVAKNING MASKINDORG			
NORWAY	FRONTDEKSEL AAPENT			
256		The spindle lubricant level dropped, or an alarm signal was given by the direction control unit. (60 seconds after a single block stop, the spindle stop.)	No.	256
ENGLISH	HEAD LUBRICATION ALARM		P1	
GERMAN	SPINDELSTOCK SCHMIER ALARM		P2	
FRENCH	ALARME LUBRIFICATION TETE		P3	
SPANISH	ALARMA ENGRASE CABEZAL		Occurrence	Machine/high voltage panel
ITALIAN	ALLARME LUBRIFICAZ.TESTA		Status of Stop	Feed hold
DUTCH	STORING SMERING V.SPILKOP		How to Release	Turn on RESET after eliminating the cause.
SWEDISH	ALARM SPINDELSMORJNING			
NORWAY	SMOREALARM SPINDELKASSE			



No.	Message	Description														
257	1 5 10 15 20 25 29	<p>The main power transformer overheated to 120°C or more, or the intra-panel temperature rose to 55°C or more.</p> <table> <tr> <td>No.</td><td>257</td></tr> <tr> <td>P1</td><td></td></tr> <tr> <td>P2</td><td></td></tr> <tr> <td>P3</td><td></td></tr> <tr> <td>Occurrence</td><td>Machine/high voltage panel</td></tr> <tr> <td>Status of Stop</td><td>Feed hold</td></tr> <tr> <td>How to Release</td><td>Turn on RESET after eliminating the cause.</td></tr> </table>	No.	257	P1		P2		P3		Occurrence	Machine/high voltage panel	Status of Stop	Feed hold	How to Release	Turn on RESET after eliminating the cause.
No.	257															
P1																
P2																
P3																
Occurrence	Machine/high voltage panel															
Status of Stop	Feed hold															
How to Release	Turn on RESET after eliminating the cause.															
258	ENGLISH HD DRIVE MALF. (MAGAZINE) GERMAN HD SERVO ALARM (MAGAZIN) FRENCH CH ALARME SERVO MAGASIN SPANISH MAL ACCION.CABEZAL(ALMACEN) ITALIAN MALF SERVO IDRAV(MAGAZZINO) DUTCH HD SERVO-ALARM(MAGAZIJN) SWEDISH HD DEF DRIVNING(MAGASIN) NORWAY HD SERVOALARM (MAGASIN)	<p>An alarm signal was given by the magazine controller (HD controller).</p> <table> <tr> <td>No.</td><td>258</td></tr> <tr> <td>P1</td><td></td></tr> <tr> <td>P2</td><td></td></tr> <tr> <td>P3</td><td></td></tr> <tr> <td>Occurrence</td><td>Machine/high voltage panel</td></tr> <tr> <td>Status of Stop</td><td>Feed hold</td></tr> <tr> <td>How to Release</td><td>Turn on RESET after eliminating the cause.</td></tr> </table>	No.	258	P1		P2		P3		Occurrence	Machine/high voltage panel	Status of Stop	Feed hold	How to Release	Turn on RESET after eliminating the cause.
No.	258															
P1																
P2																
P3																
Occurrence	Machine/high voltage panel															
Status of Stop	Feed hold															
How to Release	Turn on RESET after eliminating the cause.															
259	ENGLISH PS DRIVE MALF. (INDEX T) GERMAN PS SERVO ALARM (INDEX) FRENCH PS ALARME SERVO INDEX SPANISH MAL ACCION M PS (DIVISION,T) ITALIAN PS ALLARME SERVO(TAV.INDEX) DUTCH PS SERVO-ALARM(DRAAITAFEL) SWEDISH PS DEF DRIVNING(INDEX) NORWAY PS SERVO FEIL(INDEKS)	<p>The table motor (PS motor) overheated.</p> <table> <tr> <td>No.</td><td>259</td></tr> <tr> <td>P1</td><td></td></tr> <tr> <td>P2</td><td></td></tr> <tr> <td>P3</td><td></td></tr> <tr> <td>Occurrence</td><td>Machine/high voltage panel</td></tr> <tr> <td>Status of Stop</td><td>Feed hold</td></tr> <tr> <td>How to Release</td><td>Turn on RESET after eliminating the cause.</td></tr> </table>	No.	259	P1		P2		P3		Occurrence	Machine/high voltage panel	Status of Stop	Feed hold	How to Release	Turn on RESET after eliminating the cause.
No.	259															
P1																
P2																
P3																
Occurrence	Machine/high voltage panel															
Status of Stop	Feed hold															
How to Release	Turn on RESET after eliminating the cause.															



No.	Message	Description	No.
260	1 5 10 15 20 25 29 ENGLISH EXTERNAL CONTROL ALARM GERMAN AUSSEN KONTROL ALARM FRENCH ALARME DU CONTROL EXTERIEUR SPANISH ALARMA CONTROL EXTERNO ITALIAN ALLARME CONTROLLO ESTERNO DUTCH EXTERNE CONTROLE ALARM SWEDISH ALARM EXTERN STYRNING NORWAY EKSTERN STYRINGSALARM	An alarm signal was given by an external controller (Sequencer).	P1 260 P2 P3
261	T-MEAS. STAND OUT RS ON MALF. WZ MESSTAND AUS RR AN FEHLER MALF INT SORT DISP MESUPOS MA MALF INT DIS MEDI FUERA ON MALF DISP.DI MISURA UT.ON STOR.NAB-SCH.UITZW.MTSTD-A NLB T MATSTATIV UT DEF TILL V-MAALING UTE RS PAA FEIL	Although the arm returned, the arm extending proximity switch did not turn off for 5 or more consecutive seconds after being commanded.	P1 261 P2 P3
262	T-MEAS. STAND OUT RS OFF MALF WZ MESSTAND AUS RR AUS FEHLER MALF INT SORT DISP MESUPOS AR MALF INT DIS MEDI FUERA OFF MALF DISP.DI MISURA UT OFF STOR.NAB-SCH UITZW.MTSTDZ-U NLB T MATSTATIV UT DEF FRAN V-MAALING UTE RS AV FEIL	Although the arm extended, the arm extending proximity switch did not turn on for 5 or more consecutive seconds after being commanded.	P1 262 P2 P3



No.	Message	Description	No.
263	1 5 10 15 20 25 29	Although the arm returned, the arm retracting proximity switch did not turn off for 5 or more consecutive seconds after being commanded.	P1
ENGLISH	T-MEAS. STAND IN RS ON MALF.		P2
GERMAN	WZ MESSTAND EIN RR AN FEHLER		P3
FRENCH	MALF INT RETR DISP MESUPOS MA		Occurrence
SPANISH	MALF INT DIS MEDI DENTRO ON		Machine/high voltage panel
ITALIAN	MALF DISP MISURA UT ON (INT)		Status of Stop
DUTCH	STOR.NAB-SCH INZW.MTSTD-A		Feed hold
SWEDISH	NLB T MATSTATIV IN DEF TILL		How to Release
NORWAY	V-MAALING INNE RS PAA FEIL		Turn on RESET after eliminating the cause.
264		Although the arm returned, the arm retracting proximity switch did not turn on for 5 or more consecutive seconds after being commanded.	No.
ENGLISH	T-MEAS. STAND IN RS OFF MALF.		P1
GERMAN	WZ MESSTAND EIN RR AUS FEHLER		P2
FRENCH	MALF INT RETR DISP MESUPOS AR		P3
SPANISH	MALF INT DIS MEDI DENTRO OFF		Occurrence
ITALIAN	MALF DISP MISURA UT OFF(IN)		Machine/high voltage panel
DUTCH	STOR.NAB-SCH INZW.MTSTD-U		Status of Stop
SWEDISH	NLB T MATSTATIV IN DEF FRAN		Feed hold
NORWAY	V-MAALING INNE RS AV FEIL		How to Release
265		A certain fault occurred in the MMS unit and necessary signals were not given.	No.
ENGLISH	MMS MALF.		P1
GERMAN	MAZAK MESS SYSTEM ALARM		P2
FRENCH	DEFAILLANCE DISPOS.DE MESURE		P3
SPANISH	MALF SISTEMA DE MEDISION MAZAK		Occurrence
ITALIAN	MALF DISP DI MISURA		Machine/high voltage panel
DUTCH	STORING MMS		Status of Stop
SWEDISH	MMS DEF		Feed hold
NORWAY	MMS FEIL		How to Release



No.	Message	Description	No.
266	1 5 10 15 20 25 29	Solenoids on both magazine and spindle side of the swing arm turned off.	P1 P2 P3
ENGLISH	SWING ARM SOL SIMULTANEOUS OFF		
GERMAN	ARM ENDS.ZEIT.AUS FEHLER		
FRENCH	BRAS INT TEMPS POS AR		
SPANISH	ELECTROVAL SIMULT GIRO BRAZO		
ITALIAN	ELETTROV.SIMULT.SCAMB.BRAC.		
DUTCH	SOLENOIDE ARM GELIJKTIJD.-UIT		
SWEDISH	VAXLARARM MAGNETVENT SAMTID T		
NORWAY	SVINGARM BRYTERE SIMULTAN AV		
267		With the gear shifted to the MIDDLE/HIGH and LOW positions, the middle- and low-speed gear proximity switch did not turn off.	P1 P2 P3
ENGLISH	MIDDLE LOW GEAR PROX ON MALF.		
GERMAN	MU-DREHZ.ENDS.AUS FEHLER		
FRENCH	MALF INT SEL.GAMME MB POS MA		
SPANISH	MAL PROX GAMA MEDIA BAJA ON		
ITALIAN	MALF PROX GAMMA MED-BASSA ON		
DUTCH	STOR.NAB-SCH.M-L-GAMMA-AAN		
SWEDISH	MEDEL LAG VAXEL NLB TILL DEF		
NORWAY	MIDD/LAV GEAR BRYTER PAA, FEIL		
268		With the gear shifted to the MIDDLE/HIGH and LOW positions, the middle- and low-speed gear proximity switch did not turn on.	P1 P2 P3
ENGLISH	MIDDLE LOW GEAR PROX OFF MALF.		
GERMAN	MU-DREHZ.ENDS.AUS FEHLER		
FRENCH	MALF INT SEL.GAMME MB POS AR		
SPANISH	MAL PROX GAMA MEDIA BAJA OFF		
ITALIAN	MALF PROX GAMMA MED-BASSA OFF		
DUTCH	STOR.NAB-SCH.M-L-GAMMA UIT		
SWEDISH	MEDEL LAG VAXEL NLB FRAN DEF		
NORWAY	MIDD/LAV GEAR BRYTER AV FEIL		



No.	Message	Description	No.
269	1 5 10 15 20 25 29	The pallet door did not open and close properly.	269
ENGLISH	PALLET DOOR ALARM		P1
GERMAN	PALLETTEN TUR ALARM		P2
FRENCH	ALARME PALETTE PORTE		P3
SPANISH	ALARMA P-PALLET		
ITALIAN	ALLARME PORTA PALLET		Occurrence
DUTCH	PALLETDEUR-ALARM		Machine/high voltage panel
SWEDISH	ALARM PALETTDÖRR		
NORWAY	PALETT DOR ALARM		Status of Stop
			Feed hold
			How to Release
			Turn on RESET after eliminating the cause.
270		The pallet door developed a fault during changing position.	270
ENGLISH	PALLET CHANGER ALARM		P1
GERMAN	PALLETTEN WECHSEL ALARM		P2
FRENCH	ALARME PALETTE CHANGER		P3
SPANISH	ALARMA CAMBIO PALLET		
ITALIAN	ALLARME CAMBIO PALLET		Occurrence
DUTCH	PALLETWISSEL-ALARM		Machine/high voltage panel
SWEDISH	ALARM PALETTVAXLARE		
NORWAY	PALETT SKIFTER ALARM		Status of Stop
			Feed hold
			How to Release
			Turn on RESET after eliminating the cause.
271		Although the magazine cover opened, the magazine cover closing proximity switch did not turn off for 5 or more consecutive seconds after being commanded.	271
ENGLISH	MAGZN CVR CLOSE PROX ON FLT		P1
GERMAN	MAGZN ABDECK.GESCHL.ENDS.AN		P2
FRENCH	DETECT.PROX.DEFECT.PORTE FERM		P3
SPANISH	MAL SENSOR CERRAR ALMACEN I		
ITALIAN	MALF PROX SPORTELLO MAGAZZ.ON		Occurrence
DUTCH	STOR.NAB-SCH.SL-MAG-DEUR-A		Machine/high voltage panel
SWEDISH	MAGASINSKAPA STANGA NLB T DEF		
NORWAY	MAG.DEKSEL LUKKET BRYTER PAA		Status of Stop
			Feed hold
			How to Release
			Turn on RESET after eliminating the cause.



No.	Message	Description	No.
272	1 5 10 15 20 25 29	Although the magazine cover closed, the magazine cover closing proximity switch did not turn on for 5 or more consecutive seconds after commanded.	P1
ENGLISH	MAGZN CVR CLOSE PROX OFF FLT		P2
GERMAN	MAGZN ABDECK.AUF ENDS.AUS		P3
FRENCH	DETECT.PROX.DEFECT.PORTE FERM		Occurrence
SPANISH	MAL SENSOR CERRAR ALMACEN O		Machine/high voltage panel
ITALIAN	MALF PROX SPORTELLO MAGAZZ.OFF		
DUTCH	STOR.NAB-SCH.SL-MAG-DEUR-U		
SWEDISH	MAGASINSKAPA STANGA NLB F DEF		
NORWAY	MAG.DEKSEL LUKKET BRYTER AV		Status of Stop
			Feed hold
			How to Release
			Turn on RESET after eliminating the cause.
273			273
ENGLISH	MAGZN CVR OPEN PROX ON FLT		P1
GERMAN	MAGZN ABDECK.AUF ENDS.AN		P2
FRENCH	DETECT.PROX.DEFECT.PORTE OUVT		P3
SPANISH	MAGZN CVR OPEN PROX ON FLT		Occurrence
ITALIAN	MALF PROX SPORT MAG.APER ON		Machine/high voltage panel
DUTCH	STOR.NAB-SCH.OP-MAG-DEUR-A		
SWEDISH	MAGASINSKAPA OPPEN DEF NLB T		
NORWAY	MAG.DEKSEL AAPEN BRYTER PAA		
			Status of Stop
			Feed hold
			How to Release
			Turn on RESET after eliminating the cause.
274			274
ENGLISH	MAGZN CVR OPEN PROX OFF FLT		P1
GERMAN	MAGZN ABDECK.AUF ENDS.AUS		P2
FRENCH	DETECT.PROX.DEFECT.PORTE OUVT		P3
SPANISH	MAGZN CVR OPEN PROX OFF FLT		Occurrence
ITALIAN	MALF PROX SPORT MAG.APER.OFF		Machine/high voltage panel
DUTCH	STOR.NAB-SCH.OP-MAG-DEUR-U		
SWEDISH	MAGASINKAPA OPPEN DEF NLB F		
NORWAY	MAG.DEKSEL AAPEN BRYTER AV		
			Status of Stop
			Feed hold
			How to Release
			Turn on RESET after eliminating the cause.



No.	Message	Description	No.
275	1 5 10 15 20 25 29 ENGLISH SPINDLE TOOL DETECTOR OFF GERMAN SPINDEL W.K.Z.DETEKTOR.AUS FRENCH DETECT.D'OUTIL BROCHE ARRET. SPANISH DETECTOR UTIL HUSILLO O ITALIAN RIVELATORE UT.MANDRINO OFF DUTCH SPILGEREEDSCH.DETECTOR-UIT SWEDISH SPINOELVERKTYG AVKANNARE FRAN NORWAY SPINDEL VKT.DETEKTOR AV	Although the spindle tool number was set to "0", a tool was detected in the spindle during loading a tool. (CRT display only)	P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.
276	ENGLISH MAGAZINE TOOL DETECTOR OFF GERMAN MAGZN.W.K.Z.DETEKTOR.AUS FRENCH DETECT.D'OUTIL MAGASIN ARRET. SPANISH DETECTOR UTIL ALMACEN O ITALIAN RIVELATORE UT.MAGAZZ.OFF DUTCH MAG.GEREEDSCH.DETECTOR-UTT SWEDISH MAGASINSVERKTYG AVKANNARE F NORWAY MAGASIN VKT.DETEKTOR AV	During unloading a tool, another tool was found in the pocket to which the former was to be returned. (CRT display only)	P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Feed hold How to Release Turn on RESET after eliminating the cause.
277	ENGLISH TOOL LIFE OVER (FH PB) GERMAN ZU ZIELE WERKZ.STAND(FH PB) FRENCH DEPASS.VIE DE L'OUT.(FH PB) SPANISH PASA EL VIDA DEL UTIL (FH PB) ITALIAN ECCESS.TEMPO VITA UTEN(FH PB) DUTCH LEV.GEREEDSCH.OVERSCH(FH PB) SWEDISH FOR STORT INGREPPSTID (FH PB) NORWAY FOR MANGE ST.TID(FH PB)	The cumulative service hours of a tool have exceeded the service life of that tool.	P1 P2 P3 Occurrence Machine/high voltage panel Status of Stop Single block How to Release Turn on FHD and RESET after eliminating the cause.



No.	Message	Description	No.
278	1 5 10 15 20 25 29 ENGLISH TOOL BREAKAGE (FH PB) GERMAN WERKZEUGSCHADEN (FH PB) FRENCH DOMMAGE D'OUTIL (FH PB) SPANISH AVERIA UTIL (FH PB) ITALIAN MALFUNZIONAM. UTENSILE (FH PB) DUTCH GEREEDSCHAP-STORING (FH PB) SWEDISH VERKTYGS BROTT (FH PB) NORWAY VERKTOYBRUDD (FH PB)	(1) A tool is found broken as the result of performing the tool breakage detecting operation with M35 commanded in the automatic operation mode. (2) A tool already broken has been set on the spindle (on an ATC basis).	P1 P2 P3 Occurrence Status of Stop How to Release
279	ENGLISH TOOL NO DATA FALT GERMAN FEHLER VON WERKZEUGDATEN FRENCH DONN. ERR DS UNITE COMES T SPANISH ERROR DATOS EN NO. UTIL ITALIAN ERRORE DATI UTENSILI DUTCH FOUTIEF GEREEDSCHAPSNUMMER SWEDISH DATAFFL VERKTYGSNUMMER NORWAY FEIL VKT. NUMMER DATA	A discrepancy existed between the next tool number data during the preceding automatic tool change process and the number data of a tool currently being changed.	P1 P2 P3 Occurrence Status of Stop How to Release
280	ENGLISH TOOL UNCLAMP MISSOPER. GERMAN W.K.Z.ENTSCHEP.FALSCH BEDIE. FRENCH MAUVA.OPERA.D'INCRAMON D'OUT SPANISH MAL-FUN.SOLTAR UTIL ITALIAN MANCANZA SBLOCCAGGIO UTENSILE DUTCH FOUT.BEDIEN.GER-ONTKLEMMING SWEDISH VERKTYG LOSSA FELFUNKTION NORWAY FEILBETJENING VERKTOY LOS	In the automatic operation mode or with the SJOG or spindle run push-button depressed or not in the ORIENT mode, the tool unclamping switch turned on. This alarm can be turned off by turning on the FEED HOLD switch after turning off the tool unclamping switch or by using the RESET button.	P1 P2 P3 Occurrence Status of Stop How to Release



No.	Message	Description	No.
281	1 5 10 15 20 25 29	With the gear shifted to the NEUTRAL position, the spindle started. This alarm can be turned off by turning on the FEED HOLD switch or by using the RESET button.	P1 P2 P3
ENGLISH	SPINDLE START MISSOPER.	Occurrence	Machine/high voltage panel
GERMAN	SPINDEL START FALSCH BEDIEN.	Status of Stop	Feed hold
FRENCH	MAUVA.OPERA.DE DEPART DE BROCH	How to Release	Turn on RESET after eliminating the cause.
SPANISH	MAL-FUN.COMIENZO CICLO		
ITALIAN	MANCANZA START MANDRINO		
DUTCH	FOUT SPILSTART-BEDIENING		
SWEDISH	FELFUNKTION SPINDEL START		
NORWAY	FEILBETJENING SPINDEL START		
282			No. 282
ENGLISH		P1 P2 P3	
		Occurrence	
		Status of Stop	
		How to Release	
283			No. 283
ENGLISH	TOOL CHANGE MISSOPER.	To change a tool manually, the Z-axis was not available at the zero point (V series) or the Y-axis was not available at the zero point. (H series)	P1 P2 P3
GERMAN	W.K.Z.WECHSEL FALSCH BEDIEN.	Occurrence	Machine/high voltage panel
FRENCH	MAUVA.OPERA.DE CHANG.D'OUTIL	Status of Stop	Feed hold
SPANISH	MAL CAMBIO UTIL	How to Release	Turn on RESET after eliminating the cause.
ITALIAN	MANCANZA CAMBIO UTENSILE		
DUTCH	FOUT.BEDIEN.GER-WISSEL		
SWEDISH	FELFUNKTION VERKTYGSVAXLING		
NORWAY	FEILBETJENING VERKTOYSKIFTING		



No.	Message	Description	No.
284	1 5 10 15 20 25 29		284
ENGLISH			P1
			P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	
285	SPECIAL TOOL MISSOPER.	With a special tool in the machine, the SPINDLE START button was depressed.	285
ENGLISH	SPECIAL TOOL MISSOPER.		P1
GERMAN	SPEZIEL W.K.Z.FALSCH BEDIE		P2
FRENCH	MAUVA.OPERA.D'OUTIL SPECIAL		P3
SPANISH	MAL CAMBIO UTIL ESPECIAL		Occurrence
ITALIAN	MANCANZA CAMBIO UT SPECIALE	This alarm can be turned off by turning on the FEED HOLD switch or by the RESET button.	Machine/high voltage panel
DUTCH	FOUT.BEDIEN.SPEC.GEREEDSCH		
SWEDISH	FELFUNKTION SPECIALVERKTYG		
NORWAY	FEILBETJENING SPESIALVERKTOY		
		Status of Stop	Feed hold
		How to Release	Turn on RESET after eliminating the cause.
286	PALLET CHANGE MISSOPER.	Without the pallet changing (pallet swing position, pallet cylinders 1 and 2 return, and pallets 1/2 available on the pallet carrier), the pallet change command was given. (H Series)	286
ENGLISH	PALLET CHANGE MISSOPER.		P1
GERMAN	PALLET WECHSEL FALSCH BEDIE		P2
FRENCH	MAUVA.OPERA.DE CHANG.DE PALLET		P3
SPANISH	MAL CAVBIO PALLET		Occurrence
ITALIAN	MANCANZA CAMBIO PALLET	This alarm can be turned off by the RESET button.	Machine/high voltage panel
DUTCH	FOUT.BEDIEN.PALLETWISSEL		
SWEDISH	FELFUNKTION PALETTVAXLARE		
NORWAY	FEILBETJENING PALETTSKFTING		
		Status of Stop	Feed hold
		How to Release	Turn on RESET after eliminating the cause.



No.	Message	Description	No.	287
287	1 5 10 15 20 25 29	Without all axes returning to the zero point after switching on or making a machine emergency stop the STL push button was depressed. This alarm can be turned off by returning all axes to their zero points.	P1	
ENGLISH	ZERO RETURN MISSOPER.		P2	
GERMAN	NULL ZURUCK FALSCH BEDIE.		P3	
FRENCH	MAUVA. OPERA. DE RETOUR AU ZERO		Occurrence	Machine/high voltage panel
SPANISH	EJES NO ESTAN A CERO		Status of Stop	Feed hold
ITALIAN	MANCANZA RITORNO A ZERO		How to Release	Turn on RESET after eliminating the cause.
DUTCH	FOUT. NULPUNTAANVARING			
SWEDISH	NOLLPUNKT RET FELFUNKTION			
NORWAY	FEILBETJENING RETUR NULLPUNKT			
288		After switching on or making a machine emergency stop, the spindle was made to run in the positive direction without being moved in the negative direction. (VQC and HQC only) This alarm can be turned off by turning on the FEED HOLD switch or by the RESET switch.	No.	288
ENGLISH	PLUS MOTION MISSOPER.		P1	
GERMAN	PLUS RICHTUNG FALSCH BEDIE.		P2	
FRENCH	MAUVA. OPERA DE MOUVEMENT POSITIF		P3	
SPANISH	MAL-FUN.DIRECCION+		Occurrence	Machine/high voltage panel
ITALIAN	MANCANZA MOVIMENTO+		Status of Stop	Feed hold
DUTCH	FOUT. VERPLAATS.PLUS-RICHT		How to Release	Turn on RESET after eliminating the cause.
SWEDISH	PLUSRORELSE FELFUNKTION			
NORWAY	FEILBETJENING PLUSS BEVEGELSE			
289		Although 5° indexing was specified, no degree other than 5° was specified. (H series) This alarm can be turned off by turning on the FEED HOLD switch or by the RESET button.	No.	289
ENGLISH	INDEX COMMAND MISSOPER.		P1	
GERMAN	INDEX BEFEHL FALSCH BEDIE.		P2	
FRENCH	MAUVA. OPERA. DE COMMANDE D'OUT.		P3	
SPANISH	VALOR DIVISION ERRONEO		Occurrence	Machine/high voltage panel
ITALIAN	MANCANZA COMANDE INDEX		Status of Stop	Feed hold
DUTCH	FOUT. BEDIENING INDEX		How to Release	Turn on RESET after eliminating the cause.
SWEDISH	INDEXORDER FELFUNKTION			
NORWAY	FEILBETJENING INDEKSOMMANDO			



No.	Message	Description														
290	1 5 10 15 20 25 29	<table><thead><tr><th>No.</th><th>290</th></tr></thead><tbody><tr><td>P1</td><td></td></tr><tr><td>P2</td><td></td></tr><tr><td>P3</td><td></td></tr><tr><td>Occurrence</td><td></td></tr><tr><td>Status of Stop</td><td></td></tr><tr><td>How to Release</td><td></td></tr></tbody></table>	No.	290	P1		P2		P3		Occurrence		Status of Stop		How to Release	
No.	290															
P1																
P2																
P3																
Occurrence																
Status of Stop																
How to Release																
291	TOOL INTERLOCK MISSOPER. W.K.Z.VERBLOK FALSCH BEDIA. MAUVA.OPERA.D'ENGRENAGE D'OUT MAL-FUN.BLOQUEO UTIL MANCANZA INTERBL.UTENSILE FOUT.BEDIEN.GER.GREND-INR. VERKTYGSBLOCKERING FELFUNKT FEILBETJENING VKT.FORRIGLING	<p>With the TOOL SELECT INTERLOCK on in the automatic operation mode, the TOOL SELECT command was given. This alarm can be turned off by turning on the FEED HOLD switch or by the RESET button.</p> <table><thead><tr><th>No.</th><th>291</th></tr></thead><tbody><tr><td>P1</td><td></td></tr><tr><td>P2</td><td></td></tr><tr><td>P3</td><td></td></tr><tr><td>Occurrence</td><td>Machine/high voltage panel</td></tr><tr><td>Status of Stop</td><td>Feed hold</td></tr><tr><td>How to Release</td><td>Turn on RESET after eliminating the cause.</td></tr></tbody></table>	No.	291	P1		P2		P3		Occurrence	Machine/high voltage panel	Status of Stop	Feed hold	How to Release	Turn on RESET after eliminating the cause.
No.	291															
P1																
P2																
P3																
Occurrence	Machine/high voltage panel															
Status of Stop	Feed hold															
How to Release	Turn on RESET after eliminating the cause.															
292	TOOL SELECT MISSOPER. W.K.Z.WAHREN FALSCH BEDIA. MAUVA.OPERA.DE SELECT.D'OUTIL MAL-FUN.SELEC.UTIL MANCANZA SELEZIONE UTENSILE FOUT.BEDIEN.GEREEDSCH-KEUZE VERKTYGSFAL FELFUNKTION FEILBETJENING VERKTOYVALG	<p>When an empty pocket is available, no tool to be currently changed and no tool to be available in the spindle was commanded. Or where an empty pocket is unavailable, TO has been specified in selecting the magazine or a larger magazine type detected by the sensor than the one the magazine specified. This alarm can be turned off by turning on the FEED HOLD switch or by the RESET button.</p> <table><thead><tr><th>No.</th><th>292</th></tr></thead><tbody><tr><td>P1</td><td></td></tr><tr><td>P2</td><td></td></tr><tr><td>P3</td><td></td></tr><tr><td>Occurrence</td><td>Machine/high voltage panel</td></tr><tr><td>Status of Stop</td><td>Feed hold</td></tr><tr><td>How to Release</td><td>Turn on RESET after eliminating the cause.</td></tr></tbody></table>	No.	292	P1		P2		P3		Occurrence	Machine/high voltage panel	Status of Stop	Feed hold	How to Release	Turn on RESET after eliminating the cause.
No.	292															
P1																
P2																
P3																
Occurrence	Machine/high voltage panel															
Status of Stop	Feed hold															
How to Release	Turn on RESET after eliminating the cause.															



No.	Message							Description		
293	1	5	10	15	20	25	29			
ENGLISH								No.	293	
								P1		
								P2		
								P3		
								Occurrence		
								Status of Stop		
								How to Release		
294								No.	294	
ENGLISH								P1		
								P2		
								P3		
								Occurrence		
								Status of Stop		
								How to Release		
295								No.	295	
ENGLISH								P1		
								P2		
								P3		
								Occurrence		
								Status of Stop		
								How to Release		



No.	Message	Description														
296	1 5 10 15 20 25 29	<table border="1"><tr><td>No.</td><td>██████████ 296</td></tr><tr><td>P1</td><td></td></tr><tr><td>P2</td><td></td></tr><tr><td>P3</td><td></td></tr><tr><td>Occurrence</td><td></td></tr><tr><td>Status of Stop</td><td></td></tr><tr><td>How to Release</td><td></td></tr></table>	No.	██████████ 296	P1		P2		P3		Occurrence		Status of Stop		How to Release	
No.	██████████ 296															
P1																
P2																
P3																
Occurrence																
Status of Stop																
How to Release																
297	EXTERNAL MISSOPR. NO.1 FALSCH BEDINUNG AUSERHAL NR.1 MAUVA OPERA DU DEHORS NO.1 MAL-FUN. EXTERIOR NO.1 MANCANZA ESTERNA NO.1 FOUT. EXTERNE BEDIEN.NR.1 EXTERN FELOOPERATION NR.1 FEILBETJENING EKSTERNT NR.1	A fault occurred in the device attached to the controller. (Optional) <table border="1"><tr><td>No.</td><td>██████████ 297</td></tr><tr><td>P1</td><td></td></tr><tr><td>P2</td><td></td></tr><tr><td>P3</td><td></td></tr><tr><td>Occurrence</td><td>Machine/high voltage panel</td></tr><tr><td>Status of Stop</td><td>Feed hold</td></tr><tr><td>How to Release</td><td>Turn on RESET after eliminating the cause.</td></tr></table>	No.	██████████ 297	P1		P2		P3		Occurrence	Machine/high voltage panel	Status of Stop	Feed hold	How to Release	Turn on RESET after eliminating the cause.
No.	██████████ 297															
P1																
P2																
P3																
Occurrence	Machine/high voltage panel															
Status of Stop	Feed hold															
How to Release	Turn on RESET after eliminating the cause.															
298	EXTERNAL MISSOPR. NO.2 FALSCH BEDINUNG AUSERHAL NR.2 MAUVA OPERA DU DEHORS NO.2 MAL-FUN. EXTERIOR NO.2 MANCANZA ESTERNA NO.2 FOUT. EXTERNE BEDIEN.NR.2 EXTERN FELOOPERATION NR.2 FEILBETJENING EKSTERNT NR.2	A fault occurred in the device attached to the controller. (Optional) <table border="1"><tr><td>No.</td><td>██████████ 298</td></tr><tr><td>P1</td><td></td></tr><tr><td>P2</td><td></td></tr><tr><td>P3</td><td></td></tr><tr><td>Occurrence</td><td>Machine/high voltage panel</td></tr><tr><td>Status of Stop</td><td>Feed hold</td></tr><tr><td>How to Release</td><td>Turn on RESET after eliminating the cause.</td></tr></table>	No.	██████████ 298	P1		P2		P3		Occurrence	Machine/high voltage panel	Status of Stop	Feed hold	How to Release	Turn on RESET after eliminating the cause.
No.	██████████ 298															
P1																
P2																
P3																
Occurrence	Machine/high voltage panel															
Status of Stop	Feed hold															
How to Release	Turn on RESET after eliminating the cause.															





No.	Message	Description	No.	300
300	1 5 10 15 20 25 29	This error occurs during processing inside the system. It may happen when a complicated process is being performed, because the CPU has a limited capability.	No.	300
ENGLISH	SYSTEM ERROR		P1	Error information
GERMAN	SYSTEM FEHLER		P2	"
FRENCH	ERREUR SYSTEME		P3	"
SPANISH	ERROR DEL SISTEMA		Occurrence	Interior of system
ITALIAN	ERRORE DEL SISTEMA		Status of Stop	Block stop
DUTCH	SYSTEEM FOUT		How to Release	Depress CANCEL button.
SWEDISH	SYSTEMFEL			
NORWAY	SYSTEM FEIL			
301		With an unregistered work program number specified, the automatic operation start was commanded. Or a check was attempted on a graphic picture.	No.	301
ENGLISH	PROGRAM NOT ON FILE		P1	
GERMAN	PROGRAMM NICHT GESPEICHERT		P2	
FRENCH	PROGRAMME NON ENREGISTRE		P3	WNO.
SPANISH	NO REGISTRADO EL PROGRAMA		Occurrence	Machining program
ITALIAN	PROGRAMMA NON REGISTRATO		Status of Stop	Block stop
DUTCH	PROGRAMMA NIET IN REGISTER		How to Release	Depress CANCEL button.
SWEDISH	PROGRAM INTE I FIL			
NORWAY	PROGRAM IKKE LAGRET			
302		Although many work pieces are machined in a command unit, no pitch was specified.	No.	302
ENGLISH	NO PITCH IN MULTI WORKPIECES		P1	
GERMAN	KEIN ABSTAND BEI MEHR. THILE		P2	UNO.
FRENCH	PAS DE DIST. ENTR. PCES MULT.		P3	WNO.
SPANISH	ERROR DATOS PIEZAS MULTIPLES		Occurrence	Machining program
ITALIAN	MANCA IL PASSO LAV. MULTIPLO		Status of Stop	Block stop
DUTCH	GEEN AFSTAND IN MEERV. WERKST		How to Release	Depress CANCEL button.
SWEDISH	INGEN DELN VID FLARBETSSTYCK			
NORWAY	INGEN AVST. VED MULTI ABBSTK.			





No.	Message	Description	No.	306
306	1 5 10 15 20 25 29 MISSING INPUT DATA (LINE)	In a linear machining unit, insufficient unit data was inputted.	P1	
ENGLISH	MISSING INPUT DATA (LINE)		P2	UNO.
GERMAN	FEHLT DATEN (LINIE)		P3	WNO.
FRENCH	MANQUE D'INFORMATION(LIGNE)		Occurrence	Machining program
SPANISH	FALTA DE INFORMACION(LINEA)		Status of Stop	Block stop
ITALIAN	MANC DATI INGRESSO(LINEA)		How to Release	Depress CANCEL button.
DUTCH	FOUTIEVE INGAVE(LIJN-BEW)			
SWEDISH	INGANGSDATA SAKNAS (RAT)			
NORWAY	MANGLEND INPUT DATA(LINJE)			
307	MISSING INPUT DATA (FACE)	In a plane machining unit, insufficient unit data was inputted.	No.	307
ENGLISH	MISSING INPUT DATA (FACE)		P1	
GERMAN	FEHLT DATEN (FLACH)		P2	UNO.
FRENCH	MANQUE D'INFORMATION(FACE)		P3	WNO.
SPANISH	FALTA DE INFORMACION(PLANEJA)		Occurrence	Machining program
ITALIAN	MANC.DATI INGRESSO(FACCIA)		Status of Stop	Block stop
DUTCH	FOUTIEVE INGAVE(VLAK-BEW)		How to Release	Depress CANCEL button.
SWEDISH	INGANGSDATA SAKNAS(YTA)			
NORWAY	MANGLEND I NPUT DATA(PLAN)			
308	MISSING TOOL DATA FOR POINT	In a spot machining unit, insufficient tool development data was inputted.	No.	308
ENGLISH	MISSING TOOL DATA FOR POINT		P1	
GERMAN	FEHLT DATEN DER W.K.Z(PUNKT)		P2	UNO.
FRENCH	MANQUE D'INFORM OUTIL(POINT)		P3	WNO.
SPANISH	FALTA INFOR UTIL MECA.PUNTOS		Occurrence	Machining program
ITALIAN	MANC.DATI UTENS (PUNTO)		Status of Stop	Block stop
DUTCH	ONTBR GERSCH-GEDEV.PUNT-BEW.		How to Release	Depress CANCEL button.
SWEDISH	VERKTYGSDATA SAKNAS FOR PUNKT			
NORWAY	MANGLEND VKT.DATA FOR PUNKT			



No.	Message							Description			
309	1	5	10	15	20	25	29	In a linear machining unit, insufficient tool development data was inputted.	No.	309	
ENGLISH	MISSING TOOL DATA FOR LINE							P1			
GERMAN	FEHLT DATEN DER W.K.Z(LINIE)							P2	UNO.		
FRENCH	MANQUE D'INFORM.OUTIL(LIGNE)							P3	WNO.		
SPANISH	FALTA INFOR UTIL MECA.LINEA							Occurrence	Machining program		
ITALIAN	MANC.DATI UTENS(LINEA)							Status of Stop	Block stop		
DUTCH	ONTBR.GERSCH-GEDEV.LIJN-BEW							How to Release	Depress CANCEL button.		
SWEDISH	VERKTYGSDATA SAKNAS FOR RAT										
NORWAY	MANGLENDE VKT.DATA FOR LINJE										
310	1	5	10	15	20	25	29	In a plane machining unit, insufficient tool development data was inputted.	No.	310	
ENGLISH	MISSING TOOL DATA FOR FACE							P1	TSNO.		
GERMAN	FEHLT DATEN DER W.K.Z(FLACH)							P2	UNO.		
FRENCH	MANQUE D'INFORM.OUTIL(FACE)							P3	WNO.		
SPANISH	FALTA INFOR UTIL MECA.PLANO							Occurrence	Machining program		
ITALIAN	MANC.DATI UTENS (FACCIA)							Status of Stop	Block stop		
DUTCH	ONTBR.GERSCH-GEDEV.VLAK-BEW.							How to Release	Depress CANCEL button.		
SWEDISH	VERKTYGSDATA SAKNAS FOR PLAN										
NORWAY	MANGLENDE VKT.DATA FOR PLAN										
311	1	5	10	15	20	25	29	In the FRM (fundamental coordinate system setting) unit, insufficient unit data was inputted.	No.	311	
ENGLISH	WPC UNIT INCOMPLETE							P1			
GERMAN	AGP EINH NICHT VOLLSTAENDIG							P2	UNO.		
FRENCH	UNITE DE CDP INCOMPLETE							P3	WNO.		
SPANISH	ERROR DATOS UNI.COORDENADAS							Occurrence	Machining program		
ITALIAN	FASE PEZZO INCOMPLETA							Status of Stop	Block stop		
DUTCH	WSK-EENHELD NIET VOLLEDIG							How to Release	Depress CANCEL button.		
SWEDISH	OFULLSTANDIG KOORDINATENHET										
NORWAY	GRUNNL.KOORDSYST.UFULLST.										



No.	Message	Description	No.
312	1 5 10 15 20 25 29	Subprograms were over-nested. (Nesting is limited to two.)	P1
ENGLISH	SUB PROGRAM OVER NESTING		P2
GERMAN	UNTERPROGRAMM NESTING VOLL		P3
FRENCH	DEPAS.CAP.ARRANG.PROG.AUX		WNO.
SPANISH	MEMORIA SATURADA		Occurrence
ITALIAN	ANNIDAMENTO SOTTOPR.PIENO		Machining program
DUTCH	STAPELGEH.SUB-PROGR.OVERLAD		Status of Stop
SWEDISH	FOR MANGA NIVAER UNDERPROGRAM		Block stop
NORWAY	SUBPROGRAM OVERFORGRENET		How to Release
			Depress CANCEL button.
313		In the OFS (auxiliary coordinate system setting) unit, insufficient unit data was inputted.	313
ENGLISH	OFS UNIT INCOMPLETE		P1
GERMAN	KOR EINH NICHT VOLLSTAENDIG		P2
FRENCH	UNITE DE COMPENS.INCOMPLETE		P3
SPANISH	ERROR DATOS UNI.CORRECTORES		Occurrence
ITALIAN	FASE OFFSET IMCOMPLETA		Machining program
DUTCH	CORRECT.-EENH.NIET VOLLEDIG		Status of Stop
SWEDISH	NOLLPUNKTSFORFLYTT OFULLSTAND		Block stop
NORWAY	DATAFEIL I KOMP.ENHET		How to Release
			Depress CANCEL button.
314		In the M code unit, no data was inputted.	314
ENGLISH	DATA ERROR IN M CODE UNIT		P1
GERMAN	DATEN FEHLER IN M-CODE		P2
FRENCH	DONN.ERR.DS UNITE COMES M		P3
SPANISH	ERROR DATOS UNI.FUNCIONES M		Occurrence
ITALIAN	ERRORE NELLA FASE CODICE M		Machining program
DUTCH	FOUT.GEGEV.IN M-CODE EENH		Status of Stop
SWEDISH	DATAFEL I M-KODENS ENHET		Block stop
NORWAY	DATAFEIL I M KODE ENHET		How to Release
			Depress CANCEL button.



No.	Message							Description						
315	1	5	10	15	20	25	29	In a single action unit program, insufficient data was inputted.						
ENGLISH	DATA ERROR IN MAN. PROG. UNIT							No.	315					
GERMAN	FEHLER DER KONVEN. PROGRAMM							P1						
FRENCH	ERREUR DU PROGRAMME CONVENTION							P2	UNO.					
SPANISH	ERROR DATOS UNI.PROG CONVEN.							P3	WNO.					
ITALIAN	ERRORE NELLA FASE PROGR.MAN							Occurrence	Machining program					
DUTCH	FOUT.GEGEV.MAN-PROG EENH.							Status of Stop	Block stop					
SWEDISH	DATAFEL I MANUELL PROGRAMHEN							How to Release	Depress CANCEL button.					
NORWAY	DATAFEIL I MAN.PROG.ENHET													
316								No.	316					
ENGLISH	DATA ERROR IN USER MACRO							P1						
GERMAN	FEHLER DER USER MACRO							P2	UNO.					
FRENCH	ERREUR D'INFORMATION MACRO							P3	WNO.					
SPANISH	ERROR DATOS EN USER MACROS							Occurrence	Machining program					
ITALIAN	ERRORE NEI DATI DELLE MACRO							Status of Stop	Block stop					
DUTCH	FOUT.GEGEV.IN MACRO-PROGR							How to Release	Depress CANCEL button.					
SWEDISH	DATAFEL I MAKROPROGRAM													
NORWAY	DATAFEIL I MAKRO PROG.													
317								No.	317					
ENGLISH	MIS-SET G CODE							P1	FSNO.					
GERMAN	FEHLER DER G CODE EINGABE							P2	UNO.					
FRENCH	ERREUR D'INTRODUCTION CODE G							P3	WNO.					
SPANISH	UTILIZACION ERRONEA CODIGO G							Occurrence	Machining program					
ITALIAN	ERRORE CODICE G							Status of Stop	Block stop					
DUTCH	FOUT INGAVE VAN G-CODE							How to Release	Depress CANCEL button.					
SWEDISH	FEL G-KOD													
NORWAY	FEILANGITT G-KODE													



No.	Message	Description	No.
318	1 5 10 15 20 25 29 ENGLISH MMS UNIT INCOMPLETE GERMAN MMS EINH NICHT VOLLSTAENDIG FRENCH UNITE DE MMS INCOMPLETE SPANISH ERROR DATOS UNI.MEDICION ITALIAN FASE SMA INCOMPLETA DUTCH MMS-EENH.NIET VOLLEDIG SWEDISH MAETSYST.ENET OFULLSTANDIG NORWAY MANGLENDE INPUT DATA(MMS)		318 P1 P2 P3 Occurrence Status of Stop How to Release
319	ENGLISH		319 P1 P2 P3 Occurrence Status of Stop How to Release
320	ENGLISH POINT CUTTING PARAMETER ERROR GERMAN FEHLER PARAMETER(PUNKT) FRENCH ERREUR PARAM.POUR POINT SPANISH ERROR PARAM.EN MECA.PUNTOS ITALIAN ERRORE NEI PARAM.PUNTO FI TAG DUTCH FOUT.PARAM.VOOR PUNTBEWERK SWEDISH PARAMETERFER PUNKTBEARBETNING NORWAY PUNKTMASKINERING PARAM.FEIL	Parameter settings on the parameter spot machining picture exceeded their allowable range.	320 P1 P2 P3 Occurrence Parameter spot machining Status of Stop Block stop How to Release Depress CANCEL button.





No.	Message	Description					
324	1 5 10 15 20 25 29	A gear command M code is dependent of the set parameter, number of gear speeds (GYN) values mentioned above as follows:	No.	324	P1	P2	P3
ENGLISH	GEAR SHIFT DATA ERROR		Occurrence	Machining program			
GERMAN	FEHLER DATEN DER BER		Status of Stop	Block stop			
FRENCH	GAMME DE VITESSE MAL CHOISIE		How to Release	Depress CANCEL button.			
SPANISH	ERROR DATOS GAMA VELOCIDAD						
ITALIAN	ERRORE DATI CAMBIO GAMMA						
DUTCH	FOUT GEDEV. GAMMAKEUZE						
SWEDISH	DATAFEL VARVTALSVAXLING						
NORWAY	GEARSKFTE DATAFEIL						
		Inputting an above-mentioned invalid M code in the M code column of the tool development data will result in an error.					
325		In the machining program, 0 has been inputted as the spindle speed (peripheral speed).	No.	325	P1	TSNO.	P2
ENGLISH	CUTTING SPEED ZERO		Occurrence	Machining program	P3	UNO.	WNO.
GERMAN	SCHNITTGESCHIWINDEGKEIT NULL		Status of Stop	Block stop			
FRENCH	VITESSE DE COUPE ZERO		How to Release	Depress CANCEL button.			
SPANISH	VELOCIDAD DE CORTE CERO						
ITALIAN	VEROCITA'DI LAVORO ZERO						
DUTCH	SPINSELHEID IS NUL						
SWEDISH	SKARHASTIGHET NOLL						
NORWAY	TURTALL NULL						
326		In the machining program, 0 has been inputted as the feedrate.	No.	326	P1	TSNO.	P2
ENGLISH	FEEDRATE ZERO		Occurrence	Machining program	P3	UNO.	WNO.
GERMAN	VORSCHUB NULL		Status of Stop	Block stop			
FRENCH	AVANCE ZERO		How to Release	Depress CANCEL button.			
SPANISH	EL AVANCE ES CERO						
ITALIAN	VEROCITA' AVANZAMENTO ZERO						
DUTCH	VOEDING IS NUL						
SWEDISH	MATNING NOLL						
NORWAY	MATING NULL						



No.	Message	Description		
327	1 5 10 15 20 25 29 ENGLISH DESIGNATED UNIT NO. NOT FOUND GERMAN KEINE BESTIMMEN EINHEIT NR. FRENCH PAS DE NO. DE UNITE DESIGNE. SPANISH UTILIZACION ERRONEA UNID NO. ITALIAN NO FASE RICHIESTA NON TROVATO DUTCH GEVRAAGD EENH-NR NIET GEVOND. SWEDISH ANGIVEN ENHET NR.HITTAS INTE NORWAY ANGITT ENHETSNR IKKE FUNNET	In the program restart function, a specified unit number was not found in the program for a specified work number (WNO).	No.	327
328	P1	P1	TSNO.	
	P2	P2	UNO.	
	P3	P3	WNO.	
	Occurrence	Machining program		
	Status of Stop	Block stop		
	How to Release	Depress CANCEL button.		
	No.	328		
	P1	TSNO.		
	P2	UNO.		
329	P3	WNO.		
	Occurrence	Machining program		
	Status of Stop	Block stop		
	How to Release	Depress CANCEL button.		
	No.	329		
	P1			
	P2			
	P3			
	Occurrence			
	Status of Stop			
	How to Release			



No.	Message	Description	No.
330	1 5 10 15 20 25 29	On the tool data picture, no tool was registered or was there any trace of a tool layout operation.	P1
ENGLISH	NO TOOL LAYOUT		P2
GERMAN	OHNE W.K.Z BESCHREIBUNG		P3
FRENCH	PAS DE DESCROPTION D'OUTILS		WNO.
SPANISH	FALTA DESCRITCION DE UTILES		Occurrence Tool layout
ITALIAN	MANCA DISPOSIZIONE UTENSILT		Status of Stop Block stop
DUTCH	GEEN GEREEDSCHAPSBECHRIJVING		How to Release Depress CANCEL button.
SWEDISH	INGEN VERKTYGSLAYOUT		
NORWAY	INGEN VERKTOYPLAN		
331		The tool programmed in the machining program was not registered in the tool data picture. This alarm can be turned off by performing a tool layout operation for the related work number on the tool layout display.	331
ENGLISH	NO TOOL IN MAGAZINE		P1 TSNO.
GERMAN	KEIN WZ.AN GEFRASTEM M.PLATZ		P2 UNO.
FRENCH	PAS D'OUT.DANS LA POCHE DES		P3 WNO.
SPANISH	FALTA DEL UTIL EN EL TAMBOR		Occurrence Tool data, machining program
ITALIAN	MANCANZA UT.NE MAGAZZINO		Status of Stop Block stop
DUTCH	GEEN GEREEDSCHAP IN MAGAZIJN		How to Release Depress CANCEL button.
SWEDISH	INGET VERDTYG I MAGASIN		
NORWAY	VERKTOY MANGLER I MAGASINET		
332		The specified tool had too large a diameter. (Examples: End milling cutter grove unit, round unit)	332
ENGLISH	EXCEED ENDMILL DIAMETER		P1 TSNO.
GERMAN	ZUGROSSE DIA DES SCHAFTFASER		P2 UNO.
FRENCH	TROP GRAND DIA DE FRAISE BOUT		P3 WNO.
SPANISH	FRESA FRONTAL MUY GRANDE		Occurrence Machining program
ITALIAN	DTAMETRO FRESA ECCESSIVO		Status of Stop Block stop
DUTCH	DIAM.VINGERFREES TE GROOT		How to Release Depress CANCEL button.
SWEDISH	FOR STOR ANDFRASDIAMETER		
NORWAY	FOR STOR ENDEFRESDIA.		



No.	Message	Description
333	1 5 10 15 20 25 29 ENGLISH TOOL DATA INPUT PROCESS ERROR GERMAN WERKZEUGEINGABEFEHLER FRENCH MAL PROCEDE INTRO INFOR.OUTIL SPANISH ERROR EN DATOS DE VTILES ITALIAN ERRORE DI PROCESSO DATI UT. DUTCH FOUTIEVE INGAVE V.GEREEDSCH SWEDISH FELAKTIG INLASN VERKTYGSDATA NORWAY VKT.DATA INPUT PROSESSFEIL	<p>Some data were not inputted into the tool data or into the tool file display.</p> <p>Occurrence</p> <p>Status of Stop</p> <p>How to Release</p>
334		<p>No. 334</p> <p>P1</p> <p>P2</p> <p>P3</p> <p>Occurrence</p> <p>Status of Stop</p> <p>How to Release</p>
335		<p>No. 335</p> <p>P1</p> <p>P2</p> <p>P3</p> <p>Occurrence</p> <p>Status of Stop</p> <p>How to Release</p>



No.	Message	Description	No.	336
336	1 5 10 15 20 25 29 ENGLISH RADIAL DEPTH OF CUT ZERO GERMAN RADIAL SPANTIEFE NULL FRENCH LARGEUR DE COUPE O EN R SPANISH ANCHURA DE LA PASADA ES CERO ITALIAN PROFOND DI PASS RAD ZERO DUTCH RADIALE SNIJDIEPTE-R IS NUL SWEDISH RADIELLT SKARDJUP NOLL NORWAY RADIELL KUTTDYBDE ER NULL	In the line/face machining unit tool development data, 0 has inputted as the radial depth of cut (radially cutting stroke per cycle). (With the radial depth of cut set to 0, machining will not stop because no cutting is actually being performed, no matter how many times a work piece may be cut radially.)	No.	336
	P1 P2 P3	Occurrence	P1	TSNO.
			P2	UNO.
			P3	WNO.
		Status of Stop		Machining program
				Block stop
		How to Release		Depress CANCEL button.
337	Z DEPTH OF CUT ZERO ENGLISH Z SPANTIEFE NULL GERMAN PROF DE COUPE O EN AXE Z FRENCH PROF, DE CADA DORTE ES CERO SPANISH PROFOND DI PASS Z ZERO ITALIAN AXIALE SNIJDIEPTE-Z IS NUL DUTCH SKARDJUP Z NOLL SWEDISH KUTTDYBDE ER NULL	In the line/face machining unit tool development data, 0 has been inputted as the Z depth of cut (Z-axis cutting stroke per cycle). (With the Z depth of cut set to zero, machining will not stop because cutting is not actually performed, no matter how many time a work may be cut Z-axially.)	No.	337
	P1 P2 P3	Occurrence	P1	TSNO.
			P2	UNO.
			P3	WNO.
		Status of Stop		Machining program
				Block stop
		How to Release		Depress CANCEL button.
338	FINISH DEPTH OF CUT ZERO ENGLISH KEINE BEARBEITUNGZUGABE GERMAN PAS DE SUREPASS FRENCH BEARBETN.FINSV.-Z ES CERO SPANISH ITALIAN PROFOND PASS FINIT ZERO DUTCH NABEW.OVERMAAT IS NUL SWEDISH FINSKAR NOLL NORWAY INTET ARB.MONN FINBEARBEIDING	Although a finish tool was available for a line/face machining unit in the program, 0 was inputted as the finish allowance.	No.	338
	P1 P2 P3	Occurrence	P1	TSNO.
			P2	UNO.
			P3	WNO.
		Status of Stop		Machining program
				Block stop
		How to Release		Depress CANCEL button.



No.	Message	Description	No.
339	1 5 10 15 20 25 29 ENGLISH TOOL DIAMETER ZERO GERMAN KEIN WRKZGDURCHMESSER FRENCH PAS DE D'OUTIL SPANISH DIA CERO DEL UTIL ITALIAN DIAMETRO UTENSILE ZERO DUTCH GEREEDSCHAPSDIAMETER IS NUL SWEDISH VERKTYGSDIAMETER NOLL NORWAY INGEN VERKTOYDIAM.	A specified tool had a tool diameter of zero inputted.	P1 TSNO. P2 UNO. P3 WNO.
			Occurrence Machining program
			Status of Stop Block stop
			How to Release Depress CANCEL button.
340	ENGLISH TOOL TRESPASSING IMPOSSIBLE GERMAN UNMOGLICH EINBRE CHEN FRENCH PASSAGE D'OUTIL IMPOSSIBLE SPANISH PASO IMPOSIBLE DEL UTIL ITALIAN PASSAGGIO UTENS. IMPOSSIBILE DUTCH DOORGANG GEREEDSCHAP ONMOGEL SWEDISH VERKTYGSRORELSE OMOJLIG NORWAY UMULIG VERKTOYBANE	Upon finish machining in a line/face machining unit, a tool path is usually so calculated that a tool will both enter and exit on an arc basis. An interference with any shape before or after the tool would result in this alarm. (Interference of this portion)	P1 TSNO. P2 UNO. P3 WNO.
			Occurrence Machining program
			Status of Stop Block stop
			How to Release Depress CANCEL button..
341	ENGLISH CHAMFERING IMPOSSIBLE GERMAN UNMOGLICHES ABSCHRAGEN FRENCH CHANFREINAGE IMPOSSIBLE SPANISH CHAFLAN IMPOSIBLE ITALIAN SMUSSO IMPOSSIBILE DUTCH AFSCHUINING ONMOGELIJK SWEDISH FASNING OMOJLIG NORWAY FASING UMULIG	In chamfering with a chamfering cutter, cutting was impossible due to an interference with the wall or bottom, or the specified chamfering cutter had inappropriate tool data.	P1 TSNO. P2 UNO. P3 WNO.
			Occurrence Tool file, tool data machining program
			Status of Stop Block stop
			How to Release Depress CANCEL button.



No.	Message	Description														
342	1 5 10 15 20 25 29 ENGLISH	<table border="1"> <thead> <tr> <th>No.</th><th>342</th></tr> </thead> <tbody> <tr> <td>P1</td><td></td></tr> <tr> <td>P2</td><td></td></tr> <tr> <td>P3</td><td></td></tr> <tr> <td>Occurrence</td><td></td></tr> <tr> <td>Status of Stop</td><td></td></tr> <tr> <td>How to Release</td><td></td></tr> </tbody> </table>	No.	342	P1		P2		P3		Occurrence		Status of Stop		How to Release	
No.	342															
P1																
P2																
P3																
Occurrence																
Status of Stop																
How to Release																
343	Z DEPTH OF CUT TOO LARGE ENGLISH GERMAN MAX Z SPANTIEFE UBERSCHRITTEN FRENCH PROF.DE COUPE EN Z TROP IMP. SPANISH PROF PASADA Z MUY GRANDES ITALIAN PROF.PASSATA Z TROPPO GRANDE DUTCH TE GROTE SNIJDIEPTE IN Z SWEDISH SKARDJUP Z FOR STORT NORWAY Z KUTTDYBDE FOR STOR	<p>Z depth of cut in the tool development data of a line/face machining unit exceeded the maximum depth of a cut in the tool file. (Cutting beyond the maximum depth of cut is impossible.)</p> <table border="1"> <thead> <tr> <th>No.</th><th>343</th></tr> </thead> <tbody> <tr> <td>P1</td><td>TSNO.</td></tr> <tr> <td>P2</td><td>UNO.</td></tr> <tr> <td>P3</td><td>WNO.</td></tr> <tr> <td>Occurrence</td><td>Machining program</td></tr> <tr> <td>Status of Stop</td><td>Block stop</td></tr> <tr> <td>How to Release</td><td>Depress CANCEL button.</td></tr> </tbody> </table>	No.	343	P1	TSNO.	P2	UNO.	P3	WNO.	Occurrence	Machining program	Status of Stop	Block stop	How to Release	Depress CANCEL button.
No.	343															
P1	TSNO.															
P2	UNO.															
P3	WNO.															
Occurrence	Machining program															
Status of Stop	Block stop															
How to Release	Depress CANCEL button.															
344	STOCK REMOVAL R TOO LARGE ENGLISH GERMAN AUDMASS PAD.ZU GROSS FRENCH SUREP.MAT.TROP IMP.EN R SPANISH CRECES EN R MUY GRANDES ITALIAN SOVRAMET.R TROPPO GRANDE DUTCH TE GROTE MATERIAAL TOESLAG-R SWEDISH MATERIALAVVERKNING R FOR STOR NORWAY ARBEIDSMONN RADIELT FOR STORT	<p>In a line/face machining unit, a removal radius has been larger than the tool diameter. (In the line/face machining unit, only one cycle each of rough and finish machining is performed for radial cutting. Machining with a removal allowance beyond the tool diameter, therefore, is impossible.)</p> <table border="1"> <thead> <tr> <th>No.</th><th>344</th></tr> </thead> <tbody> <tr> <td>P1</td><td></td></tr> <tr> <td>P2</td><td>UNO.</td></tr> <tr> <td>P3</td><td>WNO.</td></tr> <tr> <td>Occurrence</td><td>Machining program</td></tr> <tr> <td>Status of Stop</td><td>Block stop</td></tr> <tr> <td>How to Release</td><td>Depress CANCEL button.</td></tr> </tbody> </table>	No.	344	P1		P2	UNO.	P3	WNO.	Occurrence	Machining program	Status of Stop	Block stop	How to Release	Depress CANCEL button.
No.	344															
P1																
P2	UNO.															
P3	WNO.															
Occurrence	Machining program															
Status of Stop	Block stop															
How to Release	Depress CANCEL button.															



No.	Message	Description	No.	345
			P1	
345	1 5 10 15 20 25 29 ENGLISH STOCK REMOVAL Z TOO SMALL GERMAN AUFMASS Z ZU KLEIN FRENCH SUREP.MAT.TROP PET.EN Z SPANISH CRECES EN Z MUY GRANDES ITALIAN SOVRAMET Z TROPPO PICCOLO DUTCH TE GROTE MATERIAALTOESLAG-Z SWEDISH MATERIALAVVERKNING Z FOR LITE NORWAY ARBEIDSMONN Z FOR LITEN	In a line/face machining unit, the Z removal allowance was smaller than the Z finish allowance.	P2	UNO.
			P3	WNO.
			Occurrence	Machining program
			Status of Stop	Block stop
			How to Release	Depress CANCEL button.
346	ENGLISH STOCK REMOVAL R TOO SMALL GERMAN AUFMASS RAD.ZU KLEIN FRENCH SUREP.MAT.TROP PET.EN R SPANISH CRECES EN R MUY PEQUENAS ITALIAN SOVRAMET.R TROPPO PICCOLO DUTCH TE KLEINE MATERIAALTOESLAG-R SWEDISH MATERIALAVVERKN R FOR LITEN NORWAY ARBEIDSMONN RADIELT FOR LITE	In a line/face machining unit, the removal radius was smaller than the radial finish allowance.	No.	346
			P1	
			P2	UNO.
			P3	WNO.
			Occurrence	Machining program
			Status of Stop	Block stop
			How to Release	Depress CANCEL button.
347	ENGLISH R DEPTH OF CUT TOO LARGE GERMAN RADIAL SPANTIEFE ZU GROSS FRENCH PROF.DE COUPE TR.IMP.EN R SPANISH PROF PASADA R MUY GRANDES ITALIAN PROF.DI PASSATA R TROPPO GRA DUTCH TE GROTE SNIJDIEPTE IN R SWEDISH SKARDJUP R FOR STORT NORWAY RADIELL KUTTDYBDE FOR STOR	In a line/face machining unit, the depth of a radial cut was larger than the tool diameter. (The depth of cut per cycle is limited to the maximum tool diameter.)	No.	347
			P1	TSNO.
			P2	UNO.
			P3	WNO.
			Occurrence	Machining program
			Status of Stop	Block stop
			How to Release	Depress CANCEL button.

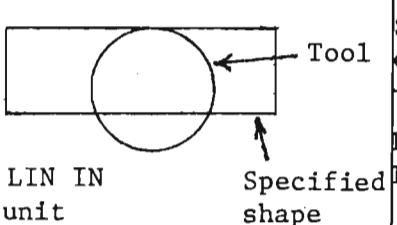


No.	Message	Description		
348 ENGLISH	1 5 10 15 20 25 29	No.	348	
		P1		
		P2		
		P3		
		Occurrence		
		Status of Stop		
		How to Release		
349 ENGLISH		No.	349	
		P1		
		P2		
		P3		
		Occurrence		
		Status of Stop		
		How to Release		
350 ENGLISH		No.	350	
		P1		
		P2		
		P3		
		Occurrence		
		Status of Stop		
		How to Release		
351 ENGLISH		No.	351	
		P1		
		P2		
		P3		
		Occurrence		
		Status of Stop		
		How to Release		



No.	Message	Description		
352	1 5 10 15 20 25 29	No.	352	
ENGLISH		P1		
		P2		
		P3		
		Occurrence		
		Status of Stop		
		How to Release		
353		No.	353	
ENGLISH		P1		
		P2		
		P3		
		Occurrence		
		Status of Stop		
		How to Release		
354		No.	354	
ENGLISH		P1		
		P2		
		P3		
		Occurrence		
		Status of Stop		
		How to Release		



No.	Message	Description	No.							
355	<table border="1" style="float: right; margin-right: 10px;"> <tr><td>1</td><td>5</td><td>10</td><td>15</td><td>20</td><td>25</td><td>29</td></tr> </table> <p>ENGLISH HOLE NUMBER OVER (>500) GERMAN ZU ZIELE LOCHER (500) FRENCH DEPASS. NOMBRE ALESAG. (500) SPANISH EXCESIVO NUMERO AGUJEROS ITALIAN ECESSIVO NUMERO FORI (500) DUTCH AANT. BORING. OVERSCHR. (500) SPANISH FOR STORT ANTAL HAL (500) NORWAY FOR MANGE HULL (500)</p>	1	5	10	15	20	25	29	<p>In a point machining unit, shape data were defined beyond the definable number of points per unit (500 points when inputted). (Defining a grid of 20 vertical and 30 horizontal holes will result in an error.)</p> <p>20 pcs. {  30 pcs.</p> <p>Total of holes: $20 \times 30 = 600$</p>	<p>P1 P2 P3</p> <p>Occurrence</p> <p>Status of Stop</p> <p>How to Release</p> <p>355</p>
1	5	10	15	20	25	29				
356	<p>ENGLISH UNDEFINED CORNER AT SPT/FPT GERMAN FEHLER VON R.FASSEN IN SPR/END FRENCH ERREUR DE R AU POINT DEP/ARRI SPANISH CHF SIN DEFINIR AL PC/PF ITALIAN ANGOLO NON DEFINITO PART/ARR DUTCH ONBESCHR.HOEK AAN SPR/EPT SWEDISH ODEFINIER HORN I STARTP/ANDP NORWAY UDEFINERT HJORNE VED SPT/FPT</p>	<p>In the graphic definition of a line machining center, right or left unit or chambering right or left unit, corner R/C has been specified at the starting or ending point.</p>	<p>P1 P2 P3</p> <p>Occurrence</p> <p>Status of Stop</p> <p>How to Release</p> <p>356</p>							
357	<p>ENGLISH OFFSET ERROR GERMAN FEHLER DER KOMPENSATION FRENCH ERREUR DE COMPENSATION SPANISH ERROR DE CORRECTOR ITALIAN ERRORE DI OFFSET DUTCH COMPENSATIEFOUT SWEDISH KOMPENSERINSFEL NORWAY KOMPENSASJONSFEIL</p>	<p>Since a graphic shape is too fine for a tool diameter, machining has been impossible as programmed. Select a tool with a smaller diameter.</p> <p></p>	<p>P1 P2 P3</p> <p>Occurrence</p> <p>Status of Stop</p> <p>How to Release</p> <p>357</p>							

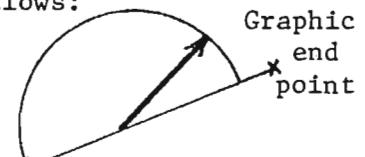
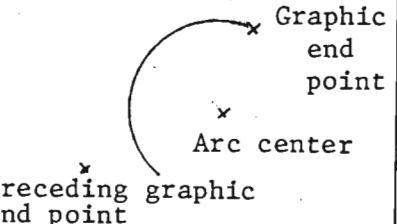


No.	Message	Description	No.	358
358	1 5 10 15 20 25 29	An inappropriate corner R/C has been specified.	P1	FSNO.
ENGLISH	UNDEFINED CORNER		P2	UNO.
GERMAN	FEHLER VON R.FASEN		P3	WNO.
FRENCH	ERREUR DE R AU POINT		Occurrence	Machining program
SPANISH	ESQUINA INDEFINDO		Status of Stop	Block stop
ITALIAN	ANGOLO NON DEFINITO		How to Release	Depress CANCEL button.
DUTCH	ONBESCHREVEN HOEK			
SWEDISH	ODEFINIERAT HORN			
NORWAY	UDEFINERT HJORNE			
359		Point machining shape data were defined inappropriately.	No.	359
ENGLISH	POINT CUTTING PATTERN ERROR		P1	FSNO.
GERMAN	FEHLER FIGUR(PUNKT)		P2	UNO.
FRENCH	ERREUR CONFIG USINGE(POINT)		P3	WNO.
SPANISH	ERROR MODELO PROG.DE PUNTOS		Occurrence	Machining program
ITALIAN	ERRORE LAVOR.FIGURA FORI		Status of Stop	Block stop
DUTCH	FOUT.FIGUURBESCHR.PUNTBEW.		How to Release	Depress CANCEL button.
SWEDISH	PUNKTBEARBETNINGSBILD FEL			
NORWAY	FEIL I HULLMONSTER PUNKT			
360		With the shape pattern set to SQUARE, a shape cannot be defined with an input value. Review all starting point input values, diagonal points and corner R/C.	No.	360
ENGLISH	SQUARE CAN NOT BE DEFINED		P1	FSNO.
GERMAN	FEHLER FIGUR DES VIERECK		P2	UNO.
FRENCH	ERREUR DEFINITION CARRE		P3	WNO.
SPANISH	DEFINI.DEL RECTANGULO IMPOS		Occurrence	Machining program
ITALIAN	QUADRATO NON DEFINIBILE		Status of Stop	Block stop
DUTCH	VIERK.KAN NIET BESCHR.WORD.		How to Release	Depress CANCEL button.
SWEDISH	FYRKANT KAN INTE DEFINIERAS			
NORWAY	FIRKANT IKKE DEFINERBAR			



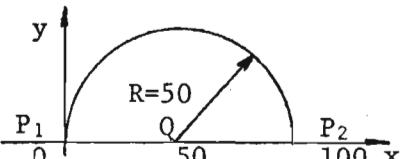
No.	Message	Description	No.	361
361	1 5 10 15 20 25 29	In inputting an arbitrary shape in a line machining unit, "?" was used to define the starting point. (In an undefined shape, "?" cannot be computed automatically. In a closed shape, however, an automatic computation may be possible in some cases. In such a case, as a rule, no error will result.)	No.	361
ENGLISH	NO STARTING POINT		P1	FSNO.
GERMAN	OHNE STARTPUNKT		P2	UNO.
FRENCH	PAS DE POINT DE DEPART		P3	WNO.
SPANISH	FALTA PUNTO DE COMIENZO		Occurrence	Machining program
ITALIAN	MANCA IL PUNTO DI PARTENZA		Status of Stop	Block stop
DUTCH	GEEN STARTPUNT AANDUIDING		How to Release	Depress CANCEL button.
SWEDISH	INGEN STARTPUNKT			
NORWAY	INTET STARTPUNKT			
362		In inputting an arbitrary shape (open graphic) in a line machining unit, "?" was employed to define the end point. ("?" cannot be calculated automatically.)	No.	362
ENGLISH	NO FINAL POINT		P1	FSNO.
GERMAN	OHNE ENDEPUNKT		P2	UNO.
FRENCH	PAS DE POINT D'ARRIVEE		P3	WNO.
SPANISH	FALTA PUNTO FINAL		Occurrence	Machining program
ITALIAN	MANCA IL PUNTO FINALE		Status of Stop	Block stop
DUTCH	GEEN EINDPUNT AANDIDING		How to Release	Depress CANCEL button.
SWEDISH	INGEN ANDPUNKT			
NORWAY	INTET SLUTTPUNKT			
363		In a line/face machining unit, insufficient arbitrary shape data were inputted and some crossings coordinates were incalculable.	No.	363
ENGLISH	INSUFFICIENT INPUT DATA		P1	FSNO.
GERMAN	FEHLENDE EINGABE ADTEN		P2	UNO.
FRENCH	MANQUE D'INFORMATION		P3	WNO.
SPANISH	FALTA DE DATOS		Occurrence	Machining program
ITALIAN	DATI INGRESSO INSUFFICIENTE		Status of Stop	Block stop
DUTCH	ONVOLDOENDE GEGEVENS		How to Release	Depress CANCEL button.
SWEDISH	OTILLRACKLIGA INGANSDATA			
NORWAY	MANGLENDE INPUT DATA			



No.	Message	Description	No.
364	1 5 10 15 20 25 29 INPUT DATA EXCEEDED	In a line/face machining unit, excessive arbitrary shape data were inputted so that a contradiction occurred with redundant data.	364 P1 FSNO. P2 UNO. P3 WNO.
GERMAN	ZU VIELE EINGABE DATEN		Occurrence Machining program
FRENCH	TROP D'INFORMATION		Status of Stop Block stop
SPANISH	EXCESO DE DATOS		How to Release Depress CANCEL button.
ITALIAN	DATI INGRESSO ECCESSIVI		
DUTCH	OVERDREVEN GEGEVENS		
SWEDISH	INGANSDATA OVERSKRIDNA		
NORWAY	FOR MANGE INPUT DATA		
365	ILLEGAL RADIUS FEHLER VON KREISRADIUS RAYON TROP PETIT RADIO INCORRECTO RAGGIO ILLEGALE FOUTIEVE RADIUS OTILLATEN RADIE UKORREKT RADIUS	In a line/face machining unit, arbitrary shape arc definition data (starting point coordinates, end point coordinates and radius) did not agree as follows:  Distance between two points is larger than twice the radius (diameter). Preceding graphic end point is larger than twice the radius (diameter).	365 P1 FSNO. P2 UNO. P3 WNO.
GERMAN		Occurrence Machining program	
FRENCH		Status of Stop Block stop	
SPANISH		How to Release Depress CANCEL button.	
ITALIAN			
DUTCH			
SWEDISH			
NORWAY			
366	NO DESIGNATED POINT ON CIRCLE OHNE PUNKT AM KREIS POINT D'ARRIVEE OU RAYON FAUX NO HAY PUNTO EN EL CIRCULO MANCA PUNTO SUL CERCHIO PUNT AAND.ONTBR.OP CIRKEL INGEN PROGR PUNKT PA CIRKELN INTET PUNKT PAA SIRKEL	In a line/face machining unit, the preceding graphic did not include an end point on the circumference determined by the arbitrary shape arc definition data. 	366 P1 FSNO. P2 UNO. P3 WNO.
GERMAN		Occurrence Machining program	
FRENCH		Status of Stop Block stop	
SPANISH		How to Release Depress CANCEL button.	
ITALIAN			
DUTCH			
SWEDISH			
NORWAY			

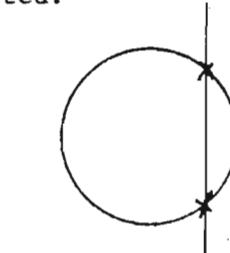
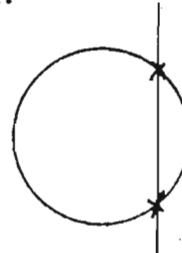
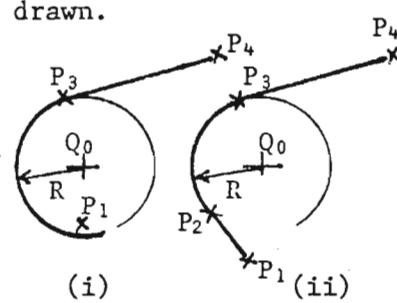


No.	Message	Description	No.
367	1 5 10 15 20 25 29 ENGLISH MISSING CENTER (NO DATA) GERMAN UNMOGLICHE SUCHE VON KREISZEN FRENCH IMPOSSIBLE DE CHERCHER CENTRE SPANISH FALTAN DATOS DEF CENTRO CIR. ITALIAN MANCANO I DATI DEL CENTRO DUTCH CENTER ONTBREEKT (GEEN GEG) SWEDISH CENTRUM SAKNAS (INGA DATA) NORWAY INTET SENTER (INGEN DATA)	In a line/face machining unit, arbitrary shape arc definition data were insufficient or contained too many "?" to compute an arc graphic.	P1 FSNO. P2 UNO. P3 WNO. Occurrence Machining program Status of Stop Block stop How to Release Depress CANCEL button.
368	RADIUS ZERO ENGLISH RADIUS ZERO GERMAN DREISRADIUS IST NULL FRENCH RAYON DESIRE EST ZERO SPANISH VALOR RADIO CERO ITALIAN RAGGIO NULLO DUTCH RADIUS IS NUL SWEDISH RADIE NOLL NORWAY RADIUS NULL	In a line/face machining unit, an arbitrary shape arc was set to a radius of 0.	P1 FSNO. P2 UNO. P3 WNO. Occurrence Machining program Status of Stop Block stop How to Release Depress CANCEL button.
369	DIFFERENT CENTER INPUT ENGLISH DIFFERENT CENTER INPUT GERMAN VERSCHIEDENE KREISZENTRUM FRENCH POINT DE CENTRE DU RAYON FAUX SPANISH FALTA CENTRO (EN PUNTO DEFIN) ITALIAN INGRESSO ERRATO DEL CENTRO DUTCH VERKEERDE CENTERPUNT INGAVE SWEDISH AVVILANDE INLASNINSCENTRUM NORWAY AVVIKENDE SENTER INPUT	In a line/face machining unit, too much arbitrary shape arc definition data were inputted resulting in a disagreement among data. [Example] In the illustration below, $P_1(0,0)$, $P_2(100,0)$ and $Q(50,0)$ are defined. Besides, a numerical value other than 50 was inputted as R .	P1 FSNO. P2 UNO. P3 WNO. Occurrence Machining program Status of Stop Block stop How to Release Depress CANCEL button.





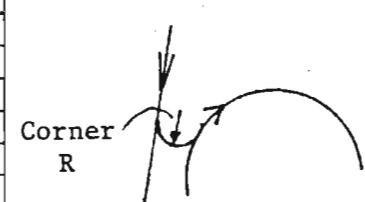
No.	Message	Description	No.
370	1 5 10 15 20 25 29		P1 FSNO. P2 UNO. P3 WNO.
ENGLISH	POINT INSIDE CIRCLE	With coordinates of P_2 and P_3 taken for (?,?)	Occurrence Machining program
GERMAN	ES GIEBT PUNKT IN DEM KREIS	(i), the tangential line passing P_1 cannot be drawn.	Status of Stop Block stop
FRENCH	UN AUTRE POINT DANS LE CERCLE		How to Release Depress CANCEL button.
SPANISH	OTRO PUNTO DENTRO DE CIRCULO		
ITALIAN	UN ALTRO PUNTO NEL CERCHIO		
DUTCH	ANDER PUNT IN CIRKEL		
SWEDISH	PUNKT INNANFOR CIRKELN		
NORWAY	PUNKT INNE I SIRKEL		
371	ILLEGAL <P>	In the illustration below, for example, UP or DOWN should be inputted as P data. Nevertheless, RIGHT or LEFT was inputted.	No. 371 P1 FSNO. P2 UNO. P3 WNO.
ENGLISH			Occurrence Machining program
GERMAN	P UNPASSEND		Status of Stop Block stop
FRENCH	P INADECAT		How to Release Depress CANCEL button.
SPANISH	INCORRECTO P		
ITALIAN	ILLEGALE P		
DUTCH	FOUTIEVE P		
SWEDISH	OTILLATEN P		
NORWAY	UGYLDIG P		
372	DATUM <P> NECESSARY	The crossover point with the arc cannot be determined without P data (right or left or up or down).	No. 372 P1 FSNO. P2 UNO. P3 WNO.
ENGLISH	BENOTIGE P EINGABE		Occurrence Machining program
GERMAN	NECESSITE D'INTRODUIR P		Status of Stop Block stop
FRENCH	NECESITO DATOS P		How to Release Depress CANCEL button.
SPANISH	DATO P NECESSARIO		
ITALIAN	DATA P IS NODIG		
DUTCH	REFERENS P ERFODRAS		
SWEDISH	DATUM P NODVENDLG		
NORWAY			





No.	Message	Description	No.
373	1 5 10 15 20 25 29	Both starting and end points were given as identical coordinates.	P1 FSNO. P2 UNO. P3 WNO.
ENGLISH	TWO POINTS OVERLAPPED		Occurrence Machining program
GERMAN	ZWEI PUNKTE IN GLEICHER POS.		Status of Stop Block stop
FRENCH	POINT D'ARIVEE MEME POINT DEP		How to Release Depress CANCEL button.
SPANISH	2 PUNTOS EN EL MISMO SITIO		
ITALIAN	DUE PUNTI SOVRAPPORSTI		
DUTCH	TWEE SAMENVALLENDE PUNTNEN		
SWEDISH	2 PUNKTER OVERKLAPP VARANDRA		
NORWAY	TO SAMMENFALLENDE PUNKTER		
374		Two straight lines are parallel so that their crossing point cannot be obtained.	No. 374 P1 FSNO. P2 UNO. P3 WNO.
ENGLISH	PARALLEL LINES		Occurrence Machining program
GERMAN	LINIE PARALLEL		Status of Stop Block stop
FRENCH	LIGNES PARALLELES		How to Release Depress CANCEL button.
SPANISH	LINEAS PARALELAS		
ITALIAN	LINEE PARALLELE		
DUTCH	PARALLELE LIJNEN		
SWEDISH	PARALLELLA LINJER		
NORWAY	PARALLELE LINJER		
375		In a line/face machining unit, arbitrary shape data were insufficient or a contradiction existed among data so that no crossover point could be obtained graphically.	No. 375 P1 FSNO. P2 UNO. P3 WNO.
ENGLISH	NO INTERSECTION		Occurrence Machining program
GERMAN	OHNE SCHNITTPUNKT		Status of Stop Block stop
FRENCH	PAS DE POINT CROISE		How to Release Depress CANCEL button.
SPANISH	NO HAY PUNTO DE INTERSECCION		
ITALIAN	NESSUNA INTERSEZIONE		
DUTCH	GEEN SNIJPUNT		
SWEDISH	INGEN SKARNINGSPOUNKT		
NORWAY	INGEN KRYSNING		



No.	Message	Description	No.														
376	1 5 10 15 20 25 29 ENGLISH SMOOTHING FIGURE IMPOSSIBLE GERMAN KEINE GLATTE FIGUR FRENCH PAS DE CONFIGURATION LISSE SPANISH CONFIGURA UNIFORME IMPOSIBLE ITALIAN CONFIGURAZ. UNIFORME IMPOSS DUTCH EFFEN OVERGANG ONMOGELIJK SWEDISH MJUK OVERGANG OMOJLIG NORWAY KONTURGLATTING UMULIG	<p>Due to a contradiction in the corner radius or graphic definition before and after, a shape cannot be machined smoothly at the corner radius. In the illustration given at below, the corner radius is extremely small or large.</p>  <p>Corner R</p>	<table border="1"> <tr> <td>No.</td> <td>376</td> </tr> <tr> <td>P1</td> <td>FSNO.</td> </tr> <tr> <td>P2</td> <td>UNO.</td> </tr> <tr> <td>P3</td> <td>WNO.</td> </tr> <tr> <td>Occurrence</td> <td>Machining program</td> </tr> <tr> <td>Status of Stop</td> <td>Block stop</td> </tr> <tr> <td>How to Release</td> <td>Depress CANCEL button.</td> </tr> </table>	No.	376	P1	FSNO.	P2	UNO.	P3	WNO.	Occurrence	Machining program	Status of Stop	Block stop	How to Release	Depress CANCEL button.
No.	376																
P1	FSNO.																
P2	UNO.																
P3	WNO.																
Occurrence	Machining program																
Status of Stop	Block stop																
How to Release	Depress CANCEL button.																
377	REPEAT FIGURE INAPPROPRIATE WIEDERHOLKONTUR NICHT MOGLICH REPETITION FIGURE IMPOSSIBLE IMPOSSIBLE REPETIR FIGURA RIPETIZIONE FIGURA IMPOSSIB. FIGUURHERHALING ONMOGELIJK UPPREPAD FIGUT OTILLATEN GJENTAGELSE AV KONTUR UMULIG	<p>In defining an arbitrary shape of the line/face machining unit, a contradiction occurred in the graphic rotation/shift data.</p>	<table border="1"> <tr> <td>No.</td> <td>377</td> </tr> <tr> <td>P1</td> <td>FSNO.</td> </tr> <tr> <td>P2</td> <td>UNO.</td> </tr> <tr> <td>P3</td> <td>WNO.</td> </tr> <tr> <td>Occurrence</td> <td>Machining program</td> </tr> <tr> <td>Status of Stop</td> <td>Block stop</td> </tr> <tr> <td>How to Release</td> <td>Depress CANCEL button.</td> </tr> </table>	No.	377	P1	FSNO.	P2	UNO.	P3	WNO.	Occurrence	Machining program	Status of Stop	Block stop	How to Release	Depress CANCEL button.
No.	377																
P1	FSNO.																
P2	UNO.																
P3	WNO.																
Occurrence	Machining program																
Status of Stop	Block stop																
How to Release	Depress CANCEL button.																
378	DATA ERROR IN MAN. PROG. UNIT KONV EING FORMAT FEHLER ERREUT DU PROGRAMME CONVENTON ERROR DE PROGRAM.CONVENC. MANCANZA PROGRAM.MANUALE ONTBREK.MANUELE PROGRAM. PROG.MANUEL ET ENHET OTILLATEN DATAFEIL I MAN.PROG.ENHET	<p>Data have been insufficiently inputted in a program with manual program mode unit.</p>	<table border="1"> <tr> <td>No.</td> <td>378</td> </tr> <tr> <td>P1</td> <td>FSNO.</td> </tr> <tr> <td>P2</td> <td>UNO.</td> </tr> <tr> <td>P3</td> <td>WNO.</td> </tr> <tr> <td>Occurrence</td> <td>Machining program</td> </tr> <tr> <td>Status of Stop</td> <td>Block stop</td> </tr> <tr> <td>How to Release</td> <td>Depress CANCEL button.</td> </tr> </table>	No.	378	P1	FSNO.	P2	UNO.	P3	WNO.	Occurrence	Machining program	Status of Stop	Block stop	How to Release	Depress CANCEL button.
No.	378																
P1	FSNO.																
P2	UNO.																
P3	WNO.																
Occurrence	Machining program																
Status of Stop	Block stop																
How to Release	Depress CANCEL button.																



No.	Message	Description	No.
379	1 5 10 15 20 25 29	On the offset plane in the G41 and G42 modes, the same coordinate value as that for the preceding point was specified.	379
ENGLISH	DISIGN. IDENTIC POS.(G41,G42)	P1 FSNO.	
GERMAN	ERREICHT POS NOCHMAL(G41,G42)	P2 UNO.	
FRENCH	PAS DE POINT D'ARIVE(G41,G42)	P3 WNO.	
SPANISH	DESIGN.IDENTICO POS.(G41,G42)	Occurrence Machining program	
ITALIAN	DESIGN.IDENTIC POS.(G41,G42)	Status of Stop Block stop	
DUTCH	ZELFDE POSIT.-AAND.(G41,G42)	How to Release Depress CANCEL button.	
SWEDISH	PROGR IDENT LAGEN (G41,G42)		
NORWAY	IDENTISK ANGITT POS.(G41,G42)		
380		Manual program unit format error	380
ENGLISH	MANUAL PROG. UNIT FORMAT ERR.	P1 FSNO.	
GERMAN	KONV EINH FORMAT FEHLER	P2 UNO.	
FRENCH	ERR.DÉ FORMAT DE PROG.CONV.	P3 WNO.	
SPANISH	ERROR FORMA PROGRAM.CONVENC.	Occurrence Machining program	
ITALIAN	ERRORE DI FORMATO FASE SING	Status of Stop Block stop	
DUTCH	FOUT FORM.MAN.PROGR-EENH	How to Release Depress CANCEL button.	
SWEDISH	FORMATFEL PROG.MANUELT ENHET		
NORWAY	FORMATFEIL I ENHETSNR.		
381		In a pocket, peak or valley shape unit, no second graphic (inside graphic) was defined.	381
ENGLISH	MOUNT(VALLEY) SHAPE ERROR	P1 FSNO.	
GERMAN	QHNE I NNERE KONTUR	P2 UNO.	
FRENCH	ERR.DÉ FORME ELEV.(RENFONC.)	P3 WNO.	
SPANISH	ERROR FORMA MONTE(VALLE)	Occurrence Machining program	
ITALIAN	ERRORE CONTORNO MONTE(VALLE)	Status of Stop Block stop	
DUTCH	FOUTIEVE FIG-VERHOG/VERZ.	How to Release Depress CANCEL button.	
SWEDISH	FORMGEL KLACK(FICKA)		
NORWAY	FEIL VED KONTUR		



No.	Message	Description	No.	382
382	1 5 10 15 20 25 29 ENGLISH DEFINED SHAPE TOO SMALL GERMAN KONTUR IST ZU KLEIN FRENCH FORME TROP PETITE SPANISH FORMA MUY PEQUENAS ITALIAN CONTORNO TROPPO PICCOLO DUTCH BESCHR. FIGUUR IS TE KLEIN SWEDISH DEFINIERAD FORM FOR LITEN NORWAY DEFINERT KONTUR FOR LITEN	In a pocket, peak or valley shape unit, the graphic was too small for the tool diameter.	No.	382
			P1	FSNO.
			P2	UNO.
			P3	WNO.
		Occurrence	Machining program	
		Status of Stop	Block stop	
		How to Release	Depress CANCEL button.	
383	(VALLEY) SHAPE TOO SMALL (VERT.) KONTUR IST ZU KLEIN (RENFONC.) FORME TROP PETITE (VALLE) FORMA MUY PEQUENAS ITALIAN CONTORNO TROPPO PICC. (VALLE) DUTCH VERZ. FIGUUR IS TE KLEIN SWEDISH FOR LITEN FORM (FICKA) NORWAY DYBDE KONTUR FOR LITEN	In a pocket or valley shape unit, the valley graphic was too small for the tool to enter into the valley. Change the tool or program the pocket machining unit.	No.	383
			P1	FSNO.
			P2	UNO.
			P3	WNO.
		Occurrence	Machining program	
		Status of Stop	Block stop	
		How to Release	Depress CANCEL button.	
384	TOOL CAN'T PASS W.K.Z. KANN NICHT HINEIN PASSAGE D'OUTIL IMPOSSIBLE PASO IMPOSIBLE DIL UTIL PASSAGGIO UTENS. IMPOSSIBILE GEREEDSCHAP KAN NIET DOOR VERKTYGET KAN INTE PASSERA IKKE PLASS FOR VERKTOYET	No tool can enter the graphic in a pocket, peak or valley unit.	No.	384
			P1	FSNO.
			P2	UNO.
			P3	WNO.
		Occurrence	Machining program	
		Status of Stop	Block stop	
		How to Release	Depress CANCEL button.	



No.	Message	Description		
385	1 5 10 15 20 25 29	No.	385	
ENGLISH		P1		
		P2		
		P3		
		Occurrence		
		Status of Stop		
		How to Release		
386		No.	386	
ENGLISH		P1		
		P2		
		P3		
		Occurrence		
		Status of Stop		
		How to Release		
387		No.	387	
ENGLISH		P1		
		P2		
		P3		
		Occurrence		
		Status of Stop		
		How to Release		
388		No.	388	
ENGLISH		P1		
		P2		
		P3		
		Occurrence		
		Status of Stop		
		How to Release		



No.	Message	Description
389	1 5 10 15 20 25 29	No. [REDACTED] 389 P1 P2 P3 Occurrence Status of Stop How to Release
390	ENGLISH	No. [REDACTED] 390 P1 P2 P3 Occurrence Status of Stop How to Release
391	ENGLISH	No. [REDACTED] 391 P1 P2 P3 Occurrence Status of Stop How to Release
392	ENGLISH	No. [REDACTED] 392 P1 P2 P3 Occurrence Status of Stop How to Release



No.	Message	Description		
393	1 5 10 15 20 25 29	No.	393	
ENGLISH		P1		
		P2		
		P3		
		Occurrence		
		Status of Stop		
		How to Release		
394		No.	394	
ENGLISH		P1		
		P2		
		P3		
		Occurrence		
		Status of Stop		
		How to Release		
395		No.	395	
ENGLISH		P1		
		P2		
		P3		
		Occurrence		
		Status of Stop		
		How to Release		
396		No.	396	
ENGLISH		P1		
		P2		
		P3		
		Occurrence		
		Status of Stop		
		How to Release		



No.	Message	Description	No.
397	1 5 10 15 20 25 29		397
ENGLISH			P1
			P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	
398		In a line/face machining unit, shape definition points exceeded 200.	398
ENGLISH	POINT NUMBER EXCEEDED (>200)		P1
GERMAN	ZU VIELE KONTURDATEN(200)		P2
FRENCH	DEPAS.NOMB.POINTS(200)		P3
SPANISH	EXCESIVO NUMERO PUNTOS(200)		Occurrence
ITALIAN	ECESSIVO NOM.PUNTI(200)		Status of Stop
DUTCH	TE VEEL PUNTEN(200)		
SWEDISH	ANTAL PUNKTEROVERSKR(200)		
NORWAY	FOR MANGE PUNKTER (200)		
399			399
ENGLISH	MISSING INPUT DATA		P1
GERMAN	UNVOLLENDET		P2
FRENCH	MANQUE D'INFORMATION		P3
SPANISH	FALTA DE DATOS		Occurrence
ITALIAN	MANCANZA DATI INGRESSO		Status of Stop
DUTCH	OUTBREKENDE INGAVE-DATA		
SWEDISH	INGANGSDATA SAKNAS		
NORWAY	MANGLENDE INPUT DATA		



No.	Message	Description
400	1 5 10 15 20 25 29	<p>An inputted format differed from that specified.</p> <p>No. 400 P1 P2 P3 Occurrence Status of Stop How to Release</p>
ENGLISH		
401	ILLEGAL FORMAT	<p>No. 401 P1 P2 P3 Occurrence Key input Status of Stop Operation continued How to Release Depress CANCEL button.</p>
GERMAN	FALSCHE FORM DER EINGABE	
FRENCH	FORMAT NON AUTORISE	
SPANISH	FORMATO PROHIBIDO	
ITALIAN	FORMATO ILLEGALE	
DUTCH	ONGEOORLOOFD FORMAAT	
SWEDISH	OTILLATET FORMAT	
NORWAY	UGYLDIG FORMAT	
402	ILLEGAL NUMBER INPUT	<p>No. 402 P1 P2 P3 Occurrence Key input Status of Stop Operation continued How to Release Depress CANCEL button.</p>
GERMAN	FALSCHE ANZAHL ZAHLEN	
FRENCH	NOMBRE NON AUTORISE	
SPANISH	NUMERO PROHIBIDO	
ITALIAN	NUMERO ILLEGALE	
DUTCH	ON GEOORLOOFD AANTAL-INGAVE	
SWEDISH	INLASN AV OTILLATET DIFFERV	
NORWAY	GYLDIG TALL INPUT	



No.	Message	Description	No.
403	1 5 10 15 20 25 29	A limit of 250 lines per program exceeded.	P1 P2 P3
ENGLISH	PROGRAM TOO LARGE	Occurrence	Key input
GERMAN	ZU LANGES PROGRAMM	Status of Stop	Operation continued
FRENCH	PROGRAMME TROP LONG	How to Release	Depress CANCEL button.
SPANISH	PROGRAMA DEMASIADO LARGO		
ITALIAN	PROGRAMMA TROPPO LUNGO		
DUTCH	OVERSCHR. PROGR. -CAPACITEIT		
SWEDISH	FOR STORT PROGRAM		
NORWAY	PROGRAM FOR STORT		
404		A program storage limit (totaled at 580 lines) was exceeded.	P1 P2 P3
ENGLISH	MEMORY CAPACITY EXCEEDED	Occurrence	Key input
GERMAN	PROGRAM SPEICHER VOLL	Status of Stop	Operation continued
FRENCH	DEPASSEMENT CAPACITE MEMOIRE	How to Release	Depress CANCEL button.
SPANISH	NO HAY ESPACIO DE MEMORIA		
ITALIAN	MEMORIA PIENA		
DUTCH	OVERSCHR. GEHEUG. -CAPACITEIT		
SWEDISH	MINNESKAPACITETEN OVERSKRIDEN		
NORWAY	PROGRAMLAGER FULLT		
405		During the automatic operation, an uneditable program search and preparation was attempted. The program that can be edited during automatic operation must satisfy the following requirements:	P1 P2 P3
ENGLISH	ILLEGAL EDIT CONDITION	The program that can be edited during automatic operation must satisfy the following requirements:	Occurrence
GERMAN	FALSCHE EDIT POSITION		Key input
FRENCH	CONDITION DEDITION NON AUTOR		Status of Stop
SPANISH	NO SE PUEDE REDACTAR POR AHOR		
ITALIAN	CONDIZIONE DI EDIT ILLEGALE		
DUTCH	ON GEROOPLOOGDE UITGAVE		
SWEDISH	OTILLATET FORH FOR REDIGERING		
NORWAY	UGYLDIG REDIGERING		
		(1) It is not the main program being executed. (2) It has a work number of less than 9000. (3) The program has been registered finally.	How to Release
		④ Reprogram	



No.	Message	Description	No.	406
406	1 5 10 15 20 25 29	With the re-programming switch (PROGRAM) positioned at LOCK, a program preparation was attempted.	P1	
ENGLISH	MEMORY PROTECT		P2	
GERMAN	EINGABE GESPEPPT		P3	
FRENCH	PROTECTION MEMOIRE		Occurrence	Key input
SPANISH	MEMORIA PROTEGIDA		Status of Stop	Operation continued
ITALIAN	MEMORIA PROTETTA		How to Release	Depress CANCEL button.
DUTCH	GEHEUGEN BESCHERMING			
SWEDISH	MINNESSKYDD			
NORWAY	STYRINGEN LAAST			
407		When a work number of WPC is searched, no related data was found.	No.	407
ENGLISH	DESIGNATED DATA NOT FOUND		P1	
GERMAN	OHNE VORHANDEN.		P2	
FRENCH	PAS D'INFORMATION DESIGNEE.		P3	
SPANISH	NO ENCONTRADO		Occurrence	Key input
ITALIAN	DATO CERCATO NON TROVATO		Status of Stop	Operation continued
DUTCH	GEVRAAGDE DATA NIET GEVONDEN		How to Release	Depress CANCEL button.
SWEDISH	ANGIVNA DATA HITTAS INTE			
NORWAY	ANGITTE DATA EKSISTERER IKKE			
408		The information stored in the program storage area was destroyed.	No.	408
ENGLISH	PROGRAM ERROR		P1	
GERMAN	PROGRAMM FEHLER		P2	
FRENCH	ERREUR DE PROGRAMMATION		P3	
SPANISH	ERROR DE PROGRAMA		Occurrence	
ITALIAN	ERRORE DI PROGRAMMA		Status of Stop	Operation continued
DUTCH	PROGRAMMA-FOUT		How to Release	Depress CANCEL button.
SWEDISH	PROGRAMFEL			
NORWAY	PROGRAM FEIL			



No.	Message	Description	No.
409	1 5 10 15 20 25 29	With the cursor positioned at the unit data while preparing a program, a one-line-insertion was performed. The data that can be inserted are limited to tool sequence and shape sequence data.	P1 P2 P3 Occurrence Key input Status of Stop Operation continued How to Release Depress CANCEL button.
410	1 5 10 15 20 25 29	Erasure of data with UNO-0 (common unit) was attempted.	P1 P2 P3 Occurrence Machining program Status of Stop Operation continued How to Release Depress CANCEL button.
411	1 5 10 15 20 25 29	Movement of a unit before UNO-0 (common unit) or of the UNO-0 was attempted. With the cursor positioned at other than the unit data, the unit was operated.	P1 P2 P3 Occurrence Program unit moved Status of Stop Operation continued How to Release Depress CANCEL button.



No.	Message	Description	No.
412	1 5 10 15 20 25 29	Subprograms were over-nested (upon WPC search). Nesting subprograms is limited to 2.	412
ENGLISH	WPC NESTING OVER	P1	
GERMAN	ZU VIELE AGP WIEDERHOLUNGEN	P2	
FRENCH	TROP DE DREPETITON CDP	P3	
SPANISH	DEMASIADAS REPETIC.DE CDP	Occurrence	
ITALIAN	TROPPE RIPETIZ.ZERO PEZZO		
DUTCH	WSK-STAPELGEHEUG.OVERLADEN	Status of Stop	Operation continued
SWEDISH	UPPROP FOR MANGA NIVAER		
NORWAY	PROGRAM OVERFORGRENING	How to Release	Depress CANCEL button.
413		An attempt was made to register the 17th program beyond the maximum number of registerable programs.	413
ENGLISH	PROGRAM OVER	P1	
GERMAN	ZU VIELE PROGRAMM NR.	P2	
FRENCH	TROP DE NOMBRE DE PROGRAMMES	P3	
SPANISH	EXCESIVO NO.DE PROGRAMAS	Occurrence	Key input
ITALIAN	TROONI NUMERI DI PROGRAMMA		
DUTCH	AAN TAL PROGRAMMAS OVERSCHRED	Status of Stop	Operation continued
SWEDISH	FOR MANGA PROGRAM		
NORWAY	PROGRAM FULLT	How to Release	Depress CANCEL button.
414		Neither peripheral speed nor feedrate can be automatically calculated. Recheck parameter cutting No. 1 thru 3.	414
ENGLISH	AUTO CALCULATION IMPOSSIBLE	P1	
GERMAN	AUTO NICHT BERECHNUNG	P2	
FRENCH	AUTO OPERATION IMPOSSIBLE	P3	
SPANISH	CALCULO AUTOMATICO IMPOSIBLE	Occurrence	Key input
ITALIAN	CALCOLO AUTOMATICO IMPOSSIB		
DUTCH	AUTOMAT.BEREKENING ONMOGEL	Status of Stop	Operation continued
SWEDISH	AUTOMATISK BERAKNING OMOJLIG		
NORWAY	UMULIG AUTO BEREGNING	How to Release	Depress CANCEL button.



No.	Message	Description	No.
415	1 5 10 15 20 25 29 ENGLISH MIS-SET G CODE GERMAN FEHLER DER G CODE EINGABE FRENCH ERREUR D'INTRODUCTON CODE G SPANISH ERROR EN IN TRODUC CODIGO G ITALIAN ERRORE CODICE G DUTCH VERKEERD GEPLAATSTE G-CODE SWEDISH FEL G-KOD NORWAY FEILINNGITT G-KODE	Undefined G codes were commanded. [G codes available] G00, G01, G02, G03, G04, G17, G18, G19, G28, G30, G40, G41, G42, G90, G91, G94, G95	P1 P2 P3 Occurrence Machining program Status of Stop Operation continued How to Release Depress CANCEL button.
416	AUTO PROCESS DIA EXCEEDED ZU GROSSER F.AUTO-PROZESS FRET TR.GRAND EN MODE AUT BROCA MUY GRANDE MODA AUTO DIA.ECESSIVO PROC.AUTOM. TE GROTE VOOR AUTOM.BEWERK. AUTOHANTERING DIAM OVERSKRID FOR STOR AUTO PROSESS DIA	The point machining unit data had a discrepancy, so that an automatic tool development was impossible.	P1 P2 P3 Occurrence Key input, machining program Status of Stop Operation continued How to Release Depress CANCEL button.
417	BACK BORING DIA TOO LARGE ZU GROSSER RUCKSENKEN LAMAGE ARR.TROP GRAND LAMADO TRASERO MUY GRANDE DIA ALES.ROV.TROPPO GRANDE ACHTERW.DOTTER- TE GROOTDE FOR STOR DIAM FRANVANO HAL BEA FOR STOR DIA BAKBORING	Point machining and back boring unit data have contradictions so that tools cannot develop automatically.	P1 P2 P3 Occurrence Key input, machining program Status of Stop Operation continued How to Release Depress CANCEL button.



No.	Message	Description	No.
418	1 5 10 15 20 25 29 ENGLISH ILLEGAL TAP DIA OR PITCH GERMAN GEWINDE -STG. ZU GROSS FRENCH DEPACEM.CAP.TARAUDAGE SPANISH O PASO DE MACHO EXCESIVO ITALIAN DIA MASCH.O PASSO ILLEGALE DUTCH ONGEOORLOGDE TAPO OF-SPOED SWEDISH OTILLATEN GANGDIAM EL STIGN NORWAY UGYLDIG TAPPDIA ELR STIGN.	The point machining/tap unit data have a contradiction such as in tap name so that tools cannot develop automatically.	P1
			P2
			P3
			Occurrence
			Key input, machining program
			Status of Stop
			Operation continued
			How to Release
			Depress CANCEL button.
419	AUTO TAP PROCESS IMPOSSIBLE ENGLISH AUTO GEWINDE EINH.NI.EINGABE GERMAN AUTO UNITE RARADAGE IMPOSSIB FRENCH AUTO UNITE RARADAGE IMPOSSIB SPANISH PROC ROSCADO AUTO IMPOSSIBLE ITALIAN PROC.MASCH.AUTO IMPOSSIBILE DUTCH ONMOGEL.AUTOM.TAPBEWERKING SWEDISH AUT BESTAMN FOR GANGN OMOJLIG NORWAY AUTO GJENGEPROSESS UMULIG	The point machining/tap unit tap name data has a contradiction so that tap requirements (pitch, chamfering stroke, etc.) cannot be determined automatically.	No.
			P1
			P2
			P3
			Occurrence
			Key input, machining program
			Status of Stop
			Operation continued
			How to Release
			Depress CANCEL button.
420	DISIGNATION OVERLAP ENGLISH PROGRAMM UBERSCHNEIDUNG GERMAN DESIG.PROGR.REDOUBLEES FRENCH INFO DUPLICADA EN EL PROGRAMA SPANISH SOVRAPP.DESIGNAZ.PROGRAMMA ITALIAN OVERLAPPENDE GEGEVENS DUTCH DUBBELBESTAMNING SWEDISH OVERLAPP PROHRAMDATA NORWAY	On the tool layout display, an attempt was made to assign a pocket number which had already been assigned to a tool. Or on the program file control display, during renumbering, an attempt was made to specify an already registered work number.	No.
			P1
			P2
			P3
			Occurrence
			Program file control, tool layout key input
			Status of Stop
			Operation continued
			How to Release
			Depress CANCEL button.



No.	Message	Description	No.	
421	1 5 10 15 20 25 29 ENGLISH SPARE TOOL GROUP NO. ERROR GERMAN ERSATZWRKZGGRUPPE OHNE NUMMER FRENCH ERR.NO.DU GROUPE OUT.RECH. SPANISH ERROR NO.DE GRUPO UTIL REPUE ITALIAN ERRORE NO.GRUPPO UT.SING. DUTCH FOUT.VERV.GER.GROEPSNUMMER SWEDISH FEL GRUPPNR.RESERVVERKTYG NORWAY RESERVEVKT.GRUPPE UTEK NUMMER	On the tool layout picture, another group number was inputted as a preliminary tool group number.	P1	
			P2	
			P3	
	Occurrence		Key input, tool layout	
			Status of Stop	
			Operation continued	
	How to Release		Depress CANCEL button	
422	ENGLISH SUBPROGRAM RECALL LIMIT GERMAN UNTERPROGRAMM ZU OFT FRENCH DEPAS.NOMB.APPELS PR.AUXI SPANISH LIMITE DE REPETIC.DE SUBPROG. ITALIAN LIMITE CHIAMATE SOTTOPROGR. DUTCH OVERSCHR.AANT.SUB-PROGR OPR SWEDISH GRANS UPPROP UNDERPROGRAM NORWAY SUBPROGRAM OPPKALL GRENSE	Subprograms were over-nested (during tool layout). The maximum allowable subprogram nesting cycles is 2.	No.	
	P1		422	
			P2	
			P3	
	Occurrence		Work number search operation, tool layout	
			Status of Stop	
			Operation continued	
	How to Release		Depress CANCEL button.	
423	ENGLISH EXCEEDED MAX NUMBER OF TOOLS GERMAN MAX.ANZahl WERKZ UBERSCHRI FRENCH DEPASS.NBRE D'OUTILS MAXIM. SPANISH LIMITE DE NO.DE UTILES ITALIAN AN.UTENSILI ECCESSIVO DUTCH OVERSCHR.AANTAL GEREEDSCH. SWEDISH MAX.ANTAL VERKTYG OVERSKRIDET NORWAY FOR MANGE VERKTOY	On the tool layout display, the number of tools employed in a specified program exceeded the maximum number of tools storable in a drum (to be set as parameter machine multiplier No. 1 TLN) when a used number is searched.	No.	
	P1		423	
			P2	
			P3	
	Occurrence		Work number search operation, tool layout	
			Status of Stop	
			Operation continued	
	How to Release		Depress CANCEL button.	



No.	Message	Description
424	1 5 10 15 20 25 29 ENGLISH ALL POCKET NO.'S NOT ASSIGNED GERMAN EINIGE WZ.PLATZ NR.NI.FG. FRENCH NO.S DE POCHE NON ASSIGNES SPANISH HAY BOLSILLOS NO ASIGNADOS ITALIAN NON TUTTI I POSTI UT.ASSEGN DUTCH ALLE PLAATNSNUM.NIET TOEGEW SWEDISH NR.PA VERKTYGSFASTEN SAKNAS NORWAY IKKE ALLE VKT.LOMMER ANGITT	On the tool layout display, some tools do not yet have their pocket numbers determined at layout completion.
425	ENGLISH DATA ERROR (RUN AWAY CHECK) GERMAN DATEN FEHLER IN PROGRAMM FRENCH ERR.DE DONN.DE PROGR. SPANISH ERROR DATOS PROGRAMACION ITALIAN ERRORE NEI DATI DUTCH FOUTIEVE GEG.IN PROGRAMMA SWEDISH DATAFEL(JAMFORANDE KONTROLL) NORWAY DATAFEIL(PROGRAM)	No. 424 P1 P2 P3 Occurrence Layout completion, tool layout Status of Stop Operation continued How to Release Depress CANCEL button
		No. 425 P1 P2 P3 Occurrence Key input, machining program Status of Stop Operation continued How to Release Depress CANCEL button.
		No. 426 P1 P2 P3 Occurrence Machining program Status of Stop Operation continued How to Release Depress CANCEL button.
		No. 426 P1 P2 P3 Occurrence Machining program Status of Stop Operation continued How to Release Depress CANCEL button.
		No. 426 P1 P2 P3 Occurrence Machining program Status of Stop Operation continued How to Release Depress CANCEL button.
		No. 426 P1 P2 P3 Occurrence Machining program Status of Stop Operation continued How to Release Depress CANCEL button.
		No. 426 P1 P2 P3 Occurrence Machining program Status of Stop Operation continued How to Release Depress CANCEL button.
		No. 426 P1 P2 P3 Occurrence Machining program Status of Stop Operation continued How to Release Depress CANCEL button.
		No. 426 P1 P2 P3 Occurrence Machining program Status of Stop Operation continued How to Release Depress CANCEL button.
		No. 426 P1 P2 P3 Occurrence Machining program Status of Stop Operation continued How to Release Depress CANCEL button.



No.	Message	Description	No.	
427	1 5 10 15 20 25 29		P1	427
ENGLISH	PARAMETER ERROR		P2	
GERMAN	FEHLER PARAMETER		P3	
FRENCH	ERREUR PARAMETRE		Occurrence	
SPANISH	ERROR DE PARAMETRO		Status	
ITALIAN	ERRORE NEI PARAMETRI		of Stop	
DUTCH	FOUTIEVE PARAMETER		How to	
SWEDISH	PARAMETERFEL		Release	
NORWAY	PARAMETER FEIL			
428			No.	428
ENGLISH	TOOL DATA CHANGE NOT ALLOWED	During the automatic operation, data have tried to be changed on the tool data display.	P1	
GERMAN	WKZ DAT. WECHS JETZT UNMOGLICH		P2	
FRENCH	MODIF. DE DONN. OUTIL NON AUT		P3	
SPANISH	PROHIBIDO CAMBIO DE DATOS UTIL		Occurrence	Key input, tool data
ITALIAN	MODIF. DATI UT. IMPOSSIBILE		Status	Operation continued
DUTCH	ONGEOORL. VERAND. GER-GEDEV.		How to	Depress CANCEL button.
SWEDISH	AND. AV VERK. DATA INTE TILLA			
NORWAY	FORANDRING VKT. DATA UMULIG			
429			No.	429
ENGLISH	MEASURING NOT ALLOWED	Main requirements for coordinate measurement: (1) The machine must not be in automatic operation.	P1	
GERMAN	WKZ LAENGENMESSUNG UNMOGLICH		P2	
FRENCH	MES. DE LONG. NON AUTORISE		P3	
SPANISH	PROHIBIDA MEDICION DE UTIL		Occurrence	Tool data, program
ITALIAN	MISURA IMPOSSIBILE		Status	Operation continued
DUTCH	ONGEOORLOOFDE GER-METING		How to	Depress CANCEL button.
SWEDISH	MATNING INTE TILLATEN			
NORWAY	VERKT. LENGDEMAALING UMULIG			
		Main requirements for tool length measurement: (1) The machine must not be in automatic operation.		
		Some of the requirements specified above have not been satisfied.		



No.	Message	Description	No.												
430	1 5 10 15 20 25 29 ENGLISH ILLEGAL TOOL DESIGNATED GERMAN FALSCHE W.K.Z GEWAHLT. FRENCH DESIGNATION D'OUTIL ILLEGAL SPANISH DISIGNACION UTIL INCORRECTA ITALIAN DESIGNAZIONE UTENS. ILLEGALE DUTCH VERKEERDE GEREEDSCHAPSKEUZE SWEDISH OTILLATET VERKTYG BESTAMT NORWAY UGYLDIG BERKTOY ANGITT	In programming a line/face machining unit, an attempt was made to input unusable tool. <table border="1"> <thead> <tr> <th>Unit Name</th> <th>Applicable Tool</th> </tr> </thead> <tbody> <tr> <td>Line center, face milling cutter, end mill face,</td> <td>Face milling cutter, and milling cutter</td> </tr> <tr> <td>line right, line outside,</td> <td></td> </tr> <tr> <td>line left, line inside</td> <td>End milling cutter</td> </tr> <tr> <td>pocket mill, pocket peak, pocket valley, end mill groove</td> <td></td> </tr> <tr> <td>Chamfering right, chamfering left, chamfering inside, Chamfering outside</td> <td>Chamfering cutter</td> </tr> </tbody> </table>	Unit Name	Applicable Tool	Line center, face milling cutter, end mill face,	Face milling cutter, and milling cutter	line right, line outside,		line left, line inside	End milling cutter	pocket mill, pocket peak, pocket valley, end mill groove		Chamfering right, chamfering left, chamfering inside, Chamfering outside	Chamfering cutter	430 P1 P2 P3 Occurrence Key input, machining program Status of Stop Operation continued How to Release Depress CANCEL button.
Unit Name	Applicable Tool														
Line center, face milling cutter, end mill face,	Face milling cutter, and milling cutter														
line right, line outside,															
line left, line inside	End milling cutter														
pocket mill, pocket peak, pocket valley, end mill groove															
Chamfering right, chamfering left, chamfering inside, Chamfering outside	Chamfering cutter														
431	USE ARBITRARY FIGURE FERTIGE FORM EINGEBEN UTILISER. FIGURE ARBITRAIRE USE FIGURA ARBITRARIA USARE RIGURA ARBITRARIA GEBRUIKT-WILLEKEURIGE FIGUUR ANVAND GODTYCKLIG FIGUR ANGI ARB. STYKKETS FORM	An arbitrary shape only may be inputted in each line center, line right, line left, chamfering right, chamfering left and end mill groove unit. (All the units enumerated above are to have undefined shapes, in principle.)	431 P1 P2 P3 Occurrence Key input, machining program Status of Stop Operation continued How to Release Depress CANCEL button.												
432	DATA CHANGE NOT ALLOWED DATENWECHSEL JETZT UNMOEGLICH MODIF. DONN. NON AUTORISE PROHIBIDO CAMBIO DE DATOS MODIF. DATI IMPOSSIBILE ONGEOORLOOFDE DATAWIJZIGING DATAANDRING INTE TILLATEN DATAFORANDRING IKKE MULIG	Data cannot be changed because the machine is in automatic operation or for any other reason.	432 P1 P2 P3 Occurrence Status of Stop Operation continued How to Release Depress CANCEL button.												



No.	Message	Description	No.
433	1 5 10 15 20 25 29 ENGLISH DATA INADEQUATE GERMAN DATENEINGABE NICHT MOEGLICH FRENCH DONNEES INADEQUATES SPANISH DATOS INADECUDADOS ITALIAN DATI NON ADEGUATI DUTCH GEGEVENS ONGESCHIKT SWEDISH ORIKTIGA DATA NORWAY DATA IKKE TILSTREKKELIG	In inputting data, a contradiction occurred between data before and after.	P1 P2 P3 Occurrence Key input, machining program Status of Stop Operation continued How to Release Depress CANCEL button.
434	NO ASSIGNED TOOL IN TOOL FILE KEIN WZ IM WZ.REGISTER PAS D'OUTIL DESIGN.DS.REGISTR EL UTIL NO ESTA REGISTRADO MANCA ASSEGN.UT.NELL'ELENCO GEEN TOEGEW.GER.IN GER-REG. INGET TILLD.VERK.I VERKT. F INTET VERKT.I REGISTERET	An attempt was made to specify the tool which can be registered in the tool file (face milling cutter, end milling cutter or chamfering cutter) in a program but was not found registered in the tool file.	P1 P2 P3 Occurrence Key input, machining program Status of Stop Operation continued How to Release Depress CANCEL button.
435	PROGRAM CHECK NOT ALLOWED PROGRAMMPRUEF JETZT UNMOGLICH VERIFIC.PROGR.NON AUTORISE PROHIBIDA APROVACION PROGRAMA VERIFICA PROGR.IMPOSSIBILE ONMOGELIJKE PROGRAMMAKONTROLE PROGR.KONTR.INTE TILLATEN PROGRAMKONTROLL IKKE MULIG	During the automatic operation, attempts were made to check programs.	P1 P2 P3 Occurrence Graphic check operation, program Status of Stop Operation continued How to Release Depress CANCEL button.



No.	Message	Description	No.
436	1 5 10 15 20 25 29 ENGLISH DESIGN. T-NO. NOT MEASURABLE GERMAN WRKZG NICHT AUTOMAT.MESSBAR FRENCH OUTIL DISIGN.NON MESURABLE SPANISH INMEDIBLE UTIL ESTA ASIGNADO ITALIAN UT.DESIGN.NON MISURABILE DUTCH GEVR.GER-SCHAP NIET MEETBAAR SWEDISH ANGIVET T-NR.INTE MATBART NORWAY ANGITT VKT.NR KAN IKKE MAALES	To input a measuring tool pocket number in the automatic tool length measurement mode, an unmeasurable tool number was specified. (Tools capable of an automatic tool length measurement) spot, drill, back facing tool, reamer and tap.	P1 P2 P3 Occurrence Status of Stop How to Release
437	ENGLISH NO NOM.-DIA DATA IN PROGRAM GERMAN OHNE NON.DUTCHM.DATA IN PROG. FRENCH OUTIL SANS DIA-NOMIN DS PROGR SPANISH SIN DIAMETRO NOMINAL DE UTIL ITALIAN MANCA DATO DIA NOM.IN PROGR. DUTCH NON- ONTBREEKT IN PROGRAMMA SWEDISH INGEN NOMINELL DIAM.IPROGR. NORWAY UTEN NOM.DIA,DATA I PROGRAM	When a work number search or layout completion was to be done on the tool layout display, a tool without a nominal diameter was registered in the specified program.	P1 P2 P3 Occurrence Status of Stop How to Release
438	ENGLISH BUBBLE ERROR	Bubble memory hardware has failed.	No. P1 P2 P3 Occurrence Status of Stop How to Release



No.	Message							Description		
								No.	439	
	1	5	10	15	20	25	29	P1		
439	ENGLISH	LOAD IMPOSSIBLE(PROTECT)						P2		
	GERMAN	KEINE EINGABE(SCHUTZ)						P3		
	FRENCH	INTR. IMPOSS.(PROTECT.)						Occurrence	Loading operation, CMT I/O	
	SPANISH	CARGA IMPOSIBLE(PROTECION)						Status of Stop	Operation continued	
	ITALIAN	CARICAM. IMPOSSIBILE(PROTEZ)						How to Release	Depress CANCEL button.	
	DUTCH	INGAVE ONMOGELIJK(BESCHERM)								
	SWEDISH	LADDN.OMOJL.(PROTEDTION)								
	NORWAY	INNGIVELSE UMULIG(LAAST)								
440	ENGLISH	LOAD IMPOSSIBLE (SIZE OVER)						No.	440	
	GERMAN	KEIN EINGABE(UMFANG ZU GROS)						P1		
	FRENCH	INTR. IMPOSS.(DEPASS CAP)						P2		
	SPANISH	CARGA IMPOSIBLE(COBRE-TAMNO)						P3		
	ITALIAN	CARIC. IMPOSS.(DIMENS.ECCES)						Occurrence	Loading operation, CMT I/O	
	DUTCH	INGAVE ONMOG.(OVERSCHER-CAP)						Status of Stop	Operation continued	
	SWEDISH	LADDN.OMOJL.(PROG.FOR ST)						How to Release	Depress CANCEL button.	
	NORWAY	FOR MANGE DATA(LAGER FULLT)								
441	ENGLISH	LOAD IMPOSSIBLE (TOO MANY)						No.	441	
	GERMAN	KEIN EINGABE(ZU VIEL NUMMER)						P1		
	FRENCH	INTRO. IMPOSS.(TROP DE NO.)						P2		
	SPANISH	CARGA IMPOSIBLE NUMERICAMENTE						P3		
	ITALIAN	CARIC. IMPOSS.(TROPPI NUM.)						Occurrence	Loading operation, CMT I/O	
	DUTCH	TNGAVE ONMOG.(TE VEEL NUM.)						Status of Stop	Operation continued	
	SWEDISH	LADDNING OMOJLIG(FOR MANGA)						How to Release	Depress CANCEL button.	
	NORWAY	DATA INN UMULIG(FOR STORT NR)								



No.	Message	Description	No.
442	1 5 10 15 20 25 29 ENGLISH CONTENTS ARE NOT COINCIDENT GERMAN INHALT GANZ VERSCHIEDEN FRENCH CONTENU NE COINCIDENT PAS SPANISH LOS CONTENIDOS NO COINCIDIDOS ITALIAN I CONTEN.NON SONO COINCID. DUTCH INHOUD STEMT NIET OVEREEN SWEDISH INNEHALL OVERENSSTAMMER INTE NORWAY INNHOLD IKKE SAMMENFALLENDE	Comparing a cassette tape with the NC memory through a cassette I/O device disclosed a complete difference of data. (The number of program lines was wrong.)	P1 P2 P3 Occurrence Comparison CMT I/O Status of Stop Operation continued How to Release Depress CANCEL button.
443	CMT FORMAT ERROR ENGLISH CMT FORMAT ERROR GERMAN KASSETTENSYSTEM FORMATFEHLER FRENCH ERR.DE FORMAT SYST.CASSET. SPANISH ERROR FORMATO CMT ITALIAN ERRORE DI FORMATO REGISTRAT. DUTCH FOUT.FORMAAT-CASSETTESYST. SWEDISH FORMATFEL KASSETTBANDSPELARE NORWAY FORMATFEIL KASETTSYSTEM	The format recorded in the cassette tape does not coincide.	P1 P2 P3 Occurrence CMT I/O Status of Stop Operation continued How to Release Depress CANCEL button.
444	DATA ARE NOT COINCIDENT ENGLISH DATA ARE NOT COINCIDENT GERMAN INHALT TEILWEISE VERSCHIEDEN FRENCH DONNEES NE COINCIDENT PAS SPANISH LOS DATOS NO COINCIDIDOS ITALIAN DATI NON DOINCIDENTI DUTCH GEGEVENS STEMMEN NIET OVEREEN SWEDISH NORWAY DATA ER IKKE SAMMENFALLENDE	Comparing the cassette tape with the NC memory using a cassette I/O device disclosed a discrepancy in some of the data.	P1 P2 P3 Occurrence Comparison CMT I/O Status of Stop Operation continued How to Release Depress CANCEL button.



No.	Message	Description	No.			
445	1 5 10 15 20 25 29 ENGLISH ILLEGAL ADDRESS DESIGNED	Unusable address was designated.	P1 P2 P3 Occurrence Status of Stop How to Release			
446	PROG. SOFTWARE NOT COINCIDENT GERMAN PROG.SOFTWARE NICHT TREFFEN FRENCH PROG.SOFTWARE NON COINCIDENT SPANISH PROG.SOFTWARE NO COINCIDEN ITALIAN PROG.SOFTWARE NON COINCIDENT DUTCH PROGR.SOFTW.STEMT NIET OVER. SWEDISH PROG.MJUKVARA OVERKNSS.INTE NORWAY PROGR.SOFTWARE IKKE FULLST.	Revising a version resulted in a partial change of the program data structure. (For example, certain data were added to a certain unit.) As a result, an old machining program could not be used, as is. Before using any program, therefore, check it fully.	No. P1 P2 P3 Occurrence Machining program Status of Stop Operation continued How to Release Depress CANCEL button.			
447	DISIGNATID FILE NOT FOUND GERMAN GEWAHLTE DATEN NICHT DEFUNDEN FRENCH REGIST.CHOISI PAS TROUVE SPANISH MEMORIA PEDIDA NO APARECE ITALIAN DATO CERCATO NON TROVATO DUTCH GEKOZEN REGISTER NIET GEVOND SWEDISH AVGIVEN FIL HITTAS INTE NORWAY ANGITT DATALAGER FINNES IKKE	In CMT I/O, a specified file was not recorded on the cassette tape. This error, however, takes place only when the specified file is recorded on the tape in an order different from that already recorded. Tape <table border="1"><tr><td>WNO.2</td><td>WNO.1</td><td></td></tr></table> 1 and 2 are specified in that order, although 2 has no specified file.	WNO.2	WNO.1		No. P1 P2 P3 Occurrence CMT I/O Status of Stop Operation continued How to Release Depress CANCEL button.
WNO.2	WNO.1					



No.	Message	Description	No.
448	1 5 10 15 20 25 29 ENGLISH CMT MALFUNCTION GERMAN KASSETTENSYSTEM UBERSPIELFEHL FRENCH MALF. SYSTEME A CASSETTES SPANISH MALFUNCION CMT ITALIAN MALFUNZ. REGISTR. CASSETTE DUTCH STORING CASSETTESYSTEEM SWEDISH DEFEKT BANDSPELARE NORWAY FEIL I KASETTSYSTEM	Cassette tape data had an error when loaded or compared through CMT I/O. (A check sum, for instance, was found out of coincidence.)	No. 448 P1 P2 P3 Occurrence Load/ comparison, CMT I/O Status of Stop Operation continued How to Release Depress CANCEL button.
449	CASSETTE TAPE MIS-EQUIPPED ENGLISH KASSETTENFEHLER GERMAN UTIL.LECT.CASS.ERRONEE FRENCH CINTA CASET MAL EQUIPADA SPANISH ERRORE REGISTR.CASSETTE ITALIAN CASSETTE VERKEERD BEDIENT DUTCH INGEN KASSETTAPE SWEDISH KONTROLLER KASETTEN NORWAY	No cassette tape was loaded.	No. 449 P1 P2 P3 Occurrence CMT I/O Status of Stop Operation continued How to Release Depress CANCEL button.
450	MEMORY WRITING PROTECT ENGLISH KASSETTEUBERSPIEL SCHUTZ GERMAN LANG.PROT.MAM.CASSETTE FRENCH PROTECC ESCRIBIR EN MEMORIA SPANISH PROTEZ.MEMORIA SCRITURA ITALIAN BESCHERMING CASSETTE-OPNAME DUTCH MINNESSKYDD SWEDISH KASETT KAN IKKE OVERSPILLES NORWAY	A cassette tape has been protected (the protective tip removed) and cannot be saved.	No. 450 P1 P2 P3 Occurrence Cassette tape, CMT I/O Status of Stop Operation continued How to Release Depress CANCEL button.



No.	Message	Description	No.
451	MISSING DRUM CHANGE UNIT FEHLENDE TROMMELWECHSELEINHEIT PAS DE CHANGEUR DE TAMBOUR FALTA UNIDAD CAMBIO TAMBORES DIMENTICATO CAMBIO TAMBURU GEEN MAGAZIJNWISSELAAAR MAGASINSVAEXL. EJ PROGRAMMERAD MANGLENDE TROMMELSKIFTE	With parameter Y02 going 1 (drum changed), a drum change unit is unavailable in the program which has searched for a workpiece number on the tool layout picture.	P1 P2 P3 Occurrence Tool layout Status of Stop How to Release Depress CANCEL button
452	NO SHAPE DATA IN THE UNIT KEINE KONTURPROGRAMMIERUNG UNITE SANS DONNEES DU PROFILE SIN DATOS DE TORMA EN UNIDAD MANCANO DATI PROFILO GEEN FIGUURGEEV. IN EENHEID FORMDATA SAKNAS INGEN FORM DATA	To copy a shape and a unit, no shape data have been inputted in the unit specified.	P1 P2 P3 Occurrence Program picture Status of Stop How to Release Depress CANCEL button
453	SELECTED SHAPE INADEQUATE GEWAELLTE KONTUR UNMOEGLICH SELECTION D'UN PROFILE ERRORE FORMA SELECCIONADA INADECUADA PROFILO NON ADEGUATO VERKEERDE FIGUURKEUZE VALD FORM FELAKTIGT VALGT FORM IKKE KORREKT	To copy a shape, the data of such a shape type that can not be specified in the unit has tried to be copied.	P1 P2 P3 Occurrence Program picture Status of Stop How to Release Depress CANCEL button
454	CURSOR POSITION INADEQUATE	With the cursor out of position, a shape and a unit have tried to be copied.	P1 P2 P3 Occurrence Program picture Status of Stop How to Release Depress CANCEL button



No.	Message	Description		
455	ENGLISH SHAPE ERROR GERMAN ERREUR COPIAGE SPANISH COPIA ERROR ITALIAN ERRORE DI COPIATURA DUTCH FOUTIEVE OVERSCHRIJVING SWEDISH KOPIERINGSFEL NORWAY FEIL VED KOPIERING	To copy a shape, a specified unit number is equal to the unit number at which the cursor is currently placed.	No.	455
	P1		P1	
	P2		P2	
	P3		P3	
	Occurrence		Program picture	
	Status of Stop			
	How to Release		Depress CANCEL button	
456	ENGLISH NO TOOL IN SPINDLE GERMAN KEIN WERKZEUG IN DER SPINDEL FRENCH PAS D'OUTIL DANS LA BROCHE. SPANISH SIN UTIL EN HUSILLO ITALIAN MANCA UTENSILE NEL MANDRINO DUTCH GEEN GEREEDSCHAP IN SPIL SWEDISH VERKTYG SAKNAS I SPINDELN NORWAY LNTET VERKT I SPINDEL	No tool is currently set on the spindle.	No.	456
	P1		P1	
	P2		P2	
	P3		P3	
	Occurrence			
	Status of Stop			
	How to Release		Depress CANCEL button	
457	ENGLISH		No.	457
	P1		P1	
	P2		P2	
	P3		P3	
	Occurrence			
	Status of Stop			
	How to Release			
458	ENGLISH		No.	458
	P1		P1	
	P2		P2	
	P3		P3	
	Occurrence			
	Status of Stop			
	How to Release			





No.	Message	Description	No.
465	1 5 10 15 20 25 29 ENGLISH OPERATION NOT ALLOWED	Processing request has come when the DNC can not move because the NC unit has started operation.	465
			P1
			P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	
466	DNC SYSTEM ERROR	Error has been caused in NC when data processing is being executed between the NC and target (host computer).	466
			P1
			P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	
467	WORK NO. NOT FOUND	The first significant data has the address other than "0" when the setting of the work No. has been omitted upon paper tape input.	467
			P1
			P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	
468	TAPE ERROR	Upon tape punching, tape is not set or tape is insufficient.	468
			P1
			P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	



No.	Message	Description	No.
469	1 5 10 15 20 25 29 ENGLISH NOT FOUND EIA/ISO OPTION	Operation associated with EIA has been executed when no EIA option is available.	No. P1 P2 P3 Occurrence Status of Stop How to Release
470	ENGLISH TAPE READER ERROR	Power to tape reader is not switched on or cable is not connected.	No. P1 P2 P3 Occurrence Status of Stop How to Release
471	ENGLISH TAPE PUNCHER ERROR	Power to tape puncher is not switched on or cable is not connected.	No. P1 P2 P3 Occurrence Status of Stop How to Release
472	ENGLISH BLOCK CHARACTER > 64	During EIA/ISO, data in one block have exceeded 64 characters.	No. P1 P2 P3 Occurrence Status of Stop How to Release



No.	Message	Description	No.	473
473	1 5 10 15 20 25 29 ENGLISH CODE & EIA CODE OVERLAPPED	Data (parameter OP3) set as the # code during EIA is equal to the code for another EIA.	P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
474	MAZATROL WORK NO. DESIGNATED ENGLISH	The work No. designated upon use of tape puncher happens to be a program in the MAZATROL language.	No.	474
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
475	NOM.-DIA. INPUT PROCESS ERROR ENGLISH	The nominal diameter is not entered when the suffix and tool length are inputted for display of the tool data screen.	No.	475
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
476	NOT FOUND ADDRESS OF DATA ENGLISH	During programming, the data was entered without specifying the address in the course of input of FRM.	No.	476
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	



No.	Message	Description	No.
477	1 5 10 15 20 25 29		477
ENGLISH			P1
			P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	
478			478
ENGLISH			P1
			P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	
479			479
ENGLISH			P1
			P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	
500	NOT FOUND SEQUENCE OR BLOCK NO.	Sequence No. or block No. can not be found.	500
ENGLISH			P1
			P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	



No.	Message	Description	No.	501
501	1 5 10 15 20 25 29 ENGLISH 64 CHARACTERS OVER	Data in one block have exceeded 64 characters.	P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
502	ENGLISH SUB PROGRAM CALL ERROR	Data necessary for sub-program call command has not been set.	No.	502
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
503	ENGLISH SUB PROGRAM NESTING OVER	Data necessary for sub-program call command is too great.	No.	503
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
504	ENGLISH NOT FOUND WORK NO. (RAM)	The work No. specified is not found on the RAM memory.	No.	504
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	



No.	Message	Description	No.
505	1 5 10 15 20 25 29 ENGLISH SYSTEM ERROR (TASK)	Error has been caused during data processing.	No. P1 P2 P3
506	506 ENGLISH NOT FOUND WORK NO. (BUBBLE)	Work No. specified is not present on the bubble memory.	No. P1 P2 P3
507	507 ENGLISH NOT ABLE TO CALL MAZATROL PRG	During EIA/ISO, MAZATROL program can not be called as sub-program.	No. P1 P2 P3
508	508 ENGLISH		No. P1 P2 P3



No.	Message	Description	No.	509
509	1 . 5 . 10 . 15 . 20 . 25 . 29		P1	
ENGLISH			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
510	NO START-POINT OF OFFSET FIG	During EIA/ISO, the starting point of the specified offset graphic can not be determined.	No.	510
ENGLISH			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
511	G41, G42 FORMAT ERROR	The block where G41 and G42 or G40 is present is in the arc mode.	No.	511
ENGLISH			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
512	TOOL DIA OFFSET IMPOSSIBLE	More than two blocks of the original graphic are cancelled by tool offset.	No.	512
ENGLISH			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	



No.	Message	Description	No.	513
513	1 5 10 15 20 25 29 ENGLISH NO FINAL POINT (G41, G42 MODE)	The terminal point on the current plane can not be determined because of the change of the coordinate plane.	P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
514	ENGLISH NO MOVEMENT COMMAND	No movement block is available.	No.	514
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
515	ENGLISH ILLEGAL OFS-FIG INPUT PROCESS	During EIA/ISO, data for offset graphic is insufficient.	No.	515
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
516	ENGLISH		No.	516
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	



No.	Message	Description	No.
517	1 5 10 15 20 25 29		P1
ENGLISH			P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	
518			No.
ENGLISH			518
			P1
			P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	
519			No.
ENGLISH			519
			P1
			P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	
520			No.
ENGLISH			520
			P1
			P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	



No.	Message	Description	No.
550	1 5 10 15 20 25 29 ENGLISH FORMAT ERROR (EIA/ISO)	The format of the numerical data in the EIA/ISO program is incorrect.	P1 P2 P3 Occurrence Status of Stop How to Release
551	ENGLISH ILLEGAL DATA INPUT	Numerical falling out of the specified range has been entered.	P1 P2 P3 Occurrence Status of Stop How to Release
552	ENGLISH VARIABLE NOT ABLE TO READ	Data can not be read from the specified # variables.	P1 P2 P3 Occurrence Status of Stop How to Release
553	ENGLISH ILLEGAL DATA INPUT	Data specified can not be processed.	P1 P2 P3 Occurrence Status of Stop How to Release



No.	Message	Description	No.	554
554	1 5 10 15 20 25 29 ENGLISH ILLEGAL G CODE INPUT	The specified G code does not exist.	P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
555	ENGLISH IMPOSSIBLE G CODE INPUT	The combination of the specified G code is impossible.	No.	555
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
556	ENGLISH NOT FOUND EOB (END OF BLOCK)	There is no end of block (EOB) among data in one block.	No.	556
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
557	ENGLISH		No.	557
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	



No.	Message	Description	No.
558 ENGLISH	1 5 10 15 20 25 29		No. P1 P2 P3 Occurrence Status of Stop How to Release
559 ENGLISH			No. P1 P2 P3 Occurrence Status of Stop How to Release
560 ENGLISH	DIVISION ZERO ERROR (MACRO)	In execution of division (G105), the denominator was zero.	No. P1 P2 P3 Occurrence Status of Stop How to Release
561 ENGLISH	MACRO OVERFLOW	The result of operation has exceeded the allowable limit of the variable. ($> 2^{31} - 1$)	No. P1 P2 P3 Occurrence Status of Stop How to Release



No.	Message	Description	No.
562	1 5 10 15 20 25 29 ENGLISH MACRO UNDERFLOW	The result of operation has exceeded the allowable limit of the variable. (< - (2 ³¹ -1))	P1 P2 P3 Occurrence Status of Stop How to Release
563	ENGLISH MACRO PROGRAM ERROR	The macro instruction block lacks necessary data.	P1 P2 P3 Occurrence Status of Stop How to Release
564	ENGLISH MACRO TOOL DATA ILLEGAL INPUT		P1 P2 P3 Occurrence Status of Stop How to Release
565	ENGLISH SQUARE ERROR	Error was caused in calculation of a square root.	P1 P2 P3 Occurrence Status of Stop How to Release



No.	Message	Description	No.
566	1 5 10 15 20 25 29 ENGLISH UNDEFINED MACRO VARIABLE	An unusable macro variable has been designated.	No. P1 P2 P3 Occurrence Status of Stop How to Release
567	ENGLISH NOT FOUND USERMACRO OPTION	User macro function as option is unavailable.	No. P1 P2 P3 Occurrence Status of Stop How to Release
568	ENGLISH BCD DATA INPUT PROCESS ERROR	Error was caused upon input of BCD (binary code) data.	No. P1 P2 P3 Occurrence Status of Stop How to Release
569	ENGLISH TOOL NO. INPUT ERROR (DIA)	The specified tool No. does not allow the reference to the tool diameter data.	No. P1 P2 P3 Occurrence Status of Stop How to Release



No.	Message	Description	No.	570
570	1 5 10 15 20 25 29 ENGLISH TOOL NO. INPUT ERROR (LENGTH)	The specified tool No. does not allow the refer- ence to the tool length data.	P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
571	ENGLISH		No.	571
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
572	ENGLISH		No.	572
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
573	ENGLISH		No.	573
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	



No.	Message	Description	No.
574	1 5 10 15 20 25 29 ENGLISH NOT FOUND PROGRAM NO.	The program No. is not specified upon calling of a sub-program.	574 P1 P2 P3
575	ENGLISH ILLEGAL P DATA INPUT ERROR	Work No. exceeding 9999 was specified as the program No. upon calling of a sub-program.	575 P1 P2 P3
576	ENGLISH SUB PROGRAM NESTING OVER	More than eight-fold nesting has been commanded with the sub-program (including user macro).	576 P1 P2 P3
577	ENGLISH G10 INPUT PROCESS ERROR	Upon receiving of G10 command, any of the data X, Y, Z and A was lacking.	577 P1 P2 P3



No.	Message	Description	No.
578	1 5 10 15 20 25 29 ENGLISH G10 FORMAT ERROR	For G10 command, a numerical greater than 7 has been entered in P.	P1
			P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	
579	ENGLISH ILLEGAL M/B CODE INPUT ERROR	Upon input of the M code or B code, a numerical greater than 99999999 has entered.	P1
			P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	
580	ENGLISH ILLEGAL D/H CODE INPUT ERROR	A numerical greater than 127 or negative was entered by means of the D code or H code.	P1
			P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	
581	ENGLISH ILLEGAL G CODE INPUT	The user macro G code was given although the effective parameter (OP1) for the user macro was not set.	P1
			P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	



No.	Message	Description	No.
582	1 5 10 15 20 25 29 ENGLISH SYSTEM ERROR (EIA/ISO)	Error was caused in the course of data processing during EIA/ISO.	P1
			P2
			P3
			Occurrence
			Status of Stop
			How to Release
583	ENGLISH MACRO PROGRAM NESTING OVER	Upon calling of user macro modal, more than four-fold nesting was ordered.	No.
			P1
			P2
			P3
			Occurrence
			Status of Stop
			How to Release
584	ENGLISH ILLEGAL RADIUS	<ol style="list-style-type: none">1. In G02, G03, the radius R can not be found from I, J and K commands.2. In G45-G48, other than 1/4 and 3/4 circles was specified.	No.
			P1
			P2
			P3
			Occurrence
			Status of Stop
			How to Release
585	ENGLISH G02, G03 INPUT PROCESS ERROR	<ol style="list-style-type: none">1. In the arc command of the R command, the input data is insufficient.2. The R command is present for one-revolution arc.	No.
			P1
			P2
			P3
			Occurrence
			Status of Stop
			How to Release



No.	Message	Description	No.
586	1 5 10 15 20 25 29 ENGLISH TOOL LENGTH OFS FORMAT ERROR	<p>1. Tool length offset was executed during execution of the arc command.</p> <p>2. Tool length offset was cancelled during execution of the arc command.</p> <p>3. The amount of tool length offset has changed during execution of the arc command.</p> <p>4. In setting of a desired axis, the offset of two axes was going to be executed at a time.</p> <p>In the G41, G42 mode, the plane selection mode has been changed.</p>	P1 P2 P3 Occurrence Status of Stop How to Release
587	ENGLISH SELECT PLANE MODE CHANGE ERR		No. P1 P2 P3 Occurrence Status of Stop How to Release
588	ENGLISH CUTTER COMPENSATION FORMAT ERR	<p>1. G41→G42 or G42→G41 command not thorough G40 was given.</p> <p>2. In G41 or G42, a command for G54-G59 was given or ATC was going to be executed in G41 or G42.</p>	P1 P2 P3 Occurrence Status of Stop How to Release
589	ENGLISH EXT. COORDINATE INPUT ERROR	During input of external coordinate system input, a numerical other than mm -7.999 through 7.999 and inch -0.7999 through 0.7999 was entered.	No. P1 P2 P3 Occurrence Status of Stop How to Release



No.	Message	Description	No.	590
590	1 5 10 15 20 25 29 ENGLISH G31 FORMAT ERROR	The block which ordered G31 or the previous block was in the G41 or G42 mode.	P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
591	ENGLISH G60 FORMAT ERROR	G60 was specified in the G41 or G42 mode.	No.	591
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
592	ENGLISH TOOL POSITION OFS FORMAT ERR	Arc command other than 1/4 arc and 3/4 arc was specified in the tool position offset.	No.	592
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
593	ENGLISH G02, G03 FORMAT ERROR	<ol style="list-style-type: none">Either I, J and K or R is not specified in the G02, G03 command.During execution of G02, G03 command, the diameter correction mode has been changed.	No.	593
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	



No.	Message	Description	No.	594
594	1 5 10 15 20 25 29 ENGLISH FIXED CYCLE INPUT PROCESS ERR	In the fixed cycle, the input data was insufficient.	P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
595	ENGLISH FIXED CYCLE FORMAT ERROR 1	G71, G72 Hole diameter P < Diameter D *2 Hole diameter P < Lower hole diameter Q Radius D ≤	No.	595
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
596	ENGLISH FIXED CYCLE FORMAT ERROR 2	G73, G83 Cut Q > 0	No.	596
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
597	ENGLISH TOOL-DIA. OFFSET IS NEGATIVE	The data put in the offset No. indicated by D _____ is negative.	No.	597
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	



No.	Message	Description	No.	598
598	1 5 10 15 20 25 29	The sub-program call/return (G22, 23, M98, 99) and ATC (T code or M06) were specified in the same block.	No.	[REDACTED]
ENGLISH	SUBPRO CALL & ATC IN A BLOCK		P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
599	G22, 23 & M98, 99 IN ONE BLOCK	G22, 23 and M98, 99 were specified in the same block.	No.	599
ENGLISH			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
ENGLISH			No.	[REDACTED]
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
ENGLISH			No.	[REDACTED]
			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	



No.	Message	Description	No.
900 ENGLISH	1 5 10 15 20 25 29		P1 P2 P3 Occurrence Status of Stop How to Release
901 ENGLISH	USERMACRO USER ALARM NO.1	Displayed by NC alarm data in user macro	P1 P2 P3 Occurrence Status of Stop How to Release
902 ENGLISH	USERMACRO USER ALARM NO.2	Displayed by NC alarm data in user macro	P1 P2 P3 Occurrence Status of Stop How to Release
903 ENGLISH	USERMACRO USER ALARM NO.3	Displayed by NC alarm data in user macro	P1 P2 P3 Occurrence Status of Stop How to Release



No.	Message	Description	No.
904	1 5 10 15 20 25 29	Displayed by NC alarm data in user macro	P1
ENGLISH	USERMACRO USER ALARM NO.4		P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	
905		Displayed by NC alarm data in user macro	P1
ENGLISH	USERMACRO USER ALARM NO.5		P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	
906		Displayed by NC alarm data in user macro	P1
ENGLISH	USERMACRO USER ALARM NO.6		P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	
907		Displayed by NC alarm data in user macro	P1
ENGLISH	USERMACRO USER ALARM NO.7		P2
			P3
		Occurrence	
		Status of Stop	
		How to Release	



No.	Message	Description	No.	908
908	1 5 10 15 20 25 29	Displayed by NC alarm data in user macro	P1	
ENGLISH	USERMACRO USER ALARM NO.8		P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
909			No.	909
ENGLISH	USERMACRO USER ALARM NO.9	Displayed by NC alarm data in user macro	P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
910			No.	910
ENGLISH	USERMACRO USER ALARM NO.10	Displayed by NC alarm data in user macro	P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	
911			No.	911
ENGLISH			P1	
			P2	
			P3	
			Occurrence	
			Status of Stop	
			How to Release	

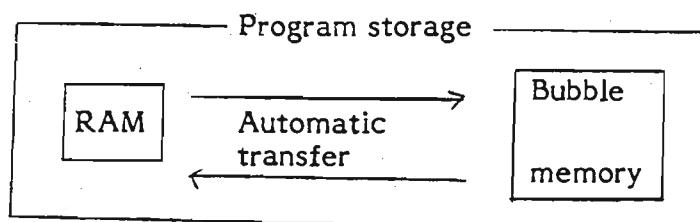


5. BUBBLE MEMORY (OPTION)

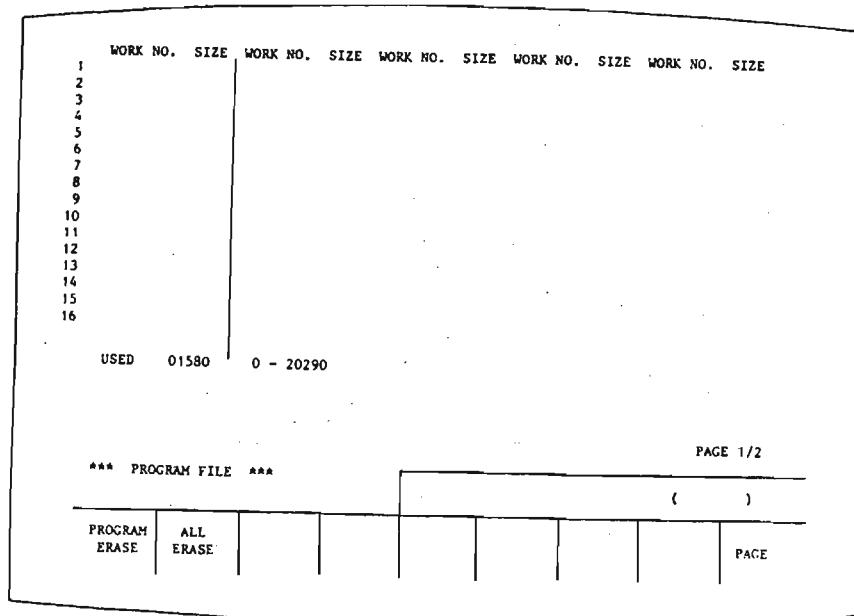
5-1 Bubble Memory Usage

The maximum number of blocks stored in RAM is 580 for the Mazatrol M-1. When more blocks are required for programming, bubble memory has to be utilized. When more storage is required, bubble memory can be used to expand the storage capacity greater than 580 blocks (including sub-programs).

Since bubble memory transfer is automatic, there is no operational procedure necessary to use bubble memory.



Push the Menu key **Bubble Directory** on the CRT to check the contents of the bubble memory. All program numbers and the number of used blocks are displayed on the C.R.T.



Part or all of the programs in the bubble memory can be erased by pressing the appropriate menu key on the CRT.



5-2 Automatic Program Transfer

- (1) Program transfer time between RAM and Bubble Memory is approximately 10 seconds maximum.
- (2) When a program is called for by Work No. Search and the program is not in the RAM, it is transferred to the RAM from the Bubble Memory.
- (3) Program transfer between RAM and Bubble Memory is performed according to the program storage order when the number of unused blocks is less than 250 or the number of programs stored is more than 15.
- (4) A program being executed (machining) and a program in the process of being entered are not transferred to Bubble Memory.
- (5) A program has already been stored in RAM when automatic operation, programming & graphic display are being performed.
- (6) The message, "RAM/BUBBLE MEMORY TRANSFER" is displayed on the CRT during program transfer.



5.-3 Bubble Memory Precautions

- (1) It is not possible to search for a program stored in Bubble Memory during automatic operation.
- (2) During background programming, a program must not be edited when a sub-program of the main program is being automatically transferred from Bubble Memory to RAM.
- (3) When a program has been transferred from Bubble Memory to RAM, the program still remains in the Bubble Memory. In other words, the program is stored in two different memories.
- (4) When a program with a sub-program is to be run, prior to machining, the entire program contents must be transferred to RAM.

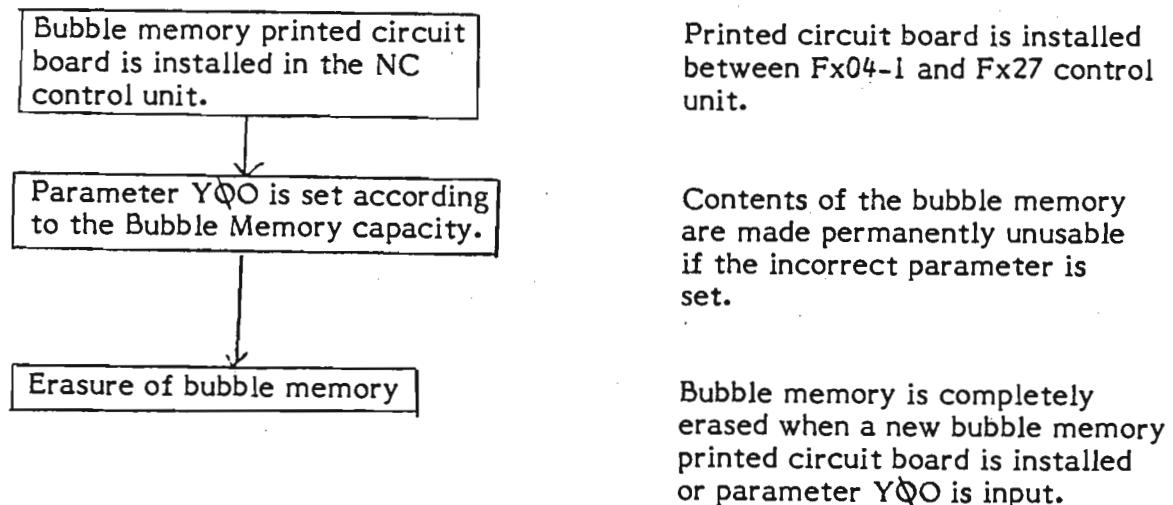


5-4 Bubble Memory TYPE

There are 3 kinds of bubble memory classified according to the memory capacity.

	Bubble memory printed circuit board number	Memory capacity (KB)	Max. number of blocks	Parameter set value (YQO)	Max. number of programs
1	Fx 124	128	2370	1	128
2	Fx 144	512	10050	2	128
3	Fx 154	1024	20290	3	128
Standard	RAM	24	580	0	16

5-5 Initial Bubble Memory Setting



Note: The CRT will be locked by pressing "Work No. Search" or "Input" when bubble memory is not used and the parameter YQO is set at 0.



6. Mirror image (Option)

Mirror image function with respect to X or Y axis can be used for point machining, line machining, face machining and all kinds of arbitrary machining by M code command.

- a) M90: Mirror image cancel
- b) M91: Mirror image, X-axis
- c) M92: Mirror image, Y-axis

When M91 and M92 are simultaneously commanded, the point of symmetry is the new work zero point.

Note 1: Mirror image is not effective unless it is commanded by M code.

Note 2: Be sure to cancel mirror image by M90 command.

Note 3: Workpiece graphic display and tool path are not shown when mirror image is used.

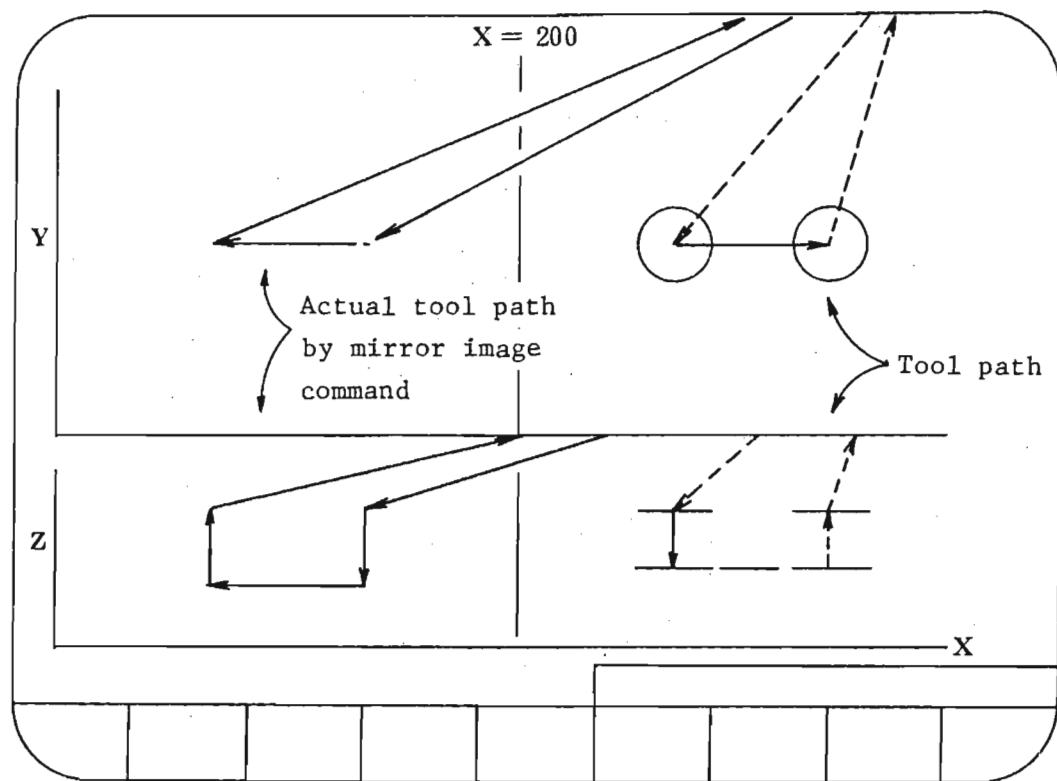
Note 4: Do not command axis shift in the first sequence of arbitrary machining when arbitrary machining follows the mirror image M code command.

(EXAMPLE)

UNQ	MAT	INITIAL-Z	MULTI	PITCH X	PITCH Y
0	FC	50	000000000000	0	0
UNQ	UNIT	X	Y	Q	Z
1	FRM-1	-200	-200	0	-200
UNQ	UNIT	M1	M2	M3	M4
2	M CODE	91		M5	M6
UNQ	UNIT	TOOL	NOM-Ø	M7	M8
3	MANU PRO END MILL		20.A		
SNQ	G G	DATA 1	DATA 2	DATA3	DATA 4
1					SM/B
2	0	X3	Y30	Z10	500 M3
3	1 94			Z-10	F250
4		X60			f500
5	0			Z10	
UNQ	UNIT	M1	M2	M3	M4
4	M CODE	90		M5	M6
UNQ	UNIT	CONTL.	NUMBER	M7	M8
5	END	0	0		



GRAPHIC DISPLAY





7. Time study function

Machining time is shown on the CRT after the tool path check.

It is indicated at the lower right corner of the CRT. (Ex. 999999: 59'59'')

(1) Parameter for time study

Parameter setting (2)

Parameter	Contents
AT2	M code execution time (minimum increment : 0.01 sec.)
AT3	B code execution time (minimum increment : 0.01 sec.)
AT4	ATC execution time (minimum increment : 0.01 sec.)

(2) Remarks

- a) A signal is sent to the NC unit when the probe touches the workpiece. However, in the case of performing a time study, the signal is sent to the NC unit when the probe reaches a position which is set as a limit of the probe range.

- b) The following are not included for time study calculation.

Drum changing time

Dwell time

M code execution time is included only for one M code command.

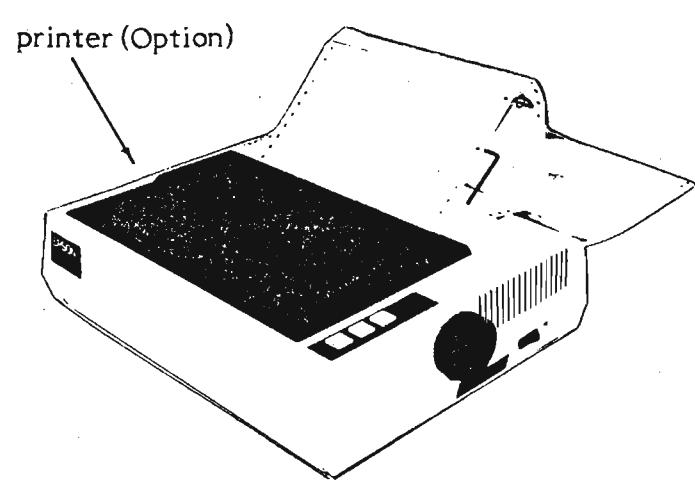
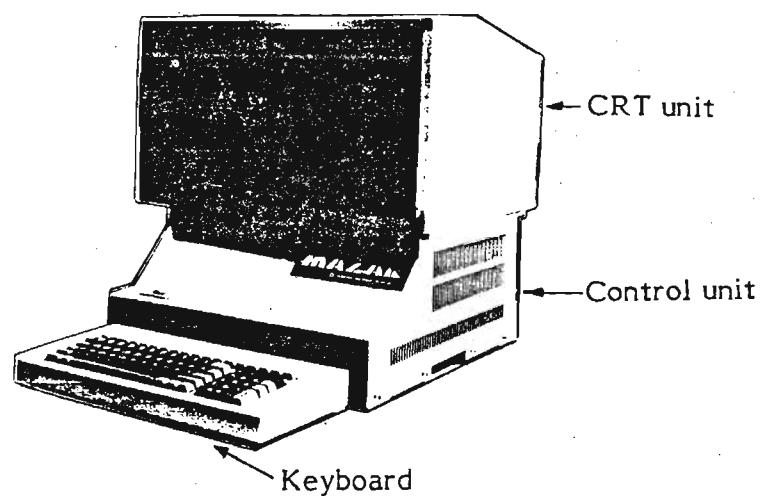
If more are programmed in the same block of information, their execution time will not be included.



INSTRUCTION MANUAL
FOR
MAZAK CAM SYSTEM (Option)



PICTURE





This Instruction Manual covers operating procedures of MAZAK CAM SYSTEM software which can be handled almost in the same manner as the software for MAZATROL M1. Therefore, materials described here shall be restricted to those which differ from MAZATROL M1.

I. SYSTEM START

Start the system as follows after turning the power on.

- 1) Insert the system diskette into the drive "0" slot. (See Fig. 1.1.)
- 2) Press (BOOT) on the keyboard.

After the steps 1) and 2) above, the program is read from the diskette and the system starts operation.

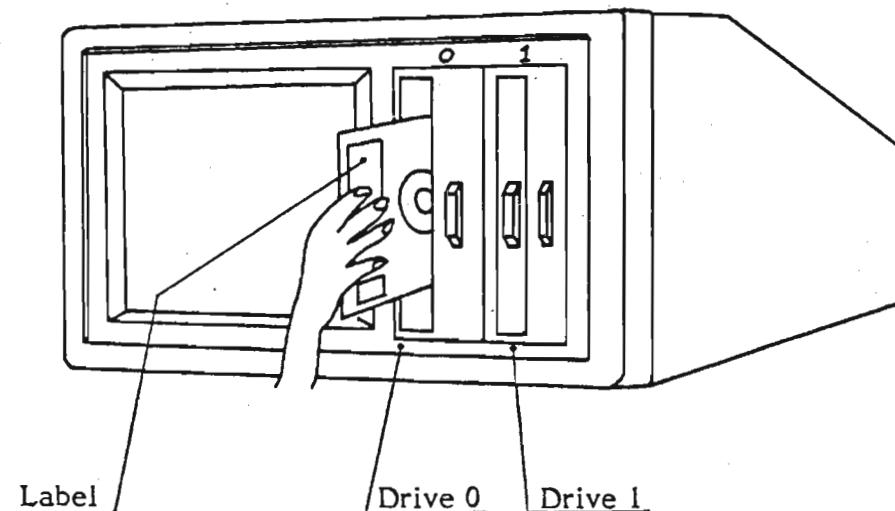


Fig. 1.1

Insert the system diskette into the disk drive unit with the label side facing to the right (i.e., the label faces the door of the disk drive unit).



2. TO PROGRAM MACHINING CYCLE

When the system starts, the screen displays the system version (see appendix). Select the screen display mode using the menu keys for the desired programming. Operations for the selected screen display are the same as the operations for MAZATROL M1. Note that some screen modes are not available on this system although provided on MAZATROL M1.

3. SCREEN MODES AND FUNCTIONS NOT PROVIDED ON THIS SYSTEM

- 1) Following screen modes are not available on this system.
 - a) Position
 - b) Command
 - c) Diagnose (alarm, time and memory monitor)
 - d) Parameter (pitch error)
 - e) Graphic trace function
 - f) Background programming
 - g) Detailed information
 - h) DNC function
- 2) For parameters, all the display modes except pitch error compensation are available.
- 3) The system has no (RESET) key. To reset the system, press (CL) while pressing "CTRL".

4. JOB TERMINATION

After completing the job, follow the procedure below instead of directly turning the power off.

- 1) Press the CRT display selection key to get the screen selection menus.
- 2) Press "EXIT".
- 3) A message "EXIT" appears in reverse video.
- 4) Press "EXIT" again.



The operation above saves the data currently registered in the memory, such as machining programs and tool data. These data will be lost by ending the operation without following the procedure above, directly turning the power off, for instance.

5. SYSTEM START-UP AFTER ENDING OPERATION

The system operation can be resumed without loading the system program from the diskette, if you have ended the operation in the manner as indicated in section 4 and the power has not yet been turned off.

Simply press (G) and (RETURN) in succession.

(In this case, it is not necessary to set the system diskette in the disk drive unit.)

6. CAUTIONS

- 1) The operation is ended any time irrespective of the state of the system by pressing (C) while pressing (CTRL).
In this case, the system operation can be resumed by pressing (BOOT).
However, the data registered in the memory will be lost.
- 2) Never enter the parameters of this system into the NC unit. (Note that it is possible to enter the parameters into the NC unit.) Since many parameters used on the NC are not used on this system, the NC might fail to function when the parameters of this system are entered into the NC.



APPENDIX

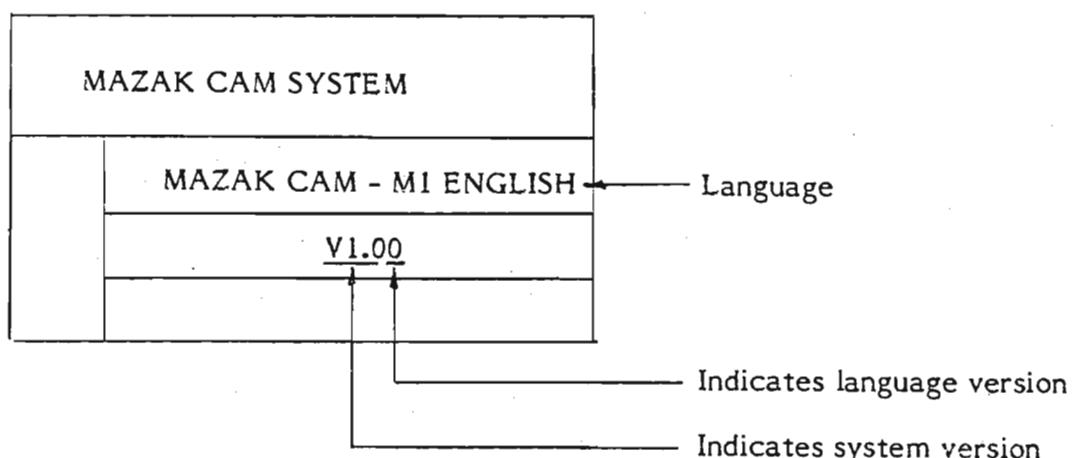
SYSTEM START-UP DISPLAY

The CRT displays the following information at system start-up.

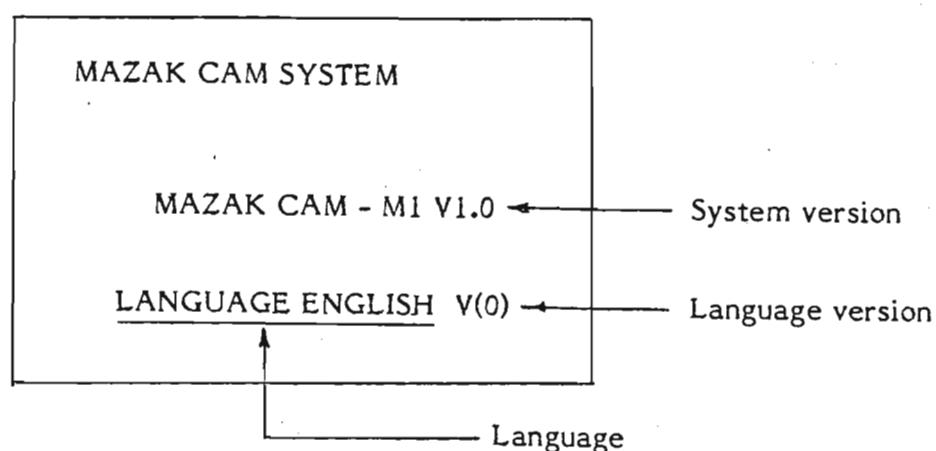
- Program name
- Software version
- Language
- Language version

These are same as written on the diskette label.

Diskette Label



Display



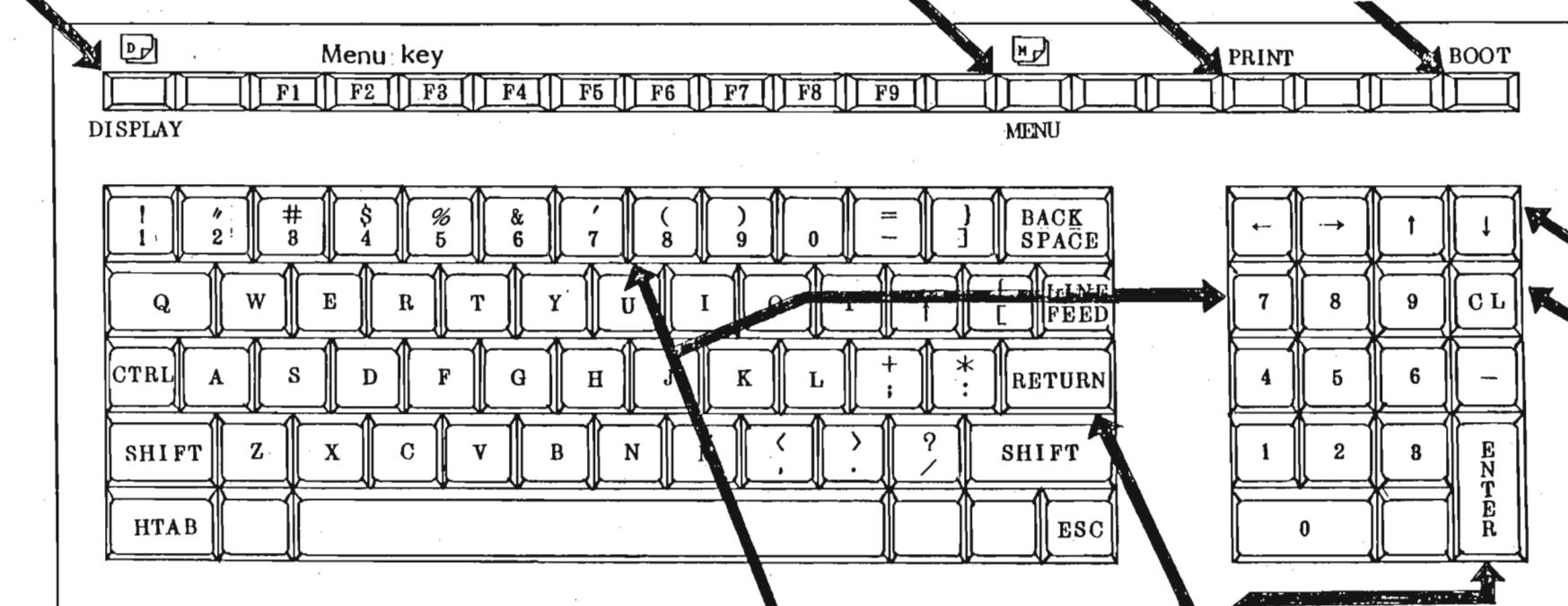
MAZAK CAM SYSTEM

Display selection key

Menu selection key

Hard copy print-out start key

Key to load the system software from the diskette



Equivalent to
numeric keys of NC

Equivalent to setting key of NC





1. After inserting the diskette into the disk drive, press (BOOT).
2. The system will then be ready for programming.
3. Programs can be entered using the keys shown above: each key corresponds to the key used on an NC unit (some of the keys are not used.)
Program a workpiece referring to the above key layout.

<p>(F1) - (F9)</p> <p>(-, 0) - (9), (.)</p> <p>(←), (→), (↑), (↓)</p> <p>(CL)</p> <p>(RETURN), (ENTER)</p>	<p>: Keys used for selecting menus on the lower part of the CRT display.</p> <p>: Same as numeric keys on the NC operation panel</p> <p>: Cursor control keys</p> <p>: Reset and cancel</p> <p>: Setting keys</p>
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4. Pressing (RESET) commands the printer to print out a hard copy of the selected display.



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