CNC SYSTEMS

OSP5020L
OSP5000L-G
OSP500L-G

ALARM & ERROR LIST (7th Edition)

OKUMA
Your single source for machine & control

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SECTION 1 CLASSIFICATION OF ALARMS

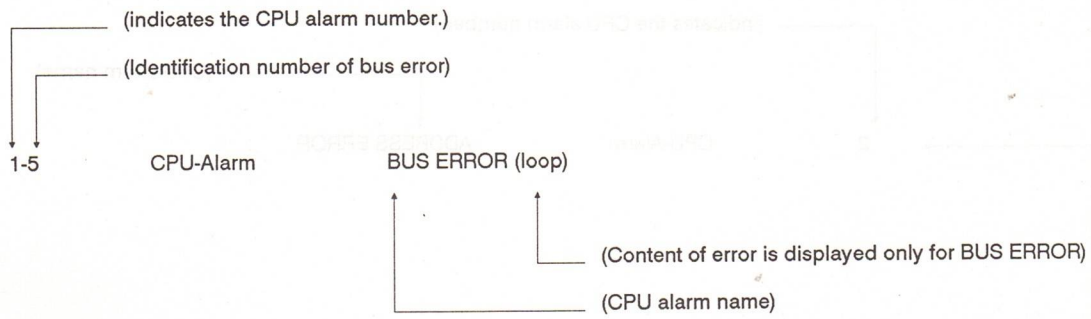
Alarm related with the OSP5020L/5000L-G/500L-G are classified into six types such as CPU alarm, Alarm P, A, B, C and D.

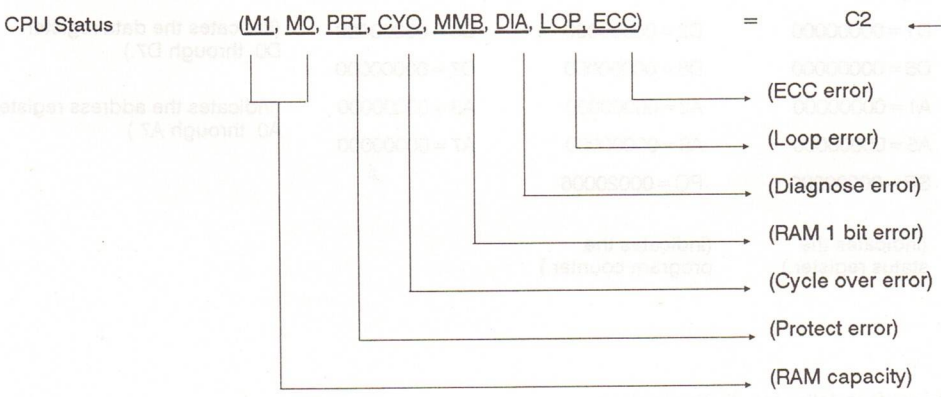
Alarm Classification

Alarm	Machine Conditions when ALARM Lamp Comes ON	Operative NC Functions Thereafter
CPU	Stops NC operation. Stops - axis feed - spindle rotation - coolant supply Shuts off power supply to X- and Z-axis servo drives. CPU status is displayed on the operation panel.	All NC functions are inoperative. Concerning the control, cancel the alarm by turning power on again after turning it off once.
P	Stops NC operation. Stops - axis feed - spindle rotation - coolant supply Shuts off power supply to X- and Z-axis servo drives. Alarm display is given on the operation panel.	All NC functions are inoperative. Concerning the control, cancel the alarm by turning power on again after turning it off once.
A	Stops - axis feed - spindle rotation - coolant supply Shuts off power supply to X- and Z-axis servo drives. Alarm display is given on the operation panel.	Operations for display are possible. The machine remains inoperative until the control is reset and the alarm condition is removed.
B	The commands in the active block are completed. Spindle rotation and coolant supply do not stop. Power supply to X- and Z-axis servo drives is not shut off. Alarm display is given on the operation panel.	Operations for display are possible. The machine remains inoperative until the control is reset and the alarm condition is removed.
C	The part program being run is executed to the end (up to M02 command). Spindle rotation and coolant supply do not stop. Power supply to X- and Z-axis servo drives is not shut off. Alarm display is given on the operation panel.	Operations for display are possible. The machine remains inoperative until the control is reset and the alarm condition is removed.
D	This alarm does not give any influence to the machine operation. Alarm display is given on the operation panel.	Operations on the operation panel are all operative. Alarm status cannot be reset unless the cause of alarm is removed.

The display format of CPU alarm, alarm P, A, B, C and D is indicated on pages 2, 3 and 4.

Display Format of CPU Alarms (Bus Error)



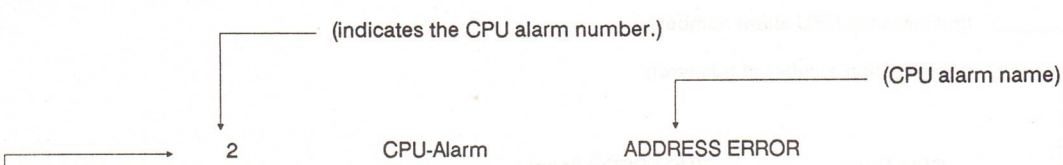


Function code = 0836 Access address = 00FFE700 ← (Indicates the address the CPU has accessed.)

Instruction register = 0838 ← (Indicates the instruction latched.)

D0=43520000	D1=00000000	D2=0000000B	D3=00000210	(Indicates the data register D0 through D7.)
D4=0000000A	D5=00000000	D6=00000000	D7=00000000	
A0=FFFFCC06	A1=00000000	A2=00FFF7C7	A3=00000000	(Indicates the address register A0 through A7.)
A4=00000000	A5=00000000	A6=00000600	A7=000005E4	
US=00000000	SR=0000210D	PC=00FFE704		
(Indicates the user stack pointer.)	(Indicates the status register.)	(Indicates the program counter.)		

Display Format of CPU Alarms (Address error)



Function code = 31E5 Access address = 00003001 ← (indicates the address the CPU has accessed.)

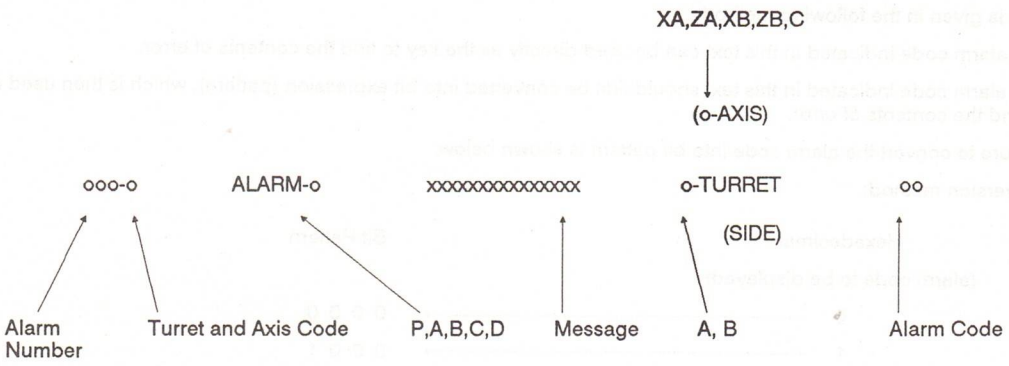
Instruction register = 31FC

D0 = 00000000	D1 = 00000000	D2 = 00000000	D3 = 00000000	(Indicates the data register D0 through D7.)
D4 = 00000000	D5 = 00000000	D6 = 00000000	D7 = 00000000	
A0 = 00000000	A1 = 00000000	A2 = 00000000	A3 = 00000000	(Indicates the address register A0 through A7.)
A4 = 00000000	A5 = 00000000	A6 = 00000000	A7 = 00000000	
US = 00000000	SR = 00002000	PC = 00020006		
(Indicates the user stack pointer.)	(Indicates the status register.)	(Indicates the program counter.)		

Depending on the alarm content, following display is given.

3. CPU alarm Illegal instruction error
4. CPU alarm Zero divide error
5. CPU alarm CHK instruction error
6. CPU alarm TRAPV instruction error
7. CPU alarm Privilege violation error
8. CPU alarm Trace error
9. CPU alarm Line 1010 emulator error
10. CPU alarm Line 1111 emulator error
11. CPU alarm Exception vector error
12. CPU alarm Spurious interrupt error
13. CPU alarm Interrupt error
14. CPU alarm TRAP instruction error
15. CPU alarm User interrupt error

Display Format of Alarm P, A, B, C and D



When an alarm has occurred, it is displayed on the CRT in the format as shown above.

The turret and axis code indicates the spindle or the axis involved in the alarm and it has the same meaning as o-TURRET and/or o-AXIS displayed after the message.

Turret and axis code:

None	No distinguishing on turret and axis
1	A-turret (A-side)
2	B-turret (B-side)
3	XA- or X-axis
4	ZA- or Z-axis
5	XB-axis
6	ZB-axis
7	C-axis
8	MA-axis
9	MB-axis
10	MC-axis
11	MS-axis
12	W-axis

Note: Display of A-TURRET and B-TURRET is available only with the two-saddle model.
Display of A-SIDE and B-SIDE is available only with the two-spindle model.

Alarm Codes:

In this manual, alarm codes are explained using such as "X", "XX", and "XXYY".

Explanation is given in the following methods:

1) The alarm code indicated in this text can be used directly as the key to find the contents of error.
2) The alarm code indicated in this text should first be converted into bit expression (pattern), which is then used as the key to find the contents of error.

The procedure to convert the alarm code into bit pattern is shown below.

Bit conversion method:

Hexadecimal (alarm code to be displayed)	Bit Pattern
0	0 0 0 0
1	0 0 0 1
2	0 0 1 0
3	0 0 1 1
4	0 1 0 0
5	0 1 0 1
6	0 1 1 0
7	0 1 1 1
8	1 0 0 0
9	1 0 0 1
A	1 0 1 0
B	1 0 1 1
C	1 1 0 0
D	1 1 0 1
E	1 1 1 0
F	1 1 1 1

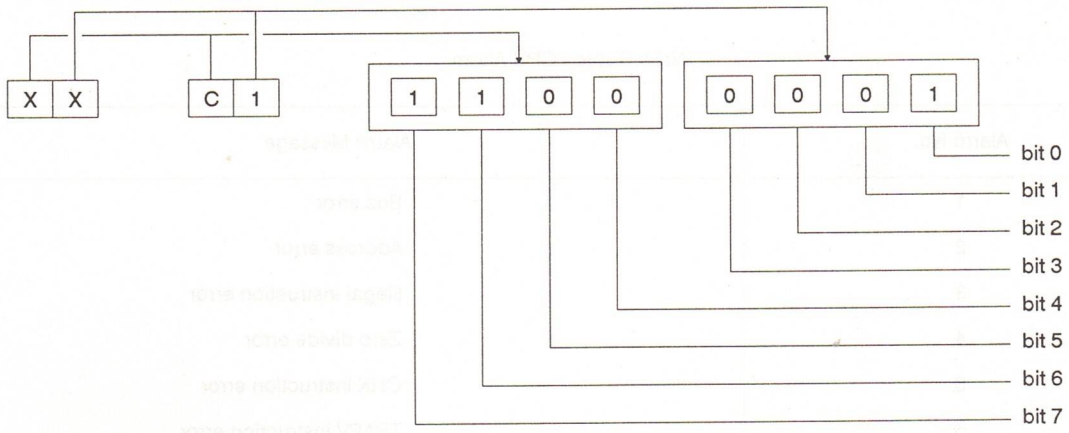
How to check alarm contents:

The method to find the details of the alarm indicated by the bit pattern is explained below using an example.

Example: Code: XX

XX	bit 0	Battery error
	bit 1	EC I/O power shut off error
	bit 2	ECC error
	bit 3	Not used
	bit 4	Not used
	bit 5	EDRQ INT signal
	bit 6	ECP INT signal
	bit 7	ECP RUN signal

If an alarm occurs, a hexadecimal number is displayed. If "$C1" is displayed, for example, first convert this "$C1" into bits.



After the conversion, it is known that bit 0, bit 6, and bit 7 are ON. See the information above and you will find that these error codes correspond to "battery error", "ECP INT signal", and "ECP RUN signal", respectively.

SECTION 2 CPU ALARM

Alarm Table - CPU Alarm

Alarm No.	Alarm Message
1	Bus error
2	Address error
3	Illegal instruction error
4	Zero divide error
5	CHK instruction error
6	TRAPV instruction error
7	Privilege violation error
8	Trace error
9	Line 1010 emulator error
10	Line 1111 emulator error
11	Exception vector error
12	Spurious interrupt error
13	Interrupt error
14	TRAP instruction error
15	User interrupt error

<CPU Alarm>

1	BUS ERROR

This alarm is caused when the bus error exception has occurred with the CPU. Display format is indicated on page 3.

Details of BUS error:

When the bus error occurs, the CPU status is displayed in hexadecimal numbers.

At the same time, the red LED at the CPU rack lights up.

The bus error includes the following five types of errors:

1) Cycle over error
2) ECC error
3) Protect error
4) Loop error
5) Double-bus error

Note: Error display is not available in the case of double-bus error.

Index	None
Character-string	None
Code	CPU status
Probable Faulty Locations	- Printed circuit boards - Mother board - Loose card edge connector connection - Loose flat cable connection - Switch settings
Measures to Take	Depending on the type of error encountered, check the following points. 1) ECC error .....MBII, MC1-II, MC5-II 2) Protect error .....MBII 3) Cycle over error.....Judge the faulty PCB from the access address. 4) Loop error.....PCB which generates the interruption question; judge the interruption level from the status register. 5) Double-bus error.....All PCB's Then, carry out the following steps. 1) Check the switch settings. Make sure that the boards are free of foreign material. Make sure that flat cables are inserted correctly. Make sure that card edge connectors are clean. 2) Change the card insertion slots; check if the problem occurrence status changes. 3) Replace the suspectable boards.

2	ADDRESS ERROR

This error occurs when the CPU has accessed word operands, long word operands or instructions by an odd number address.

(Refer to page 4 for the display format.)

Index	None
Character-string	None
Code	None
Probable Faulty Locations	MBII
Measured to Take	Replace MBII.

3	ILLEGAL INSTRUCTION ERROR

This error occurs when the CPU has read an instruction not allowed for the OSP500/5000L-G. (Refer to page 4 for the display format.)

Index	None
Character-string	None
Code	None
Probabbly Faulty Locations	MBII
Measures to Take	Replace MBII.

4	ZERO DIVIDE ERROR

This error occurs when the CPU executes a division command with a divisor of "0".

(Refer to page 4 for the display format.)

Index	None
Character-string	None
Code	None
Probable Faulty Locations	MBII
Measures to Take:	Replace MBII.

5	CHK INSTRUCTION ERROR

This error occurs when the CPU executes the CHK instruction under certain conditions (such that the register value is less than 0 or that the register value is greater than the upper limit in the operand word.).

(Refer to page 4 for the display format.)

Index	None
Character-string	None
Code	None
Probable Faulty Locations	MBII
Measures to Take:	Replace MBII.

6	TRAPV INSTRUCTION ERROR

This error occurs when the overflow condition bit is turned on in the status register when the TRAPV instruction is executed by the CPU.

(Refer to page 4 for the display format.)

Index	None
Character-string	None
Code	None
Possible Faulty Locations	MBII
Measures to Take	Replace MBII.

7	PRIVILEGE VIOLATION ERROR

This error occurs when the CPU executes a privilege instruction (instructions that can be executed only in the supervisor condition) in the user condition.

(Refer to page 4 for the display format.)

Index	None
Character-string	None
Code	None
Probable Faulty Locations	MBII
Measures to Take:	Replace MBII.

8	TRACE ERROR

This error occurs when the CPU executes an instruction in the trace condition.

(Refer to page 4 for the display format.)

Index	None
Character-string	None
Code	None
Probable Faulty Locations	MBII
Measures to Take:	Replace MBII.

9	LINE 1010 EMULATOR ERROR

This error occurs when the instruction having the word pattern of "A***" is executed.

(Refer to page 4 for the display format.)

Index	None
Character-string	None
Code	None
Probable Faulty Locations	MBII
Measures to Take	Replace MBII.

10	LINE 1111 EMULATOR ERROR

This error occurs when the instruction having the word pattern of "F***" is executed.
(Refer to page 4 for the display format.)

Index	None
Character-string	None
Code	None
Probable Faulty Locations	MBII
Measures to Take	Replace MBII.

11	EXCEPTION VECTOR ERROR

This error occurs when the CPU has referenced the exception vector which is not referenced normally.
(Refer to page 4 for the display format.)

Index	None
Character-string	None
Code	None
Probable Faulty Locations	MBII
Measures to Take	Replace MBII.

12	SPURIOUS INTERRUPT ERROR

This error occurs when a spurious interruption to the CPU has been made.
(Refer to page 4 for the display format.)

Index	None
Character-string	None
Code	None
Probable Faulty Locations	MBII
Measures to Take	Replace MBII.

13	INTERRUPT ERROR

This error occurs when an unusual interruption to the CPU has been made.

(Refer to page 4 for the display format.)

Index	None
Character-string	None
Code	None
Probable Faulty Locations	- All printed circuit boards which generate interruption. - Error in setting interruption level.
Measures to Take	- Check the setting of interruption level setting switches at individual printed circuit boards. - Judge the interruption level from the value at the status register (SR) when an error has occurred. The third digit from the rightmost digit indicates the interruption level. Change the printed circuit board which generates the judged interruption. - Replace MBII. - Replace the mother board.

14	TRAP INSTRUCTION ERROR

This error occurs when the CPU has referenced the TRAP exception vector which is not referenced normally.

(Refer to page 4 for the display format.)

Index	None
Character-string	None
Code	None
Probable Faulty Locations	MBII
Measures to Take	Replace MBII.

15	USER INTERRUPT ERROR

This error occurs when unusual user interruption has occurred.

(Refer to page 4 for the display format.)

Index	None
Character-string	None
Code	None
Probable Faulty Locations	MBII
Measures to Take	Replace MBII.

SECTION 3 ALARM P

Alarm Table - ALARM P

Alarm No.	Alarm Message
50	Time sharing task control
51	Real time task control
52	EC task loop error
53	INT task loop error
54	
55	
56	
57	Back up data file read
58	IGF PBU file read
59	
60	ECP bus error
61	EC bus EC I/O power down
62	EC bus clock start stop
63	
64	Peripheral processor start
65	SVP start
66	Timing generator stop
67	CRP exception
68	CRP diagnosis
69	
70	SVP DIA error
71	
72	Graphic PBU read
73	Pitch comp. data file read
74	SVP PBU read
75	SVP data file data address
76	Illegal machine data

50	Time sharing task control

Time shapring task control is impossible.

Index	None
Character-string	None
Code	Hexadecimal number of the data at address 8 of the supervisor stack, when interruption is activated
Probable Faulty Locations	- Function error of the PTM (programmable timer) on the main board - Problem with software

51	Real time task control

Real time task control is impossible because the supervisor state remains between two consecutive real time task control interruption occurrence.

Index	None
Character-string	None
Code	Hexadecimal number of the data at address 8 of the supervisor stack, when interruption is activated
Probable Faulty Locations	- Faulty timing board (or the axis processor) - Problem with software

52	EC task loop error

Before the completion of the EC task of axis interruption, the next EC task starts.

Index	None
Character-string	None
Code	Hexadecimal number of PC where the EC task starting trap is executed
Probable Faulty Locations	- Timing error in generating the data transmission request interruption signal from the timing board (or the axis processor board)

53	INT task loop error

The task (called INT task, real-time processing) to control the axis movement to calculate SRCON and to execute the graphic drawing processing is run in response to the data transmission request interruption signal from the timing board (or the axis processor board). The processing commenced has not been completed before the reception of the next data transmission interruption signal.

Index	None
Character-string	None
Code	Hexadecimal number of PC where the axis interruption occurs
Probable Faulty Locations	- Timing error in generating the data transmission request interruption signal from the timing board (or the axis processor board) - Problem with software

57	Back up data file read

Back-up data file (LAU**-**-*.PBU) cannot be correctly read from the bubble memory.

Index: None

Character-string: None

Code:
1 .....No backup data file exists in the bubble memory, or file name differs.
2 .....File type is not "PBU1".
3 .....File DB size is too large.
4 .....File DB size is too small.

Probable Faulty Locations:
1) In case the NC was running normally before the occurrence of the alarm:
The PBU file has been deleted or the data in the PBU file has been destroyed.
2) In case the alarm has occurred without running the NC after the loading of the control software from the floppy disk:
The type of the PBU file was wrong, or no PBU file exists.

Operation Example: The LAU**-**-*.PBU file has been deleted mistakenly.

Measures to Take:
- In the case of 1) above:
Load the control software from the floppy disk.
- In the case of 2) above:
Check the contents of the floppy disk. It is necessary to create the floppy disk again.

58	IGF PBU file read

Back-up file for IGF (LBU**-**-*.PBU) cannot be read from the bubble memory.

Index: None

Character-string: None

Code:
1 .....No back-up file for IGF exists in the bubble memory, or file name differs.
2 .....File type is not "PBU2".
3 .....File DB size is too large.
4 .....File DB size is too small.

Probable Faulty Locations:
1) In case the NC was running normally before the occurrence of the alarm:
The IGF.PBU file has been deleted or the data in the PBU file has been destroyed.
2) In case the alarm has occurred without running the NC after the loading of the control software from the floppy disk:
The type of the IGF.PBU file was wrong, or no PBU file exists.

Measures to Take:
- In the case of 1) above:
Load the control software from the floppy disk.
- In the case of 2) above:
Check the contents of the floppy disk. It is necessary to create the floppy disk again.

Related Specifications: IGF Specification

60	ECP bus error

Bus error and ECC error are detected while the ECP memory is cleared and initialized after the EC processor has started.

Index — None

Character-string — None

Code — XXYY

YY:

Bit 2 ..... Position encoder busy error
Bit 3 ..... Oscillation stop error
Bit 4 ..... Loop error
Bit 5 ..... Cycle over error
Bit 6 ..... Parity error
Bit 7 ..... ECC error

XX:

Bit 0 ..... Battery error
Bit 1 ..... EC I/O power off error
Bit 2 ..... ECC error
Bit 5 ..... EDRQ INT signal
Bit 6 ..... ECP INT signal
Bit 7 ..... ECP RUN signal

Probable Faulty Locations
- ECP board
- Battery

61	EC bus EC I/O power

Power supply to the EC I/O rack connected to EC bus is off, or its voltage is low.

Index — None

Character-string — None

Code

Bit 2..... Power supply to I/O rack at CH1
Bit 3..... Power supply to I/O rack at CH2
Bit 4..... Clock signal generation

62	EC bus clock start stop

Clock signals for scanning EC bus are not generated.

Index — None

Character-string — None

Code

Bit 2..... Power supply to I/O rack at CH1
Bit 3..... Power supply to I/O rack at CH2
Bit 4..... Clock signal generation stopped

64	Peripheral processor start

A problem occurs with the peripheral processor when the NC operation is started, resulting in no response within a preset period.

Index — None

Character-string — None

Code — XY

X=1 ..... EC processor 1 (robot)
X=2 ..... Axis processor
X=3 ..... Servo processor
X=4 ..... EC processor 2 (ATC)

Y

Sequence count value until the response from the peripheral processor is received

65	SVP start

The servo processor has failed to function correctly at the start of the control (cycle start).

Index — None

Character-string — None

Code — XYYZZZZ

X:

1 ..... APA pattern data alarm
2 ..... APA velocity alarm
6 ..... APA check data alarm
8 ..... Servo data alarm
A ..... Type F position encoder error compensation data alarm (when the control is started by pressing the RESET button)

1D ..... Level 7 interrupt
1F ..... INT 2 loop error

YY:

00 ..... ZA-axis
01 ..... XA-axis
02 ..... ZB-axis
03 ..... XB-axis
04 ..... C-axis

ZZZZ:

X=1 - 6

APA upper-digit data detected as an alarm

X=8

Type of abnormal servo data

0001 ..... Compensation code A
0002 ..... Compensation code B
0003 ..... Compensation code C
0004 ..... Compensation code D
0011 ..... Integration limit code
0012 ..... Torque limit code A
0013 ..... Torque limit code B
0014 ..... Velocity amplifier gain
0019 ..... Speed reduction ratio
0021 ..... KV value
0022 ..... Hard servo coefficient
0023 ..... Slow up/slow down coefficient
0039 ..... Backlash
FFFF ..... SVP specification code

X=A

Reason why error compensation data has not been set

Probable Faulty Locations

- The servo data setting alarm occurs when the servo data (stored in the bubble memory) of the machine and the SVPROM version do not match each other.
- The error compensation data alarm with the type F position encoder occurs when the ROM and the position encoder type do not match each other, for example, type E position encoder is used with the type F compatible SVPROM. Or an error occurs with the type F position encoder.

66	Timing generator stop

The source oscillation for the timing generator on the timing control board has stopped.

Index: None

Character-string: None

Code: XX: Timing board status

Bit 5..... Oscillation stop for timing generator

Probable Faulty Locations: Timing board

67	CRP exception

Occurrence of CRP exception error

Index: None

Character-string: None

Code: ****:

Bit 0..... User interrupt exception
Bit 1..... TRAP instruction exception
Bit 2..... Unused interrupt exception
Bit 3..... Spurious interrupt exception
Bit 4..... Undesignated exception
Bit 5..... Non-executive instruction exception
Bit 6..... Trace exception
Bit 7..... Privilege violation exception
Bit 8..... TRAPV instruction exception
Bit 9..... CHK instruction exception
Bit 10..... Zero divide exception
Bit 11..... Illegal instruction exception
bit 12..... Address error exception
bit 13..... Bus error exception
bit 14..... ---
bit 15..... RAM check error exception

Probable Faulty Locations

- CRP
- Operation panel

Measures to Take

- Replace the CRP.
- Replace the operation panel.

68	CRP diagnosis

CRP self-diagnosis data is not normal.

Index	None
Character-string	None
Code	Self-diagnosis
Probable Faulty Locations	CRP board
Measures to Take	Replace the CRP board.

70	SVP DIA error

To check the servo processor, a series of operation, stack operation, and other instruction patterns are executed. This alarm occurs if the results of this are abnormal.

The detection is made in the check at the NC.

Index	None
Character-string	None
Code	XXYY

XX: Axis number

00..... ZA-axis
01..... XA-axis
02..... ZB-axis
03..... XB-axis
04..... C-axis

YY:

Diagnosis data at an occurrence of alarm (in normal operation condition, diagnosis data is $55.)

Probable Faulty Locations	Problem with servo processor CPU and related parts
Measures to Take	Replace servo processor board.

72	Graphic PBU read

Back-up file for graphic (LGU**-**-*.POL) cannot be read from the bubble memory.

Index	None
Character-string	None
Code	1 ..... No backup file for graphic exists in the bubble memory, or file name differs. 2 ..... File type is not "PBU1". 3 ..... File DB size is too large. 4 ..... File DB size is too small.
Probable Faulty Location	1) In case the NC was running normally before the occurrence of the alarm: The PBU file has been deleted or the data in the PBU file has been destroyed. 2) In case the alarm has occurred without running the NC after the loading of the control software from the floppy disk: The type of the PBU file was wrong, or the data in the PBU file has been destroyed.
Operation Example	The LGU**-**-*.PBU file has been deleted mistakenly.
Measures to Take	- In the case of 1) above: Load the control software from the floppy disk. - In the case of 2) above: Check the contents of the floppy disk. It is necessary to create the floppy disk again.
Related Specifications	Graphic specification

73	Pitch comp. data file read

With the specification of ball screw pitch error compensation or inductosyn pitch error compensation, pitch error compensation data file (LAT**-**-*.POL) does not exist in the bubble memory when turning on power. Or the file is not with the data size for the specification.

Index	None
Character-string	None
Code	FFFFFFFF ..... No compensation data file Others ..... Compensation data size of the compensation data file is wrong.
Probable Faulty Locations	Pitch error compensation data file
Operation Example	Pitch error compensation data file in the bubble memory has been deleted mistakenly.
Measures to Take	Carry out the loading from floppy disks.
Related Specifications	Pitch error compensation specification

74	SVP PBU file read

Reading of data file of servo processor is impossible.

Index	None
Character-string	None
Code	1 .....No SVP data file in bubble memory 2 .....File type is not PBU1.
Probable Faulty Locations	- Error with shipped floppy disk - Bubble memory - Servo data file is not loaded correctly in bubble memory.
Measures to Take	- Check whether or not the servo data file LSU**..PBU) is existent in the floppy disk on which control software is registered. - Re-load the control floppy disk. - Replace the bubble memory.

75	SVP data file data address

Transmission address of servo data is wrong.

Index	None
Character-string	None
Code	Designated transfer address
Probable Faulty Locations	- Error in setting specification code (Example: 2S specification code is not set for 2S model.) - Error in released servo data file (LSU**.PBU) (Example: 2S data file is delivered for 1S model.)
Measures to Take	Set the specification codes meeting the actual machine specifications and use the servo data file matching the machine specifications.

76	Illegal machine data

Abnormality of machine data (specification code) is detected.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	- Operation error of service personnel - Bubble memory destroyed

SECTION 4 ALARM A

Alarm Table - ALARM A

Alarm No.	Alarm Message
100	DIF over
101	CON velocity
102	APA velocity
103	APA BCD data
104	Plus var. limit over
105	Minus var. limit over
106	EC over load
107	EC circuit breaker
108	EC power off
109	Transformer over heat
110	SDU
111	Spindle over load
112	
113	LDU over load
114	Gear no OK revolution
115	Gear command
116	Gear neutral
117	Chuck clamp
118	Chuck condition illegal
119	Chuck open
120	Tool clamp or tool position
121	Tool number input
122	Tool interference check
123	Stroke end over
124	Stroke end limit cancel
125	
126	
127	
128	
129	M03/M04 change
130	Oil press
131	External
132	Door interlock

Alarm Table - ALARM A

Alarm No.	Alarm Message
133	Sensor touch G00
134	Sensor no touch
135	Thread feed
136	S.M command asynchronize
137	Synchronize P code
138	Tailstock spindle advance answer
139	Tailstock spindle over advance
140	Tailstock spindle condition illegal
141	Tow-along tailstock connect
142	Tow-along tailstock condition
143	Tow-along tailstock clamp/unclamp
144	W-axis plus var. limit over
145	W-axis minus var. limit over
146	Spindle orientation gear neutral
147	User reserve code
148	Index chuck
149	Sensor head
150	Coupling device illegal
151	Touch sensor limit
152	Robot at inside machine
153	Robot lot completed
154	
155	Loader at inside machine
156	Loader lot completed
157	Loader NC no OK
158	Air chuck
159	C-axis connect G code
160	C-axis connect command
161	C-axis clamp/unclamp
162	Revolution tool M13/M14 change
163	Revolution tool gear no OK
164	Tool revolution command
165	C-axis command
166	Revolution tool SDU
167	Revolution tool overload
168	

Alarm Table - ALARM A

Alarm No.	Alarm Message
169	ATC change arm position
170	T command in tool revolution
171	MOP over-load
172	MOP pattern
173	ATC ECT TASK loop error
174	ATC time sharing task error
175	ATC exception error
176	ATC memory test error
177	ATC real time task loop error
178	ATC INT TASK loop error
179	Tailstock interference
180	Revolution tool gear command
181	
182	
183	XA-axis overload
184	XB-axis overload
185	ZA-axis overload
186	ZB-axis overload
187	Position read data
188	Laser measurement data NG
189	IND. CMP. data verify NG
190	HP9825A send
191	HP9825A receive
192	HP9825A receive data format
193	ROBOT ECP EC I/O power
194	
195	ROBOT ECP bus error
196	
197	
198	
199	
200	SVP system
201	Servo amp
202	APA check data
203	SVP velocity over
204	SVP double bus error

Alarm Table - ALARM A

Alarm No.	Alarm Message
205	APA pattern data
206	Shear pin
207	
208	Torque limit
209	
210	Chucking mistaken
211	Tailstock swing condition
212	
213	
214	
215	Revolution tool orientation
216	Create process calculation
217	Pitch comp. data
218	
219	No dummy tool at ATC turret
220	
221	C-axis advance
222	
223	
224	
225	
226	
227	
228	Tailstock swing retract position
229	
230	
231	
232	Sensor protect
233	
234	
235	
236	
237	
238	
239	
240	CRP exception error

Alarm Table - ALARM A

Alarm No.	Alarm Message
241	Panel/CRP receive
242	CRP diagnosis
243	Chuck barrier area
244	Tailstock barrier area
245	SVP data set
246	Emergency stop
247	Touch setter limit
248	Touch setter display
249	
250	
251	
252	
253	
254	Position read (full closed loop)
255	SVP alarm message not registered
256	Load monitor tool break down
257	Load monitor command execution
258	Collet unclamp
259	
260	Turret index control abnormal
261	
262	Cycle time over
263	
264	CPU parity error
265	
266	Spindle revolution error
267	Manual tool change operation illegal
268	Turret revolution
269	
270	
271	ATC barrier area
272	
273	A circle thread simul joint
274	Parts catcher interlock
275	Loader ECP EC I/O power
276	Loader ECP BUS error

Alarm Table - ALARM A

Alarm No.	Alarm Message
277	
278	
279	
280	
281	
282	
283	Spindle max revolution number
284	
285	Pick off chuck interlock
286	
287	
288	
289	
290	
291	
292	
293	
294	
295	
296	
297	
298	
299	
300	
301	
302	
303	
304	Interrupt return pointer unmatch
305	
306	
307	
308	
310	
311	
312	

Alarm Table - ALARM A

Allarm No.	Alarm Message
313	
314	
315	Subspindle chuck interlock
316	
317	
318	
324	Spindle rev. change low/high command
325	Spindle rev. change low/high signal
328	
336	
339	Max. rev. order for M-axis
343	Sub-spindle orientation command
344	M123/M124 change
346	Max. rev. order for sub-spindle
347	
348	Sub-spindle revolution over
351	
356	
358	
376	
394	

<Alarm A>

100	DIF over

Follow up error in axis movement exceeds the permissible error range (16384/2 μm).
(The value exceeds the permissible error rang more than three times in succession)

Index	AXIS
Character-string	None
Code	Hexadecimal number (4000 or more) of follow up error value (the number of pulses for brushless servomotor)
Probable Faulty Locations	Mechanical problems such as insufficient slideway lubrication and collision of turret
Measures to Take	Lessen resistance in axis feed by removing mechanical faulty.

101	CON velocity

Variation amount of the calculated value exceeds the permissible value (12 m/min).

Index	AXIS
Character-string	None
Code	Hexadecimal number (280 or more) of variation amount of CON in 3.2 msec (the number of pulses for brushless servomotor)
Probable Faulty Locations	Setting value of rapid feed unit amount (set by parameter)
Measures to Take	Decrease rapid feed unit amount.

<Alarm A>

102	APA velocity

Variation amount of the position encoder exceeds the permissible value (12 m/min).

Example: When code indication is "43FC":

Convert 43FC (hexadecimal) into a decimal number (17404).

This value indicates that APA value changes by 17404 per 3.2 msec. Convert this value into axis feed amount per minute.

$17,404/163,840 \times 7 \times 60$ (sec)$/3.2 \times 10^{-3}$ (sec) = 13,942 (mm) = 14 (m) ..... 14 m/min

The APA velocity alarm has occurred since APA value variation corresponding to 14 m/min was generated on the machine whose rapid feedrate is 12 m/min.

One motor revolution corresponds to 163,840 pulses.

Index	AXIS
Character-string	None
Code	Hexadecimal number (280 or more) of variation amount of APA in 3.2 msec (the number of pulses for brushless servomotor)
Probable Faulty Locations	- Inductosyn - Inductosyn power amplifier - Inductosyn pre-amplifier - AXIS card 6 - Type F (E) position encoder - Separately installed MPR - SVP board - Timing board - Type D position encoder - AXIS board
Measures to Take	- Mechanical faulty such as backlash in MPR is also suspectable. - Inductosyn scale is used to detect variation amount less than 2 mm: With variation amount less than 2 mm, check Inductosyn scale and related parts. - Separately installed MPR detects variation amount less than 800 μm: With variation amount less than 800 μm, check separately installed MPR. - For variation amount larger than values indicated above, devices (type F or D position encoder, etc.) used for higher digit value is suspectable. However, since carry signal error of the Inductosyn also causes the same problem, cause of this alarm cannot be pinpointed.

<Alarm A>

103	APA BCD data

Data read in the position encoder is not 0 to 9. Wrong data is read more than two times consecutively.

Index AXIS

Character-string None

Code XY

X.....Read-in digit

No.....Divided by "5"
1.....1st digit
2.....2nd digit
3.....3rd digit
4.....4th digit
5.....5th digit
6.....6th digit)

Y.....Read-in BCD data

A through E.....Interface error
F.....Position encoder error
Meanwhile digits other than 0, 1, 3, 7, F given for 5-divided digit)

Probable Faulty Locations
- Type D position encoder
- AXIS board

104	Plus var. limit over

An axis movement command to move the axis beyond the variable limit position in the positive direction is designated.

Index AXIS

Character-string None

Code
1.....In G00, G01, G32, G33, G34 or G35 mode
2.....In G02 or G03 mode; when restarting from manual interruption

Probable Faulty Locations
- Axis command error (a value exceeding the variable limit in the positive direction has been specified)
- Setting error of the variable limit in the positive direction (set by user parameter)

Measures to Take
- Correct the axis command value so that the target point does not exceed the variable limit in the positive direction.
- Change the variable limit in the positive direction so that the target point of the specified axis command falls within a movable travel range.

<Alarm A>

121	Tool number input

The tool number of the turret is not input as specified.

* The turret tool number input signals differ depending on machine models. Refer to the description below.

LC series
LH series
LS series

Bit 0 - bit 7 of EC input No. 2 correspond to tool numbers 1 - 8.

Bit 0 - bit 3 of EC input No. 1 correspond to tool numbers 9 -12.

LB10
LB15 (machine #1 - #2760)
LP15

See Table 1.

LB15 (machine #2761 -)
LC20 (minor change model -)

See Table 2.

Table 1 LB10/LB15 (#0 - #2760)/LP15

EC Input Bit / Tool No.	EC Input 01: No. 2							
	bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1	bit 0
1	0	0	0	0	0	0	1	1
2	0	0	0	0	0	1	0	1
3	0	0	0	0	1	0	0	1
4	0	0	0	1	0	0	0	1
5	0	0	0	1	1	1	0	1
6	0	0	0	1	1	0	1	1
7	0	0	0	1	0	1	1	1
8	0	0	0	0	1	1	1	1
9	0	1	0	0	1	0	1	1
10	0	1	0	1	0	1	0	1
11	0	0	1	1	0	1	0	1
12	0	0	1	0	1	0	1	1

<Alarm A>

Table 2 LC20 (after minor change)/LB15 (#2761 -)

EC Input Bit / Tool No.	EC Input 01: No. 2							
	bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1	bit 0
1	0	0	0	0	0	0	1	1
2	0	0	0	0	1	0	0	1
3	0	0	0	0	0	1	0	1
4	0	0	0	1	0	0	0	1
5	0	0	0	1	0	1	1	1
6	0	0	0	1	1	1	0	1
7	0	0	0	0	1	1	1	1
8	0	0	0	1	1	0	1	1
9	0	1	0	1	0	0	1	1
10	0	1	0	0	1	1	0	1
11	0	0	1	0	1	1	0	1
12	0	0	1	1	0	0	1	1
13	0	1	0	0	0	1	1	1
14	0	1	0	1	1	0	0	1
15	0	0	1	0	0	1	1	1
16	0	0	1	1	1	0	0	1

Index	TURRET
Character-string	None
Code	XXX .....Tool No. input when the alarm has occurred (hexadecimal)
Probable Faulty Locations	- Turret related limit switches - Turret related wiring
Measures to Take	Check the limit switches and wiring related with the turret.

<Alarm A>

122	Tool interference check

The turrets approach each other within the tool interference check area.

For the machine equipped with ATC specification, turret indexing is specified in the direction the ATC turret will interfere with the duct.

Index — Turret for the machine equipped with ATC
None for other machines

Character-string — None

Code

1 ..... Interference between tools on A- and B-turret

2 ..... Interference between the B-turret and the tool on A-turret

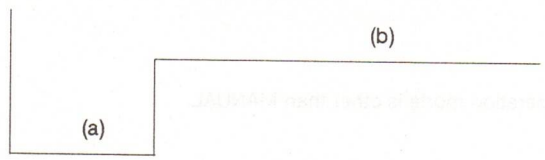
3 ..... Interference between the A-turret and the tool on B-turret

4 ..... Interference between the A- and B-turret

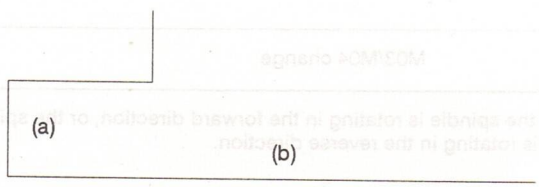
11 ..... Interference between L-tool (T1) and duct in clockwise rotation. Or interference between M-tool (T3) and duct in counterclockwise rotation.

13 ..... Interference between L-tool (T1) and duct in counterclockwise rotation. Or interference between M-tool (T3) and duct in clockwise rotation.

Tool interference data pattern 1



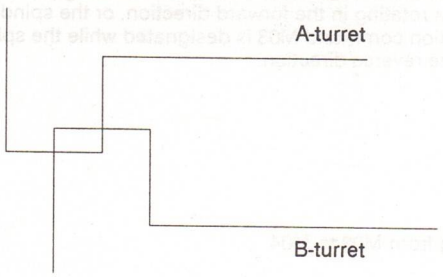
Tool interference data pattern 2



a: Tool protrusion area

b: Turret

Example of code 1



Probable Faulty Locations
- Error in simultaneous cuts on the 2-saddle models
- Error in setting tool interference check area

Measures to Take
- Check the simultaneous cuts program.
- Check the tool interference check data.

<Alarm A>

123	Stroke end over

An axis travel end limit switch is tripped.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Setting error of soft-limit positions (positive/negative). The soft-limit position is set outside the emergency limit position.
Measures to Take	Check the axis travel end limit switch. (Is it turned on by chips or other foreign matter?) Push the reset button in the manual mode while turning on the emergency limit release switch on the control box, then move the turret away from the emergency limit position by rotating the pulse handle. After the emergency limit switch has been released, turn off the emergency limit release switch in the original position and re-set the soft-limit position.

124	Stroke end limit cancel

Operation mode other than MANUAL is selected while the stroke end limit cancel switch is ON.

Index	None
Character-string	None
Code	1 .....Operation mode is other than MANUAL.
Probable Faulty Locations	Operation error
Measures to Take	Turn ON the stroke end limit cancel switch after selecting the manual mode, then press the reset button to reset the alarm.

129	M03/M04 change

The spindle reverse rotation command M04 is designated while the spindle is rotating in the forward direction, or the spindle forward rotation command M03 is designated while the spindle is rotating in the reverse direction.

Index	TURRET
Character-string	None
Code	1 .....The spindle reverse rotation command M04 is designated while the spindle is rotating in the forward direction, or the spindle forward rotation command M03 is designated while the spindle is rotating in the reverse direction.
Probable Faulty Locations	Program error
Program Example	: M03 ┐ : │ Direct switching from M03 to M04 M04 ┘ :
Measures to Take	Before switching the spindle rotation from forward (M03) to reverse (M04), stop the spindle first by designating M05. When changing the spindle rotation direction from reverse (M04) to forward (M03), also stop the spindle once by designating M05.

<Alarm A>

130	Oil press

The condition where the oil pressure is lower than the specified level has continued for more than two seconds.

Index	None
Character-string	None
Code	1 .....Low oil pressure status has continued for more than two seconds.
Probable Faulty Locations	- Low oil level - Hydraulic power unit motor

131	External

A problem has occurred with an external device.

Index	None
Character-string	None
Code	1 .....A problem has occurred with an external device.
Probable Faulty Locations	External device
Measures to Take	Clear the alarm state of the external device first and then reset the NC.

<Alarm A>

132	Door interlock

Any of the following signal is turned on while the door is open with the door interlock function ON.
Spindle rotation, axis movement, turret indexing, M-tool spindle rotation, and external input signal from the coupled peripheral.
Or and attempt is made to open the door in any of the above indicated state with the door inter lock function ON.

Index: TURRET

Character-string: None

Code:

1 ..... Spindle rotation

2 ..... M-tool spindle rotation

3 ..... Axis movement

4 ..... Turret indexing

5 ..... External input signal from the coupled peripheral

6 ..... Door is opened while the subspindle is rotating.
(LR15-M subspindle specification)

10 ..... Upper cover open/close command is designated while the front cover is not closed.

11 ..... Door for loader is opened while the spindle is rotating.

12 ..... Door for loader is opened while the M-tool is rotating.

13 ..... Door for loader is opened during axis movement.

14 ..... Door for loader is opened while the turret is indexing.

15 ..... Door for loader is opened during ATC operator with parts catcher.

Probable Faulty Locations:

- Operation error
- Door close confirmation LS; corresponding dog position error

Measures to Take:

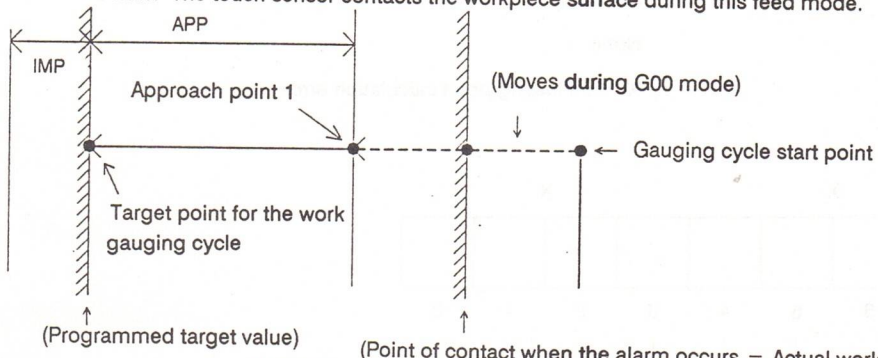
- Do not open the door while the spindle is rotating or the axis is moving.
- If the LS is defective, replace it.
- Adjust the dog position so that limit switch is always actuated while the door is closed.

<Alarm A>

133	Sensor touch G00

The sensor has been brought into contact with the workpiece during G00 mode feed while the execution of the G30 work gauging cycle.

In the work gauging cycle, the touch sensor is fed in the G00 mode between the gauging cycle start point and the approach point 1 in the illustration below. The touch sensor contacts the workpiece surface during this feed mode.

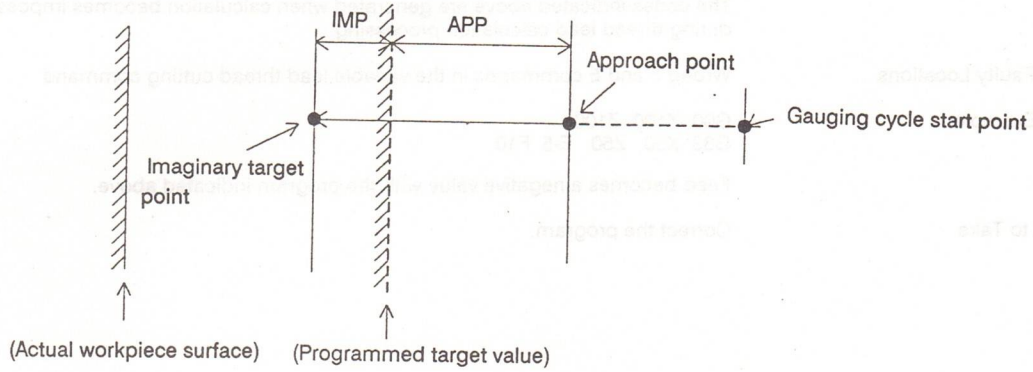


Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Measures to Take	Check the target point for the work gauging cycle. (Check whether the programmed target point and the actual workpiece position coincide each other.)
Related Specifications	Gauging cycle specification

134	Sensor no touch

The sensor has not been brought into contact with the workpiece while the execution of the G30 work gauging cycle.

The sensor fails to contact the workpiece surface when it is fed from the approach point 1 to the imaginary target point in the illustration below.



Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Measures to Take	Check the target point for the work gauging cycle. (Check whether the programmed target point and the actual workpiece position coincide each other.)
Related Specifications	Gauging cycle specification

<Alarm A>

135	Thread feed

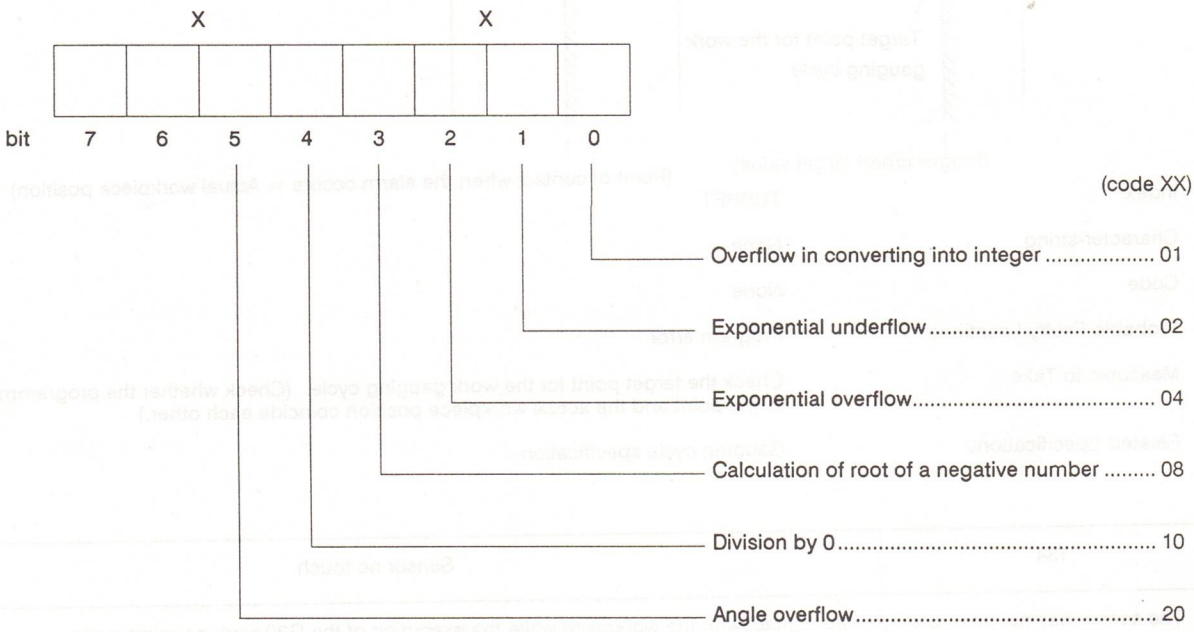
In cutting a variable lead thread, the lead is zero or a negative value.

Calculation error has occurred in the calculation of feed for variable lead thread cutting.

Index AXIS

Character-string None

Code XX ..... Floating point calculation error



The codes indicated above are generated when calculation becomes impossible during thread lead calculation processing.

Probable Faulty Locations Wrong F and E commands in the variable lead thread cutting command

Program Example

```
G00 X100 Z100
G33 X50  Z50  E-5 F10
```

Feed becomes a negative value with the program indicated above.

Measures to Take Correct the program.

<Alarm A>

136	S.M command asynchronize

Under simultaneous four-axis control mode, S or M command provided with constant cutting speed code does not match between turret A and B for 2-saddle specification.

Index: TURRET

Character-string: None

Code:

1 ..... Mismatch of constant cutting speed code (G96 and G97)

2 ..... Mismatch of turret selection command for CCS mode (G110 and G111)

3 ..... Mismatch of S command

4 ..... Mismatch of spindle rotation command (M03, M04 and M05)

5 ..... Mismatch of spindle drive gear range command (M40 through M44)

6 ..... Mismatch of M00 and M01

7 ..... Mismatch of M19

8 ..... Mismatch of M109 and M110

9 ..... Mismatch of sub spindle constant cutting speed code

A ..... Mismatch of turret selection command for CCS mode

B ..... Mismatch of SC command

C ..... Mismatch of sub spindle rotation command (M122, M123, M124 and M239)

D ..... Mismatch of CC command

Probable Faulty Locations: Mismatching S and/or M code command in simultaneous four-axis cut program.

Program Example:

Turret A

```
N100 G00 X500 Z500
N101 M41 M03 S100 P10
```

Turret B

```
N200 G00 X500 Z500
M201 M42 M03 S500 P10
```

Measures to Take: Correct the program.

Example

In the program above, change the commands in N201 sequence as indicated below:

```
N201 M41 M03 S100 P10
```

Always designate the same S and M code commands at both turrets.

Related Specifications: LC series, 2S specification

137	Synchronize P code

P commands are not designated in the ascending order for 2-saddle specification (except when the P commands are negative values).

Or P commands for both A- and B-turret have negative and mismatching values.

Index	TURRET
Character-string	None
Code	1 .....There is a P command assigned with a numerical value smaller than the one assigned to the presently executed P command. 2 .....Mismatch between negative P values for A- and B-turret.
Probable Faulty Locations	Program error
Program Example	G00 X500 Z500 P30 M41 M03 S500 P20
Measures to Take	Correct the program. In the example, change P20 into P40 so that P code values increase orderly.

138	Tailstock spindle advance answer

Tailstock spindle in-position answer signal is not input within five seconds after the tailstock spindle advance command M56 has been executed.

Index	None
Character-string	None
Code	2 .....Tailstock spindle in-position answer signal is not input within five seconds after the tailstock spindle advance command M56 has been executed.
Probable Faulty Locations	Faulty adjustments of tailstock spindle in-position confirmation LS
Measures to Take	Adjust the dog position so that the in-position LS is turned on when the tailstock spindle is pressed against the workpiece.

139	Tailstock spindle over advance

The tailstock spindle has over-advanced, exceeding the advance end limit position.

Alarm B (464) occurs if this alarm occurs during the execution of other than main programs.

Index	None
Character-string	None
Code	1 .....The tailstock spindle over-advanced to actuate the over-advance confirmation LS
Probable Faulty Locations	- The tailstock is positioned too far from the workpiece, thus causing the over-advance confirmation LS to be actuated before the tailstock spindle center is pushed against the workpiece. - The tailstock spindle advance command is designated although a workpiece is not set on the machine (operation error).
Measures to Take	- Re-position the tailstock closer to the workpiece, or adjust the dog position. - Designate the tailstock spindle advance command only after setting a workpiece in the chuck.

<Alarm A>

140	Tailstock spindle condition illegal

When the tailstock spindle advance/retraction (M55/M56) command is designated, the spindle and/or the M-tool spindle is not in the stopped state.

When the spindle or the M-tool spindle rotation command is designated, the tailstock spindle is not at the specified position*.

* Specified position:

a) Tailstock spindle in-position position for center work

b) Tailstock spindle retracted position for chuck work

Index: TURRET or none

Character-string: None

Code:

1 ..... M55 or M56 command is designated while the spindle is not in the stopped state (zero rotation input ON, spindle rotation command (M03/M04) not active, spindle rotating signal not ON).

The tailstock spindle is not at the specified position when the spindle rotation command (M03/M04) is designated.

2 ..... M55 or M56 command is designated while the machine is not set for the center work.

3 ..... M55 or M56 command is designated while the M-tool spindle is not in the stopped state (zero rotation input ON, spindle rotation command (M13/M14) not active, spindle rotating signal not ON).

4 ..... M-tool spindle rotation command is designated while the tailstock is not at the specified position.

5 ..... The tailstock spindle offsets from the specified position while the M-tool spindle is rotating.

6 ..... M code commanmd is designated when the special work rest is at retract end.

7 ..... An attempt was made to rotate the spindle with the tailstock spindle pressure input is off when the selector switch is at the neutral position.

* For code 1 and code 3, interlock release is possible by M157.

Probable Faulty Locations:

- Faulty zero speed input for the spindle and the M-tool spindle.
- Program error
- Operation error

Program Example:

```
N100 M03 S500
M101 M55
```

Operation Example: The cycle start button is pressed while the tailstock spindle is not at the retracted position for the chuck work.

Measures to Take:

- Make sure that there are no program or operation errors.
- Check the input of the zero speed signal.

Related Specifications: Tailstock spindle advance/retraction command by M code

<Alarm A>

141	Tow-along tailstock connect

G02, G03, G30, G31, G32, G33, G34 or G35 command is designated while the tailstock body is connected.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	- The tailstock body connected state is established although actually not in connected state due to faulty EC input signals. - Operation error
Program Example	M189 G02 X100 Z50 I1 F10
Measures to Take	- Correct the program. - Check the EC input signals Bit 6 of PECI24.12 ..... tailstock disconnection confirmation Bit 7 of PECI24.12 ..... tailstock connection confirmation
Related Specifications	Programmable tailstock

<Alarm A>

142	Tow-along tailstock condition

M188 (Tailstock disconnect), or M189 (Tailstock connect) is designated with G152 calling for tailstock towing mode while the spindle is not in zero speed or while the spindle is not at a still.

M188, M189 or G152 is designated while the spindle rotation command is active.

M188, M189 or G152 is designated while the center work is not selected.

M188, M189 or G152 is designated while the tailstock spindle is not at the retraction end, or the turrets are not at the stroke end in the positive direction.

Index	None
Character-string	None
Code	1 .....M188, M189 or G153 is designated while the spindle is not in zero speed.
	2 .....M188, M189 or G153 is designated while the spindle is not at a still.
	3 .....M188, M189 or G152 is designated while the spindle rotation command is active.
	4 .....M188, M189 or G152 is designated while center work is not selected.
	5 .....M188, M189 or G152 is designated while the tailstock spindle is not at the retraction end.
	6 .....M188, M189 or G152 is designated while the turrets are not at the stroke end in the positive direction.
	7 .....M189, M152 are designated while both of the disconnect and connect signals are ON or OFF.
	8 .....When the tailstock connect ON key is pressed, the spindle is not at a still, .
	9 .....When the tailstock connect ON key is pressed , XA-axis is not at the travel end in the positive direction, .
	10 .....When the tailstock connect ON key is pressed, the tailstock is not at the retract end.
	11 .....When the tailstock connect ON key is pressed, the tailstock is not unclamped.
Probable Faulty Locations	Operation error
Measures to Take	Take proper measures in reference to the code number.
Related Specifications	Programmable tailstock

<Alarm A>

143	Tow-along tailstock clamp/unclamp

Neither connection ON nor connection OFF signal is output for more than three seconds.

Both connection ON and connection OFF signals are output for more than three seconds.

The connection ON signal is output at other than stroke end of X-axis or tailstock spindle retraction end.

Index	None	
Character-string	None	
Code	None	Neither connection ON nor connection OFF signal is output for more than three seconds.
	3	Both connection ON and connection OFF signals are output for more than three seconds.
	4	Connection ON signal is output at other than stroke end of X-axis.
	5	Connection ON signal is output at other than tailstock spindle retraction end.
Probable Faulty Locations	Code None:	Defective or improperly adjusted correction ON/OFF confirmation LS's
	Code 3:	Defective or improperly adjusted connection ON/OFF confirmation LS's
	Code 4:	X-axis is not at the travel limit position.
	Code 5:	Either the tailstock spindle is not retracted, or the retraction end LS is not actuated.
Measures to Take	Code None:	Check or adjust the position of the connection ON/OFF confirmation LS's.
	Code 3:	Check or adjust the position of the connection ON/OFF confirmation LS's.
	Code 4:	Move X-axis up to the travel limit position.
	Code 5:	Retract the tailstock spindle; check the retraction end LS.
Related Specifications	Programmable tailstock	

144	W-axis plus var. limit over

W-axis command exceeding the positive variable limit is designated.

Index	AXIS, TURRET	
Character-string	None	
Code	1	During operation using programmed commands
	2	During automatic returning to the joint point in manual operation intervention mode
Probable Faulty Locations	W-axis limit has been set so that the tow-along tailstock joint position will be outside the soft-limit position.	
Measures to Take	Shift the W-axis limit position outside if possible. If such setting is not allowed, operate the turret manually and carefully to connect the tailstock so that interference will not occur.	
Related Specifications	Programmable tailstock	

<Alarm A>

145	W-axis minus var. limit over

W-axis command exceeding the negative variable limit is designated.

Index	AXIS, TURRET
Character-string	None
Code	1 .....During operation using programmed commands 2 .....During automatic returning to the joint point in manual operation intervention mode
Probable Faulty Locations	W-axis limit has been set so that the tow-along tailstock joint position will be outside the soft-limit position.
Measures to Take	Shift the W-axis limit position outside if possible. If such setting is not allowed, operate the turret manually and carefully to connect the tailstock so that interference will not occur.
Related Specifications	Programmable tailstock

146	Spindle orientation gear neutral

The spindle drive gear is in the neutral position when the spindle orientation command (M19) is designated.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	- Program error - Operation error
Program Example	The gear range selection command is not designated before the spindle orientation command, or the spindle gear range neutral command is designated before it.
Operation Example	In the MDI mode, M19 is executed while the gear range is in the neutral position.
Measures to Take	Correct the program.

147	User reserve code

The alarm designated by output variable 993.

This alarm occurs when the following program is executed.

VDOUT [993] = oooo

Code

Index	None
Character-string	Character-string as specified by system variable VUACM
Code	Code as specified at VDOUT[993]
Probable Faulty Locations	Conditions set by the user
Program Example	VDOUT[993] = 3000
Measures to Take	Cancel the conditions set by the user.
Related Specifications	User task 2

<Alarm A>

148	Index chuck

No signal from the index chuck indexing completion confirmation limit switch is output during, Or the spindle is not at a still though the signal from the index chuck indexing completion confirmation limit switch is not output.

Index None

Character-string None

Code

1 ..... No signal from the index chuck indexing completion confirmation limit switch is output during function generation.

2 ..... No signal from the index chuck indexing completion confirmation limit switch is output when not spindle in zero speed signal is output.

3 ..... No signal from the index chuck indexing completion confirmation limit switch is output when the spindle speed is designated.

4 ..... No signal from the index chuck indexing completion confirmation limit switch is output when the actual spindle speed is 5 rpm or more.

149	Sensor head

An attempt has been made to advance or retract the sensor head while its advance/retract is not possible, or the sensor head advance impossible state has arisen during the advance movement.

Sensor head advance/retract M117/M118

Index TURRET

Character-string None

Code

1 ..... The sensor head advance/retract command is designated while the spindle stop requirements are not satisfied:

- spindle zero speed signal is ON.
- spindle stop signal is ON.
- spindle rotation signal is OFF.

2 ..... The sensor head advance/retract command is designated while the tailstock spindle is not at the retract end with the center work specification.

3 ..... The sensor head advance/retract command is designated while the chuck is not in unclamped condition.

4 ..... The sensor head advance/retract command is designated while the interlocked equipment is not at the retract position.

5 ..... The sensor head advance/retract command is designated while the turret is not at the travel end of Z-axis.

6 ..... The workpiece present signal is turned on while the sensor head is advancing.

7 ..... The sensor head advance/retract command is designated while the tool gauging arm is not at the advance end.

8 ..... The sensor head advance/retract command is designated while the robot inside the Nc lathe signal is ON (robot specification).

9 ..... The sensor head advance/retract command is designated while the loader inside the NC lathe signal is ON with loader specification.

10 ..... The sensor head advance command is designated while the special work rest is at other than the retract end.

11 .....The sensor head advance/retract command is designated when the temporary stand is not at the lower end.

12 .....The sensor head advance command is designated when the parts catcher is not at the retract end.

13 .....The sensor head advance command is designated when the loader is at other than retract end.

14 .....C-axis is rotating.

15 .....The sub spindle chuck is not opened.

16 .....The sub spindle chuck is not at the travel end in W-axis positive direction.

17 .....The door is not closed.

18 .....M-tool is rotating.

Probable Faulty Locations

- Faulty EC input signals for sensor head position confirmation:

  EC input No. 15
  Bit 0 ..... Standby position
  Bit 1 ..... Intermediate position
  Bit 2 ..... Advance end

- Operation error, program error

Program Example

M03 S5000
M117

Operation Example

The turret is moved manually when it is not at the travel end of the Z-axis.

Measures to Take

Check program and attempted manual operation referring to the detailed description for each alarm codes. If the program and the operations attempted have no problems, then check the EC input signals.

<Alarm A>

150	Coupling device illegal

An abnormality is detected with the device coupled with the machine.

Index	None
Character-string	None
Code	Hexadecimal number of specification code (coupling specification 1 - 8) which is set.
Probable Faulty Locations	An abnormality of the device coupled with the machine
Measures to Take	After clearing the alarm with the coupled device, reset the alarm of the NC.

151	Touch sensor limit

The touch sensor protection limit switch is actuated.

Index	TURRET
Character-string	None
Code	1
Probable Faulty Locations	- Faulty EC input signal for sensor protection LS (alarm occurs when the signal at bit 6 of EC input No. 11 is turned off.) - The gauging cycle is not completed although the sensor is already in contact with the tool or workpiece due to faulty sensor touch signal (signal at bit 0 of panel input No. 8 is turned ON upon detection of touch), thus the protection limit switch is actuated. - Program in which the tool or workpiece comes into contact with the sensor is executed, or similar operations are carried out.
Measures to Take	Confirmation of sensor input signal

152	Robot at inside machine

The door close command, axis movement command or spindle rotation command is designated while the "robot at inside machine" signal is ON.

Index	TURRET
Character-string	None
Code	The "robot at inside machine" signal is ON under the following state: 1 .....The door close command is designated. 2 .....Axis movement command (axis feed in other than manual mode) is designated. 3 .....Spindle rotation command (excluding inching, oscillation and spindle orientation) is designated. 4 .....Diaphragm close command is designated.
Probable Faulty Locations	- Program error - Operation error
Measures to Take	Correct the program.

<Alarm A>

153	Robot lot completed

The robot call command is designated while the robot lot completed signal is output from the robot.

Index	TURRET
Character-string	None
Code	1
Measures to Take	Match the robot lot number with the lot number set for the machine.
Related Specifications	Robot specifications

155	Loader at inside machine

The ceiling door close command, diaphragm close command or spindle rotation command is designated, or function is generated while the loader is inside the machine.

Index	None
Character-string	None
Code	The following is attempted while the loader is inside the machine. 1 .....The ceiling door close command is designated. 2 .....Axis feed is attempted in other than manual mode. 3 .....Spindle rotation command (excluding inching, oscillation and spindle orientation) is designated. 4 .....The diaphragm close command is designated. 5 .....The door open confirmation input is OFF.
Measures to Take	Retract the loader outside the machine.
Related Specifications	Loader specifications

156	Loader lot completed

The loader call command is designated while the loader lot completed signal is output from the loader.

Index	TURRET
Character-string	None
Code	1
Measures to Take	Set the same data for the lot setting value at the loader side and the same in the schedule program.
Related Specifications	Loader specifications

<Alarm A>

153	Robot lot completed

The robot call command is designated while the robot lot completed signal is output from the robot.

Index	TURRET
Character-string	None
Code	1
Measures to Take	Match the robot lot number with the lot number set for the machine.
Related Specifications	Robot specifications

155	Loader at inside machine

The ceiling door close command, diaphragm close command or spindle rotation command is designated, or function is generated while the loader is inside the machine.

Index	None
Character-string	None
Code	The following is attempted while the loader is inside the machine. 1 .....The ceiling door close command is designated. 2 .....Axis feed is attempted in other than manual mode. 3 .....Spindle rotation command (excluding inching, oscillation and spindle orientation) is designated. 4 .....The diaphragm close command is designated. 5 .....The door open confirmation input is OFF.
Measures to Take	Retract the loader outside the machine.
Related Specifications	Loader specifications

156	Loader lot completed

The loader call command is designated while the loader lot completed signal is output from the loader.

Index	TURRET
Character-string	None
Code	1
Measures to Take	Set the same data for the lot setting value at the loader side and the same in the schedule program.
Related Specifications	Loader specifications

<Alarm A>

160	C-axis connect command

C-axis connect/disconnect command (M110, M109) is designated while such command is not designatable.

Index	TURRET
Character-string	None
Code	1 ..... The command is designated when the spindle is not at zero speed. 2 ..... The command is designated when the spindle is not at a still. 3 ..... The command is designated while the spindle rotation command is active. 4 ..... The command is designated while C-axis is clamped. 5 ..... The command is designated while C-axis is interlocked. None ..... Intermediate connection signal is not turned off (0) from the ON state (1) when the spindle is rotated after the execution of M110. (Bit 1 and bit 0 of EC input No. 21 must change from "0" to "1".) Or connect input (EC input No. 21, bit 2) is not changed from "0" to "1" although C-axis connect signal is output on high-speed connection specification.
Probable Faulty Locations	- Faulty spindle zero speed input (EC input No. 9 bit 3) - Faulty EC input for C-axis connection - Intermediate connection confirmation signal on slow-connection specification Intermediate connection accomplished when EC input No. 21, bit 1 is "1" - Connection signal on high-speed connection specification Connection accomplished when EC input No. 21, bit 2 is "1"
Program Example	N100 M03 N101 M110
Operation Example	M110 is input during spindle rotation from the keyboard.
Measures to Take	Refer to the codes above. When there are no errors in a program or operations, check the related EC input signals.

161	C-axis clamp/unclamp

C-axis clamp/unclamp (M147/146) command is designated when the C-axis is not connected.

Index	TURRET	
Character-string	None	
Code	1	
Probable Faulty Locations	- Program error - Operation error	
Program Example	M109	C-axis disconnected
	M147	C-axis clamp
Operation Example	M146/M147 is designated in the MDI mode when the C-axis is not connected.	
Measures to Take	Correct the program.	

<Alarm A>

162	Revolution tool M13/M14 change

In the automatic or MDI mode of operation,

Reverse rotation command is designated while the M-tool spindle is rotating in the forward direction.

Forward rotation command is designated while the M-tool spindle is rotating in the reverse direction.

Note: These commands are ignored in the manual mode.

Index	TURRET	
Character-string	None	
Code	1	
Probable Faulty Locations	- Program error - Wrong command input in the MDI mode	
Program Example	N100 M13	M-tool spindle FWD
	N101 M14	M-tool spindle REV
Operation Example	In the MDI mode, rotation command in the opposite direction to the current rotation direction is input.	
Measures to Take	Correct the program.	

163	Revolution tool gear no OK

Mismatch between the gear range command and the position of gear range setting limit switches occurs while the M-tool spindle is rotating.

Index	TURRET
Character-string	None
Code	1
Probable Faulty Locations	- Faulty EC input signals Gear range selection input ... EC input No. 22 bit 0 ..... M241 bit 1 ..... M242 - Error in adjustments of gear match confirmation limit switch
Measures to Take	Check the related EC input signals.

<Alarm A>

164	Tool revolution command

The M-tool rotation command is designated under the condition that the M-tool spindle must not rotate.

Index: None

Character-string: None

Code:
1 ..... The M-tool rotation command is designated when the C-axis is not connected.
2 ..... The M-tool rotation command is designated when the ATC tool (M-tool) is unclamped.
3 ..... The M-tool rotation command is designated when the spindle orientation pin IN answer signal is not ON. Or the M-tool rotation command is designated when the turret is indexed at 2, 4, 6, 8, 10 and 12 (LC40-M only).

Probable Faulty Locations:
- Program error
- Operation error

Program Example:
N100 M109 C-axis disconnected
N101 M13 M-tool spindle FWD

Operation Example: An attempt is made to start the M-tool spindle while T2 station is indexed. (LC40)

Measures to Take: Correct the program.

165	C-axis command

C-axis movement command is designated while it is not acceptable.

Index: TURRET

Character-string: None

Code:
1 ..... C-axis is not connected.
2 ..... C-axis is not unclamped.

Probable Faulty Locations:
- Program error
- Operation error

Program Example:
N100 M109 C-axis disconnected
N101 G00 X100 C100 C-axis rapid feed to 100° position

Operation Example: C-axis movement command is designated while C-axis is not clamped.

Measures to Take: Correct the program.

<Alarm A>

166	Revolution tool SDU

The SDU of the M-tool spindle is not functioning correctly.

Index	None
Character-string	None
Code	1
Probable Faulty Locations	- Faulty SDU for M-tool spindle (RAL/ input signal is turned off ... EC input, No. 22 bit 5) - The input above is faulty.
Measures to Take	Check EC input No. 22 bit 5.

167	Revolution tool overload

Overload protective thermal relay of the M-tool spindle drive motor is tripped.

Index	None
Character-string	None
Code	1
Probable Faulty Locations	- Overload for M-tool spindle (ROL/ input signal is turned off ... EC input, No. 22 bit 2) - The input above is faulty.
Measures to Take	Check EC input No. 22 bit 2.

169	ATC change arm position

Tool change arm position is unknown at the initial setting of ATC after clearing the RAM. Or an attempt to index A-turret is made when the tool change arm is not at the standby position.

Index	None
Character-string	None
Code	X.....Status of read LS Bit 0 ..... Standby position 1 Bit 1 ..... Index position 1 Bit 2 ..... Standby position 2 Bit 3 ..... Index position 2 10.....An attempt is made to index A-turret when the tool change arm is not at the standby position.
Probable Faulty Locations	- Input signals from the tool change arm position confirmation limit switches (ATC input No. 1 bit 3, 2, 1, 0) - Program error
Measures to Take	- Move the tool change arm to the standby position. - Check the status of the input signal from the tool change arm position confirmation LS on the ATC input CRT screen.
Related Specifications	LC40-M ATC

<Alarm A>

170	T command in tool revolution

A command to index the turret is designated while the M-tool spindle is rotating.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	- Program error, operation error - Faulty EC input of M-tool zero speed signal (EC input No. 22, bit 4 is 1 when zero speed signal is ON.)
Program Example	N100 M13 N101 T010101
Operation Example	A command to index the turret is designated while the M-tool spindle is rotating.
Measures to Take	- Correct the program. - Check the related EC input signal.

171	MOP over-load

During the MOP monitoring mode, cutting load has exceeded the limit value for more than 0.4 seconds.

Index	None
Character-string	None
Code	1 .....ZB-axis overload alarm 2 .....XB-axis overload alarm 4 .....ZA-axis overload alarm 8 .....XA-axis overload alarm 40 .....Spindle overload alarm 80 .....Override minimum position alarm
Probable Faulty Locations	- Axis drive motors - Spindle drive motor - Override minimum position
Measures to Take	- Check axis drive motors. - Check spindle drive motor. - Set the override value properly.

<Alarm A>

172	MOP pattern

During the MOP monitoring mode, a pattern alarm occurs.

Index	None
Character-string	None
Code	1 .....Spindle pattern alarm 2 .....Spindle current pattern alarm 10 .....B-saddle path alarm 20 .....A-saddle path alarm
Probable Faulty Locations	- Spindle drive motor - Saddle axis drive motors
Measures to Take	- Check spindle drive motor. - Check saddle axis drive motors.

173	ATC ECT TASK loop error

Loop error with the ECT task of the ATC processor

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Defective ATC processor board
Measures to Take	Replace ATC processor board (ECP board).
Related Specifications	LC40-M ATC

174	ATC time sharing task error

ATC time sharing task control is impossible.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Defective ATC processor board
Measures to Take	Replace ATC processor board (ECP board).
Related Specifications	LC40-M ATC

<Alarm A>

175	ATC exception error

Abnormal exception with the ATC processor

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Defective ATC processor board
Measures to Take	Replace ATC processor board (ECP board).
Related Specifications	LC40-M ATC

176	ATC memory test error

The ATC memory fails to function normally.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Defective ATC processor board
Measures to Take	Replace ATC processor board (ECP board).
Related Specifications	LC40-M ATC

177	ATC real time task loop error

The ATC real time task control is impossible.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Defective ATC processor board
Measures to Take	Replace ATC processor board (ECP board).
Related Specifications	LC40-M ATC

178	ATC INT TASK loop error

Loop error with the INT task of the ATC processor

Index	None
Character-string	None
Code	Program counter on which the loop error occurred
Probable Faulty Locations	Defective ATC processor board
Measures to Take	Replace ATC processor board (ECP board).
Related Specifications	LC40-M ATC

<Alarm A>

179	Tailstock interference

The tow-along type automatic rest and the tailstock interfered each other, or G152 (tailstock movement by program) is designated while the tow-along type automatic rest is connected to the saddle.

Index — None

Character-string — None

Code
1 ..... Interference between the tow-along type automatic rest and the tailstock

2 ..... G152 is designated while the tow-along type automatic rest is being connected to the saddle.

Probable Faulty Locations
- Program error
- Operation error
- Faulty EC input (interference when bit 6 of EC input No. 21 is "0"; rest is in connection when bit 5 of EC input No. 21 is "1")

Program Example
```
M79          Automatic rest close
G152  Z100
```

Measures to Take
- Move the rest apart from the tailstock where interference with the tailstock does not occur.
- Correct the program.
- Check EC input.

180	Revolution tool gear command

This alarm message is displayed when an illegal command value is detected in the check for the M-tool spindle gear range command made according to the internal specification code.

Index — None

Character-string — None

Code — None

Probable Faulty Locations — Program error

Program Example
The M-tool spindle speed change command is given for the machine which has single M-tool spindle speed specification.

The M-tool spindle speed change command other than M241 and M242 is given for the machine which has the two M-tool spindle specification.

Measures to Take
For single-speed model:
The spindle speed change command is not allowed.

For two-speed model:
Only M241 and M242 are allowed.

<Alarm A>

183	XA-axis overload

The load detection meter relay for the XA-axis stays ON longer than the time set with the optional parameter (word) No. 17 (in 0.1 sec units).

Index	None
Character-string	None
Code	None
Probable Faulty Locations	- Program error Too large feedrate; depth of cut too large - Setting error of meter relay Setting value too small - Setting error of detection time Setting value too small
Measures to Take	- Change programmed feedrate and/or depth of cut. - Adjust the meter relay setting. - Adjust the detection time setting.

184	XB-axis overload

The load detection meter relay for the XB-axis stays ON longer than the time set with the optional parameter (word) No. 17 (in 0.1 sec units).

Index	None
Character-string	None
Code	None
Probable Faulty Locations	- Program error Too large feedrate; depth of cut too large - Setting error of meter relay Setting value too small - Setting error of detection time Setting value too small
Measures to Take	- Change programmed feedrate and/or depth of cut. - Adjust the meter relay setting. - Adjust the detection time setting.

<Alarm A>

185	ZA-axis overload

The load detection meter relay for the ZA-axis stays ON longer than the time set with the optional parameter (word) No. 17 (in 0.1 sec units).

Index	None
Character-string	None
Code	None
Probable Faulty Locations	- Program error Too large feedrate; depth of cut too large - Setting error of meter relay Setting value too small - Setting error of detection time Setting value too small
Measures to Take	- Change programmed feedrate and/or depth of cut. - Adjust the meter relay setting. - Adjust the detection time setting.

186	ZB-axis overload

The load detection meter relay for the ZB-axis stays ON longer than the time set with the optional parameter (word) No. 17 (in 0.1 sec units).

Index	None
Character-string	None
Code	None
Probable Faulty Locations	- Program error Too large feedrate; depth of cut too large - Setting error of meter relay Setting value too small - Setting error of detection time Setting value too small
Measures to Take	- Change programmed feedrate and/or depth of cut. - Adjust the meter relay setting. - Adjust the detection time setting.

<Alarm A>

187	Position read data

Following conditions occur more than one time consecutively.

The read-in data of the type D6 position encoder is other than 0 through 9, or the read-in data of the inductosyn scale is other than 0 through 19999.

Index: AXIS

Character-string: None

Code: XY or ZZZZ

X: Read-in digit

1 ..... 1st digit
2 ..... 2nd digit
3 ..... 3rd digit
4 ..... 4th digit
5 ..... 5th digit
6 ..... 6th digit

Y: Read-in data (BCD)

A - E ..... Interface error
F ..... Position encoder error

ZZZZ:
When a code is displayed in four digits, it indicates the hexadecimal number of the read-in data from the inductosyn scale.

Probable Faulty Locations:
- Type D position encoder
- AXIS board
- Inductosyn
- Inductosyn power amplifier
- Inductosyn pre-amplifier
- AXIS card 6

188	Laser measurement data NG

Inductosyn pitch error between the encoder read data and the laser measurement data does not satisfy the following:

In X-axis: 25.4 μm
In Z-axis: 12.7 μm

Index: None

Character-string: None

Code: Hexadecimal number of the difference between the encoder read data and the laser measurement data

Probable Faulty Locations:
- Position encoder
- Inductosyn
- Setting of Inductosyn coupling compensation amount

Program Example:
```
G0 X1000
LMW X0
```

Measures to Take:
- Replace position encoder.
- Replace Inductosyn.
- Reset the Inductosyn coupling compensation amount.

<Alarm A>

189	IND. CMP. data verify NG

The difference between the designated inductosyn pitch error compensation data and the read error compensation data does not satisfy the following:

In X-axis: +6 μm

In Z-axis: +3 μm

Index	None
Character-string	None
Code	Hexadecimal number of the difference between the designated pitch error compensation data and the read pitch error compensation data.
Probable Faulty Locations	- Position encoder - Inductosyn - Setting of Inductosyn coupling compensation amount
Program Example	G0 X1000 LMV X0
Measures to Take	- Replace position encoder. - Replace Inductosyn. - Reset the Inductosyn coupling compensation amount.

190	HP9825A send

In the communication with the disk top computer HP9825A by the YHP, reception is impossible on the HP9825A side.

Index	None
Character-string	None
Code	1
Probable Faulty Locations	- HP9825A - Communication line cable - RS232C Interface
Program Example	G0 X1000 LMW X0
Measures to Take	- Check HP9825A. - Replace communication line cable. - Replace RS232C Interface (main card 3).

<Alarm A>

191	HP9825A receive

In the communication with the disk top computer HP9825A of the YHP, the received characters are other than 0 through 9, A or E. Or the received data is more than 20 characters. Or an error has occurred in the RS232C interface.

Index — None

Character-string — None

Code
- 1 ..... The received data is more than 20 characters.
- 2 ..... The received characters are other than 0 through 9, A or E.
- Codes other than 1 or 2 ..... Error in the RS232C interface

Probable Faulty Locations
- HP9825A
- Communication line cable
- RS232C Interface

Program Example

```
G00 X1000
LMW X0
```

Measures to Take
- Check HP9825A.
- Replace communication line cable.
- Replace RS232C Interface (main card 3).

192	HP9285A receive data format

In the communication with the disk top computer HP9825A (YHP), an error has been received on the HP9825A side. Or the received data is more than 8 digits.

Index — None

Character-string — None

Code
- 1 .....HP9825A is impossible to receive signal from laser.
- 2 .....An error has occurred in the HP9825A. (Data request error from the OSP5000)
- 3 .....The received data is more than 8 digits.

Probable Faulty Locations
- HP9825A; laser interferometer
- Communication line cable
- RS232C Interface

Program Example

```
G00 X1000
LMW X0
```

Measures to Take
- Re-adjust HP9825A and laser interferometer.
- Replace communication line cable.
- Replace RS232C Interface (main card 3).

<Alarm A>

193	ECP EC I/O power

Power supply for the EC I/O of the EC processor is not on.

Index — None

Character-string — None

Code — XX:

- Bit 0 ..... Battery error
- Bit 1 ..... EC I/O power shut off error
- Bit 2 ..... ECC error
- Bit 5 ..... EDRQ INT signal
- Bit 6 ..... ECP INT signal
- Bit 7 ..... ECP RUN signal

Probable Faulty Locations — Power supply for EC I/O is not turned on.

Measures to Take — Turn on power supply for EC I/O.

195	ECP bus error

Bus error with the EC processor (OKUMA robot specification)

Index — None

Character-string — None

Code — XX:

- Bit 2 ..... Position encoder busy error
- Bit 3 ..... Oscillation stop error
- Bit 4 ..... Loop error
- Bit 5 ..... Cycle over error
- Bit 6 ..... Parity error
- Bit 7 ..... ECC error

Probable Faulty Locations — Defective ECP

Measures to Take — Replace ECP.

<Alarm A>

200	SVP system

This alarm is detected when a problem of the servo processor is detected.

The alarm is classified into the following two types, either of the alarm type being fatal to the system.

Problem detected by the CPU (68000):

Bus error, instruction code error, etc.

Problem detected by the CPU peripheral error detection circuit:

Loop error, memory parity error, etc.

Index	AXIS
Character-string	None
Code	YYZZZZ

YY:

11 ..... Bus error
12 ..... Address error
13 ..... Illegal instruction error
14 ..... Zero divide error
15 ..... CHK instruction error
16 ..... TRAPV instruction error
17 ..... Privilege violation error
18 ..... Trace error
19 ..... Line 1010 emulator
1A ..... Line 1111 emulator
1B ..... Exception vector error
1C ..... Spurious interrupt error
1D ..... Level 7 interruption .... (See below.)
1E ..... Interrupt error
1F ..... INT 2 loop error
20 ..... TRAP instruction error
21 ..... User interrupt error
22 ..... Memory test error

* Alarms other than YY = 1D are those directly detected by the CPU (68000). In this case, the value indicated by "ZZZZ" is the program counter of the servo processor when the alarm occurred.

* Alarms indicated by YY = 1D is those detected by the CPU peripheral error detection circuit. In this case, "ZZZZ" (servo processor status) indicates the contents of the alarm detected.

ZZZZ:

Bit 15 ..... Error flag
Bit 14 ..... Memory parity error
Bit 13 ..... INT 6 loop error
Bit 12 ..... INT 4 loop error
Bit 11 ..... CPU halt
Bit 10 ..... Access error
Bit 9 ..... Servo amplifier alarm 1
Bit 8 ..... Stop error
Bit 7 ..... CPU run
Bit 6 ..... Position detection timing
Bit 5 ..... Position detection ready
Bit 4 ..... APA error
Bit 3 ..... Data send request
Bit 2 ..... MPR ready
Bit 1 ..... Servo amplifier alarm 2
Bit 0 ..... Servo amplifier busy

* Bit 9 - Bit 0 are status indicating data not related with this alarm.

Probable Faulty Locations: Defective servo processor CPU peripheral

Measures to Take: Replace the SVP board.

<Alarm A>

201	Servo amp

This alarm is indicated when an alarm has occurred with the BDU unit (red LED at SVC board ON). This alarm occurs by the following two causes:

1) Alarm with the BDU-A unit
2) Alarm with the DC-PS unit (LV alarm of the BDU-A unit always ON)

Alarm indication of the BDU-A and DC-PS is explained below:

A) BDU-A

PH-LOSS..... Phase missing in 3-phase input power
VR-LOSS..... ± 12 V power for PCB has dropped to a value below 80% of the rated voltage
IOCM..... More than 120% of motor rated current flowed
IOCS..... More than 120% of transistor rated current flowed through the transistor bridge.
HV..... DC power supply voltage becomes higher than 450 V.
LV..... DC power supply voltage becomes lower than 200 V.

B) DC-PS

HV, LV, PH-LOSS..... Same as the BDU-A
OVER DIS..... Discharge circuit of the regeneration circuit has actuated for more than the specified period.

Index

AXIS

Character-string

None

Code

ZZZZ: With this alarm, servo processor status information is not used.

Probable Faulty Locations

A) BDU-A

PH-LOSS..... BDC BOARD or BOARD fuse
VR-LOSS..... BDC BOARD or SVC BOARD
IOCM, IOCS..... BDU unit
HV, LV..... BDU unit or DC-PS unit

B) DC-PS

PH-LOSS..... PCB BOARD
HV, LV, OVERDIS..... PCB or DC-PS unit

Measures to Take

A) BDU-A

PH-LOSS..... Replace BDC BOARD fuse; replace BDC BOARD.
VR-LOSS..... Replace BDC BOARD; replace SVC BOARD.
IOCM, IOCS..... Replace BDU unit.
HV, LV..... Replace BDU unit; replace DC-PS unit.

B) DC-PS

PH-LOSS..... Replace PCB fuse or PCB.
HV, LV, OVERDIS..... Replace PCB or DC-PS unit.

202	APA check data

Mismatch between the upper digits read from the position encoder and those calculated from the lower digits.

Example:

Code 14E914A9

Convert the displayed code into an octal number (with E8 unit of type E, F position encoder used for the detection of upper digits, carry occurs by eight)

12351	12251
Data read from the position	Calculation data

Comparison between these two values indicates that the third digit from the right-most digit differ by one each other. This means the cause of data mismatch is phase offsetting in gear coupling for the third* digit or for the second* digit which outputs the carry signal.

* Digit from the right-most digit

Index: AXIS

Character-string: None

Code: YYYYZZZZ

YYYY..... Hexadecimal number of upper digits read from position encoder

ZZZZ..... Hexadecimal number of upper digits calculated from lower digits

Probable Faulty Locations:
- Type F (E) position encoder
- SVP board
- Timing board

Measures to Take:
Convert the code into the octal number:
If all digits are shifted each other like 12345 23456, SVP board will be defective.
If the shift is only at the right-most digit like 12345 12344, MPR and bearing will be defective.
If the shift is found in multiple axes, SVP board, timing board and co-axis cable of 81.92 MHz will be defective.

203	SVP velocity over

Servo processor velocity command over

This alarm occurs when the velocity command calculated by the servo processor exceeds the permissible value four times or over in succession.

As the permissible value, the value 125% of the rapid feedrate is used.

Index: AXIS

Character-string: None

Code: Hexadecimal number of the change amount (unit: pulse/3.2 msec)

Here, "pulse" indicates the unit of position data of the type F position encoder attached to the motor; 163,840 pulses/rev.

Probable Faulty Locations:
- DC power supply
- Servo amplifier
- BL motor
- Servo data

This alarm may be handled in the same manner as the DIFF over alarm.

Measures to Take: Replace the defective unit.

<Alarm A>

204	SVP double bus error

The CPU stops running due to occurrence of bus error (double bus error) while the processing for the occurrence of the bus error, address error, etc. in the servo processor is being executed.

Index	AXIS
Character-string	None
Code	None
Probable Faulty Locations	SVP board
Measures to Take	Replace SVP board.

205	APA pattern data

The pattern data read from the position encoder is wrong.

Example:

Code 8000

8000 (hexadecimal) ——conversion——→ 100000 (octal)

The sixth digit from the right-most digit is ignored since the E8 unit handles only five digit data.

Convert "8000" into an octal number.

Since all digits are "0", position encoder data is not output.

Index	AXIS
Character-string	None
Code	Read-in pattern data
Probable Faulty Locations	- Type F (E) position encoder - SVP board - Timing board

206	Shear pin

The shear pin between the brushless motor and the ball screw is broken.

Index	None
Character-string	None
Code	1 .....Shear pin for ZA-axis is broken. 2 .....Shear pin for XA-axis is broken. 3 .....Shear pin for ZB-axis is broken. 4 .....Shear pin for XB-axis is broken.
Probable Faulty Locations	Shear pin of ZA, XA, ZB or XB axis
Measures to Take	Replace the shear pin.

<Alarm A>

208	Torque limit

The torque limiter mounted on the feed axis is overloaded.

Index	None
Character-string	None
Code	X: Bit 0..... Overload with ZA-axis Bit 1..... Overload with XA-axis Bit 2..... Overload with ZB-axis Bit 3..... Overload with XB-axis
Probable Faulty Locations	- Operation error - Program error
Operation Example	An interference has occurred due to program or operation error, resulting in actuation of the torque limiter.
Measures to Take	- Check the program. - Check the torque limiter if operation and program are both correct.

210	Chucking mistaken

The chucking error detection pressure switch is not actuated although a workpiece is clamped in the chuck. Or the workpiece is not clamped in the chuck correctly.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	- Operator's error (chucking error)
Measures to Take	- Chuck the workpiece correctly.

<Alarm A>

211	Tailstock swing condition

The tailstock swing command is designated in the condition that the tailstock swing is not allowed.

M128 Tailstock swing (retract)

M129 Tailstock swing (advance)

Index	TURRET
Character-string	None
Code	1 ..... The command is designated for other than center work. 2 ..... The command is designated when X-axis is not at the travel end in the positive direction. (For 2-saddle type, both A and B) 3 ..... The command is designated when the tailstock spindle is not at the retraction end.
Probable Faulty Locations	- Program error - Operation error
Program Example	N100 M56 Tailstock body advance N101 M128 Tailstock swing (retraction)
Measures to Take	Eliminate the conditions which cause an occurrence of alarm, referring to the code above.

<Alarm A>

215	Revolution tool orientation

The orientation command (M229) for the M-tool spindle is designated under the condition that the M-tool spindle orientation is impossible.

Index — None

Character-string — None

Code

1 ..... Orientation command is designated while the M-tool spindle rotation command is active.

2 ..... Orientation command is designated while the M-tool spindle is rotating.

3 ..... Orientation command is designated when the M-tool spindle drive gear is in the neutral position.

Probable Faulty Locations

- Program error
- Operation error

Measures to Take — Correct the program.

216	Create process calculation

Calculation error has occurred during the tool path generation of contour generation function of G101, G102 or G103.

Index — TURRET

Character-string — None

Code — XYY

YY:

Bit 0 ..... Overflow in converting into integer
Bit 1 ..... Exponential underflow
Bit 2 ..... Exponential overflow
Bit 3 ..... Calculation of root of a negative number
Bit 4 ..... Division by 0
Bit 5 ..... Angle overflow for SIN, COS, TAN and COT

X:

1 ..... Former half of G101 tool path generation operation
2 ..... Latter half of G101 tool path generation operation
3 ..... Former half of G102 (G103) tool path generation operation
4 ..... Latter half of G102 (G103) tool path generation operation

Probable Faulty Locations — This alarm is set taking the following possibility into consideration, and does not occur in normal conditions.

During calculation processing in the NC, calculation might become impossible due to the influence of calculation error.

Program Example — This alarm usually does not occur.

Measures to Take — Change the command value in the program within an allowable range.

<Alarm A>

217	Pitch comp. data

Pitch error compensation data is not transmitted to the axis processor when processing for the compensation is made.

Index	AXIS
Character-string	None
Code	FFFFFFFF This code is suffixed when this alarm occurs.
Probable Faulty Locations	Problem in processing of NC software; this alarm does not occur in normal conditions.
Measures to Take	Check the NC software.

219	No dummy tool at ATC turret

An axis movement command is designated without setting a dummy tool on the ATC turret.

Index	None
Character-string	None
Code	1 .....Dummy tool for neither L-tool nor M-tool 2 .....No L-tool 3 .....No M-tool
Probable Faulty Locations	- Program error - Operation error
Measures to Take	- Set a dummy tool. - To ignore this check function for test run without actually using tools or other cases, set "1" at parameter (bit) No. 7 bit 6 (ignore dummy tool, 0 tool check). In this case, never forget to reset the parameter bit data to "0" before starting actual cutting.
Related Specifications	LC40-M ATC

221	C-axis advance

During the execution of the C-axis connection (M110), C-axis retraction end limit remains ON for more than 10 seconds when C-axis advance command is designated.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	- For the advance output signal in the C-axis connection, the mechanical system and the electrical system (EC) fail to operate normally. - Defective LS confirming the retraction end (EC input No. 21 bit 0; retraction end when this bit data is ON.)
Measures to Take	- Check and adjust the mechanical and electrical parts related with the C-axis advance movement. - Check the signal input from the retraction end confirmation LS.

<Alarm A>

228	Tailstock swing retract position

M55 or M56 is designated while the tailstock is in the retract position for the swing movement.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	- Program error - Operation error - Faulty tailstock swing retract position input signal (EC input No. 3 bit 6; 1 when at retraction position)
Program Example	: N100 M129 Tailstock swing retract : N1110 M56 Tailstock spindle advance :
Measures to Take	- Correct the program. - Check the tailstock swing retract position input signal.

232	Sensor protect

The sensor moves more than the preset distance (optional parameter (long word) No. 24) after the detection of contact.

Index	AXIS
Character-string	None
Code	Sensor input number
Probable Faulty Locations	- Parameter setting error The value set at the parameter (long word) No. 24 is too small compared with the feedrate in the gauging cycle. - Program error, operation error An attempt is made to execute the program in which the sensor is brought into contact with the object in cycles other than the gauging cycle. Or the similar operation is attempted.
Measures to Take	- Set a proper value at parameter (long word) No. 24, or reduce the feedrate in the gauging cycle. - Correct the program so that the sensor is not brought into contact with the object in cycles other than the gauging cycle.

<Alarm A>

240	CRP exception

Occurrence of CRP exception error

Index: None

Character-string: None

Code: ****:

- Bit 0..... User interrupt exception
- Bit 1..... TRAP instruction exception
- Bit 2..... Unused interrupt exception
- Bit 3..... Spurious interrupt exception
- Bit 4..... Undesignated exception
- Bit 5..... Non-executive instruction exception
- Bit 6..... Trace exception
- Bit 7..... Privilege violation exception
- Bit 8..... TRAPV instruction exception
- Bit 9..... CHK instruction exception
- Bit 10..... Zero divide exception
- Bit 11..... Illegal instruction exception
- bit 12..... Address error exception
- bit 13..... Bus error exception
- bit 14..... ---
- bit 15..... RAM check error exception

Probable Faulty Locations:
- CRP
- Operation panel

Measures to Take:
- Replace the CRP.
- Replace the operation panel.

241	Panel/CRP receive

In the serial data transmission/receive processing, receive error has occurred two cycles in succession.

Index: None

Character-string: None

Code: *:

- Bit 0..... ACIA reception error
- Bit 1..... Reception data check sum error, protocol error
- Bit 2..... Operation panel serial interface error
- Bit 3..... Operation panel switch error
- Bit 4..... Operation panel self-diagnosis error

Probable Faulty Locations:
- Operation panel
- Operation panel serial interface
- CRP

Measures to Take:
- Check the operation panel serial interface.
- Check the operation panel.
- Check the CRP.

<Alarm A>

242	CRP diagnosis

CRP self-diagnosis data is not normal.

Index None

Character-string None

Code Self-diagnosis

Probable Faulty Locations CRP board

Measures to Take Replace the CRP board.

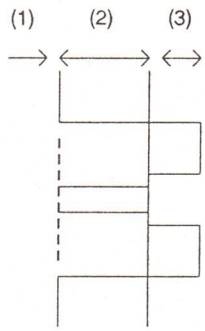
243	Chuck barrier area

Entry into chuck barrier area

Index TURRET

Character-string None

Code 1 .....Area (1)
2 .....Area (2)
3 .....Area (3)



Probable Faulty Locations
- Command which causes an axis to enter chuck barrier area
- Setting error of chuck barrier area

Measures to Take
- Correct the program.
- Set the correct chuck barrier area.

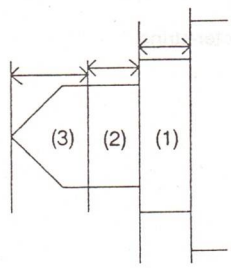
244	Tailstock barrier area

Entry into tailstock barrier area

Index TURRET

Character-string None

Code 1 .....Area (1)
2 .....Area (2)
3 .....Area (3)



Probable Faulty Locations
- Command which causes an axis to enter tailstock barrier area.
- Setting error of tailstock barrier area

Measures to Take
- Correct the program.
- Set the correct tailstock barrier area.

<Alarm A>

245	SVP data set

The servo processor has received the servo data which cannot be processed.

This alarm occurs when the servo data set at the NC is numerically abnormal or cannot be accepted at the servo processor side.

If this alarm occurs in the course of maintenance, it indicates that the correspondence between the servo data PBU file and the SVP ROM (control software) on the servo processor board is not correct.

Index None

Character-string None

Code None

Measures to Take Change the incorrect servo data PBU file or the SVP ROM meeting the machine model.

Data No. ZZZZ [HEX]	SVP Transmission Address [HEX]	Abnormal Servo Data
1	3310	Compensation code A
2	3311	Compensation code B
3	3312	Compensation code C
4	3313	Compensation code D
5	3314	
6	3315	
7	3316	
8	3317	
9	3318	
A	3319	
B	331A	
C	331B	
D	331C	
E	331D	
F	331E	
10	331F	
11	3320	Integration limit code
12	3321	Torque limit code A
13	3322	Torque limit code B
14	3323	Velocity amplifier gain
15	3324	
16	3325	
17	3326	
18	3327	
19	3328	Gear ratio code

Data No. ZZZZ [HEX]	SVP Transmission Address [HEX]	Abnormal Servo Data
1A	3329	
1B	332A	
1C	332B	
1D	332C	
1E	332D	
1F	332E	
20	332F	
21	33B0	KV value
22	33B2	Hard servo coefficient
23	33B4	Slowup/slowdown coefficient
24	33B6	
25	33B8	
26	33BA	Hybrid control constant
27	33BC	
28	33BE	
29	33C0	
2A	33C2	
2B	33C4	Inductosyn special pitch
2C	33C6	
2D	33C8	
2E	33CA	
2F	33CC	
30	33CE	
31	33D0	
32	33D4	

Data No. ZZZZ [HEX]	SVP Transmission Address [HEX]	Abnormal Servo Data
33	33D8	
34	33DC	
35	33E0	
36	33E4	
37	33E8	
38	33EC	
39	33F0	Backlash compensation
3A	33F4	CON velocity limit
3B	33F8	Mantissa gear change ratio (Linear)
3C	33FC	Exponent gear change ratio (Linear)
3D	3400	Gear change ratio (Rotary)
3E	3404	
3F	3408	
40	340C	
41	2D00 – 2D0A	V-AMP output filter constant
4F	2D1C	G1 (new velocity detection)

Data No. ZZZZ [HEX]	SVP Transmission Address [HEX]	Abnormal Servo Data
50	2D1E	G2 (new velocity detection)
51	2D20	H.P.F. constant (new velocity detection)
52	2D22	L.P.F. constant (new velocity detection)
53	2D24	1st stage linear acceleration time constant
54	2D26	Hybrid control linear compensation time constant
57	2D2C	2nd stage linear acceleration time constant
62	2D42	Encoder accuracy designation
86	2D94	DIFF. MIN
	2D98	DIFF. MAX
88	2D9C	Acceleration T.F.F. calculation constant
FFFF		SVP specification code

246	Emergency stop

Emergency stop button is pressed.

Index	None
Character-string	None
Code	1
Probable Faulty Locations	Emergency stop button is pressed.
Measures to Take	Press the NC reset button.

<Alarm A>

248	Touch setter display

In touch setter cycle, neither the tool data setting page nor sensor position page is given for compensation after workpiece measurement.

Index	TURRET
Character-string	None
Code	None
Operation Example	The CRT display page is changed from the TOOL DATA SET screen to other screen during the touch setter cycle.
Probable Faulty Locations	- Operation error
Measures to Take	Do not change the display page for TOOL DATA SET screen.

254	Position read (full closed loop)

Position detection alarm has occurred in the full closed loop control with the servo processor specification.

After the phase matching between the type F position encoder and the separately installed MPR, error amount greater than +1/40 turns, is detected more than 30 times in two seconds.

Index	AXIS
Character-string	None
Code	XXX .....No. of detected alarms (Indicates the number of detected alarms within the designated duration of time, approx. 2 sec..)
Probably Faulty Locations	- Mechanical problem (belt broken, loose belt tension, backlash, etc.) - Separately installed MPR - Type F position encoder - SVP board - Timing board
Measures to Take	- On large machines, an error might exceed the allowable value at a location away from the location at which the phase matching has been adjusted. Carry out phase matching operation at a location close to the center of the axis travel. - After the replacement of the position encoder, always carry out phase matching.

<Alarm A>

255	SVP alarm message not registered

An SVP alarm not registered in the NC software has occurred.

This alarm message is displayed when the alarm message which corresponds to the newly added alarm at the servo processor side has not been registered at the NC side.

Index AXIS

Character-string None

Code XXYYZZZZ

XX:

1 ..... APA pattern data error
2 ..... APA velocity error
6 ..... APA check data alarm
8 ..... Servo data alarm
A ..... Type F position encoder
11 ..... Bus error
12 ..... Address error
13 ..... Illegal instruction error
14 ..... Zero divide error
15 ..... CHK instruction error
16 ..... TRAPV instruction error
17 ..... Privilege violation error
18 ..... Trace error
19 ..... Line 1010 emulator error
1A ..... Line 1111 emulator error
1B ..... Exception vector error
1C Spurious interrupt error
1D ..... Level 7 interruption
1E ..... Interrupt error
1F ..... INT 2 loop error
20 ..... TRAP instruction error
21 ..... User interrupt error

YY:

00 ..... ZA-axis
01 ..... XA-axis
02 ..... ZB-axis
03 ..... XB-axis
04 ..... C-axis

ZZZZ:

The APA data detected as the alarm.

However, the data indicated below will be displayed if X is 1, 2, 6, 8 or A.

X = 1, 6

APA upper-digit data detected as an alarm

X = 2

APA variation amount at the occurrence of an alarm

X = 8

FFFF ..... SVP specification code
1 ..... Compensation code A
2 ..... Compensation code B
3 ..... Compensation code C
4 ..... Compensation code D
5 through 10 ..... *1
11 ..... Integration limit code
12 ..... Torque limit code A
13 ..... Torque limit code B
14 ..... Velocity amplifier gain
15 through 18 ..... *1
19 ..... Speed reduction ratio code *2
1A through 20 ..... *1
21 ..... KV value
22 ..... Hard servo coefficient
23 ..... Slow up/slow down coefficient

X = A

0001 ..... Compensation data transfer impossible
0002 to 0005 ..... Error in compensation data

Probable Faulty Locations

Since the alarm indicated by this message is the alarm of the latest type and thus probable cause cannot be explained here. However, depending on the NC software version, alarm listed in the code table will be displayed. In this case, refer to the code to discover the cause of the alarm.

Measures to Take

Due to the same reason as explained above, it is impossible to explain the measures to take.

<Alarm A>

256	Load monitor tool break down

While monitoring, cutting load has exceeded the second limit level for longer than a designated period of time.

Index: TURRET

Character-string: None

Code:
None .....Z-axis
1 .....X-axis
2 .....C-axis
3 .....Spindle
4 .....M-tool spindle

Probable Faulty Locations:
- The second limit is changed.
- Time duration to cause the alarm is changed.
- Cutting conditions are changed.
- Chipping of the cutting tool

Measures to Take:
- Adjust the second limit level value.
- Adjust the time duration to cause the alarm.
- Adjust the cutting conditions.
- Change the cutting tool.

257	Load monitor command execution

Execution of monitor command during monitoring is attempted.
Cancel the former monitor command before executing the new one.

Index: TURRET

Character-string: None

Code: None

Probable Faulty Locations: Program error

Program Example:

```
N100  VLMON[1] = 1          N100  VLMON[1] = 1
N101  G01 X250 F100   ---->  N101  G01 X250 F100
N102  VLMON[2] = 2          N102  VLMON[1] = 0
  :                         N103  VLMON[2] = 2
```

Measures to Take:

Designate the monitor command only after canceling the monitor mode currently active.

<Alarm A>

258	Collet unclamp

The spindle rotation command is designated while the collet is unclamped, or the collet is unclamped while the spindle is rotating.

Index — None

Character-string — None

Code — 1

Probable Faulty Locations
- Operation error
- Faulty EC input (unclamp when bit 3 of EC extended input No. 15 is "ON")

Measures to Take — Check EC input unless any operation error was found.

260	Turret index control abnormal

An alarm occurs with the turret index controller.

Index — None

Character-string — None

Code — XY: Alarm code sent from the turret index controller

X:

0 ..... Turret unclamped state

4 ..... Turret clamped state

Y:

0 ..... Run-away of the turret index controlling CPU

1 ..... Error in the processing of the turret index controlling CPU

2 ..... Unclamp time over

3 ..... Acceleration time over

4 ..... Rotation speed over

5 ..... Index time over

6 ..... Rotation direction error

7 ..... Deceleration time over

8 ..... Creep time over

9 ..... Clamp error

A ..... Position detection error I

B ..... Position detection error II

D ..... DIP switch setting error

E ..... Communication error

Probable Faulty Locations
- Program error or error in the command input from the keyboard in the case of code X=3
- For the code other than it, the turret index controller will be defective, or the mechanical or electrical (EC) system related with the turret index operation is faulty.

Operation Example — Command T131313 for the machine equipped with the 12-face turret ... Code X=3

Measures to Take
- Correct the program. ..... The maximum number programmable as a T code is the number of the faces of the turret.
- Adjust or replace the turret index controller. Adjust and repair the related mechanical and electrical component parts.

<Alarm A>

262	Cycle time over

One cycle time (from cycle start to M02 or M30) exceeds the time set by parameter.

Index	None
Character-string	None
Code	Time set by parameter is displayed.
Probable Faulty Locations	- Time set at parameter (word) No. 27 is short. - Spindle override setting or feedrate override setting is changed. - Operation designated by S, T, or M command is not completed and stopped halfway.
Measures to Take	- Correct the parameter setting. - Correct the override setting. - Correct the program so that the operation designated by S, T, or M command can be executed.
Related Specification	Cycle time over check

264	CRP parity error

Read/write during CRP RAM access was not correct. Or the memory error occurred in the CRP RAM test executed when the power is turned on.

Index	None
Character-string	None
Code	1 .....An error occurred during CRP RAM accessing. 2 .....An error occurred during CRP RAM test executed when the power is turned on.
Probable Faulty Locations	CRP board
Measures to Take	Check or replace the CRP board.

266	Spindle revolution error

The spindle drive motor rotated at a speed higher than 120% of the commanded speed.

Index	None
Character-string	None
Code	Spindle speed (rpm) converted from the spindle pulses.
Probable Faulty Locations	- Timing board - Spindle drive unit - Spindle drive motor
Measures to Take	Check the timing board, the spindle drive unit and the spindle drive motor.

<Alarm A>

267	Manual tool change operation illegal

The manual tool change command (M70) is given during spindle rotation, M-tool spindle rotation, interpolation for B-saddle (2-saddle specification), or turret rotation.

Index	None
Character-string	None
Code	1 .....When M70 is commanded. 2 .....During M70 execution
Probable Faulty Locations	Operation error or program error
Measures to Take	The manual tool change command (M70) can be designated in the following conditions: Spindle stopped M-tool spindle stopped B-saddle axis motion stopped Turret not in rotation
Related Specifications	ATC

268	Turret revolution

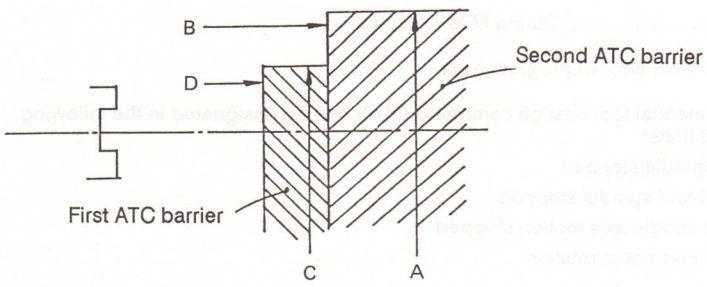
An attempt was made to rotate the turret under the conditions in which the turret rotation is inhibited.

Index	None
Character-string	None
Code	1 .....The tool clamp confirmation signal (both F and R pots) is not ON (LR15-M ATC) 2 .....A T command is designated when the touch setter is at the advance position. 3 .....The Z-axis is at the negative side from the interference position set for parameter (long word) No. 47 (alarm with FTL).
Probable Faulty Locations	F pot tool clamp confirmation signal (ATC input No. 4 bit 1) R pot tool clamp confirmation signal (ATC input No. 4 bit 3) Check whether both of the above indicated signals are ON.
Measures to Take	Check the above indicated signals.
Related Specifications	ATC LR15M, FTL

<Alarm A>

271	ATC barrier area

The A-saddle turret enters the second ATC barrier zone, which is determined by the parameters, when the ATC sequence is other than the stand-by position sequence (PSETPC = 1, 2, 9, 10). Or the A-saddle turret enters the first ATC barrier zone when the ATC sequence is 3, 4, 23, 24, 25, or 117. Or the B-saddle turret enters the B turret barrier zone when the ATC sequence is 15.



Point A: Parameter (long word) No. 28
Point B: Parameter (long word) No. 29
Point C: Parameter (long word) No. 30
Point D: Parameter (long word) No. 31

Index — None

Character-string — None

Code
1 .....Entry into the first ATC barrier zone
2 .....Entry into the second ATC barrier zone
3 .....Entry into the B turret ATC barrier zone

Probable Faulty Locations
- Program error
- Setting error of ATC barrier (points A, B, C, D)

Program Example
```
G13
G00 X500 Z500
MT=01
G00 X50 Z120
:
```

Measures to Take
- Correct the program so that the turret will not enter the ATC barrier in the ATC sequence for which entry into the ATC barrier is inhibited.
- Designated M227 which checks the completion of ATC operation before the command which moves the turret into the ATC barrier zone is specified.
- Change the ATC barrier zone.

```
G13
G00 X500 Z500
MT=01
G00 X50 Z120
    or
M227
G00 X50 Z120
```

273	A circle thread simul joint

On the two-saddle specification, thread cutting is made on joint portion between two arcs simultaneously on A and B saddles.

Index — None

Character-string — None

Code — None

Probable Faulty Locations — Program error

Program Example

```
G13                                G14
:                     P10          :                     P10
G112  X100  Z100 150  K2           G112  X100  Z100 150  K2
G112  X100  Z 80  150  K10         G112  X100  Z 80  150  K10
```

Measures to Take — Avoid such thread cutting; either use a P command or delete thread cutting commands on A or B saddle.

274	Parts catcher interlock

Parts catcher is interlocked when it is going to be advanced or retracted.

Index — None

Character-string — None

Code
- 0............................Parts catcher advance command is given when an axis is not at the travel limit, or axis motion command is given while the parts catcher is at the advance position.
- 1............................The M16 retract command is given when the door is not open.
- 2............................
- 3............................Parts catcher operation enabled input is not made. (PECJ24, bit 11)
- 4............................The ZB-axis is not at the positive travel end when the parts catcher is not at the retract end.

275	Loader ECP EC I/O power

ECI/O power is not turned on for the loader EC processor.

Index — None

Character-string — None

Code — XX:
- Bit 0.................................... Battery error
- Bit 1.................................... ECI/O power off error
- Bit 2.................................... ECC error
- Bit 5.................................... EDRQ INT signal
- Bit 6.................................... ECP INT signal
- Bit 7.................................... ECP RUN signal

Probable Faulty Locations — ECP board, EC BUS connector

Measures to Take — Check ECP board and EC BUS connector and replace if necessary.

Related Specifications — Gantry loader

276	Loader ECP BUS error

Bus error occurred with the loader EC processor.

Index	None
Character-string	None
Code	XX: Bit 2..... Position encoder busy error Bit 3..... Oscillation stop error Bit 4..... Loop error Bit 5..... Cycle over error Bit 6..... Parity error Bit 7..... ECC error
Probable Faulty Locations	ECP, ECP board
Measures to Take	Check the followings and replace if necessary. ECP, ECP board and connectors connecting with them
Related Specifications	Gantry loader

283	Spindle max. revolution number

The allowable maximum spindle speed (G50 S0000) is not designated before the spindle rotation command is designated for the automatic operation.

Index	TURRET
Character-string	None
Code	1
Probable Faulty Locations	Program error
Program Example	G50 S1000 CR NG01 G0 X1000 X1000 CR
Measures to Take	Correct the program

285	Pick off chuck interlock

An attempt is made to open the pick-off spindle is rotating.

Or an attempt to rotate the pick-off spindle is made when the pick-off spindle chuck is open.

Index: TURRET

Character-string: None

Code:

1 ..... The pick-off spindle chuck open command is designated when the pick-off spindle zero rotation input (EC input 22 bit 4) is 0.

2 ..... The pick-off spindle chuck open command is designated when the pick-off spindle at a still output (EC output 16 bit 2) is 0.

3 ..... The pick-off spindle chuck open command is designated when the pick-off spindle rotation command is present.

4 ..... The pick-off spindle rotation command is designated when the pick-off spindle chuck is open.

5 ..... For the flat turning specification model, the pick-off spindle rotation command is designated when the pick-off spindle is rotating in synchronization with the main spindle.
Or the pick-off chuck close signal is turned off.

6 ..... The pick-off chuck initially closed is not in the close state while the pick-off spindle is rotating.

Probable Faulty Locations:
- Program error
- Operation error

Program Example:
```
M13 SB=1000
M249
```

Measures to Take: Check the program

304	Interrupt return pointer unmatch

After manual operation intervention to retract the cutting tool, the tool is returned to a different block from the block where the interruption was made.

This alarm occurs when the number of execution blocks differs between the cycle starting after the reset and the sequence restart=rt operation.

Index: TURRET

Character-string: None

Code: None

Probable Faulty Locations: The program contains a command which causes the number of executed blocks due to a conditional statement.

Program Example:
```
N0018IF  TA  N0020
N0019 TA=1
N0020
```

In the first execution of the program, sequence N0019 is executed because there is no local variable TA; for the sequence restart operation, sequence N0019 is not executed.

Measures to Take: Correct the program.

Related Specification: Tool retraction cycle

<Alarm A>

315	Subspindle chuck interlock

The subspindle chuck open/close command (M248, M249) is designated while the subspindle is rotating.

Index	None
Character-string	None
Probable Faulty Locations	Program error
Program Example	M13 SB=500 M249 M221 M248
Measures to Take	- Correct the program. - Stop the subspindle before designating the subspindle chuck open/close command.
Related Specification	LB9 subspindle

324	Spindle rev. change low/high command

Any of M40, M43 and M44 command is designated for the VAC winding changeover type motor specification.

Index	None
Character-string	None
Code	Hexadecimal of designated M code
Probable Faulty Locations	Part program
Program Example	: M43 M03 S1000 :
Measures to Take	Check the part program : M42 M03 S1000 :
Related Specifications	VAC winding changeover type motor specification

<Alarm A>

325	Spindle rev.change low/high signal

While the spindle is rotating, the winding changeover signal and the corresponding confirmation signal state do not agree with each other.

Index — None

Character-string — None

Code — 1

Probable Faulty Locations
- VAC winding changeover motor and its peripheral circuit
- VAC winding changeover motor winding switched confirmation signal cable

Measures to Take
- Check the VAC winding changeover motor and its peripheral circuit
- Check the VAC winding changeover motor winding switched confirmation signal cable

Related Specifications — VAC winding changeover type motor specification

339	Max. rev. order for M-axis

An M-tool spindle rotation command is designated without designating the maximum M-tool spindle speed (G50 SB=xxxx).

Index — TURRET

Character-string — None

Code — 1

Probable Faulty Locations — Program error

Program Example

```
G13
M13      SB=100
 :
```

Measures to Take — Check the program.

```
G13
G50      SB=500
M13      SB=100
 :
```

343	Sub-spindle orientation command

The sub-spindle orientation command is designated while the spindle and the sub-spindle are controlled in the synchronization mode, or while the sub-spindle is rotating.

Index — None

Character-string — None

Code
1 ..... Main and sub spindles are controlled in the synchronization mode.
6 ..... The sub-spindle is rotating.

Probable Faulty Locations — Program error

Program Example

```
 :        :
M151     M123     SC=100
M239     M239
 :        :
```

Measures to Take — Correct the program

<Alarm A>

344	M123/M124 change

An attempt is made to directly change the mode between M123 and M124.

Index: None

Character-string: None

Code: 1

Probable Faulty Locations: Program error

Program Example:

```
:
M123    SC=100
M124
:
```

Measures to Take: Check the program; designate M122 before changing the sub-spindle rotation direction.

346	Max. rev. order for M-axis

In the automatic mode operation, the maximum sub-spindle speed comamnd not designated (G50 SC=xxxx) before the sub-spindle rotation command is designated.

Index: None

Character-string: None

Code: 1

Probable Faulty Locations: Program error

Program Example:

```
G13
G140
M123    SC=100
  :
```

Measures to Take:

```
G13
G140
G50     SC=1000
M123    SC=100
  :
```

<Alarm A>

348	Sub-spindle revolution over

In the main and sub spindle synchronized mode, an attempt is made to rotate the sub-spindle at a speed higher than the maximum speed designated in the program or the allowable maximum sub-spindle speed, whichever the smaller one.

Index	None
Character-string	None
Code	Hexadecimal of sub-spindle speed
Probable Faulty Locations	Program error
Program Example	G50 SC=1000 M151 M03 S1200 :
Measures to Take	Check the part program. G50 SC=1200 M151 M03 S1200 :

SECTION 5 ALARM B

Alarm Table - ALARM B

Alarm No.	Alarm Message
400	Schedule program: 'Q'
401	Schedule program: mnemonic code
402	Schedule program: program end
403	Schedule program: main program load
404	Expression: right part
405	Expression: calculation
406	Expression: syntax
407	Expression: subscript
408	Expression: buffer over
409	Expression: local var.
410	Program bad direct: G-code
411	Program bad direct: M-code
412	Program bad direct: common var.
413	Program bad direct: system var.
414	Program bad direct: sequence name
415	Program bad direct: numeric data
416	Program factor over
417	Program bad direct: use of character
418	Program bad direct: program name
419	Sub program: repetition
420	Sub program: stack
421	Sub program: program name
422	Mnemonic & local var.
423	Branch (IF, GOTO): sequence name
424	Branch (IF, GOTO): condition
425	Unusable: G-code
426	Change timing G13/G14
427	Unusable: M-code
428	Equal is not exist
429	Unusable: direct of left
430	Bad value for system variable
431	Unusable: output variable No.
432	Direct of subscript

Alarm Table - ALARM B

Alarm No.	Alarm MEssage
433	Special G-code table
434	Unusable: input variable No.
435	Unusable: turret direct code
436	Program end code not found
437	Program name is not select
438	Local variable use over
439	Data word: 'F'
440	Data word: 'F' or 'E'
441	Data word: 'I'
442	Data word: 'J'
443	Data word: 'K'
444	Data word: 'L'
445	Data word: 'P'
446	Data word: 'S'
447	Data word: no 'S'
448	Data word: 'T'
449	Data word: 'X'
450	Data word: 'X', 'Z'
451	Data word: 'Z'
452	Data word: arc cal.
453	Data word: angle
454	Data word: thread cycle
455	Data word: radius
456	Data word: 'D'
457	Data word: gauging cycle
458	Data word: C command
459	MDI: special G-code
460	Main sequence
461	Restart
462	User reserve code
463	Synchronize M code
464	Tailstock spindle over advance
465	Plus var. limit over
466	Minus var. limit over
467	Function cal no spec.
468	System var. no spec

Alarm Table - ALARM B

Alarm No.	Alarm Message
469	Parameter program no spec.
470	In-process gauging no spec.
471	Post-process gauging no spec.
472	Spindle orientation no spec.
473	I/O var. no spec.
474	Backup data file write
475	
476	
477	
478	
479	Multi cycle: B illegal order
480	Multi cycle: D illegal order
481	Multi cycle: F illegal order
482	Multi cycle: H illegal order
483	Multi cycle: H-U (W) less than D (M73)
484	Multi cycle: parameter I, K over
485	Multi cycle: I, K illegal order
486	Multi cycle: L illegal order
487	Multi cycle: entry in LAP
488	Multi cycle: U (W) illegal order
489	Multi cycle: U (W) greater than H
490	Multi cycle: X, Z illegal order
491	Multi cycle: angle
492	Multi cycle: tool offset
493	Multi cycle: cycle start point
494	Multi cycle: entry in NOSE-R
495	Multi cycle: width
496	Chamfering: G01 mode
497	Chamfering: parameter L over
498	Chamfering: L illegal order
499	Chamfering: X, Z illegal order
500	LAP: B illegal order
501	LAP: D illegal order
502	
503	LAP: H illegal order
504	LAP: H-U (W) less than D (M73)

Alarm Table - ALARM B

Alarm No.	Alarm Message
505	LAP: U (W) illegal order
506	LAP: U (W) greater than H
507	LAP: XA (ZA), XB (ZB) illegal order
508	LAP: calculation
509	LAP: a number of down stair over
510	LAP: entry in LAP
511	LAP: sequence name
512	LAP: no spec.
513	LAP: control
514	LAP: G-code
515	LAP: NOSE-R not cancelled
516	LAP: entry in NOSE-R
517	NOSE-R comp.: NOSE-R circle-R
518	NOSE-R comp.: calculation
519	NOSE-R comp.: cancel impossible
520	NOSE-R comp.: no cross point
521	NOSE-R comp.: no spec.
522	NOSE-R comp.: start up impossible
523	NOSE-R comp.: thread cycle
524	Tool life control: no spec.
525	Tool life control: spare tool none
526	Tool life control: tool group
527	Tool life control: no T-entry
528	Tool life control: tool offset group
529	Tool life control: no T-offset
530	Tow-along tailstock movement: condition
531	Tow-along tailstock movement: no spec.
532	W-axis minus var. limit over
533	No robot spec.
534	Robot program name
535	Chucking mistaken
536	Loader program name
537	Chuck open position command
538	Data word: SB
539	Fixed cycle: no spec.
540	Fixed cycle: C

Alarm Table - ALARM B

Alarm No.	Alarm Message
541	Fixed cycle: I, K
542	Fixed cycle: Q
543	Fixed cycle: F
544	Fixed cycle: L
545	Fixed cycle: D
546	Fixed cycle: X, Z
547	Fixed cycle: SA
548	Fixed cycle: feed G94
549	
550	Fixed cycle: thread cycle
551	Data word: QA
552	Magazine P.R. data
553	Magazine turn condition
554	Magazine exchange position tool
555	Tool insert disable
556	ATC command illegal
557	Tool number read
558	ATC: subarm position
559	ATC 1 step time over
560	M06/M228 command disable
561	ATC: TN
562	ATC: no return pot
563	ATC: next tool preparation disable
564	ATC: no spec.
565	ATC: syntax
566	Sub program: data print
567	ATC: TC
568	Data word: X,Y command
569	Data word: incremental
570	Data word: no X,Y
571	Data word: 'Y'
572	Data word: distance cal.
573	Work vibration abnormal
574	STM time over
575	Data word: 'R'
576	Data word: drilling cycle

Alarm Table - ALARM B

Alarm No.	Alarm Message
577	Work put miss
578	LASER MEASUREMENT: command condition
579	Data word: option angle
580	Data word: option angle calculation
581	Chamfering: option angle calculation
582	Chamfering: option angle
583	Unusable: create process command code
584	Create process calculation
585	Change tool unsame
586	Holder rotation impossible
587	Output magazine no space
588	No change tool for magazine
589	ATC MG
590	Data word CD
591	Data word CL
592	Loader no spec.
593	
594	
595	Interlock device p select no spec.
596	Interlock device P-select
597	
598	
599	
600	VSET sequence direct of left
601	Bad value for output variable
602	Program bad direct: character string
603	Program bad direct: hexadecimal data
604	READ/WRITE: no spec.
605	READ/WRITE: buffer over
606	READ/WRITE: device no.
607	READ/WRITE: data
608	READ communication error
609	WRITE communication error
610	GET/PUT: buffer over
611	GET/PUT: no spec.
612	GET/PUT: number of figure

Alarm Table - ALARM B

Alarm No.	Alarm Message
613	GET/PUT: variable
614	GET numeric data
615	Graphic no spec.
616	Graphic PBU write
617	Chuck barrier area
618	Tailstock barrier area
619	UGC: program end code none
620	UGC: DELETE syntax
621	UGC: DEF syntax
622	UGC: TIP syntax
623	UGC: TIF syntax
624	UGC: figure entry
625	UGC: illegal numerical
626	UGC: illegal character
627	UGC: user variable
628	UGC: system variable
629	UGC: illegal command
630	UGC: program factor over
631	UGC: co-ordinate data
632	UGC: END syntax
633	UGC: figure entry command over
634	UGC: command format
635	UGC: additional parameter
636	UGC: expression
637	UGC: entry area over
638	UGC: delete disable
639	LASER MEASUREMENT:
640	LASER MEASUREMENT: condition
641	No interlock spec.
642	Data word PN
643	Load monitor no spec.
644	RS tool L/M unfit
645	Thread phase comp no spec.
646	ZA-axis over load
647	ZB-axis over load
648	XA-axis over load

Alarm Table - ALARM B

Alarm No.	Alarm Message
649	XB-axis over load
650	Flat turning command condition
651	ATC TL
652	ATC MT
653	ATC MG
654	M06/TN/MG/MT impossible
655	Turret rotation
656	Invalid command in flat turning mode
657	
658	TM
659	
660	Circle thread no spec
661	Data word thread command
662	Tool retract no spec
663	Tool retract interrupt enable command
664	Tool retract interrupt disable command
665	Tool retract interrupt return command
666	Program bad direct spindle max revolution number
667	
668	
669	
670	
671	
672	
673	
674	
675	
676	
677	
678	
679	Data word 'W'
680	T rad comp. no spec.
681	T rad comp. change surface
682	T rad comp. C-axis separation
683	T rad comp. QA command
684	T rad comp. side create process cal.

Alarm Table - ALARM B

Alarm No.	Alarm Message
685	
686	Program bad direct X coordinates
687	Fixed cycle: U, W command
690	Data word 'SD'
691	Data word no SB
692	Spindle/turret select G-code
693	Change timing G140/G143
694	Program bad direct max. rev. order for M-axis
697	Sub-spindle synchro command
698	Data word 'SC'
699	Data word 'CC'
700	Invalid command in sub-spindle synchro mode
701	Program bad direct MS axis max. revolution number
703	Change timing illegal G140/G141
704	Change timing G120/G121
706	
712	
716	

<Alarm B>

400	Schedule program: 'Q'

Illegal Q command of the schedule program

Index	None
Character-string	None
Code	1 .....Data other than address character is designated where Q command must be designated. 4 .....Address character other than Q is designated where Q command must be designated. Others .....Numerical value of Q is not $0 < Q \leqq 9999$. Hexadecimal number of Q value
Probable Faulty Locations	Schedule program
Program Example	Code 1 .....PSELECT A.MIN ,, 20 Code 4 .....PSELECT B.MIN ,, P 10 Code D020 (Hexadecimal of 20000) .....PSELECT C.MIN ,, Q 20000
Measures to Take	Correct the Q command in the schedule program. Example: PSELECT A.MIN ,, Q 20

401	Schedule program: mnemonic code

Illegal schedule program command

Instructions other than PSELECT, IF, GOTO, VSET and END are designated.

Index	None
Character-string	None
Code	Hexadecimal number of ASCII code of the first four characters of the instruction
Probable Faulty Locations	Schedule program
Program Example	N100 PSELECT A.MIN ,, Q10 N200 G00 X100 Z200 :
Measures to Take	Delete wrong command(s) in the schedule program.

<Alarm B>

402	Schedule program: program end

No program end command is designated in the schedule program.

Index — None

Character-string — None

Code — 1 ..... No END command is designated at the end of the schedule program.

Probable Faulty Locations — Schedule program

Program Example

```
N010 VSET V1 = 1
N020 PSELECT LOADER.MIN
N030 PSELECT SHAFT.MIN
N040 VSET V1 = V1 + 1
N050 IF [V3 LE 10] N020
```

Measures to Take — Designate the END command at the end of the schedule.

Example:

```
N010 VSET V1 = 1
:
N050 IF [V3 LE 10] N020
N060 END
```

403	Schedule program: main program load

Error during loading the main program designated in the schedule program

Main program no file error, program end code error, etc.

Index — None

Character-string — None

Code — 3 ..... Error occurs when a main program is read in PDO task.

Probable Faulty Locations
- Main program no file error
- Program end code error, etc.

404	Expression: right part

An illegal command is designated in the right part of the expression.

Commands other than numerical data, input variables, system variables, common variables, local variables and extended address characters are designated.

Index — TURRET

Character-string — None

Code — Command factor classification code (table 1)

Probable Faulty Locations — Right part of the expression

Program Example

```
VDOUT [31] = VDOUT [31] + 1
             ↑
Output variable cannot be specified at the right part.
```

Measures to Take — Correct the error at the right part of the expression.

Example: VDOUT [31] = VDIN [31]

<Alarm B>

405	Expression: calculation

Calculation error of expression

Index: TURRET

Character-string: None

Code: XXYY

XX:

- Bit 0 ..... Overflow in addition
- Bit 1 ..... Overflow in converting ABS data into integer
- Bit 2 ..... Conversion form BCD to BIN
- Bit 3 ..... Conversion form BIN to BCD
- Bit 4 ..... DROUND, DFIX and DFUP command were designated in other than mm (inch) unit system.

YY: Floating-point calculation error

- Bit 0 ..... Overflow in converting into integer
- Bit 1 ..... Exponential underflow
- Bit 2 ..... Exponential overflow
- Bit 3 ..... Calculation of root of a negative number
- Bit 4 ..... Division by 0
- Bit 5 ..... Angle overflow

<Alarm B>

406	Expression: syntax

Syntax error of expression

Index — TURRET

Character-string — None

Code

1 ..... Calculation of subscript expression is intended within calculation of subscript expression.

2 ..... No left bracket "[" at the beginning of the subscript expression

3 ..... Three or more subscript expressions (four or more in the case of graphic system variable)

4 ..... The number of the left bracket "[" and that of the right bracket "]" do not match.

5 ..... The number of operands and their handling elements do not match.

6 ..... The sequence terminates within the expression.

7 ..... There are more than one solution.

Probable Faulty Locations

- Program sequence at which the alarm has occurred
- Program error

Program Example

Code 1 ..... VTOFX[VMDT[1]] = 4.5

Code 2 ..... VTOFX]5] = 4.5

Code 3 ..... VTOFX[1,2,3] = 4.5

In this case, alarm of code 5 occurs due to the relationship between the level and the number of operators.

Code 4 ..... VTOFX[2[= 4.5

Code 5 ..... VTOFX[4 = 4.5 (Mainly, code 5 is displayed when an alarm occurs.)

Code 6 ..... Alarm of this code number does not occur. Since the end code is always specified at the end of the commands, processing is performed for the data preceding it. Thus the alarm code corresponding to such error to "5".

Code 7 ..... VTOFX[1,2] = 4.5

Measures to Take — Change the programmed commands in accordance with the code number.

407	Expression: subscript

Subscript expression at right part is wrong.

Remark: When the subscript expression at the right part is erroneous, alarm message "Alarm B 432 Direct of subscript" is displayed.

Index — TURRET

Character-string — None

Code — None .....More than one subscript expressions.

Others .....Result of subscript expression exceeds the range of subscript.

Probable Faulty Locations — Subscript expression causing the alarm

Program Example — V1 = VTOFX[0] ..... Range of subscript of VTOFX is 1 to 32 (1 to 64 for 64-pair tool offset specification).

V1 = VTOFX[1,2] ..... Two subscripts are used.

Measures to Take — Make correction so that the calculation result of the subscript expression is within the range of the subscript.

408	Expression: buffer over

The number of expressions too many, making calculation impossible.

Index — TURRET

Character-string — None

Code — 1 .....Overflow of operand stack in calculation of subscript expressions and operation expressions (more than 16).

2 .....Overflow of operator data stack in calculation of operation expressions (more than 8).

Program Example — Code 1 .....V1 = 1 + [1 + [1 + [1 + [1 + [1 + [1 + [1 + 1]]]]]]]

The number of operators to the left of the first right bracket is 18.

Code 2 .....V1 = 1 + [1 + [1 + [1 + [1 + [1 + [1 + [1 + 1]]]]]]]]

Since calculation is impossible until the ninth data is read, data stack overflow occurs.

Code 2 .....V1 = 1 + 2*[3/[1 + 5*[2 + [3-5*2]]]]

Same as above

V1 = 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9

Although a total of nine data bits are specified, calculation is possible from the left-most data in order. Therefore overflow of the data stack does not occur.

<Alarm B>

409	Expression: local var.

The local variable designated is not registered.

Index	TURRET
Character-string	Local variable name designated
Code	None
Program Example	VTOFX[2] = BDIK

Unregistered local variable

Measures to Take	Do not designate a local variable which is not registered.

410	Program bad direct: G-code

Illegal G code

Numerical value greater than 199 or less than 0 is assigned to the address character G ($0 \leqq G \leqq 199$).

Index	TURRET
Character-string	None
Code	Hexadecimal number of the designated numerical value
Probable Faulty Locations	G code
Program Example	G300 .....Code 12C
Measures to Take	Designate a correct G code. Example: G01 X20 Z50

411	Program bad direct: M-code

Illegal M code

Numerical value greater than 253 or less than 0 is assigned to the address character M ($0 \leqq M \leqq 253$).

Index	TURRET
Character-string	None
Code	Hexadecimal number of the designated numerical value
Probable Faulty Locations	M code
Program Example	M300.....Code 12C
Measures to Take	Designate a correct M code. Example: M02

<Alarm B>

412	Program bad direct: common var.

Wrong common variable designation

Common variables other than V1 - V32 and V901 - V932 cannot be used.

Index	TURRET	
Character-string	None	
Code	None	Characters other than alphanumerics are designated following address character V, or V0 is programmed.
	Others	Variable number other than $1 \leqq V \leqq 32$ and $901 \leqq V \leqq 932$ is designated.
		Hexadecimal number of the designated variable number
Probable Faulty Locations	Common variable	
Program Example	V0 = 13	Code None
	V45 = 20	Code 2D (Hexadecimal of 45)
Measures to Take	Correct designation of a common variable.	
	Example:	V12 = 50 V902 = 25

413	Program bad direct: system var.

A system variable name not registered is designated.

Index	TURRET	
Character-string	None	
Code	Hexadecimal number of ASCII code of up to four characters designated following V	
Probable Faulty Locations	System variable	
Program Example	VZOFV = 40 Not registered as a system variable	
Measures to Take	Use only registered system variables.	
	Example:	VZOFZ = 500 VTOFX[12] = 20

<Alarm B>

414	Program bad direct: sequence name

Sequence name contains characters other than alphanumerics or too many characters are used.

Index	TURRET
Character-string	None
Code	1 ..... No character follows address character N, or characters other than alphanumerics follow it. 2 ..... The number of characters following address character N is more than four.
Probable Faulty Locations	Sequence name
Program Example	Code 1 ..... N G00 X10 Z0 Code 2 ..... N10000 G1 X30 Z20
Measures to Take	Correct a sequence name. Example: N010 G00 X500 N100 G01 X100 Z100

415	Program bad direct: numeric data

Too many digits are specified, or more than one decimal point is specified.

Index	TURRET
Character-string	None
Code	9 ..... The number of digits of the numeric data is more than 9. Others ..... More than one decimal point is specified. The number of digits left to the 2nd decimal point
Probable Faulty Locations	Numeric data
Program Example	G00 X1000000000 G00 X12.351.9
Measures to Take	Correct the numerical data. Example: G01 X3.512 Z1.04

<Alarm B>

416	Program factor over

The buffer register storing program factors is full.

The number of commands in a single sequence is too large.

Or a problem with processing the GET and PUT commands. For the program factors, refer to the factor classification code table.

Index: TURRET

Character-string: None

Code:

1 ..... More than 127 factor classification codes and factor parameters are designated.

2 ..... More than 64 factor data are designated.

3 ..... Move range of factor classification code and/or factor parameter stack is wrong. (This alarm does not occur usually.)

4 ..... Move range of factor data stack is wrong. (This alarm does not occur usually.)

Probable Faulty Locations:

Code 1, 2 ..... Sequence in which an alarm has occurred

Code 3, 4 ..... Error in control software

Program Example:

N010 ABC = 1 BCD = 2 ....

BCD, =, 1, ⟶ This expression has three factor classification codes and factor parameters.

An alarm of code 1 occurs if the total number of factor classification codes and factor parameters counted in this manner exceeds 127.

An alarm of code 2 occurs if the total number of factor classification codes and factor parameters counted in this manner exceeds 64. (The factor data is not included in "=", the number of factors is 2.)

Measures to Take: In case the alarm of code 1 and code 2 occurs, the number of commands in the sequence causing the alarm is too much; the commands should be designated in two or more sequences. In case the alarm of code 3 and code 4 occurs, contact Okuma's software center.

417	Program bad direct: use of character

Illegal symbols are designated. Designatable symbols are "]", "[", "=", "*", "/", "+", "-", ",", DEL, BS, CR, HT and SP.

Index: TURRET

Character-string: None

Code: Hexadecimal number of ASCII code of the designated symbol

Program Example: G00 X50 Z?

Measures to Take: Correct the commands.

<Alarm B>

418	Program bad direct: program name

Program name contains characters other than alphanumerics or it contains too many characters.

Index	TURRET
Character-string	None
Code	1 .....No character follows address character 0, or characters other than alphanumerics follow it. 2 .....The number of characters following address character 0 is more than four.
Probable Faulty Locations	Program name
Program Example	O*123 .....Code 1 is displayed. OABCDE.....Code 2 is displayed.
Measures to Take	Correct the program name. Program name should consist of up to four alphanumeric characters. Example: OABCD OE123

419	Sub program: repetition

A sub program repetition number other than 1 through 9999 is designated.

Index	TURRET
Character-string	None
Code	Hexadecimal number of designated repetition number
Probable Faulty Locations	Subprogram call command
Program Example	CALL OAAA Q10000..... Code 2710 (Hexadecimal number of 10000)
Measures to Take	As a Q command, numerical value should be within a range of 1 to 9999.

↑ Subprogram not registered

<Alarm B>

420	Sub program: stack

Subprogram nesting level is higher than eight.

Or the number of RTS statements used to return to the program where the subprogram was called has exceeded the number of CALL statements calling for a subprogram.

Or the number of MODOUT statements cancelling MODIN mode is larger than the number of MODIN statements.

Nesting level of call after axis movement command exceeds 8.

Cancel of the call after axis movement command does not correspond to the level of the call after axis movement command.

Index: TURRET

Character-string: None

Code:
1 ..... The number of RTS statements is too much.
2 ..... Nesting level of subprograms is higher than eight.
3 ..... The number of MODOUT statements is too much.
4 ..... Nesting level of MODIN mode is higher than eight.
5 ..... Mismatch in levels where MODIN mode is called and cancelled.

Probable Faulty Locations:
- The number of CALL, RTS, MODIN, and MODOUT statements in a part program
- Program error

Program Example:

Code 3 .....
```
N100 MODIN O100
N110 G00 X100 Z100
N120    X50  Z50
N130 MODOUT
N140 MODOUT
```

Measures to Take: Check the nesting level and the number of CALL, RTS, MODIN and MODOUT statements in a part program referring to the code number. Then correct as needed.

Related Specifications: User task 2

421	Sub program: program name

No subprogram name is designated in the sequence containing CALL or MODIN statement.

Or the subprogram name designated in such a sequence is not registered in the program name registering stack.

Index: TURRET

Character-string: None

Code:
1 ..... No subprogram name is designated.
2 ..... The programmed subprogram name is not registered in the program name registering stack.

Probable Faulty Locations: CALL, MODIN sequence

Program Example:

Code 1 ..... CALL

Code 2 ..... CALL O__

Measures to Take: In the CALL and MODIN sequence, designate only the subprogram name registered in the program name registration stack.

Related Specifications: User task 2

<Alarm B>

422	Mnemonic & local var.

The local variable name contains more than four characters.

Spelling of the reserved word more than four characters is wrong.

* The reserved word means the character-string, registered in the control software, for which processing to be done is predetermined. (CALL, GOTO, MODIN and MODOUT, etc.)
* Spelling error in a reserved word of four characters or less causes the reserved word containing spelling error to be accepted as the local variable.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Command in the sequence which causes an occurrence of the alarm
Program Example	N100 MODIM..... Spelling error N200 ABCDE = 1..... Local variable containing five or more characters
Measures to Take	Check the sequence which causes an alarm whether it contains the reserved word or local variable of five or more characters and containing spelling error. In the case of a reserved word, correct the spelling and in the case of a local variable, change the local variable name which consists of up to four characters.

423	Branch (IF, GOTO): sequence name

Command of sequence name for branching by IF or GOTO statement is wrong.

Index	TURRET (None with schedule program)
Character-string	None
Code	1 .....Sequence name where branching is to be made is not designated. 2 .....Designated sequence name is not found.
Probable Faulty Locations	Designation of branching of IF and GOTO statement
Program Example	N005 IF [VDIN [34] EQ1]..... Destination of branching is not designated.
Measures to Take	- Designate the destination sequence name for branching - Do not designate a sequence name, not used in a program, as the destination sequence. Example: N010 IF [VDIN [34] EQ1] N050 : N050 CALL OTFRD :
Related Specifications	User task

<Alarm B>

424	Branch (IF, GOTO): condition

Wrong command following IF statement, or condition evaluation data is incorrect.

Index — TURRET (None with schedule program)

Character-string — None

Code — 1 ..... No "[" following IF

2 ..... The data in [ ] following IF is not a comparison expression.

Program Example — Code 1 .....

```
N10 IF V1+V2 EQ 3] N100
N20 G00 X500 Z500
N100 G00 X0 Z0
```

Code 2 .....

```
N10 IF [VTOFX [1]] N100
N20 G00 X500 Z500
N100 M03 S500
```

Related Specifications — User task

425	Unusable: G-code

G code not available with the selected specification is designated.

Index — TURRET

Character-string — None

Code — Hexadecimal number of the designated G code

Probable Faulty Locations — G code

Program Example — G140 ..... Code 8C (Hexadecimal number of 140)

G10 ..... Code A (Hexadecimal number of 10)

Measures to Take — Designate the G code in the specification.

426	Change timing G13/G14

On two-turret models, G13 and G14 mode is changed while in incremental programming mode, tool nose radius compensation mode, LAP mode, and constant cutting speed mode.

Index: TURRET

Character-string: None

Code:

1 ..... Changed in incremental programming mode.

2 ..... Changed in tool nose radius compensation mode.

3 ..... Changed in LAP mode.

4 ..... Changed in constant cutting speed mode.

5 ..... Changed in buffer reading for required angle chamfering operation

Probable Faulty Locations: G13, G14 command

Program Example:

Code 1

```
G13
G00 X100 Z100
G91 X-20 Z20
G14
G00 X50  Z50
:
M02
```

Code 5

```
N010 G13
N020 M03 S1000
N030 G00 X20 Z120
N040 G75 G01 X60 L6 F0.2
N050 G75     Z90 L5*
N060 G14
N070 G00 X100 Z100
:
M02
```

Code 4

```
G13
G96 S100
G00 X100
G14
G00 X20 Z20
M02
```

* Coordinate values are not determined until the next sequence is read.

Measures to Take:

- For alarms of code 1, 2, 3 or 4, change the G13 and G14 modes after canceling the operation mode first.
- For the alarm of code 5, change the G13 and G14 modes after designating the end point in the sequence following G75.

Related Specifications: Rear-turret specification

<Alarm B>

427	Unusable: M-code

M code not available with the selected specification is designated.

Index	TURRET
Character-string	None
Code	Hexadecimal number of the designated M code
Probable Faulty Locations	M code
Program Example	M10.....Code A (Hexadecimal number of 10)
	M60.....Code 3C (Hexadecimal number of 60)
Measures to Take	Designate the M code in the specification.

428	Equal is not exist

A code other than "=" (equal) sign is designated at a place where the equal sign is to be designated.

Index	TURRET
Character-string	None
Code	XXYY: Classification code and parameter of the factor designated at a position where "=" should be designated
	XX ..... Factor classification code (See Table 1 for details.)
	YY ..... Factor parameter (See Table 1 for details.)
Program Example	VTOFX [8] 36 ⟶ VTOFX [8] = 36
	V13V5 ⟶ V13 = V5
	VZOFX*20 ⟶ VZOFX = 20
Measures to Take	Correct the expression.

<Alarm B>

429	Unusable: direct of left

Illegal command in the left part of the expression

Schedule program:

Left part is not common variable (V1 through V32) or output variable in VSET sequence.

Main program, Subprogram:

The left part contains other than G codes, M codes, address characters, extended address characters, local variables, common variables, system variables, and output variables.

Index	TURRET (None with schedule program)
Character-string	None
Code	XXYY: Classification code of factor and parameter designated at left part XX ..... Factor classification code (See Table 1 for details.) YY ..... Factor parameter (See Table 1 for details.)
Probable Faulty Locations	Command designated in the left part
Program Example	VDIN [35] = 5 Input variables and numerical values cannot be designated in the left part 20 = VTOFX [1]
Measures to Take	Do not designate a command for which the use is not allowed.

430	Bad value for system variable

Setting value of the system variable has exceeded the allowable limit.

Droop amount

0 through 1.000

Tool nose radius compensation value

-999.999 through 999.999

Others

-99999.999 through 99999.999

Plus variable limit $\geqq$ Plus travel end limit

Minus variable limit $\leqq$ Minus travel end limit

Index	TURRET
Character-string	None
Code	Hexadecimal number of set value
Probable Faulty Locations	System variable
Operation Example	- User parameter in the parameter set mode - Locating the cursor at X or Z of Droop [SET] [2] [WRITE]
Measures to Take	Set the system variable so that a tolerance will not be exceeded.

<Alarm B>

431	Unusable: output variable No.

The output variable number not available with the selected specification is designated.

Index	TURRET
Character-string	None
Code	Hexadecimal number of output variable number
Program Example	VDOUT [1000] = 10
Measures to Take	Designate the output variable in the specification.

432	Direct of subscript

The subscript expression is incorrect.

Numerical value of the subscript expression of the system variable is too large or too small.

Tool offset and tool nose radius compensation

1 through 32 (1 through 64 for 64-pair specification)

Tool interference

1 through 12

Two subscript expressions are designated by system variable and I/O variable.

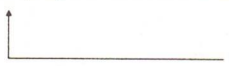
Index	TURRET
Character-string	None
Code	2 ..... Two subscript expressions using I/O variable
	None ..... Two subscript expressions using system variable
	Others ..... Hexadecimal number of the programmed subscription expressions
Probable Faulty Locations	Subscript expression
Program Example	VTOFX [34] = 10 ..... Code 22 (Hexadecimal of 34)

Designate 1 - 32.

VNSRZ [-1] = 5 ..... Code FFFFFFFF (Hexadecimal of -1)

Designate 1 - 32.

V1 = VDIN [1,2] ..... Code 2



Do not designate two subscript expressions.

VDOUT [1,2] = 20 ..... No code

Do not designate two subscript expressions.

<Alarm B>

433	Special G-code table

The internal constant table determined by the special G code is incorrect. (This alarm does not occur usually.)

Index	TURRET
Character-string	None
Code	Hexadecimal number of the designated G code
Probable Faulty Locations	Special G code table

434	Unusable: input variable No.

The input variable number not available with the selected specification is designated.

Index	TURRET
Character-string	None
Code	Hexadecimal number of the designated input variable number
Probable Faulty Locations	Input variable number
Program Example	VDIN [**] = 10 Number not available by specification
Measures to Take	Change the input variable number to a number allowed by the specification.

435	Unusable: turret direct code

G13 and G14 commands are designated on machines having only one turret.

Index	TURRET
Character-string	None
Code	Hexadecimal number of the designated G code
Probable Faulty Locations	G13, G14
Program Example	N010 G13 N020 G00 X50 N030 G01 Z40
:Measures to Take	Do not designate G13 and G14.

<Alarm B>

436	Program end code not found

No program end code is designated at the end of a block.

After the symbol "(" is designated, corresponding symbol ")" does not appear up to the end of the program.

No program end code for LAP (G80) is present.

Index TURRET

Character-string None

Code 1 .....No program end code

2 .....After the symbol "(" is designated, corresponding symbol ")" does not appear up to the end of the program.

<Alarm B>

437	Program name is not select

Program name is incorrectly designated. The program name* differing from the one presently executed is designated.

* Command O**** is executed.

Index — TURRET

Character-string — None

Code — Hexadecimal number of the ASCII code of four characters of the program name following address character O.

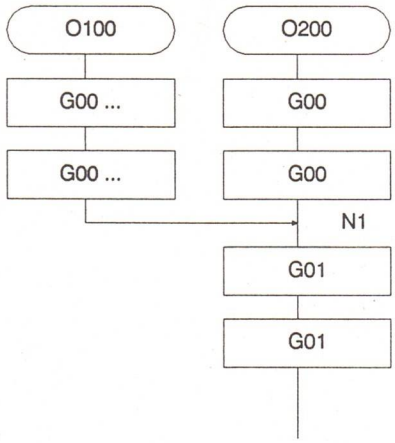
Probable Faulty Locations — Program sequence causing alarm (Refer to program example on the following page.)

Program Example — When calling a subprogram, designation of CALL is not made (same as in the case of MODIN).

Normal	Alarm	
N100 G00	N100 G00	If a sequence No. is designated prior to O100, other type of alarm occurs.
N110 G01	N110 G01	(Alarm B 429 Unusable: direct of left)
N120 G00	N120 G00	
CALL O100	O100	
N130 G00	N130 G00	

For the program which has two beginning sequences, the command used for skipping the second program name is not designated. GOTO statement is not designated.

O100	O100	
G00	G00	
G00	G00	
GOTO N1	O200	← An alarm occurs when this sequence is executed.
O200	G00	
G00	G00	
G00	N1 G01	
N1 G01	G01	
G01	:	



Measures to Take — Do not execute the sequence which contains only a program name.

Related Specifications — User task 2

<Alarm B>

438	Local variable use over

The number of local variable is over 127.

Index	TURRET
Character-string	None
Code	1
Measures to Take	Reduce the number of local variables used.

439	Data word: 'F'

Numerical value of an F command in other than the G04 mode is either negative or zero.

When the numerical value of an F comm.. the G04 mode is converted into "0.01 sec." unit, it does not satisfy the following inequality: $0 < F \leqq 99999999$

Index	TURRET
Character-string	None
Code	1 .....F value does not satisfy: $-99999999 \leqq F \leqq 99999999$
	2 .....F value is either negative or zero.
Probable Faulty Locations	F command
Program Example	G01 X50 Z50 F-0.2..... Code 2
	G04 F1000000 ..... Code 1
	→ 100000000 when converted into a number of 0.01 sec. unit
Measures to Take	Designate only a number within the specified range.

<Alarm B>

440	Data word: 'F' or 'E'

Illegal F or E command

When F or E command is converted into "μm/rev." or "0.1 mm/min." unit, the result of conversion does not satisfy the following inequality: -99999.999 ≦ F (or E) ≦ 99999.999

Overflow in calculation of the number of feed pulse in the G34 or the G35 mode.

Index: TURRET

Character-string: None

Code:
1 .....F or E value does not satisfy: -99999.999 ≦ F (or E) ≦ 99999.999
3 .....Overflow in calculation of feed pulse numbers

Probable Faulty Locations:
- Program error
- F or E command value in the sequence which causes an alarm .
- In the case of G34 and G35 modes, the number of pulses is calculated until the end of function generation based on the distance and F and E commands. However, since the F and E commands are improper, overflow occurs during calculation and the number of pulses cannot be calculated.

Program Example:
G01 X100 F100000.000..... Code 1
G34 Z100 F1 E-0.2..... Code 3

Measures to Take:
Code 1 .....Change F or E command value so that it is within the following range: -99999.999 - 99999.999
Code 3 .....Check F or E command value and change into a proper value which will not cause overflow.

441	Data word: 'I'

Illegal I command

Numerical value of I command is not: -99999.999 ≦ I ≦ 99999.999

Index: TURRET

Character-string: None

Code:
1 .....I command in circular arc commands
Others .....Hexadecimal number of I command in thread cutting fixed cycle
Hexadecimal number of I command in other than circular arc commands or thread cutting fixed cycle

Probable Faulty Locations: I command

Program Example: G02 X50 Z70 I100000 K10.....Code 1

Measures to Take: Change I command value so that it is within the allowable range.

Example: G02 X50 Z70 I10 K10

<Alarm B>

442	Data word: 'J'

Illegal J command

Numerical value of J command is not: 0 ≦ J ≦ 99999.999

Index	TURRET
Character-string	None
Code	1.....J value is negative
	2.....J value does not satisfy: 0 < J ≦ 99999.999
Probable Faulty Locations	J command
Program Example	G33 X50 Z20 F0.2 J-5.....Code 1
Measures to Take	Change J command value so that it is within the allowable range.
	Example: G33 X50 Z20 F0.2 J5

443	Data word: 'K'

Illegal K command

Numerical value of K command is not: -99999.999 ≦ K ≦ 99999.999

Index	TURRET
Character-string	None
Code	1.....K command in circular arc commands
	Others.....Hexadecimal number of K command in thread cutting fixed cycle. Hexadecimal number of K command in other than circular arc commands or thread cutting fixed cycle
Probable Faulty Locations	K command
Program Example	G02 X30 Z30 I20 K100000.....Code 1
Measures to Take	Change K command value so that it is within the allowable range.
	Example: G02 X30 Z30 I20 K-10

<Alarm B>

444	Data word: 'L'

Illegal L command

Numerical value of L command in circular interpolation mode is not: $0 < L \leq 99999.999$

The chamfering amount in thread cutting fixed cycle calculated from L and K (or I) commands is not 0 through 99999.999.

Numerical value of L word in a gauging cycle is not 0 through 99999.999.

In other modes, numerical value of L command is not: $-99999.999 \leq L \leq 99999.999$

Index	TURRET
Character-string	None
Code	1 ..... In circular interpolation mode, L command does not satisfy: $-99999.999 \leq L \leq 99999.999$
	2 ..... L value is negative in circular interpolation mode
	Others ..... Hexadecimal number of L value in other than circular interpolation mode
Probable Faulty Locations	Command value in the sequence which causes an alarm
Program Example	G33 Z100 F1 L5 K-6
Measures to Take	Change the L command value to one which is permissible for the command having been designated when the alarm occurs.

445	Data word: 'P'

Illegal P command

Numerical value of P command is not: $-9999 \leq P \leq 9999$

Index	TURRET
Character-string	None
Code	Hexadecimal number of programmed P command
Probable Faulty Locations	P command
Program Example	N010 G13 N020 G00 X500 Z500 P10000
Measures to Take	Change P command value so that it is within the allowable range.
	Example: N010 G13 N020 G00 X500 Z500 M03 S1000 P10 : N010 G14 N020 G00 X500 Z500 M03 S1000 P10

<Alarm B>

446	Data word: 'S'

Illegal S command

Numerical value of S command is not: $0 \leqq S \leqq 9999$

Index	TURRET
Character-string	None
Code	Hexadecimal number of programmed S command
Probable Faulty Locations	S command
Program Example	N010 G00 X500 Z500 M42 S10000 T0101
Measures to Take	Change S command value so that it is within the allowable range. Example: N010 G00 X500 Z500 M42 S3000 T0101

447	Data word: no 'S'

No S command in the block containing G96 or G97.

Index	TURRET
Character-string	None
Code	1
Probable Faulty Locations	G96, G97
Program Example	N010 G96
Measures to Take	Designate an S command. Example: N010 G96 S100 : N200 G97 S500

<Alarm B>

448	Data word: 'T'

Illegal T command

In T******, respective two-digit numbers expressing tool number, tool offset number and tool nose radius compensation number are larger than 32. (96 for 96-pair specification)

Index	TURRET
Character-string	None
Code	- Hexadecimal number of the designated T command when it is not: 0 < T < 99999999 - When tool offset number, tool number or tool nose radius compensation number is greater than 32, hexadecimal number of that number is in the right four digits.
Probable Faulty Locations	T command
Program Example	T011156 ..... Code B0038 T243512 ..... Code C0023 T1120101 ..... Code 650070 T-1 ..... Code FFFFFFFF T100000000 ..... Code 5F5E100
Measures to Take	Specify T commands in four or six digits; each two digits of command must be 32 (96 in the case of 96-pair specification) or smaller.

449	Data word: 'X'

Illegal X command

Numerical value of X command is not: $-99999.999 \leqq X \leqq 99999.999$

Or the X command designated in incremental word is not $-99999.999 \leqq X \leqq 99999.999$ when converted into the absolute value.

Index	TURRET
Character-string	None
Code	Hexadecimal number of the programmed X command
Probable Faulty Locations	X command
Program Example	N010 G00 X100000 Z200
Measures to Take	Change X command value so that it is within the allowable range.

<Alarm B>

450	Data word: 'X', 'Z'

The first block of the G31, G32 and G33 mode (thread cutting fixed cycle) has only either of X and Z commands, or it has neither X nor Z command.

In the G30 gauging cycle mode, both X and Z commands are programmed.

Index: TURRET

Character-string: None

Code:

1 ..... The first block of the G31, G32 and G33 mode has only either of X and Z commands, or it has neither X nor Z command.

2 ..... In the G30 gauging cycle mode, both X and Z commands are programmed.

3 ..... In contour generation, X coordinate value of either the start or end point in the G101 mode is "0", (in the X-C coordinate system) or both X and Y coordinate values are "0" (in the X-Y coordinate system).

Program Example

Code 1

```
G00 X100 Z100 S100 M03
G33 X80       F3
```

Always specify both X and Z commands

Code 2

```
G30 X30 Z50 D10 L10
```

Delete either of X and Z commands

Measures to Take

- In the thread cutting fixed cycle called by G31, G32 and G33, both X and Z commands must be specified.
- In the gauging cycle called by G30, either of X and Z commands must be specified.

451	Data word: 'Z'

Illegal Z command

Numerical value of Z command is not: $-99999.999 \leqq Z \leqq 99999.999$

Or the Z command designated in incremental word is not $-99999.999 \leqq Z \leqq 99999.999$ when converted into the absolute value.

Index: TURRET

Character-string: None

Code: Hexadecimal number of the designated Z command

Probable Faulty Locations: Z command

Program Example: N010 G00 X500 Z100000

Measures to Take: Change Z command value so that it is within the allowable range.

<Alarm B>

452	Data word: arc cal.

In direct arc radius command, the coordinates of the arc center can not be calculated from the L command and X and Z commands.

The command error between I and K commands and X and Z commands in circular interpolation exceeds the tolerance (std.: 20 m).

Index: TURRET

Character-string: None

Code:

1 ..... L value is smaller than 1/2 of the distance up to the target value.

2 ..... Overflow in calculation of arc center or error

3 ..... Error between the radius which is calculated from I and K commands and the distance between the end point and the center is greater than tolerance.

4 ..... I and K commands are zero.

10 ..... End point of the arc command after calculation of LAP, tool nose radius compensation, or tool offset is offset from the programmed arc more than the specified tolerance.

Probable Faulty Locations: I, K, L commands and X, Z commands in the block containing the G02/G03 code.

Program Example

Code 1

```
G00 X50 Z50
G02 X50 Z0 L20 F0.1
M02
```

Code 3

```
G00 X0 Z100
G02 X105 Z20 K-100 F0.1
M02
```

Code 3

```
G00 X0 Z50
G03 X95 I-1 K-20 E0.1
M02
```

Measures to Take: Change the command value so that an arc can be generated.

<Alarm B>

453	Data word: angle

In the G00, G01, G02, G03, G34 or G35 sequence, an A command is designated both with X and Z commands.

The target point calculated from the angle does not fall within a range of -99999.999 and 99999.999.

In the G31 or G33 sequence, both A and I commands are designated.

In the G32 sequence, both A and K commands are designated.

The target point in the thread cutting fixed cycle calculated from the angle command does not fall within a range of -99999.999 and 99999.999.

Index: TURRET

Character-string: None

Code:

1 ..... Both X and Z commands are designated, or I or K command is designated.

2 ..... Neither X nor Z command is designated.

3 ..... The target point calculated from the angle command does not fall within a range of -99999.999 and 99999.999.

Others ..... Hexadecimal number of the target point calculated from angle command A in thread cutting fixed cycle

Program Example

Code 1

```
G00 X100 Z100
X120 Z50  A160
```

Delete either X or Z command.

Code 1

```
G00 X100 Z100 M03 S100
G34 X120 Z50  A170 F3 E0.1
```

Delete either X or Z command.

Code 3

```
G00 X100 Z100
X120      A179.999
```

Target value of Z is 5729477.95.
Change X or A value to a smaller one.

Code 2

```
G00 X100 Z100 M03 S500
G03      A150 L30 F0.2
```

Designate X or Z command.

Code 1

```
G00 X100 Z100 M03 S100
G33 X80  Z50  I10 A170 F3
```

Designate only either of I and A commands.

<Alarm B>

454	Data word: thread cycle

In thread cutting fixed cycle, shift amount is so large as to reverse the cutting direction or taper amount is so large as to retract the tool exceeding the thread cutting starting point.

Index — TURRET

Character-string — None

Code

1 ..... Taper amount is too large and the starting point of the taper exceeds the end point.

2 ..... Shift amount designated by K and I command (K in G33 and I in G32 mode) is too large and the starting point of thread cutting cycle exceeds the end point.

3 ..... Overflow took place in calculating the points for thread cutting fixed cycle.

Program Example

Code 1

```
G00 X100 Z100 M03 S100
G33 X80  Z50  I20 F3
M02
```

I command too large

Code 1

```
G00 X100 Z100 M03 S100
G33 X80  Z50  A120 F3
M02
```

Taper amount too large (A command too small)

Code 2

```
G00 X100 Z100 M03 S100
M23
G33 X80  Z50  F3  A170 L55 K-55
M22
M02
```

Shift amount too large

<Alarm B>

455	Data word: radius

Either I and/or K command is designated, or no X and Z commands are designated with L command.

Index	TURRET
Character-string	None
Code	1 .....I or K command is designated. 2 .....Either X or Z command is not designated, or neither X nor Z command is designated. 3 .....No L command in the G102 and G103 sequence.
Probable Faulty Locations	Sequence containing G02, G03, G102 and G103
Program Example	Code 1 G00 X100 Z100 G03 X110 Z95 L5 K-5
Measures to Take	For radius command containing an L command, designate both X and Z commands; do not designate I and K commands.

456	Data word: 'D'

Illegal D command

In a gauging cycle, D value is not within a range of 0 and 99999.999.

Index	TURRET
Character-string	None
Code	Hexadecimal number of designated D command
Probable Faulty Locations	D command
Program Example	G30 Z50 D-10 L10
Measures to Take	Change D command; $0 \leqq D \leqq 99999.999$. Example: G30 Z50 D10 L10
Related Specifications	In-process gauging

<Alarm B>

457	Data word: gauging cycle

In the gauging cycle, numerical value of the D command is larger than the distance between the starting point and the point to be measured.

Index	TURRET
Character-string	None
Code	1
Probable Faulty Locations	D command in G30 gauging cycle
Program Example	G00 X50 Z100 G30 Z90 D20 L20
Measures to Take	- Change D command to a value smaller than the distance between the start point and the gauging point. - Or set the start point closer to the gauging point. Example: G00 X50 Z120 G30 Z90 D20 L20
Related Specifications	In-process gauging

<Alarm B>

458	Data word: C command

Alarm of C command

Numerical value of designated C command calling for spindle orientation is either C < 0°, or C ≧ 360°.

C command is designated at B-turret side on a multi-machining model.

C command is designated in other than G00, G01, G50, G101, G102, G103 mode, or G181 - G190 (compound fixed cycle for M-tool spindle) mode.

C command value is outside of -360° < C < 360°.

C command calling for zero movement in the G101 mode.

Index — TURRET

Character-string — None

Code

1 ..... C command at B-turret side on a multi-machining model

2 ..... C command is designated in other than G00, G01, G50, G101, G102, G103 mode, or G181 - G190 (compound fixed cycle for M-tool spindle) mode.

3 ..... C command calling for zero movement in the G101 mode

Others ..... Hexadecimal number of designated C value

Program Example

M19 C-50 ..... FFFF3CB0 (Hexadecimal of -50000)

M19 C370 ..... 5A550 (Hexadecimal of 370000)

Code 1

```
G14          <-------- C command cannot be designated at B-turret side.
M110
G00 X100 C90 M146 M15
M147
M02
```

Code 2

```
M110
M03 S500
G94 G02 X100 C90 M146 M15 F130
M147
M02
```

C command not allowed

Code 3

```
M110
M146 M16
G00 X100 C30 T0101 SB=250 M241
G94 Z120 M13
G101 C30 F30
M02
```

C-axis movement amount is "0".

Code FFFA5AB0 (Hexadecimal of -370000)

```
M110
G00 X100 C-370 M146 M15
M147
M02
```

C command must be -360° < C < 360°.

Related Specifications

- Spindle orientation
- Multi-machining model

<Alarm B>

459	MDI: special G-code

G code not executable in the MDI mode is designated.

Index — TURRET

Character-string — None

Code
- 1 ..... MODIN and/or MODOUT statement is designated.
- 2 ..... G80, G81, or G82 is designated.
- 3 ..... G85 or G86 is designated.

Measures to Take — Do not input the G codes indicated above in the MDI mode.

460	Main sequence

Error (TRAP #4) in main sequence. Usually, an error does not occur within a main sequence.

Index — TURRET

Character-string — None

Code — 1

461	Restart

Restart command is incorrectly designated.

Index — None

Character-string — None

Code
- 1 ..... On the 2-saddle model, CYCLE START button is pressed after the restart command for the program for either turret A or turret B has been designated.
- 2 ..... CYCLE START button is pressed after the restart command has been executed.
- 3 ..... In independent A turret operation mode, restart command for the program for B turret is designated, or in independent B turret operation mode, restart command for the program for A turret is designated.

Operation Example

2-saddle specification:

Code 1 ..... [A] RE N100 [WRITE] ⟶ CYCLE START

Code 2 ..... [A] RE N100 [WRITE] [B] RE N150 [WRITE] ⟶ CYCLE START

1-saddle specification:

Code 2 ..... RE N100 [WRITE] ⟶ CYCLE START

2-saddle specification (in independent A turret operation mode):

Code 3 ..... [B] RE N200 [WRITE]

<Alarm B>

462	User reserve code

Alarm designated by output variable #992

Index — None

Character-string — None

Code — The numerical value substituted to the output variable

463	Synchronize M code

Improper designation of synchronization M code (M100).

Index — TURRET

Character-string — None

Code — 164 ..... M100 is designated in the tool nose radius compensation mode.

2XX ..... For A and B turrets, different synchronization M codes are designated.

XX: Hexadecimal number of the designated M code (This alarm does not occur actually.)

Probable Faulty Locations — - Part program
- Error in programming nose R compensation function

With the standard software, designation of a synchronization M code other than M100 is not allowed. Therefore the alarm with code "2XX" does not actually occur.

Program Example — Code 164

```
N100 G41 G01 X100 F1
N101 M100
:   :
```

Measures to Take — Eliminate M100 from nose R compensation function active portion.

<Alarm B>

464	Tailstock spindle over advance

Over advance of the tailstock spindle (alarm level of this alarm is alarm A if it occurs during execution of a main program*.)

Bit data status of bits 3, 4, 5 of EC input No. 6:

bit 5	bit 4	bit 3
0	0	1
TSRT	TSLM	TSOA

* Refer to Alarm A 139 Tailstock spindle over advance.

Index	None
Character-string	None
Code	1 .....The tailstock spindle has over advanced to actuate the over advance confirmation LS.
Probable Faulty Locations	- The tailstock is positioned too far from the workpiece, thus causing the over-advance confirmation LS to be actuated before the tailstock spindle center is pushed against the workpiece. - The tailstock spindle advance command is designated although a workpiece is not set on the machine (operation error).
Measures to Take	- Re-position the tailstock closer to the workpiece, or adjust the dog position. - Designate the tailstock spindle advance command only after setting a workpiece in the chuck.

465	Plus var. limit over

The target point of the designated axis movement command is greater than the variable limit position in the positive direction.

Index	AXIS
Character-string	None
Code	2 .....Other than G00 mode 3 .....Nose radius compensation mode in G00 4 .....LAP mode in G00 5 .....X-axis on two-turret models
Measures to Take	Change the command to a value smaller than the variable limit value in the positive direction.

466	Minus var. limit over

The target point of the designated axis movement command is smaller than the variable limit position in the negative direction.

Index	AXIS
Character-string	None
Code	1
Measures to Take	Change the command to a value greater than the variable limit value in the negative direction.

467	Function cal no spec.

A command calling for calculation is designated although the control has no calculation specification (user task 2).

The following command is designated:

EOR, OR, AND, NOT, SIN, COS, TAN, ATAN, SQRT, ABS, BIN, BCD, ROUN, FIX, FUP, DROUND, DFIX, DFUP, ATAN2, and MOD

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	N010 Z = 60 * SIN [30]
Measures to Take	Eliminate math calculation function commands from the program. (Math calculation function can be used only with the user task 2 specification.)

468	System var. no spec.

System variable is designated although the control has no system variable specification.

Index	None
Character-string	None
Code	1
Probable Faulty Locations	Program error
Program Example	N010 VTOFZ[1] = 2.567 Use of VTOFZ[1] is allowed only with the control which has the system variable specification (user task 2 specification).
Measures to Take	Eliminate the system variables from the program.

469	Parameter program no spec.

Subprogram is programmed although the control has no subprogram specification (user task 2).

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	CALL OSUB
Measures to Take	Eliminate the subprogram call command from the program. (Use of subprogram is allowed only with the control which has the user task 2 specification.)

470	In-process gauging no spec.

In-process work gauging variables are designated or the gauging cycle is programmed although the control has no in-process gauging specification.

Index	TURRET
Character-string	None
Code	1 .....In-process gauging variables are programmed in left part. 2 .....In-process gauging variables are programmed in right part. 3 .....Gauging cycle is programmed.
Probable Faulty Locations	Program error
Program Example	N010 VRNGZ = 100.000 (VRNGZ is the in-process gauging variable.)
Measures to Take	Eliminate the in-process gauging variable or gauging cycle command from the program.

471	Post-process gauging no spec.

Post-process work gauging variables are designated although the control has no post-process gauging specification.

Index	TURRET
Character-string	None
Code	1 .....Post-process gauging variables are designated in left part. 2 .....Post-process gauging variables are designated in right part. 3 .....Variable common to the turrets are designated in right part.
Probable Faulty Locations	Program error
Program Example	N010 VXMPO[1] = 2 (VXMPO[1] is the post-process gauging variable.)
Measures to Take	Eliminate the post-process gauging variable.

472	Spindle orientation no spec.

Spindle orientation M code (M19) is designated although the control has no spindle orientation specification.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	N010 M19
Measures to Take	Eliminate M19 from the program.

<Alarm B>

473	I/O var. no spec.

I/O variables are designated although the control has no I/O variable specification (user task 2).

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	N010 VDOUT[1] = VDIN[1]
Measures to Take	Eliminate I/O variables from the program. (Use of I/O variables is allowed only with the control which has the user task 2 specification.)

474	Backup data file write

Failure in writing the backup data into the bubble memory

Index	None
Character-string	None
Code	Hexadecimal number of the sector number of the bubble memory in which failure occurred.
Probable Faulty Locations	Bubble memory card
Operation Example	Since backup to the bubble memory is executed automatically, operation is not related with this alarm.
Measures to Take	Replace the bubble memory card.

479	Multi cycle: B illegal order

B < 0° or B ≧ 180°

In G71, G72 thread cutting cycle, tangent (B/2) is negative or resulted in overflow.

Index	TURRET
Character-string	None
Code	Hexadecimal number of mantissa of floating-point of tangent (B/2)
Probable Faulty Locations	Program error
Program Example	N010 G71 X100 Z100 B181 D3 H10 F5
Measures to Take	Check the B command value. It must be 0' ≦ B < 180°.

<Alarm B>

480	Multi cycle: D illegal order

In G71, G72, G73 or G74 mode, no D command is designated or numerical value of D command is not: 0 < D ≤ 99999.999

Index	TURRET
Character-string	None
Code	FFFFFFFF .....No D command
	Others .....Hexadecimal number of D value
Probable Faulty Locations	Program error
Program Example	N010 G71 X100 Z100 B60 H10 F5
Measures to Take	Check the D command value.
	For the example program, insert D command in the program. N010 G71 X100 Z100 B60 D3 H10 F5

481	Multi cycle: F illegal order

In G71, G72, G73 or G74 mode, no F command is designated or numerical value of F command is not: 0 < F ≤ 99999.999

Index	TURRET
Character-string	None
Code	FFFFFFFF .....No F command
	Others .....Hexadecimal number of F value
Probable Faulty Locations	Program error
Program Example	N010 G71 X100 Z100 B60 D3 H10
Measures to Take	Check the F command value.
	For the example program, insert a F command in the program. N101 G71 X100 Z100 B60 D3 H10 F5

482	Multi cycle: H illegal order

In G71 and G72 thread cutting mode, no H command is designated or numerical value of H command is not: 0 < H ≤ 99999.999

Index	TURRET
Character-string	None
Code	FFFFFFFF .....No H command
	Others .....Hexadecimal number of H value
Probable Faulty Locations	Program error
Program Example	N010 G71 X100 Z100 B60 D3 F5
Measures to Take	Check the H command value.
	For the example program, insert a H command in the program. N010 G71 X100 Z100 B60 D3 H10 F5

<Alarm B>

483	Multi cycle: H-U (W) less than D (M73)

In M73 of G71 or G72 thread cutting mode, the value "H-U (W)" is smaller than D.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	N010 G71 X100 Z100 B60 D4 H5 U2 F5 M73
Measures to Take	Check the D, U and H commands. For the example program, correct the value since "H - U $\geq$ D" is not satisfied. N010 G71 X100 Z100 B60 D4 H5 U0.2 F5 M73

484	Multi cycle: parameter I, K over

In the G73 and G74 grooving cycle, the parameter of I or K is greater than the allowable value causing negative groove depth.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	N009 G00 X100 Z100 N010 G73 X50 Z50 I60 K10 D10 L25 F0.2
Measures to Take	Check the I command value in the G73 mode, and K command value in the G74 mode. For the example program, correct the I command value since it is greater than the target value. N010 G73 X50 Z50 I6 K10 D10 L25 F0.2

<Alarm B>

485	Multi cycle: I, K illegal order

In the G71 mode, K command is designated, both A and I commands are designated, or neither A nor I command is designated.

In the G72 mode, I command is designated, both A and K commands are designated, or neither A nor K command is designated.

In G73 and G74 grooving cycle, I and K are not: $0 \leqq I, K \leqq 99999.999$

Index	TURRET
Character-string	None
Code	None .....Either K command is designated in G71 mode, or I command in G72 mode. 1 .....Either both A and I commands are designated, or neither A nor I command is designated in G71 mode, or either both A and K commands are designated, or neither A nor K command is designated in G72 mode. Others .....Hexadecimal number of I or K value
Probable Faulty Locations	Program error
Program Example	N010 G73 X50 Z50 I-1 K10 D10 L25 F0.2
Measures to Take	Check the I and K command values. For the example program, correct the I command value since it is a negative value. N010 G73 X50 Z50 I1 K10 D10 L25 F0.2

486	Multi cycle: L illegal order

In G73 and G74 grooving cycle, numerical value of L command is not: $0 < L \leqq 99999.999$

Index	TURRET
Character-string	None
Code	Hexadecimal number of L value
Probable Faulty Locations	Program error
Program Example	N010 G73 X50 Z50 I1 K10 D10 L-25 F0.2
Measures to Take	Check the L command values. For the example program, correct the L command value since it is a negative value. N010 G73 X50 Z50 I1 K10 D10 L25 F0.2

<Alarm B>

487	Multi cycle: entry in LAP

During LAP control, multi cycle command is designated.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	NLAP1 G81 : N010 G73 : N019 G80
Measures to Take	In the LAP shape designation program, designation of the compound fixed cycle command is not allowed. Move the related command to a proper position.

488	Multi cycle: U (W) illegal order

In G71 thread cutting cycle, either W command is designated or the numerical value of U command is not: 0 < U < 99999.999

In G72 thread cutting cycle, either a U command is designated or the numerical value of a W command is not: 0 < W < 99999.999

Index	TURRET
Character-string	None
Code	None .....In G71, W command is designated, or in G72, U command is designated. Others .....Hexadecimal number of U (W) value
Probable Faulty Locations	Program error
Program Example	N010 G71 X100 Z100 B60 D4 H5 W0.2 F5
Measures to Take	Check the U or W command value. Finish allowance is designated by a U command in the G71 mode and by a W command in the G72 mode. In the example program, a W command is used in the G71 mode--change the W command to the U command. N010 G71 X100 Z100 B60 D4 H5 U0.2 F5

489	Multi cycle: U (W) greater than H

In G71 or G72 thread cutting cycle, designated finish allowance U or W is larger than the thread height H.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	N010 G71 X100 Z100 B60 D4 H5 U20 F5
Measures to Take	Check the U(W) or H command. For the example program, correct the U command value since it is greater than thread height. N010 G71 X100 Z100 B60 D4 H5 U0.2 F5

<Alarm B>

490	Multi cycle: X, Z illegal order

In G71, G72, G73 or G74 mode, either X or Z command is not designated, or the value of them is not: -99999.999 ≦ X (Z) ≦ 99999.999

Index	TURRET
Character-string	None
Code	FFFFFFFF .....Either X or Z command is not designated. Others .....Hexadecimal number of X or Z value
Probable Faulty Locations	Program error
Program Example	N010 G71 Z100 B60 D4 H5 U0.2 F5
Measures to Take	Check the X or Z command. For the example program, add an X command to the program. N010 G71 X100 Z100 B60 D4 H5 U0.2 F5

491	Multi cycle: angle

In the G71, G72 thread cutting cycle, A command is illegal and floating point of thread radius difference cannot be calculated.

Index	TURRET
Character-string	None
Code	Bit 0.....Overflow in converting into integer Bit 1.....Exponential underflow Bit 2.....Exponential overflow Bit 3.....Calculation of root of a negative number Bit 4.....Division by 0 Bit 5.....Angle overflow for TAN
Probable Faulty Locations	Program error
Program Example	N010 G71 X100 Z100 B60 D1 H5 U0.2 F5 A90
Measures to Take	Check the A command value. For the example program, correct the A command value. N010 G71 X100 Z100 B60 D1 H5 U0.2 F5 A170

<Alarm B>

492	Multi cycle: tool offset

In the G73, G74 grooving cycle, tool offset value specified in the program differs form the designated shift direction.

Index	TURRET
Character-string	None
Code	Hexadecimal number of tool offset shift amount
Probable Faulty Locations	- Setting of improper tool offset value - Wrong tool offset command designation (program error)
Program Example	<Program> N009 G00 X100 Z100 T101 N010 G73 X50 Z50 I10 K4 D15 L30 T02 <Tool offset set values> T1 Z10.000 T2 Z 5.000
Measures to Take	Check the tool offset values and tool offset commands in the program. For the example program, correct the tool offset value for T2. T2 Z 15.000

493	Multi cycle: cycle start point

In the G71, G72 thread cutting cycle, H command is too large and the reference point of thread cutting is not located in the infeeding direction from the cycle start point.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	N009 G00 X100 Z100 N010 G71 X98 Z50 B60 D1 H5 U0.2 F5
Measures to Take	Check the thread cutting start point command and thread height command. In the example program, change the thread cutting start point since the thread height is greater than the thread cutting start point. N009 G00 X120 Z100 N010 G71 X98 Z50 B60 D1 H5 U0.2 F5

<Alarm B>

494	Multi cycle: entry in NOSE-R

During tool nose radius compensation mode, compound fixed cycle is designated.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	N010 G41 : N020 G71 : N029 G40
Measures to Take	A compound fixed cycle cannot be used while the nose R compensation function is active. Therefore, if the designation of a compound fixed cycle is required in such a mode, cancel the nose R compensation mode first.

495	Multi cycle: width

In the G73, G74 grooving cycle, the tool width calculated from the tool offset value is larger than the groove width.

Index	TURRET
Character-string	None
Code	Hexadecimal number of final grooving amount
Probable Faulty Locations	- Program error - Setting of improper tool offset value
Program Example	<Program> N009 G00 X100 Z100 T101 N010 G73 X50 Z70 I10 K4 D15 L30 T02 <Tool offset set values> T1 Z10.000 T2 Z60.000
Measures to Take	Check the tool offset value or the tool offset command. For the example program, change the tool offset value for T2. T2 Z15.000

<Alarm B>

496	Chamfering: G01 mode

Chamfering commands are designated in other than G01 mode.

Index	TURRET
Character-string	None
Code	None .....No G code programmed
	2.....G02
	3.....G03
	1F.....G31
	20.....G32
	21.....G33
	22.....G34
	23.....G35
	FE.....G00
Probable Faulty Locations	Program error
Program Example	N009 G00 X50 Z100 N010 G75 X100 L-5 F0.5 N011 Z50
Measures to Take	Check the G codes designated in the G75 block.
	For the example program, add an G01 command to the program. N010 G75 G01 X100 L-5 F0.5

497	Chamfering: parameter L over

In chamfering commands, designated L value is larger than the axis movement distance.

Index	TURRET
Character-string	None
Code	Hexadecimal number of axis movement distance
Probable Faulty Locations	Program error
Program Example	N009 G01 X97 Z100 N010 G75 X100 L-5 F0.5 N011 Z50
Measures to Take	Check the chamfer size and the axis movement amount.
	In the example program above, axis movement amount is "3" which is smaller than the chamfer amount "5".

<Alarm B>

498	Chamfering: L illegal order

In chamfering commands, no L command is designated, or designated L value is not: -99999.999 ≦ L ≦ 99999.999

Index	TURRET
Character-string	None
Code	Hexadecimal number of L value
Probable Faulty Locations	Program error
Program Example	N010 G75 G01 X100 F0.5
Measures to Take	Check the L command. In the example program above, since an L command is not designated, designate one. N010 G75 G01 X100 L-5 F0.5

499	Chamfering: X, Z illegal order

In chamfering commands, either both X and Z commands are designated, or neither X nor Z command is designated.

Designated X or Z value is not: -99999.999 ≦ X (Z) ≦ 99999.999

Index	TURRET
Character-string	None
Code	FFFFFFFF .....Either both X and Z are designated, or neither X nor Z is designated. Others .....Hexadecimal number of X or Z value
Probable Faulty Locations	Program error
Program Example	N009 G01 X50 Z100 N010 G75 X100 Z98 L-5 F0.5
Measures to Take	Check the X and Z commands. In the example program, both X and Z commands are designated in the G75 block.

500	LAP: B illegal order

B command specifying the tool tip angle in G88 LAP mode is either B < 0° or B ≧ 180°.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	N010 G88 NLAP1 M32 M73 B-60 H10 D2 U0.2
Measures to Take	Check the B command. In the example program, the B command has a negative value, which must be designated in a positive value. N010 G88 NLAP1 M32 M73 B60 H10 D2 U0.2
Related Specifications	LAP3

<Alarm B>

501	LAP: D illegal order

In G85, G86 and G88 LAP mode, either no D command is designated, or the designated D value is either negative or there are too many digits.

Index	TURRET
Character-string	None
Code	1 .....Designated D value is not: -99999.999 ≦ D ≦ 99999.999
	2 .....Either negative or zero
	3 .....No D command designated
Probable Faulty Locations	Program error
Program Example	N010 G88 NLAP1 M32 M73 B60 H10 D-2 U0.2
Measures to Take	Check the D command.
	In the example program, the D command has a negative value, which must be designated in a positive value.
	N010 G88 NLAP1 M32 M73 B60 H10 D2 U0.2

503	LAP: H illegal order

In G88 LAP mode, no H command is designated, or designated H value is negative or there are too many digits.

Index	TURRET
Character-string	None
Code	1 .....Designated H value is not: -99999.999 ≦ H ≦ 99999.999
	2 .....Either negative or zero
	3 .....No H command designated
Probable Faulty Locations	Program error
Program Example	N010 G88 NLAP1 M32 M73 B60 H-10 D2 U0.2
Measures to Take	Check the H command.
	In the example program, the H command has a negative value, which must be designated in a positive value.
	N010 G88 NLAP1 M32 M73 B60 H10 D2 U0.2

504	LAP: H-U (W) less than D (M73)

In M73 of G88 LAP mode, the value "H-U (W)" is smaller than D, and finish cut cycle is impossible.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	N010 G88 NLAP1 M32 M73 B60 H5 D3 U3
Measures to Take	Check the D, U and H commands.
	For the example program, correct the value since "H - U ≧ D" is not satisfied.
	N010 G88 NLAP1 M32 M73 B60 H5 D3 U0.3

<Alarm B>

505	LAP: U (W) illegal order

The U or W command value in G85, G86, G87 and G88 LAP mode is negative or larger than the allowable maximum value.

Numerical value of U and W commands must be: $0 \leqq U\ (W) \leqq 99999.999$

Index	TURRET
Character-string	None
Code	1 ..... Designated U value is not: $0 \leqq U \leqq 99999.999$
	2 ..... Designated U or W command value is negative.
	3 ..... Infeeding direction is reversed by finish allowance.
Probable Faulty Locations	Program error
Program Example	N010 G85 NLAP1 D4 F0.5 U0.2 W-0.1
Measures to Take	Check the U (W) command. In the example program, the U (W) command has a negative value, which must be designated in a positive value. N010 G85 NLAP1 D4 F0.5 U0.2 W0.1
Related Specifications	LAP3

506	LAP: U (W) greater than H

In G88 LAP mode, designated finish allowance U or W is larger than the thread height H.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	N010 G88 NLAP1 M32 M73 B60 H10 D2 U20
Measures to Take	Check the U and H commands. In the example program, U command value is greater than H command value (U H); correct either or both of these command values. N010 G88 NLAP1 M32 M73 B60 H10 D2 U0.2
Related Specifications	LAP3

<Alarm B>

507	LAP: XA (ZA), XB (ZB) illegal order

In G85 LAP mode, the number of digits of the designated XA (ZA) or XB (ZB) command is larger than the allowable number when G84 is specified.

Index	TURRET
Character-string	None
Code	1 ..... In longitudinal cycle, designated XA or XB command is not: -99999.999 ≤ XA (XB) ≤ 99999.999 2 ..... In transverse cycle, designated ZA or ZB command is not: -99999.999 ≤ ZA (ZB) ≤ 99999.999
Probable Faulty Locations	Program error
Program Example	N010 G85 NLAP1 D4 F0.5 U0.2 W0.1 $G84 XA=100000 DA=2 FA=0.3
Measures to Take	Check the XA (ZA) and XB (ZB) commands. In the example program above, XA command value is greater than 99999.999; correct the command value. N010 G85 NLAP1 D4 F0.5 U0.2 W0.1 $G84 XA=70 DA=2 FA0.3
Related Specifications	LAP3

508	LAP: calculation

Calculation alarm during LAP processing. (When calculating arc center and radius in G85)

Index	TURRET
Character-string	None
Code	XX: Bit 0 ..... Overflow in converting into integer Bit 1 ..... Exponential underflow Bit 2 ..... Exponential overflow Bit 3 ..... Calculation of root of a negative number Bit 4 ..... Division by 0 Bit 5 ..... Angle overflow for SIN, COS, TAN and COT
Probable Faulty Locations	Program error
Measures to Take	Check the circular interpolation command in the LAP.
Related Specifications	LAP3

<Alarm B>

509	LAP: a number of down stair over

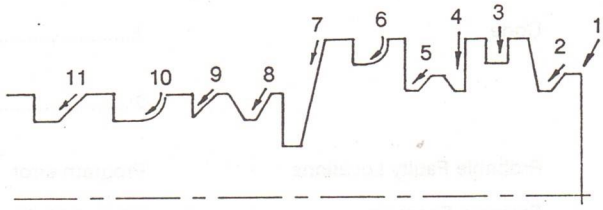
In G85 LAP mode, the number of descending steps exceeds ten.

Index — TURRET

Character-string — None

Code — None

Probable Faulty Locations — Program error



Program Example — The shape as illustrated above is designated.

Measures to Take — Check the number of descending slopes within LAP program.

In the LAP program, up to ten (10) descending slopes may be designated. If the number exceeds this limit, correct the program--divide the shape definition, etc.

Related Specifications — LAP3

510	LAP: entry in LAP

During LAP control, LAP command (G85, G86, G87 and G88) is designated.

Index — TURRET

Character-string — None

Code — None

Probable Faulty Locations — Program error

Program Example

```
NLAP1   G81
          :
        G85  NLAP2
          :
        G80
```

Measures to Take — Check the G85, G86, G87 and G88 commands.

In the example program above, the G85 command is designated within the LAP mode; delete the G85 block.

<Alarm B>

511	LAP: sequence name

In the block containing G85 or G86 calling for LAP mode, no sequence name is designated, or the designated sequence name is not found in the program.

Index	TURRET
Character-string	None
Code	1 .....No sequence name is designated in G85 or G86 block. 2 .....The block assigned with the sequence name specified is not found.
Probable Faulty Locations	Program error
Program Example	N010 G85 D8 F1 U0.5 W0.2 NLAP1 G81 : G80
Measures to Take	Check the LAP sequence name. In the example program above, sequence name is not designated; designate the sequence name in this block. N010 G85 NLAP1 D8 F1 U0.5 W0.2

512	LAP: no spec.

G85, G86, G87 or G88 calling for LAP mode is designated although the control has no LAP specification.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Measures to Take	Delete the LAP command if the control does not support the LAP function.

513	LAP: control

LAP control is impossible. (Overflow of control counter for LAP control)

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	The LAP control software has been destroyed.
Operation Example	This alarm is never caused by program error or erroneous operation.
Measures to Take	Load the control software again.

<Alarm B>

514	LAP: G-code

No G80 command up to the end of the program after G81 or G82 is designated.

G81 or G82 is not designated in the sequence assigned with the sequence name designated in the sequence containing G85 or G86.

Index: TURRET

Character-string: None

Code:
1 ..... No G80 designated.
2 ..... G81 or G82 is not designated in the sequence assigned with the sequence name designated in the sequence containing G85 or G86.

Probable Faulty Locations: Program error

Program Example:
```
NLAP1
:
N010 C80
N011 G85 NLAP1
```

Measures to Take: Check the G81, G82 and G83 commands.

In the example program above, G81 or G82 command is not designated in the NLAP1 sequence; designate G81 or G82 command.

```
NLAP1 G81
```

515	LAP: NOSE-R not cancelled

Nose radius compensation mode is not cancelled at the end of LAP (sequence containing G80).

Index: TURRET

Character-string: None

Code: None

Probable Faulty Locations: Program error

Program Example:
```
NLAP1 G81
:
N010 G41 G00 X... Z...
:
N020 G80
```
No G40 command designated within these blocks

Measures to Take: Check the G41, G42 and G40 commands in LAP program.

In the example program above, it is necessary to cancel the nose R compensation mode before the G80 command is designated.

```
N010 G41 G00 X... Z...
:
N019 G40 X... Z...
N020 G80
```

<Alarm B>

516	LAP: entry in NOSE-R

While nose radius compensation mode is active, G code calling for LAP mode (G85, G86, G87 and G88) is designated.

Index: TURRET

Character-string: None

Code: None

Probable Faulty Locations: Program error

Program Example:

```
N010 G41 X... Z...
:                    No G40 command designated within these blocks
N020 G85 NLAP1 ...
```

Measures to Take: Check the LAP commands (G85, G86, G87 and G88) in the blocks where the nose R compensation mode is active.

In the example program above, it is necessary to cancel the nose R compensation function before the G85 command.

```
N010 G41 G00 X... Z...
:
N019 G40 X... Z...
N020 G85 NLAP1 ...
```

517	NOSE-R comp.: NOSE-R circle-R

Point of intersection cannot be calculated since the radius of the designated arc is smaller than nose radius.

Index: TURRET

Character-string: None

Code:

1 ..... When obtaining the point of intersection - straight line to arc

2 ..... When obtaining the point of intersection - arc to straight line

3 ..... When obtaining the point of intersection - arc to arc

4 ..... The arc radius in the sequence following the G41/G42 sequence is smaller than nose radius.

Probable Faulty Locations: Faulty program, or error in setting the nose R compensation value

Program Example:

```
N010 G42 X... Z... T010101 (nose R: 0.5)
:
N015 G02 X... Z ... I1
```

Nose R compensation value (tool data set)

```
N01 X5.000 Z5.000
```

Measures to Take: Check the arc radius command in nose R compensation mode ON program and also the nose R compensation value.

In the example program above, nose R compensation value is set as 5 mm although correct value is 0.5 mm; correct the setting.

```
N01 X0.500 Z0.500
```

<Alarm B>

518	NOSE-R comp.: calculation

Error in floating-point calculation for nose radius compensation.

Index: TURRET

Character-string: None

Code: XYY

YY:

- Bit 0 ..... Overflow in converting into integer
- Bit 1 ..... Exponential underflow
- Bit 2 ..... Exponential overflow
- Bit 3 ..... Calculation of root of a negative number
- Bit 4 ..... Division by 0
- Bit 5 ..... Angle overflow for SIN, COS, TAN and COT

X:

- 1 ..... Calculation of graphic factor of straight line
- 2 ..... Calculation of graphic factor of arc
- 3 ..... Offset calculation of graphic factor of nose radius compensation amount
- 4 ..... Vertical vector calculation of straight lines and arcs
- 6 ..... Calculation of point of intersection: straight line and straight line
- 7 ..... Calculation of point of intersection: straight line and arc
- 8 ..... Calculation of point of intersection: arc and arc
- 9 ..... Calculation to select the target point from possible two points of intersection with an arc
- A ..... Recalculation of graphic factor of arc
- B ..... Calculation of I and K from nose radius compensation point
- C ..... Calculation of commands X, Z , I and K

Probable Faulty Locations: Program error

Measures to Take: Check the program in reference to the code number.

<Alarm B>

519	NOSE-R comp.: cancel impossible

Code G40 cancelling tool nose radius compensation mode is designated in other than the G00 or G01 mode.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	N010 G40 G02 X... Z... I...
Measures to Take	Check the position of the G40 command; nose R compensation should be cancelled only in the G00 or G01 mode. In the example program above, the nose R compensation mode is cancelled in the G02 mode; correct the program so that the cancel is made in the specified interpolation mode. N010 G02 X... Z... I... N011 G40 G00 X...

520	NOSE-R comp.: no cross point

Point of intersection cannot be calculated in line to arc or arc to arc intersection.

Index	TURRET
Character-string	None
Code	1.....Straight line to arc 2.....Arc to straight line 3.....Arc to arc

521	NOSE-R comp.: no spec.

G41 and G42 calling for tool nose radius compensation mode is designated although the control has no nose radius compensation specification.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	N010 G41 X... Z...
Measures to Take	Delete the G commands related with the nose R compensation function, G41, G42 and G40, from the program.

<Alarm B>

522	NOSE-R comp.: start up impossible

Tool nose radius compensation mode entry is intended in other than permissible manner, and compensated point cannot be calculated.

Index	TURRET
Character-string	None
Code	None .....G41 or G42 is designated in other than G00 or G01 mode. 10 .....The value commanded in the G41 or G42 block and the value commanded in the following block are the same. 11 .....X or Z command is not designated in the block following G41 or G42 block. 40 .....G40 is designated in the block following G41 or G42 block.
Probable Faulty Locations	Program error
Program Example	N010 G42 X50 Z55 N011 X50 Z55
Measures to Take	Check the G42 block and the following block. In the example program above, X and Z commands in the G42 block and the following block are identical; correct the program. In this case, delete the N011 block since it is not necessary.

523	NOSE-R comp.: thread cycle

G31, G32 or G33 calling for thread cutting cycle is designated during the tool nose radius compensation mode.

Index	TURRET
Character-string	None
Code	1F .....G31 was designated 20 .....G32 was designated 21 .....G33 was designated
Probable Faulty Locations	Program error
Program Example	N010 G42 N020 G33 X... Z... N030 G40
Measures to Take	In the nose R compensation mode, thread cutting cycle cannot be designated. Before calling out the thread cutting cycle, cancel the nose R compensation mode.

<Alarm B>

524	Tool life control: no spec.

Tool life management variables are designated although the control has no tool life management specification.

Tool group TG and tool offset group OG are designated.

Mnemonic G code or TLID is designated.

Index — TURRET

Character-string — None

Code
- 1 ..... Tool life management variables are designated in the left part of the expression.
- 2 ..... Tool life control variables are designated in the right part of the expression.
- 5 ..... Tool group TG and tool offset group OG are designated. Mnemonic G code or TILD is designated.

Probable Faulty Locations — Program error

Program Example
```
N010 TG=1 OG=1
N011 TLID
```

Measures to Take — Delete the tool life management commands TG, OG, and TLID from the program.

525	Tool life control: spare tool none

There is no spare tool in the commanded tool group.

Index — TURRET

Character-string — None

Code — Hexadecimal number of the tool group having no spare tool

Measures to Take
- Change tools with new ones for the tool groups which have no spare tools.
- Initialize the tool life management data in those groups.

526	Tool life control: tool group

Numerical value of tool group command TG is: TG < 1 or TG > 12

Index — TURRET

Character-string — None

Code — Hexadecimal number of the designated TG

Probable Faulty Locations — Program error

Program Example
```
N010 TG=-1
```

Measures to Take — Check the TG command.

In the example program above, TG command value is negative; correct the TG command value.
```
N010 TG=1
```

For the ATC specification, TG command value of up to "24" can be designated (only at turret A side).

<Alarm B>

527	Tool life control: no T-entry

Tools are not registered in the designated tool group.

Index	TURRET
Character-string	None
Code	FFFFFFFF
Probable Faulty Locations	Faulty program or setting error of tool life management data and/or tool group data
Operation Example	N010 TG = 1

<Tool data setting> Tool life management group information table

Tool Group No.	Registered Data
1	
2	246

Measures to Take	Check the TG command and the information in the tool life management group information. In the example above, registration is made so that tool group number 1 is not used; correct the program or setting of the tool group information.

528	Tool life control: tool offset group

Illegal tool offset group number is designated.

Index	TURRET
Character-string	None
Code	Hexadecimal number of the designated tool offset group number
Probable Faulty Locations	Program error
Program Example	N010 OG = 10
Measures to Take	Check the OG command. In the example program, OG = 10 is designated; OG value programmable is 1, 2, or 3.

529	Tool life control: no T-offset

Tool offset number is not registered for the designated tool offset group.

Index	TURRET
Character-string	None
Code	FFFFFFFF
Probable Faulty Locations	Faulty program or setting error of offset number in the tool life management information table
Measures to Take	When designating an OG command, check whether the tool offset number is registered in the offset group number specified by the selected tool.

<Alarm B>

530	Tow-along tailstock movement: condition

G152 (tow-along tailstock positioning cycle) is designated in other than G13 (A saddle) mode.

G152 is designated without a W command.

G152 is designated during the tool nose radius compensation or LAP mode.

Index	None
Character-string	None
Code	1 .....G152 designated in other than A saddle. 2 .....G152 designated without a W command. 3 .....G152 designated during the tool nose radius compensation mode. 4 .....G152 designated during the LAP mode.
Probable Faulty Locations	Program error
Program Example	N010 G152
Measures to Take	Check the commands in the G152 block. In the example program above, no W command is designated; designate one. N010 G152 W100

531	Tow-along tailstock movement: no spec.

G152 is designated although the control has no tow-along tailstock specification.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	N010 G152 W100
Measures to Take	Delete the tow-along tailstock command G152 from the program.

532	W-axis minus var. limit over

A W command exceeding the variable limit in the negative direction is designated.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Faulty program, or setting error of parameter (W-axis minus variable limit)
Measures to Take	Check the W-axis command and the value set at parameter (W-axis minus variable limit).

<Alarm B>

533	No robot spec.

G227 (robot request command) is designated although the control has no robot specification.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	ROBOT O100
Measures to Take	Delete the ROBOT instruction from the program.

534	Robot program name

No robot program name is designated following G227.

Index	TURRET
Character-string	None
Code	1
Probable Faulty Locations	Program error
Program Example	ROBOT
Measures to Take	Designate the program name following the ROBOT instruction. ROBOT O100

535	Chucking mistaken

The air pressure switch is not ON when the chucking error detection ON command (M133) is designated.

Index	None
Character-string	None
Code	1
Probable Faulty Locations	Workpiece is not clamped in the chuck correctly.
Measures to Take	Check the workpiece chucked condition.

536	Loader program name

No loader program name is designated when loading command is provided.

Index	TURRET
Character-string	None
Code	1
Probable Faulty Locations	Program error
Program Example	N010 LOADER
Measures to Take	Designate the program name following the LOADER instruction. N010 LOADER O100

<Alarm B>

537	Chuck **open** position command

With a long stroke chuck, commanded chuck unclamp position lies at the **clamp** side from the present chuck jaw position.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Mismatching between the program **and** chuck gripping condition
Measures to Take	Check the chuck unclamp position **and** the M code (M210 - M214) if they match each other.

538	Data word: SB

Designated SB command is not: 0 < SB < 9999

SB command is designated for B-turret.

Index	TURRET
Character-string	None
Code	1 .....SB command **is designated** for B-turret. Others .....Hexadecimal **number** of commanded SB value
Probable Faulty Locations	Program error
Program Example	N010 M13 SB=10000
Measures to Take	Check the SB command; check **whether** the SB command is designated at the B-turret side. In the example program above, the SB command value is greater than 9999; correct the program. N010 M13 SB=1000

539	Fixed cycle: no spec.

G code calling fixed cycle for multi-machining model is designated for a lathe without multi-machining function.

Index	TURRET
Character-string	None
Code	1
Probable Faulty Locations	Program error
Program Example	N010 G181 .....
Measures to Take	G code, G180 through G189, cannot be used for the machine other than the multi-machining models. Delete them from the program.

<Alarm B>

540	Fixed cycle: C

Programmed C value is not: -360° < C < 360°.

Index	TURRET
Character-string	None
Code	Hexadecimal number of designated C value
Probable Faulty Locations	Faulty program (compound fixed cycle block)
Program Example	G181 X60 Z75 C360 K48 F40
Measures to Take	Check the C command in the compound fixed cycle block. G181 X60 Z75 C0 K48 F40
Related Specifications	Multi-machining model

541	Fixed cycle: I, K

In G181 through G184 and G189 mode cycle, both I and K or neither I nor K is designated.

In G181 through G184 and G189 mode cycle, designated I and K values are not: $0 \leqq I, K \leqq 99999.999$

In G185 through G188 mode cycle, designated I and K values are not: $-99999.999 \leqq I, K \leqq 99999.999$

Index	TURRET
Character-string	None
Code	None .....Both I and K commands are designated. FFFFFFFF .....No I and K commands Others .....Hexadecimal number of I and K values
Probable Faulty Locations	Faulty program (compound fixed cycle block)
Program Example	G181 X60 Z75 C0 F40
Measures to Take	Check the I or K command in the compound fixed cycle block. G181 X60 Z75 C0 K48 F40
Related Specifications	Multi-machining model

542	Fixed cycle: Q

Designated Q value is not: $1 \leqq Q \leqq 9999$

Index	TURRET
Character-string	None
Code	Hexadecimal number of designated Q value
Probable Faulty Locations	Faulty program (compound fixed cycle block)
Program Example	G183 X40 Z81 C0 I46 D10 E1 F40 Q10000
Measures to Take	Check the Q command in the compound fixed cycle block. G183 X40 Z81 C0 I46 D10 E1 F40 Q6
Related Specifications	Multi-machining model

<Alarm B>

543	Fixed cycle: F

Designated F value is either 0 or negative.
No F command

Index	TURRET
Character-string	None
Code	FFFFFFFF .....No F command
	Others .....Hexadecimal number of designated F value
Probable Faulty Locations	Faulty program (compound fixed cycle block)
Program Example	G183 X40 Z80 C0 I46 D10 E1 F-40
Measures to Take	Check the F command in the compound fixed cycle block. G183 X40 Z80 C0 I46 D10 E1 F40
Related Specifications	Multi-machining model

544	Fixed cycle: L

Designated L value is not: $0 < L \leqq 99999.999$

Index	TURRET
Character-string	None
Code	Hexadecimal number of designated L value
Probable Faulty Locations	Faulty program (compound fixed cycle block)
Program Example	G183 X40 Z80 C0 I46 D10 E1 F40 L-50
Measures to Take	Check the L command in the compound fixed cycle block. G183 X40 Z80 C0 I46 D10 E1 F40 L50
Related Specifications	Multi-machining model

545	Fixed cycle: D

Designated D value is not: $0 < D \leqq 99999.999$

Index	TURRET
Character-string	None
Code	FFFFFFFF .....No D command
	Others .....Hexadecimal number of designated D value
Probable Faulty Locations	Faulty program (compound fixed cycle block)
Program Example	G183 X40 Z80 C0 I46 E1 F40 L50
Measures to Take	Check the D command in the compound fixed cycle block. G183 X40 Z80 C0 I46 D10 E1 F40 L50
Related Specifications	Multi-machining model

<Alarm B>

546	Fixed cycle: X, Z

In the block containing G185 through G188, either X or Z is not designated. Or, numerical value of X and Z is not: -99999.999 ≦ X, Z ≦ 99999.999

Index	TURRET
Character-string	None
Code	FFFFFFFF .....No X and Z command
	Others .....Hexadecimal number of designated X and Z value
Probable Faulty Locations	Faulty program (compound fixed cycle block)
Program Example	G185 X95 C0 F10 SA=12
Measures to Take	Check the X or Z command in the compound fixed cycle block. G185 X95 Z60 C0 F10 SA=12
Related Specifications	Multi-machining model

547	Fixed cycle: SA

Designated SA value is not: 0 < SA ≦ 20

No SA command

Index	TURRET
Character-string	None
Code	FFFFFFFF .....No SA command
	Others .....Hexadecimal number of designated SA value
Probable Faulty Locations	Faulty program (compound fixed cycle block)
Program Example	G185 X95 Z60 C0 F10 SA=30
Measures to Take	Check the SA command in the compound fixed cycle block. G185 X95 Z60 C0 F10 SA=20
Related Specifications	Multi-machining model

548	Fixed cycle: feed G94

G185 through G188 is designated in the G94 mode.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Faulty program (compound fixed cycle block)
Program Example	G185 G94 X95 Z60 C0 F10 SA=12
Measures to Take	Designate the G95 command so that the compound fixed cycle block (G185 - G188) is in the G95 mode. G185 G95 X95 Z60 C0 F10 SA=12
Related Specifications	Multi-machining model

<Alarm B>

550	Fixed cycle: thread cycle

In thread cutting cycle, designated I or K value is too large.

Index	TURRET
Character-string	None
Code	1
Probable Faulty Locations	Faulty program (compound fixed cycle block)
Program Example	G95 G00 X110 Z120 G185 X95 Z60 C0 K-60 F10 SA=12
Measures to Take	Check the I or K command in the compound fixed cycle block. G95 G00 X110 Z120 G185 X95 Z60 C0 K-10 F10 SA=12
Related Specifications	Multi-machining model

551	Data word: QA

QA command is designated for B-turret.

QA command is designated in other than the G00 and G01 mode.

Programmed QA value is not: $0 \leqq QA \leqq 1999$

Index	TURRET
Character-string	None
Code	1.....QA command is designated for B-turret. 2.....QA command is designated in other than G00 and G01 mode. Others.....Hexadecimal number of QA value
Probable Faulty Locations	Faulty program (compound fixed cycle block)
Program Example	G01 X100 QA=2000
Measures to Take	Check the QA command in the compound fixed cycle block. G01 X100 QA=1900
Related Specifications	Multi-machining model

<Alarm B>

552	Magazine P.R. data

The read-in data is other than 0 through 9.

Index	None
Character-string	None
Code	XY X..... Read-in digit Y..... Read-in data
Probable Faulty Locations	- Magazine position encoder - ECP board - Cable between the magazine position encoder and the ECP board
Measures to Take	- Replace magazine position encoder. - Replace ECP board. - Replace cable.
Related Specifications	ATC

553	Magazine turn condition

The magazine rotation conditions are not met.

Index	None
Character-string	None
Code	1.....Tool number read sensor is in the advanced position. 2.....Sub arm is not in the standby position. 3.....Check result of tool presence at loading station is not acceptable.
Probable Faulty Locations	- The tool number read sensor advance input signal (PECBI16.4 bit 3) is ON. - The sub arm is not in the standby condition (PECPBI16.1 bits 7 and 5 ON; bits 6, 4, and 3 OFF) - The loading station tool present input signal (PECPBI 16.4 bit 4) is not ON although there is the tool number at the loading station. - The loading station tool present input signal (PECPBI 16.4 bit 4) is ON when there is no tool number at the loading station or the dummy tool is set at the loading station.
Program Example	TN = 28, M228
Operation Example	The cycle start button is pressed in the selection operation or the step operation, while the magazine is rotating.
Measures to Take	Check the ATC related input bit signal at the CHECK display screen.
Related Specifications	ATC

<Alarm B>

554	Magazine exchange position tool

When the tool in the magazine is indexed at the tool change position, the tool is not mounted although the tool number at the tool change position has been registered (other than "0"), or the tool is mounted although the tool number is not registered ("0").

Index	None
Character-string	None
Code	1 .....No tool although tool number is registered. 2 .....Tool mounted although no tool number is registered.
Probable Faulty Locations	- The magazine tool present input signal (PECPBI16.2 bit 0) is not turned on although there is the tool number at the tool change position. - The magazine tool present input signal (PECPBI16.2 bit 0) is ON when there is no tool number at the ready station or the dummy tool is set at the tool change position.
Program Example	TN=28, M228
Operation Example	The cycle start button is pressed in the selection operation or the step operation, while the magazine is rotating.
Measures to Take	Check the ATC related input bit signal at the CHECK display screen.
Related Specifications	ATC

555	Tool insert disable

Tool pot for return tool is not available if a tool is inserted into the pot at the insertion station.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Operation error
Operation Example	The tool number write button is pressed.
Measures to Take	Prepare the tool pot for return tool. For a super-large tool, three pots are required in succession. For a large tool, two pots are required in succession.
Related Specifications	ATC

<Alarm B>

556	ATC command illegal

More than one M06, M228 and TN commands are designated at the same time.

Index — None

Character-string — None

Code — None

Probable Faulty Locations — Program error

Program Example
```
:
TN=28  M06
:
```

Measures to Take — Check the M06, M228 and TN commands.
```
:
TN=17
M06
:
```

Related Specifications — ATC

557	Tool number read

The tool number in the insertion station cannot be read.

Index — None

Character-string — None

Code
1 ..... Sensor advance end signal is turned off during tool information reading.

2 ..... In two tool information reading operations read tool information differs from each other.

3 ..... Failure in large tool recognition

Probable Faulty Locations
- The tool number read sensor advance input signal (PECPBI16.4 bit 3) is turned off.
- An alarm occurs with the tool number identification input signal, L and M tool identification signal and the large tool identification signal (PECPBI16.3, PECPBI16.4).
- While the right large diameter identification signal input (PECPBI16.4 bit5) is ON, the large diameter identification input signal (PECPBI16.4 bit 1) is not ON.

Operation Example — The tool number read button is pressed.

Measures to Take — Check the ATC related input bit signal at the CHECK display screen.

Related Specifications — ATC

<Alarm B>

558	ATC: subarm position

The sub arm is not at the ready station or magazine position when tool picking-up or returning cycle is intended.

Index	None
Character-string	None
Code	1 .....Sub arm position unknown for sub arm extraction operation 2 .....Sub arm position unknown for sub arm tool insertion operation
Probable Faulty Locations	Both of the sub arm at ready station position input signal (PECPBI16.1 bit 3) and the sub arm at the magazine position input signal (PECPBI16.1 bit 4) are OFF.
Program Example	TN=28, M228
Operation Example	The cycle start button is pressed for sub arm tool insert/extract operation in the selection operation or the step operation.
Measures to Take	Check the ATC related input bit signal at the CHECK display screen.
Related Specifications	ATC

<Alarm B>

559	ATC 1 step time over

During the execution of automatic tool change cycle, more than one hundred seconds have elapsed for the execution of one step.

Index — None

Character-string — None

Code — XXXXXXXX:

Bit 31 ..... Not used
Bit 30 ..... Not used
Bit 29 ..... Tool change arm at tool return position
Bit 28 ..... Tool change arm at extract position
Bit 27 ..... Tool change arm at standby position
Bit 26 ..... Tool change arm at tool gripping position
Bit 25 ..... Tool change arm at standby position
Bit 24 ..... Tool change arm at tool gripping position
Bit 23 ..... Sub arm at tool return position
Bit 22 ..... Sub arm at tool extract position
Bit 21 ..... Sub arm at standby position
Bit 20 ..... Sub arm at magazine position
Bit 19 ..... Sub arm at ready station position
Bit 18 ..... Ready station at magazine position
Bit 17 ..... Ready station at turret position
Bit 16 ..... Ready station tool clamp
Bit 15 ..... Turret M-tool clamp
Bit 14 ..... Not used
Bit 13 ..... Turret L-tool clamp
Bit 12 ..... Gripper clamp
Bit 11 ..... Magazine positioning pin IN
Bit 10 ..... Magazine clamp
Bit 9 ..... Magazine unclamp
Bit 8 ..... Magazine tool exist at tool change position
Bit 7 ..... Not used
Bit 6 ..... Not used
Bit 5 ..... Not used
Bit 4 ..... Not used
Bit 3 ..... Not used
Bit 2 ..... Not used
Bit 1 ..... Not used
Bit 0 ..... Not used

Probable Faulty Locations — All operations related with tool change; an alarm occurs with the ATC input answer signal for the one step operation.

Program Example — TN = 28, M06, M228

Operation Example — The cycle start button is pressed in the selection operation and the step operation.

Measures to Take — Check in which step the alarm has occurred from the alarm code, then check the ATC input bit status which is the answer signal for the step operation in question.

Related Specifications — ATC

<Alarm B>

560	M06/M228 command disable

The M06 and M228 commands are designated in other than ATC sequence 10.

Index	None
Character-string	None
Code	1 ..... M06 designated 2 ..... M228 designated
Probable Faulty Locations	- Program error - Operation error
Program Example	M06, M228
Operation Example	In the selection operation or the step operation, the tool change cycle has been proceeded to a step other than tool change command waiting (ATC sequence No. 10).
Measures to Take	- Check the M06 and M228 commands. - Advance the tool change cycle to the tool change command waiting step (ATC sequence No. 10) in the selection operation and the step operation.
Related Specifications	ATC

561	ATC: TN

TN number other than 0 through 96 is designated.

Index	None
Character-string	None
Code	Hexadecimal number of the designated numerical value
Probable Faulty Locations	Program error
Program Example	TN = 64
Measures to Take	Check the TN command. TN = 63
Related Specifications	ATC

<Alarm B>

562	ATC: no return pot

Entry pot is not available in tool magazine for tool return operation.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	- Program error - Operation error
Program Example	M228
Operation Example	In the tool change operation conducted through the selection operation and the step operation, a standard tool has been returned to the tool pot prepared for a large or a super-large tool.
Measures to Take	- Check the M228 command. - Secure the tool pot for a large or a super-large tool, which is set in the spindle, in the selection operation and the step operation.
Related Specifications	ATC

563	ATC: next tool preparation disable

The ATC sequence is other than 1 or 10 when TN command has been designated.

When TN command is designated, the ATC sequence is 10 but the designated tool number and the number of the tool in the ready station do not match, or the designated tool is not in the magazine.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	- Program error - Operation error
Program Example	TN=28
Operation Example	In the selection operation or the step operation, the tool change cycle has been proceeded to a step other than tool preparation command waiting (ATC sequence No. 1) or tool change command waiting (ATC sequence No. 10).
Measures to Take	- Check the TN command. - Advance the tool change cycle to the tool preparation command waiting step (ATC sequence No. 1) or the tool change command waiting step (ATC sequence No. 10) in the selection operation and the step operation.
Related Specifications	ATC

<Alarm B>

564	ATC: no spec.

An automatic tool change command is designated although the machine has no ATC specification.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	TN=28, M228, M06
Measures to Take	Delete the TN, M228 and M06 commands from the program.

565	ATC: syntax

TN or TC command is designated with B-turret selected. Or TC and T commands are designated simultaneously.

Index	TURRET
Character-string	None
Code	0.....The command is designated with B-turret selected. 2.....TC and T commands are designated simultaneously.
Probable Faulty Locations	Program error
Program Example	G14 TN=28 TC=3 :
Measures to Take	Check the TN, TC and T commands. G13 TN=28 TC=3 :
Related Specifications	ATC

566	Sub program: data print

The command for printing out measuring data is not designated correctly.

Index	None
Character-string	None
Code	1
Probable Faulty Locations	Program error
Program Example	: PRNT A :
Measures to Take	Change the character following the PRNT command to a number. : PRNT 10 :
Related Specifications	Gauging data print out

<Alarm B>

567	ATC: TC

A number not available on the turret is designated.

Index	TURRET
Character-string	None
Code	Hexadecimal number of designated numerical value
Probable Faulty Locations	Program error
Program Example	: TC=5 :
Measures to Take	Check the TC command. (1 ≦ TC ≦ 4) : TC=3 :
Related Specifications	ATC

568	Data word: X,Y command

For coordinate system conversion, both X and Y are assigned with "zero".

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	G137 C20 G00 X0 Y0
Measures to Take	Check the X and Y commands. G137 C20 G00 X0 Y50
Related Specifications	Coordinate system conversion

<Alarm B>

569	Data word: incremental

In the coordinate system conversion, the G code (G91) calling incremental mode is designated.

Index	TURRET
Character-string	None
Code	Hexadecimal number of commanded code
Probable Faulty Locations	Program error
Program Example	: G91 : G137 C10 :
Measures to Take	Designate the G90 command (calling absolute programming mode) in a block preceding the G137 command block. : G91 : G90 G137 C10 :
Related Specifications	Coordinate system conversion

570	Data word: no X,Y

For coordinate system conversion, only one of X and Y is designated.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	: G137 C10 G00 X10 :
Measures to Take	In the coordinate system conversion mode, both of X and Y commands must always be designated. : G137 C10 G00 X10 Y10 :
Related Specifications	Coordinate system conversion

<Alarm B>

571	Data word: 'Y'

For coordinate system conversion, the numerical value of "Y" is not within the following range: -99999.999 ≦ Y ≦ 99999.999

Index	TURRET
Character-string	None
Code	Hexadecimal number of commanded Y value
Probable Faulty Locations	Program error
Program Example	: G137 C10 G00 X10 Y100000 :
Measures to Take	Check the Y command. : G137 C10 G00 X10 Y10000 :
Related Specifications	Coordinate system conversion

572	Data word: distance cal.

In coordinate system conversion, the value after the conversion is larger than 99999.999.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	: G137 C20 G00 X99999.999 Y99999.999 :
Measures to Take	Check the X and Y commands; ($\sqrt{X^2 + Y^2} \leqq$ 999999.999 must be satisfied.) : G137 C20 G00 X100 Y100 :
Related Specifications	Coordinate system conversion

<Alarm B>

573	Work vibration abnormal

In the workpiece vibration detection cycle, abnormal workpiece vibration is detected.

Index	None
Character-string	None
Code	1
Probable Faulty Locations	During the workpiece vibration detection cycle, the workpiece vibration abnormal signal (PECI24.20 bit 7) is turned on.
Program Example	: M132 (Workpiece vibration detection ON) :
Measures to Take	- Check the bit ON/OFF status of the above indicated bit on the CHECK screen. - Check whether the chuck clamps a workpiece correctly. If not, chuck the workpiece correctly.

574	STM time over

The S, T, or M function execution cycle time exceeds the time preset with a parameter.

Index	TURRET
Character-string	None
Code	Hexadecimal code of preset time
Probable Faulty Locations	No answer signal for the S, T, or M code command having been executed when the alarm occurred.
Program Example	: M03 M42 S1000 T0303 :
Measures to Take	Check the input answer signal for the S, T, or M code command, which was being executed when the alarm occurred, on the check page. If more than one command was being executed, execute these commands one by one in the MDI mode to check the command which was involved with the alarm.

<Alarm B>

575	Data word: 'R'

In a block containing G181 through G184 or G189, either R=0 command is designated or an R command is designated with X and Z commands. Or the numerical value of X, Z or R does not fall within the following range: -99999.999 ≦ X, (Z or R) ≦ 99999.999

Index	TURRET
Character-string	None
Code	1 .....Simultaneous designation of R with X and/or Z FFFFFFFF .....No X, Z or R command Others .....Hexadecimal number of numerical value of designated X, Z or R
Probable Faulty Locations	Program error
Program Example	: G181 X60 R0 C0 K48 F40 :
Measures to Take	Check the X, Z, and R commands.
Related Specifications	Multi-machining model

576	Data word: drilling cycle

In a block containing G181 through G184 or G189, following three commands are designated simultaneously:

X, R and I, or Z, R and K

Index	TURRET
Character-string	None
Code	1 .....Simultaneous designation of X, R and I, or Z, R and K
Probable Faulty Locations	Program error
Program Example	G181 X60 R-27 I48 F40
Measures to Take	Check the X, Z, R, I and K commands.
Related Specifications	Multi-machining model

577	Work put miss

The air pressure switch is not turned on when the workpiece pushing error detection ON command (M136) is given.

Index	None
Character-string	None
Code	1
Probable Faulty Locations	The air pressure input (PECIB24.0 bit0) is not turned ON.
Program Example	: M136 :
Measures to Take	- Check the ON/OFF status of the above indicated bit on the check screen. - Check whether the tailstock spindle is pressing the workpiece correctly. If not, set the workpiece correctly so that it is held between centers correctly.

<Alarm B>

578	LASER MEASUREMENT: command condition

The conditions for the Inductosyn pitch error compensation data automatic setting command (LMW, LMV) are not satisfied.

Index — None

Character-string — None

Code

1 ..... The automatic setting command is being executed on the other turret (for the two-saddle model).

2 ..... Neither X nor Z command is designated, or both of X and Z commands are designated.

3 ..... Command is designated in the nose R compensation mode.

4 ..... Command is designated in the LAP mode.

5 ..... A Q command is designated in the LMV sequence. Or 129 or more Q commands are designated.

6 ..... X and/or Z command value is greater or smaller than the positive or negative variable or emergency limit values.

7 ..... More than two points are not present within the designated measuring stroke.

Probable Faulty Locations — Program error

Program Example

```
:
LMW Z100 X100
:
```

Measures to Take — Check the contents of error in the program from the alarm code number; remove the cause which intervenes the execution of the laser measurement command.

```
:
LMW Z100
LMW X100
:
```

Related Specifications — Inductosyn pitch error compensation

<Alarm B>

579	Data word: option angle

For the sequence calling automatic chamfering with an arbitrary angle or the one calling axis movement with only an A command, the command in that sequence or those in the next sequence are designated erroneously.

Index: TURRET

Character-string: None

Code:

1 ..... The first line cannot be obtained since the commanded point and the one commanded in a previous sequence are the same.

2 ..... All of A, X and Z have been designated.

3 ..... The sequence to be executed next is in other than G00, G01, G34 and G35 mode, or it contains improper commands.

4 ..... For the sequence containing only A command, the sequence to be executed next does not contain any of A, X and Z commands (all of these three commands must be designated.)

5 ..... For the sequence containing only A command, the sequence to be executed next is other than G91 mode.

6 ..... The second line cannot be obtained since the point commanded in the present sequence and the point commanded in the sequence to be executed next are the same.

7 ..... In the sequence to be executed next contains all of A, X and Z commands.

8 ..... No point of intersection between the first and the second lines is obtained when only A command is given.

Probable Faulty Locations: Program error

Program Example:

```
:
G75 G01 X60 Z90 A120 L5 F10
:
```

Measures to Take: Check the contents of error in the program from the alarm code number; remove the cause which intervenes the execution of arbitrary angle chamfering command.

```
:
G75 G01 X60 L5 F10
```

Related Specifications: Automatic any-angle chamfering

<Alarm B>

580	Data word: option angle calculation

Calculation error during the processing of the geometry definition containing arbitrary angle commands.

Index: TURRET

Character-string: None

Code: XYY

YY:

- Bit 0 ..... Overflow in converting into integer
- Bit 1 ..... Exponential underflow
- Bit 2 ..... Exponential overflow
- Bit 3 ..... Calculation of root of a negative number
- Bit 5 ..... Angle overflow for SIN, COS, TAN and COT

X:

- 1 ..... Calculation of coefficient of the line (first line) which passes the point commanded in the previous sequence and makes an angle of "A" deg. to Z-axis
- 2 ..... Calculation of coefficient of the line (first line) which passes the point commanded in the present sequence and the one commanded in the previous sequence
- 3 ..... Calculation of coefficient of the line (second line) which passes the point commanded in the present sequence and the one commanded in the sequence to be executed next
- 4 ..... Calculation of coefficient of the line (second line) passing the point commanded in the sequence to be executed next and makes an angle of "A" deg. to Z-axis.
- 5 ..... Calculation of coefficient of the line (second line) which passes the point commanded in the present sequence and makes an angle of "A" deg. to Z-axis.
- 6 ..... Calculation of the commanded point (the point of intersection of the first and the second lines) for the sequence containing only A command.

Probable Faulty Locations: Program error

Measures to Take: Check the contents of error in the program from the alarm code number; remove the cause which intervenes the execution of arbitrary angle chamfering command.

Related Specifications: Automatic any-angle chamfering

<Alarm B>

581	Chamfering: option angle calculation

Calculation error during the calculation of automatic chamfering with an arbitrary angle.

Index: TURRET

Character-string: None

Code: XYY

YY:

- Bit 0 ..... Overflow in converting into integer
- Bit 1 ..... Exponential underflow
- Bit 2 ..... Exponential overflow
- Bit 3 ..... Calculation of root of a negative number
- Bit 4 ..... Division by 0
- Bit 5 ..... Angle overflow for SIN, COS, TAN and COT

X:

- 1 ..... Calculation of the starting point of chamfering
- 2 ..... Calculation of the end point of chamfering
- 3 ..... Calculation of the center of the arc for rounding
- 4 ..... Calculation of the starting and end points for rounding
- 5 ..... Calculation for obtaining the chamfering direction

Probable Faulty Locations: Program error

Measures to Take: Check the contents of error in the program from the alarm code number; remove the cause which intervenes the execution of arbitrary angle chamfering command.

Related Specifications: Automatic any-angle chamfering

582	Chamfering: option angle

No chamfering is possible since the corner angle of the edge to be chamfered is 180 deg.

Index: TURRET

Character-string: None

Code: None

Probable Faulty Locations: Program error

Program Example:

```
:
G00 X20 Z120
G75 G01 X60 L6 F0.1
        X90
:
```

Measures to Take: Check the G75 and G76 commands.

```
:
G00 X20 Z120
G75 G01 X60 L6 F0.1
            Z90
:
```

Related Specifications: Automatic any-angle chamfering

<Alarm B>

583	Unusable: create process command code

Profile generation commands G101, G102 and G103 are designated with B turret selected.

Index	TURRET
Character-string	None
Code	Hexadecimal number of designated G code
Probable Faulty Locations	Program error
Program Example	: G14 G101 X176.00 C294.62 F100 :
Measures to Take	Check the G101, G102, G103 and G104 commands. : G13 G101 X176.00 C294.62 F100 :
Related Specifications	Create process

584	Create process calculation

Floating point calculation error in the preparation processing for the function generation of the G101, G102 and G103 main task.

Index	TURRET
Character-string	None
Code	XYY YY: Bit 0 ..... Overflow in converting into integer Bit 1 ..... Exponential underflow Bit 2 ..... Exponential overflow Bit 3 ..... Calculation of root of a negative number Bit 4 ..... Division by 0 Bit 5 ..... Angle overflow for SIN, COS, TAN and COT X: 1 ..... Error in G101 processing 2 ..... Error in G102/G103 processing
Probable Faulty Locations	Program error
Measures to Take	Check the contents of error in the program from the alarm code number; remove the cause which intervenes the execution of create process command.
Related Specifications	Create process

<Alarm B>

585	Change tool unsame

The type of the tool (ID tool, OD tool) in the N arm and the turret position number indexed to the tool change position do not match. T1, T3, T5, and T7 are for OD tool turret positions and T2, T4, T6, and T8 are for ID tool turret positions. When the touch sensor tool is used, it is mounted in T8.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	- Program error - Operation error
Program Example	: TN = 1 (Tool No. 1: ID tool) TC = 1 M06 : : TN = 2 (Tool No. 2: OD tool) TC = 2 M06 :
Measures to Take	Check the TN, TC, TL, TG, M06, and other related commands.
Related Specifications	Block tool ATC

586	Holder rotation impossible

The holder cannot be rotated because either the N arm or the O arm is not at the upper end position.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	- The N arm upper end input bit (PECPBI16 bit 7) is not ON, or both the N arm upper end input bit (PECPBI16 bit 7) and the N arm lower end input bit (PECPBI16 bit 6) are ON simultaneously. - The O arm upper end input bit (PECPBI16 bit 4) is not ON, or both the O arm upper end input bit (PECPBI16 bit 4) and the O arm lower end input bit (PECPBI16 bit 3) are ON simultaneously.
Measures to Take	Check the ATC input bits indicated above on the check screen.
Related Specifications	Block tool ATC

587	Output magazine no space

There is no available empty pocket in the tool off-loading magazine when the M06 command is given.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Operation error
Measures to Take	Remove a tool from the off-loading pot in the magazine.
Related Specifications	Block tool ATC

<Alarm B>

588	No change tool for magazine

There are no tool in the magazine station indexed to the tool change position when the M06 command is given.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	- Program error - Operation error
Measures to Take	Set a tool in the magazine station indexed to the tool change position.
Related Specifications	Block tool ATC

589	ATC MG

The MG command given is not the value actually used for the magazine.

Index	None
Character-string	None
Code	Hexadecimal number of the MG command value
Probable Faulty Locations	Program error
Program Example	: MG = 13 :
Measures to Take	Check the MG command. : MG = 12
Related Specifications	Block tool ATC

590	Data word CD

The CD command value exceeded the relative distance between the cycle start point and the cycle end point.

Index	None
Character-string	None
Code	1
Probable Faulty Locations	$0 \leq CD < 360.000$
Program Example	G30 Cooo.ooo CD = ooo.ooo CL = ooo.ooo Fooo.ooo

<Alarm B>

591	Data word CL

The CL command value exceeded the relative distance between the cycle start point and the cycle end point.

Index	None
Character-string	None
Code	1
Probable Faulty Locations	0 < CL < 360.000
Program Example	G30 Cooo.ooo CD = ooo.ooo CL = ooo.ooo Fooo.ooo

592	Loader no spec.

A loader program is called for the machine not equipped with a loader.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Loader no spec.
Program Example	: LOADER O1000 :

595	Interlock device p select no spec.

An attempt was made to select (MHPS) the program for an external device although the coupled device program selection specification is not supported.

Index	TURRET
Character-string	None
Code	None

<Alarm B>

596	Interlock device P-select

Program selection command for the coupled device is wrong. Or the coupled device does not select the designated program.

Index — TURRET

Character-string — None

Code — XXXXYYYY

XXXX: Program number selected by the coupled device when the alarm occurred

YYYY:

0001 ..... Program number designated is not within 1 through 9999.

0003 ..... No program number is designated following MHPS.

0004 ..... The program designated is not selected.

Probable Faulty Locations

- Program error
- Coupled device fails to select a program.

Program Example

MHPS PN = 12345

Five-digit data is not allowed.

Measures to Take

- Correct the program.
- Place the coupled device in the condition to allow selection of a program.

<Alarm B>

600	VSET sequence direct of left

In a schedule program, other than common variables and I/O variables are used.

Index — None

Character-string — None

Code — Hexadecimal number of designated factor code

Probable Faulty Locations — Program error

Program Example

```
:
VSET RR=RR+1
:
```

Measures to Take — Check the VSET command.

```
:
VSET V1=V1+1
:
```

601	Bad value for output variable

Data size of the data to be set for an output variable is wrong.

Index — TURRET

Character-string — None

Code — Hexadecimal number of wrong data

2 - FF.....Not specified in 1 bit

100 and over.....Not specified in 1 byte

Probable Faulty Locations — Program error

Program Example

```
:
VDOUT[1]=2
VDOUT[9]=256
:
```

Measures to Take — Check the VDOUT command.

```
:
VDOUT[1]=1
VDOUT[9]=255
:
```

Related Specifications — User task 2

<Alarm B>

602	Program bad direct: character string

Setting of character-string for the user reserved alarm comment system variable is wrong.

Index	TURRET
Character-string	None
Code	1 .....No character-string set 2 .....Character-string length is longer than 16 characters 3 .....Character-string does not end within a block
Probable Faulty Locations	Program error
Program Example	: VUACM[1] = 'ABCDEFGHIJKLMNOPQ' :
Measures to Take	Check the VUACM[*] command. : VUACM[1] = 'ABCDEFGHIJKLNMOP' :
Related Specifications	User task 2

603	Program bad direct: hexadecimal data

Setting of hexadecimal data for the user reserved alarm comment system variable is wrong.

Index	TURRET
Character-string	None
Code	1 .....No hexadecimal data following $ symbol 2 .....Hexadecimal data exceeds 8 digits (4 bytes)
Probable Faulty Locations	Program error
Program Example	: VUACM[1] = $XY :
Measures to Take	Check the VUACM[*] command. : VUACM[1] = $41 :
Related Specifications	User task 2

604	READ/WRITE: no spec.

An attempt to execute the READ/WRITE command although the READ/WRITE specification is not available.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Measures to Take	Delete the READ/WRITE statement.
Related Specifications	User task 2

<Alarm B>

605	READ/WRITE: buffer over

Data size exceeds 160 bytes when READ/WRITE command is executed.

Index: TURRET

Character-string: None

Code:
1 .....Alarm during execution of READ command
2 .....Alarm during execution of WRITE command

Probable Faulty Locations: Program error

Program Example:
```
:
PUT 'AB'
PUT 'AB'
PUT 'AB'   } 80 lines
PUT 'AB'
:
WRITE 1
```

Measures to Take: Check the GET/PUT command.
```
:
PUT 'AB'
PUT 'AB'
PUT 'AB'   } 79 lines
PUT 'AB'
:
WRITE 1
```

Related Specifications: User task 2

606	READ/WRITE: device no.

Device number in a READ/WRITE command is wrong.

Index: TURRET

Character-string: None

Code:
1 .....Device is specified by other than a number.
2 .....Device number is other than 0 through 4.

Probable Faulty Locations: Program error

Program Example:
```
:
WRITE 5
:
```

Measures to Take: Check the READ/WRITE command.
```
:
WRITE 4
:
```

Related Specifications: User task 2

<Alarm B>

607	READ/WRITE: data

Data in a READ/WRITE command is wrong.

Index	TURRET
Character-string	None
Code	1.....Parity error in READ operation 2.....Transmission end code in WRITE data
Probable Faulty Locations	- Hardware - Parameter setting error - Program error
Measures to Take	- Replace the RS232C interface. - Check the parameter setting. - Check the program.
Related Specifications	User task 2

608	READ communication error

An error during communications

Index	TURRET
Character-string	Data number involved in error
Code	Status code at an occurrence of error
Probable Faulty Locations	Varies depending on the error number.
Measures to Take	Refer to the error message explanation in accordance with the error number.
Related Specifications	User task 2

609	WRITE communication error

An error during communications

Index	TURRET
Character-string	Data number involved in error
Code	Status code at an occurrence of error
Probable Faulty Locations	Varies depending on the error number.
Measures to Take	Refer to the error message explanation in accordance with the error number.
Related Specifications	User task 2

610	GET/PUT: buffer over

The number of data sets is too much or too less for executing the data.

Index	TURRET
Character-string	None
Code	1..............................With the GET command, the number of received data sets is larger than read pointer value. 2..............................With the PUT command, the data size exceeds 160 bytes.
Probable Faulty Locations	Program error
Program Example	see below

```
   16CH
:
PUT 'ABC ... P'  }
:                } 10 lines
PUT 'ABC ... P'  }
PUT 'Q'
WRITE 1
:
```

Measures to Take: Check the GET/PUT command.

```
   16CH
:
PUT 'ABC ... P'  }
:                } 10 lines
PUT 'ABC ... P'  }
WRITE 1
:
```

Related Specifications: User task 2

611	GET/PUT: no spec.

An attempt to execute the GET/PUT command although the GET/PUT specification is not supported.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Program error
Measures to Take	Delete the GET/PUT command.

612	GET/PUT: number of figure

Specification of the number of figures is wrong when a command is executed.

Index	TURRET
Character-string	None
Code	1 .....During GET command execution 2 .....During PUT command execution
Probable Faulty Locations	Program error
Program Example	: PUT V1, 11 :
Measures to Take	Check the GET/PUT command. : PUT V1, 10 :
Related Specifications	User task 2

613	GET/PUT: variable

Improper element in the data when a command is executed.

Index	TURRET
Character-string	None
Code	1**.....During GET command execution 2**.....During PUT command execution ** Hexadecimal of ASCII code of improper data
Probable Faulty Locations	Program error
Program Example	: PUT VDOUT[1],1 :
Measures to Take	Check the GET/PUT command.
Related Specifications	User task 2

<Alarm B>

614	GET numeric data

Wrong numerical data during the execution of the GET command

Index: TURRET

Character-string: None

Code:
1 .....Characters other than numbers and space are contained.
2 .....More than one decimal point
3 .....More than 9 digit number

Probable Faulty Locations: Program error

Program Example:

```
:
GET V1, 5
:
```

Buffer

A	1	2	3	4	.....

Measures to Take: Check the GET command.

```
:
GET 1
GET V1, 4
:
```

Related Specifications: User task 2

615	Graphic no spec.

An attempt to execute graphic command although the graphic specification is not supported.

Index: TURRET

Character-string: None

Code: None

Probable Faulty Locations: Program error

Program Example:

```
:
DEF WORK
PS LL, [0,0], [100, 100], 4
END
:
```

Measures to Take: Delete the graphic command.

Related Specifications: Graphic

616	Graphic PBU write

Failure in writing of the graphic PBU file by the SAVE command.

Index: None

Character-string: None

Code: None

Probable Faulty Locations: Bubble memory

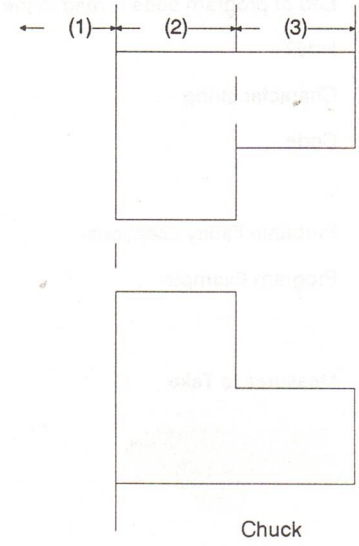
Measures to Take: Replace bubble memory.

Related Specifications: Graphic

<Alarm B>

617	Chuck barrier area

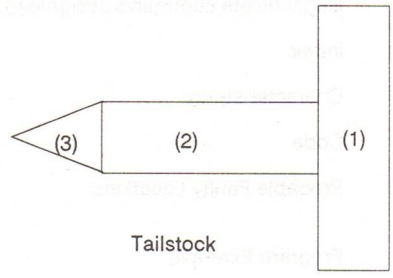
Command to enter the chuck barrier area.



Index	TURRET
Character-string	None
Code	1 .....Area (1) 2 .....Area (2) 3 .....Area (3)
Probable Faulty Locations	- Program error - Setting error
Measures to Take	- Check the axis motion commands. - Check the setting of the chuck barrier.

618	Tailstock barrier area

Command to enter the tailstock barrier area.



Index	TURRET
Character-string	None
Code	1 .....Area (1) 2 .....Area (2) 3 .....Area (3)
Probable Faulty Locations	- Program error - Setting error
Measures to Take	- Check the axis motion commands. - Check the setting of the chuck barrier.
Related Specifications	Center work

<Alarm B>

619	UGC: program end code none

End of program code is read in the conversion process of the user graphic command characters.

Index	None
Character-string	None
Code	1.....When converting user graphic command execution statement 2.....When skipping user graphic command comment lines
Probable Faulty Locations	An error in the UGC command string in the part program
Program Example	DEF WORK (UGC WORK) PS LL, [0, 0], [100, 100], 4 : END
Measures to Take	Check the UGC program. In the example program, there is an error in the comment line. Correct Program: DEF WORK (UGC WORK) PS LL, [0, 0] [100, 100], 4 : END

620	UGC: DELETE syntax

Illegal delete command designated

Index	None
Character-string	None
Code	User graphic internal code
Probable Faulty Locations	Character-string designated in the DELETE statement in the user graphic command.
Program Example	DELETE PAINT
Measures to Take	Check the character-string following the DELETE statement; correct it.
Related Specifications	Color, monochrome graphic display

621	UGC: DEF syntax

Illegal registration declare command designated

Index	None
Character-string	None
Code	User graphic internal code
Probable Faulty Locations	Character-string designated in the DEF statement in the user graphic command.
Program Example	DEF PAINT :
Measures to Take	Check the character-string following the DEF statement; correct it.
Related Specifications	Color, monochrome graphic display

622	UGC: TIP syntax

Illegal standard procedure statement (TIP statement) designated

Index	None
Character-string	None
Code	User graphic internal code
Probable Faulty Locations	TIP statement in the user graphic command string of registered tool shape
Program Example	DEF TOOL [1,L] TIP [[0, 0],[1,0],[1,0]]] : END
Measures to Take	If there is no TIP statement, add TIP statement. If there is TIP statement, check it; correct the TIP statement. Correct program: DEF TOOL [1,L] TIP [[0, 0],[1,0],[1,0]] : END
Related Specifications	Color, monochrome graphic display

623	UGC: TIF syntax

Illegal standard procedure statement (TIF statement) designated

Index	None
Character-string	None
Code	User graphic internal code
Probable Faulty Locations	TIF statement in the user graphic command string of registered tool shape.
Program Example	DEF TOOL [1,L] TIP [[0, 0],[1,0],[0,1]] TIF [M,5,5,0,] : END
Measures to Take	If there is no TIF statement, add TIF statement. If there is TIF statement, check it; correct the TIF statement. Correct program: DEF TOOL [1,L] TIP [[0, 0],[1,0],[0,1]] TIF [O,5,5,0,] : END
Related Specifications	Color, monochrome graphic display

<Alarm B>

624	UGC: figure entry

No user graphic command to be registered.

Index	None
Character-string	None
Code	1 .....There is no user graphic command between the registration declaration statement and the end declaration statement (excluding standard procedure statement).
Probable Faulty Locations	User graphic command string
Program Example	: DEF WORK END :
Measures to Take	Add the user graphic command for which the shape is to be defined. : DEF WORK PS LL,[0,0] [100,150],4 END :
Related Specifications	Color, monochrome graphic display

625	UGC: illegal numerical

Illegal numerical data input

Index	None
Character-string	None
Code	5 .....Number of digits overflow
Probable Faulty Locations	Numerical data in the user graphic command
Program Example	DEF WORK PS LL, [0, 0], [1000000, 100], 4 END
Measures to Take	Check the numerical data and correct it. DEF WORK PS LL,[0, 0],[100,100],4 END
Related Specifications	Color, monochrome graphic display

<Alarm B>

626	UGC: illegal character

Illegal code not applicable to operator code designated

Index	None
Character-string	None
Code	1 .....Hexadecimal number of ASCII
Probable Faulty Locations	User graphic command string
Program Example	DEF WORK PS LL,[0, 0],[100&100],4 : END
Measures to Take	Change characters other than those listed below into the corresponding character or function operator. 0 - 9, A - Z,], ,, +, -, *, /, [, = DEF WORK PS LL,[0, 0],[100,100],4 : END
Related Specifications	Color, monochrome graphic display

627	UGC: user variable

Illegal user variable designated

Index	None
Character-string	None
Code	0 .....No user variable number entry 1 .....Entry of a number following user variable number 2 .....Number of digits overflow in designating user variable number
Probable Faulty Locations	Character-string which begins with "D" in the user graphic command string.
Program Example	DEF WORK PS LL,[0, 0],[D100,100],4 END
Measures to Take	Correct in the correct user time variables (D0 - D99) or character-string. DEF WORK PS LL,[0, 0],[D10,100],4 END
Related Specifications	Color, monochrome graphic display

<Alarm B>

628	UGC: system variable

Illegal system variable designated

Index	None
Character-string	None
Code	0.....No system variable number entry 1.....Entry of a number following system variable number 2.....Number of digits overflow in designating system variable number
Probable Faulty Locations	Character-string which begins with "S" in the user graphic command string.
Program Example	DEF WORK PS LL,[0, 0],[S100,100],4 END
Measures to Take	Correct in the correct user time variables (S0 - S99) or character-string. DEF WORK PS LL,[0, 0],[S10,100],4 END
Related Specifications	Color, monochrome graphic display

629	UGC: illegal command

Illegal character-string designated

Index	None
Character-string	None
Code	Hexadecimal number of ASCII, or user graphic internal code
Probable Faulty Locations	User graphic command string
Program Example	DEF WORK PS LZ,[0, 0],[100,100],4 END
Measures to Take	Check and correct the user graphic command string. DEF WORK PS LL,[0, 0],[100,100],4 END
Related Specifications	Color, monochrome graphic display

<Alarm B>

630	UGC: program factor over

Overflow of factor code stack or factor data stack

Index — None

Character-string — None

Code
1 .....Factor code stack overflow at character-string conversion
2 .....Factor data stack overflow at character-string conversion
3 .....Factor code stack overflow at command creation
4 .....Factor data stack overflow at command creation

Probable Faulty Locations — User graphic command string

Program Example
D1 = D1 + 1 + 1 + 1 ... + 1
(125 or more)

Measures to Take — User graphic command string

Reduce the number of the factor codes and factor data sets, or divide the expression using the substitute statement.
D1 = D1 + 1 + 1 ... + 1
(Within 124)

Related Specifications — Color, monochrome graphic display

631	UGC: co-ordinate data

Mismatch of the numbers of the left and right brackets, illegal factor code, inconsistency of the number of command coordinates

Index — TURRET

Character-string — None

Code
1 .....Mismatch of the numbers of left and right brackets, illegal factor code, excess number of brackets with the commands excluding substitute statement
2 .....Mismatch of the number of left and right brackets with the commands excluding substitute statement
3 .....Mismatch of the numbers of left and right brackets, illegal factor code, inconsistency of the number of command coordinates and excess number of brackets with the commands excluding substitute statement

Probable Faulty Locations — User graphic command

Program Example
```
:
PF 3,[0,0],[10,0],[0,10],[7,8],4
:
```

Measures to Take — Check and correct the user graphic command format.
```
:
PF 3,[0,0],[10,0],[0,10],4
:
```

Related Specifications — Color, monochrome graphic display

<Alarm B>

632	UGC: END syntax

Illegal end declaration statement

Index: TURRET

Character-string: None

Code: 1 .....No LF for end declaration

Probable Faulty Locations: END statement in the user graphic command string

Program Example:

```
:
DEF WORK
:
END X
```

Measures to Take: Delete the character string just after the END statement.

```
:
DEF WORK
:
END
```

Related Specifications: Color, monochrome graphic display

633	UGC: figure entry command over

Overflow of user graphic command stack area

Index: None

Character-string: None

Code: 1 .....Overflow with user graphic command string storage area (stack)

Probable Faulty Locations: User graphic command string

Program Example:

```
:
DEF
:
END
```

} More than 600 bytes

Measures to Take: Reduce the number of the commands in the command-string, or reduce the necessary memory space using the macro.

```
:
DEF
:
END
```

} Reduce to less than 600 bytes.

Related Specifications: Color, monochrome graphic display

<Alarm B>

634	UGC: command format

Syntax error with: POINT statement, VIEW statement, WINDOW statement, LINE statement, CIRCLE statement, PAINT statement, PAINTI statement, PAINTS statement, PAINTP statement, CALL statement, PLAIN statement, and substitute statement

Index	None
Character-string	None
Code	User graphic internal code
Probable Faulty Locations	User graphic command
Program Example	: PS L,[0,0],[100,100],4 :
Measures to Take	Check the syntax of the user graphic commands; make correction as needed. : PS LL,[0,0],[100,100],4 :
Related Specifications	Color, monochrome graphic display

635	UGC: additional parameter

Illegal additional parameter programmed

Index	None
Character-string	None
Code	1 .....Illegal circle rotation direction (other than omission, L and R) Illegal triangle angle (other than omission, 0, 1 and 2) Illegal line style, tile pattern and color designation (other than omission and 0-7)
Probable Faulty Locations	Additional parameter of the user graphic command
Program Example	: LI [100,100],9 :
Measures to Take	Check the user graphic command additional parameter; correct as needed. : LI [100,100],6 :
Related Specifications	Color, monochrome graphic display

<Alarm B>

636	UGC: expression

Expression syntax error

Index: None

Character-string: None

Code:
1 .....More than one solution
2 .....Program end code in expression
3 .....Operand stack area over
4 .....Mismatch between the numbers of operands
5 .....Operand classification code stack area over
Mismatch between the numbers of left brackets "[" and right brackets "]".
6 .....More than two subscript expressions

Probable Faulty Locations: Substitute statement and quadratic expression in the user graphic command

Program Example:
```
:
PS LL,[0,0],[100,100,100],4
:
```

Measures to Take: Check and correct the syntax of substitute statement and quadratic expression.
```
:
PS LL,[0,0],[100,100,100],4
:
```

Related Specifications: Color, monochrome graphic display

637	UGC: entry area over

The total of previously registered area and the area registered presently exceeds the allowable value of the shape registration area.

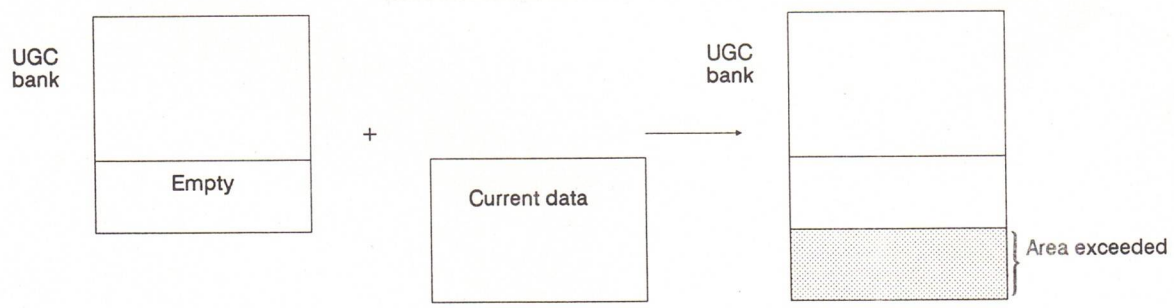
Index: None

Character-string: None

Code: 1 .....Empty area for shape registration is not available

Probable Faulty Locations: User graphic bank area

Operation Example



Measures to Take: Delete the current user graphic command string, or delete unnecessary user graphic command string which is already registered before registering the current data.

Related Specifications: Color, monochrome graphic display

<Aiarm B>

638	UGC: delete disable

No user graphic command string to be deleted.

Index	None
Character-string	None
Code	1 .....User graphic command to be deleted is not registered.
Probable Faulty Locations	DELETE statement of the user graphic command
Program Example	: DELETE MACRO[8] :
Measures to Take	Check and correct the command string to be deleted.
Related Specifications	Color, monochrome graphic display

639	LASER MEASUREMENT: no spec.

An attempt is made to execute the LMW and LMV commands although the Inductosyn pitch error compensation specification is not supported (excluding LR15).

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	: LMW Z100 : LMV Z100 :
Measures to Take	Delete the LMN and LMV commands from the program.

<Alarm B>

640	LASER MEASUREMENT: condition

Conditions in which the laser measurement commands LMW and LMV have been executed are not correct.

Index	TURRET
Character-string	None
Code	1 .....The command is designated for A and B 2 .....Both X and Z commands are designated in the same block. 3 .....The command is designated in the nose R compensation mode. 4 .....The command is designated in the LAP mode. 5 .....A Q command is designated with the LMW command. 6 .....The measuring range includes the limit. 7 .....The identical point is designated as the start and end points of measurement.
Probable Faulty Locations	Program error
Program Example	: LMW Z100 X100 :
Measures to Take	Check the contents of error in the program from the alarm code number; remove the cause which intervenes the execution of the laser measurement command. LMW Z100 LMW X100
Related Specifications	Inductosyn pitch error compensation

641	No interlock spec.

The MHPS command (program selection command for a coupled device) was given on the machine not supporting the coupled device specification.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Program error
Measures to Take	The MHPS command cannot be used for the machine not supporting the coupled device specification, delete the MHPS command from the program.

<Alarm B>

642	Data word PN

The range of a PN command (selection program number) associated with the MHPS command (program selection command for a coupled device) is outside the allowable range (0 - 9999).

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	PN = 1 2 3 4 5 5 digits command is not allowed.
Measures to Take	Correct the program.

643	Load monitor no spec.

A load monitor command VLMON is designated when the load monitor specification is not selected. Or CLEAR command is designated.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	- VLMON or CLEAR is specified in a program for the control which does not support the monitor specification. - The commands above are input in the MDI mode.
Measures to Take	Correct the program; delete VLMON or CLEAR command from the program.

644	RS tool L/M unfit

The kind of tool prepared in the ready station by the ATC (L/M) and the change position of turret do not match. (T1 ... L tool, T3 ... M tool)

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Mismatch between the kind of the tool specified in the program and the tool actually set in the magazine
Measures to Take	Correct the program or change arrangement tools in the magazine.

<Alarm B>

645	Thread phase comp no spec.

System variable for thread phase correction (VTHRX or VTHRZ) is designated although the thread phase correction specification is not supported.

Index	TURRET
Character-string	None
Code	1 .....An attempt to write has taken place. 2 .....An attempt to read has taken place.
Probable Faulty Locations	- VTHRX or VTHRZ command is specified in a program for the control which does not support the thread phase compensation specification. - The commands above are input in the MDI mode.
Measures to Take	Correct the program.

646	ZA-axis over load

The overload detection meter relay for A-turret (Z-axis) has been ON for longer than preset time (optional parameter (word) No. 17).

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Cutting conditions
Measures to Take	Check cutting conditions.

647	ZB-axis over load

The overload detection meter relay for B-turret (Z-axis) has been ON for longer than preset time (optional parameter (word) No. 17).

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Cutting conditions
Measures to Take	Check cutting conditions.

648	XA-axis over load

The overload detection meter relay for A-turret (X-axis) has been ON for longer than preset time (optional parameter (word) No. 17).

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Cutting conditions
Measures to Take	Check cutting conditions.

<Alarm B>

649	XB-axis over load

The overload detection meter relay for B-turret (X-axis) has been ON for longer than preset time (optional parameter (word) No. 17).

Index — None

Character-string — None

Code — None

Probable Faulty Locations — Cutting conditions

Measures to Take — Check cutting conditions.

650	Flat turning command condition

Polygon cutting ON/OFF command (M221/M220) is given when the conditions for polygon cutting are not satisfied.

Index — None

Character-string — None

Code

1 ..... Spindle zero speed signal is not input.

2 ..... Spindle in-stop signal is not output.

3 ..... Spindle rotation command is active.

4 ..... The M-tool spindle rotation command (SB command) is active.

5 ..... The M-tool spindle is rotating.

6 ..... C-axis is in the jointed state.

7 ..... During M221 - M226 polygon cutting command execution, other polygon cutting mode is directly designated without designating cancel command (M220).

8 ..... A polygon cutting command is designated in the M241 (M-tool spindle; 1st range) mode.

Probable Faulty Locations

- Program error
  Designate M221/M220 after the rotation command of the spindle or the M-tool spindle.
- Operation error
  In the MDI mode, M221/M220 is input after the rotation command of the spindle or the M-tool spindle.
- Due to incorrect EC input status, representing the spindle rotation condition, the spindle rotation condition cannot be judged correctly.
- The spindle or the M-tool spindle is forcibly rotated by an external factor.

Program Example

```
:
M03  S500
M221
:
```

Measures to Take

- Correct the program.
- Check the EC input.

Spindle zero speed	EC INPUT 01, No.9 bit 3
Spindle constant speed	EC INPUT 01, No.9 bit 2

- Check the M-tool spindle speed.
  "Sb" on the block data display screen.

<Alarm B>

651	ATC TL

Illegal TL command value

Index — None

Character-string — None

Code — XX YY ZZ

- ZZ: Tool offset No.
- YY: Tool No.
- XX: Nose R compensation No.

Probable Faulty Locations — TL command in NC machining program

Program Example

(Wrong)	(Correct)
:	:
TL = 660101	TL = 010101
:	:

Wrong

Measures to Take — Check the TL command. Designate the nose R compensation number, tool number, and tool offset number correctly.

Related Specifications — LR15-M ATC

652	ATC MT

Range of tool number in the MT command is wrong.

Index — None

Character-string — None

Code — XX.....Tool No.

Probable Faulty Locations — MT command in NC machining program

Program Example

(Wrong)	(Correct)
:	:
MT = 64	MT = 63
:	:

Tool number range must be within 1 - 63.

Measures to Take — Correct the MT command.

Tool number range: 1 - 63

Related Specifications — LR15-M ATC

<Alarm B>

653	ATC MG

Range of magazine number in the MG command is wrong.

Index	None
Character-string	None
Code	XX.....Magazine toolpot No.
Probable Faulty Locations	MG command in NC machining program
Program Example	(Wrong) (Correct) : : MG = 0 MG = 01 : :
Measures to Take	Correct the MG command. Magazine toolpot number range: 1 - 16
Related Specifications	LR15-M ATC

<Alarm B>

654	M06/TN/MG/MT impossible

The M06, TN, MG, or MT command cannot be executed.

Index — None

Character-string — None

Code — M06 command:

- FFFFFFFF ..... The M06 command is designated when the ATC sequence is other than sequence 1 or 2.
- 1 ..... The tool in the turret cannot be stored in the magazine. (For a very-large tool, for example, three consecutive empty pots are not available.)
- 2 ..... The tool in the magazine cannot be mounted in the turret. (An attempt was made to set an M-tool in the L-tool pot, for example.)

TN command:

- FFFFFFFF ..... The TN command is designated when the ATC sequence is other than sequence 1 or 2.
- 1 ..... Not used
- 2 ..... The designated tool is not present in the magazine or the turret.
- 3 ..... The tool in the turret cannot be stored in the magazine. (For a very-large tool, for example, three consecutive empty pots are not available.)
- 4 ..... The number of the tool prepared at the standby position and the commanded tool number do not match.

MG command:

- FFFFFFFF ..... The TN command is designated when the ATC sequence is other than sequence 1 or 2.

MT command:

- FFFFFFFF ..... The TN command is designated when the ATC sequence is other than sequence 1 or 2.
- 1 ..... The commanded tool number is not in the magazine.

Probable Faulty Locations — Command error

Program Example — TN = 0112

Measures to Take — Designate the commands correctly.

Related Specifications — LR15-M ATC

<Alarm B>

655	Turret rotation

The turret rotation command is executed at the ATC side while the tool change arm is not at the intermediate position or the magazine position. (TN command)

Index	None
Character-string	None
Code	1 .....The tool change arm position is not the intermediate position or the magazine position.
Probable Faulty Locations	- Tool change arm position - Limit switch position
Measures to Take	- Place the tool change arm in the correct position. - Check the limit switch.
Related Specifications	LR15-M ATC

656	Invalid command in flat turning mode

An illegal command was designated during the polygon cutting mode.

Index	TURRET
Character-string	None
Code	1 .....The M-tool spindle control command (M13, M14, M12) is designated. 2 .....The M-tool spindle speed (SB) is designated.
Probable Faulty Locations	Program error
Program Example	M03 M221 M13 SB = 500
Measures to Take	Correct the program. After the designation of M221, cancel it with M220 before designating the M-tool spindle rotation command.

657	External error

An external error has occured. (EC input No. 8 bit 3 is 0)

Index	None
Character-string	None
Code	1

<Alarm B>

658	TM

Illegal TM command

A number greater than the number of turret tools is designated for "oo" in the "TM = oo**" command. Or a number greater than "32" is designated for "**".

Index	TURRET
Character-string	None
Code	If a TM command is outside 0 < TM < 99999999, the hexadecimal number of the commanded TM value. If the tool number is greater than the number of turret tools or the tool offset number is greater than "32", the hexadecimal number of the designated number in the lower four digits.
Probable Faulty Locations	TM command value
Program Example	G14 TM = 0233 :
Measures to Take	Check the TM command value. G14 TM = 0232 :

660	Circle thread no spec.

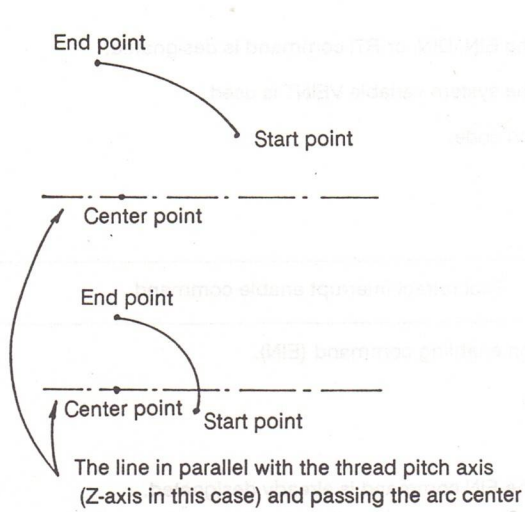
The arc thread cutting command (G112, G113) is designated while the arc thread cutting specification is not supported.

Index	TURRET
Character-string	None
Code	None
Probable Faulty Locations	Program error
Program Example	G112 X100 Z100 I50 K0 F0.2
Measures to Take	Eliminate the arc thread cutting command (G112, G113) from the program.

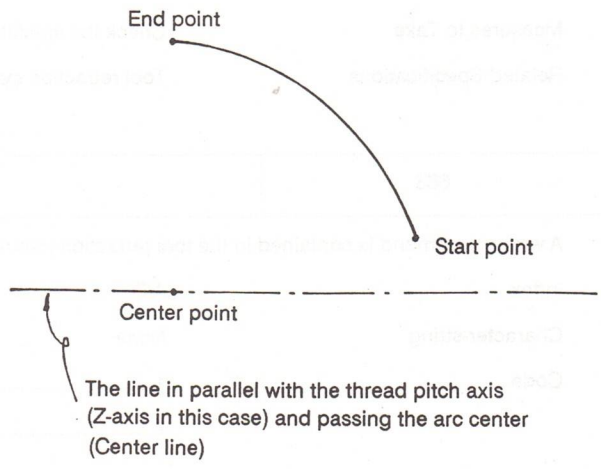
<Alarm B>

661	Data word thread command

In the arc thread cutting commands, the designated arc either is in contact with or intersects the line (called the center line) passing the center of the arc and in parallel with the thread pitch axis.



Longitudinal thread cutting



Index — TURRET

Character-string — None

Code

1 ..... The start point of the arc thread cutting is on the center line.

2 ..... The end point of the arc thread cutting is on the center line.

3 ..... The end and the start points lie in the opposite side in reference with the center line.

4 ..... The tool advancing direction is different from the commanded thread cutting direction (for the arc having shorter arc length between the start and end points.

Probable Faulty Locations

- Program error
- Even when the programmed commands are correct, this alarm might occur if compensation is activated for the commands due to the nose R compensation function.

Program Example

```
G01 X100 Z100
G112 X120 Z110 I10 K0 M26      End point is on the center line.
```

Measures to Take — Correct the program.

662	Tool retract no spec.

The tool retraction command is designated although the control does not support the tool retraction specification.

Index A/B

Character-string None

Code 1 .... The EIN, DIN, or RTI command is designated.

2 .... The system variable VEINT is used.

Measures to Take Check the specification code.

Related Specifications Tool retraction cycle

663	Tool retract interrupt enable command

A wrong command is contained in the tool retraction interruption enabling command (EIN).

Index A/B

Character-string None

Code 1 .... The EIN command is already designated.

2 .... The subprogram call count command Q is contained in the EIN command.

Probable Faulty Locations Incorrect program

Program Example

```
EIN  OABC
EIN  ODEF   ————→ An alarm occurs here.
:
EIN  OABC  Q5
            ↑
            └———— Not necessary
```

Measures to Take Correct the program.

Related Specifications Tool retraction cycle

664	Tool retract interrupt disable command

A wrong command is contained in the tool retraction interruption disabling command (DIN).

Index A/B

Character-string None

Code 1 .... The DIN command is designated although the EIN is not designated.

Probable Faulty Locations Incorrect program

Program Example

```
:                    EIN  OABC
DIN  OABC   }————→   :
:                    DIN
```

Measures to Take Correct the program.

Related Specifications Tool retraction cycle

<Alarm B>

665	Tool retract interrupt return command

The RTI command is designated in other than tool retraction interruption mode, or it is designated in the thread cutting retraction cycle.

Index: A/B

Character-string: None

Code:
1 ..... The RTI command is designated in other than tool retraction interruption mode.
2 ..... The RTI command is designated after the tool interruption during the thread cutting cycle.

Probable Faulty Locations: Incorrect program

Measures to Take: Correct the program

Related Specifications: Tool retraction cycle

666	Program bad direct: spindle max. revolution number

Spindle max. rpm designating S command value is greater than the optional parameter (word) No. 73 value.

Or the G50 S**** (spindle max. rpm designation) is designated in the program block which contains an axis command.

Index: TURRET

Character-sting: None

Code:
1 ..... Spindle max. rpm designating S command value is greater than the optional parameter (word) No. 73 value.
2 ..... The G50 S**** is designated in the block which contains an axis command.

Probable Faulty Locations: Program error

<Alarm B>

679	Data word 'W'

The sub-spindle headstock motion command (W) is wrong.

1) A W-axis motion command is designated at the B-turret side.
2) A W-axis motion command is desiganted in other than the G00, G01 or G50 mode.
3) The W-axis motion command numerical value is not within the following range:
   -99999.999 ≤ W ≤ 99999.999
4) A W-axis motion command is designated in the sub-spindle mode (G141 mode).

Index: TURRET

Character-string: None

Code:
1 .....A W-axis motion command is designated at the B-turret side.
2 .....A W-axis motion command is designated in other than the G00, G01 or G50 mode.
3 .....A W-axis motion command is designated in the sub-spindle mode (G141 mode).
Others .....Hexadecimal of W-axis command

Probable Faulty Locations: The W-axis command in a program

Program Example:
```
:
G14
G01  W100.5  F100  G94
:
```

Measures to Take: Check the W-axis command in the program.
```
:
G14
G01  W100.5  F100  G94
:
```

Related Specifications: Subspindle headstock control

680	T rad comp. no spec.

The cutter radius compensation ON command* is designated for the control not equipped with the cutter radius compensation function.

* Compensation ON command (G41 or G42) following the designation of compensation plane (G17 XY plane).

Character-string: None

Code: None

Probable Faulty Locations: Program error

Measures to Take: Correct the program (Delete the G17, G41 and/or G42 command for the program).

<Alarm B>

681	T rad comp. change surface

The designated plane for the cutter radius compensation or nose R compensation is changed during the compensation mode is active.

Before designating a new plane for the activation of the compensation function, it is necessary to cancel the compensation mode by designating the G40 code.

Character-sting: None

Code: None

Probable Faulty Locations: Program error

Program Example:

```
G17
G41
 :
G18
```

Measures to Take: Correct the program.

```
G17
G41
 :
G40 ..... Cancel the compensation mode.
G18
```

682	T rad comp. C-axis separation

The cutter radius compensation ON command is designated while the C-axis joint command (M110) is not designated.

Character-string: None

Code: None

Probable Faulty Locations: Program error

```
M109..... C-axis disconnection command
G17
G41 ..... An alarm occurs
 :
```

Measures to Take: Correct the program.

```
M110..... C-axis joint command
G17
G41
 :
```

<Alarm B>

683	T rad comp. QA command

QA command is designated during the cutter radius compensation mode.

Character-string: None

Code: None

Probable Faulty Locations: Program error

Program Example:

```
G17
G41
G00 X100 C0 QA=2..... An alarm occurs
```

Measures to Take: To rotate the C-axis using the QA command, continuously designate the C command.

```
G17
G41
G00 X100 C0
C180
C0
C180
C0
```

684	T rad comp. side create process cal.

The floating zero point calculation error occurred in the conversion from (X, C) to CE during the cutter radius compensation mode (CE Z plane) or contour generation machining (G132, G133) on the side face.

Character-string: None

Code: XX:

Bit 0 ..... Overflow in converting into integer
Bit 1 ..... Exponential underflow
Bit 2 ..... Exponential overflow
Bit 3 ..... Calculation of root of a negative number
Bit 4 ..... Division by 0
Bit 5 ..... Angle overflow for SIN, COS, TAN and COT

<Alarm B>

686	Program bad direct X coordinates

The cylindrical face cannot be determined in the G132, G133 side face contour generation mode because the X command values at the start and end point do not change. Or the cylindrical face cannot be determined because the X command value changes during the cutter radius compensation mode in the side face contour generation mode.

Character-string: None

Code:
None .....During the G132, G133 side face contour generation mode
1 .....During the cutter radius compensation mode

Probable Faulty Locations: Program error

The X command value in the G132, G133 mode must remain as previously designated.

Program Example:

```
G00 X120
G132 Z150 C45 X135 L20
                  └──── X is not 120
```

Measures to Take: Correct the program.

Do not designate an X command in the G132, G133 block.

687	Fixed cycle: U, W command

In the G190 (key groove cutting cycle),

1) Both U and W are designated.
2) W command (finishing allowance on face) is designated while an I command is designated, calling the side face machining mode.
3) U command (finishing allowance on side face) is designated while a K command is designated, calling the face machining mode.
4) U or W command value is outside the allowable range; 0 U, W 99999.999.
5) Finish allowance designated with a U or W command is greater than the total infeed amount.

Character-string: None

Code:
None .....Case 1) above
FFFFFFFF .....Case 2) or 3) above
Others .....Case 4) or 5) above

Probable Faulty Locations: Incorrect program

Measures to Take: Correct the program.

Related Specifications: Multi-machining model

<Alarm B>

690	Data word 'SD'

An SD command is designated at the B-turret side, or a numerical value of SD command is outside the allowable range.

Index	None
Character-string	None
Code	1 .....An SD command is designated at the B-turret side. Others .....The numerical value of SD command
Program Example	: SD=XXX :
Probable Faulty Locations	The SD command in a program
Measures to Take	Correct or deleted the SD command.
Related Specifications	LR15M/3T

691	Data word no SB

No SB command is designated in the G96 or G97 block in the G143 mode.

Index	None
Character-string	None
Code	1 .....No SB command is designated in the G96 or G97 block in the G143 mode.
Probable Faulty Locations	Program
Program Example	G143 : G96- :
Measures to Take	Correct the program G143 : G96 SB=XX
Related Specifications	LR15M-3T

692	Spindle/turret select G-code

A spindle or turret selection G code is designated at the B-turret side.

Index	TURRET
Character-string	None
Code	Hexadecimal number of designated G code
Probable Faulty Locations	Program error
Program Example	G14 G143 :
Measures to Take	Correct the program error
Related Specifications	LR15M-3T

<Alarm B>

693	Change timing G140/G143

A G code which selects the spindle/turret is designated in the mode in which such a G code cannot be designated.

Index	TURRET
Character-string	None
Code	1 .....Incremental mode
	2 .....Nose R compensation mode
	3 .....LAP mode
	4 .....Constant cutting speed mode
	5 .....Arbitrary angle chamfering mode
Probable Faulty Locations	Program error
Program Example	G91 G143 :
Measures to Take	Correct the program error G90 G143 :

694	Program bad direct max. rev. order for M-axis

The maximum M-tool spindle speed is designated (G50 SB=oooo) exceeding the allowable pick-off spindle speed which is set for optional parameter (word) No. 76.

Index	TURRET
Character-string	None
Code	1
Probable Faulty Locations	Program error
	Operation error
Program Example	G50 SB=550
Operation Example	Numerical value '500' is set for optional parameter (word) No. 76.
Measures to Take	Correct the program error, or change the setting for optional parameter (word) No. 76.

<Alarm B>

697	Sub-spindle synchro command

The M151 command is designated while the sub-spindle is rotating.

Index	None
Character-string	None
Code	1 .....The actual sub-spindle speed is higher than 5 rpm. 2 .....A sub-spindle rotation command is designated.
Probable Faulty Locations	Program error
Program Example	: M123 SC=100 M51 :
Measures to Take	Check the program

698	Data word 'SC'

The sub-spindle speed designated using an SC command is greater than "9999", or it is a negative value.

Index	TURRET
Character-string	None
Code	Hexadecimal number of designated SC command
Probable Faulty Locations	Program error
Program Example	: M123 SC=10000
Measures to Take	Check the program

<Alarm B>

699	Data word 'CC'

The sub-spindle angle position designated using a CC command is greater than "359.999", or it is a negative value.

Index	TURRET
Character-string	None
Code	Hexadecimal number of designated CC command
Probable Faulty Locations	Program error
Program Example	: M239 CC=365
Measures to Take	Correct the angle command

700	Invalid command in sub-spindle synchro mode

A sub-spindle rotation command or its speed is designated in the main and sub spindle synchronized mode.

Index	None
Character-string	None
Code	1 .....The sub-spindle rotation command (M123, M124) is designated. 2 .....The sub-spindle speed (SC) is designated.
Probable Faulty Locations	Program error
Program Example	: M151 M123 SC=1000 :
Measures to Take	Check the program

<Alarm B>

701	MS-axis max. revolution number

The numeric value designated as the maximum sub-spindle speed is greater than the allowable maximum pick-off spindle speed which is designated using parameter (word) No. 77.

Index	TURRET
Character-string	None
Code	1
Probable Faulty Locations	G50 SC command value

703	Change timing illegal G140/G141

With the main/sub spindle selection specification, the G140/G141 mode is changed in any of the incremental programming mode, nose R compensation mode, LAP mode, constant cutting speed control mode, or arbitrary angle chamfering buffer reading mode.

Index	TURRET
Character-string	None
Code	1 .....Incremental mode 2 .....Nose R compensation mode 3 .....LAP mode 4 .....Constant cutting speed mode 5 .....Arbitrary angle chamfering buffer reading mode
Probable Faulty Locations	G140/G141 in the program
Program Example	G140 G90 : G141 :
Measures to Take	Check and correct the G140/G141 command in the program. G140 G91 : G90 G141 :

<Alarm B>

704	Change timing G120/G121

The change command is given in the G141 mode (sub-spindle coordinate system) for the sub-spindle specification, or in the G142 mode (pick-off spindle coordinate system) for the pick-off spindle specification.

Index	TURRET
Character-string	None
Code	XX.....Hexadecimal number of designated G code
Probable Faulty Locations	Program error
Program Example	: G141 G121 :
Measures to Take	Check the program. : G121 G141 :

SECTION 6 ALARM C

Alarm Table - ALARM C

Alarm No.	Alarm Message
900	Power save on
901	Panel input/output parity
902	CPU temperature
903	Cooler filter
904	Spindle brush wear
905	Oil filter
906	Spindle lube press
907	Lube tank flow
908	Lube tank level
909	User reserve code
910	
911	
912	Air pressure abnormal
913	Robot control
914	ZA-axis overload
915	ZB-axis overload
916	Loader control
917	XA-axis overload
918	XB-axis overload
919	Robot alarm/reset
920	Loader alarm/reset
921	CEJ matic data read
922	MOP memory lack
923	MOP tool wear out
924	ATC ECP EC I/O power
925	ATC ECP bus error
926	
927	
928	
929	
930	
931	
932	

Alarm Table - ALARM C

Alarm No.	Alarm Message
933	
934	
935	
936	
937	
938	
939	
940	
941	
942	
943	
944	Program select
945	
946	
947	
948	MOP executive right
949	MOP check sum
950	Cycle time over
951	Work counter over
952	Running hour over
953	Oil cooler
954	Warm up run
955	
956	
957	
958	
959	CEJ matic data NG
960	Spindle over load
961	
962	Coolant level
963	Coolant flow
964	
965	
966	
967	
968	Tailstock swing limit

Alarm Table - ALARM C

Alarm No.	Alarm Message
969	Coupling device illegal
970	
971	
972	
973	
974	
975	Block sequencer status
976	
977	
978	
979	
980	Panel/CRP receive
981	CRP/panel send
982	Measure data out
983	TMP comm. abnormal
984	TMP av. times not renew
985	DNC-B Buffer operation
986	
987	
988	Heat variable comp. alarm
989	Load monitor over load
990	DNC receive text is unallowable
991	DNC machine No. is unsame
992	DNC text format error
993	DNC receive abort
994	DNC text send abort
995	FMS coupling mode change
996	FMS HOST CPU alarm
997	FMS operation mode select
998	DNC-B Buffer operation change
999	DNC start condition

<Alarm C>

900	Power save on

The system enters the power conservation mode since the condition in which the program has not been executed continues for the period longer than the preset period in the automatic mode operation with the single block function OFF.

Setting is made at parameter (word) No. 7 in units of minutes; initial setting is 30.

Index	None
Character-string	None
Code	Set time; hexadecimal number of set time in minute increments
Operation Example	- Cycle start for the next cycle has not been made for a period longer than the preset period after the completion of the program execution. - In case the operation has stopped due to an occurrence of an alarm during automatic mode operation, nothing has been done for a period longer than the preset period.
Measures to Take	Reset the NC.

901	Panel input/output parity

A parity error has occurred in the receiving/transmitting data between the operation panel and the interface.

Index	None
Character-string	None
Code	80.....Reception parity 40.....Transmission parity
Probable Faulty Locations	- Operation panel - CRP board - Cable connecting operation panel and CRP board
Measures to Take	- Replace operation panel. - Replace CRP board. - Replace cable connecting operation panel and CRP board.

902	CPU temperature

Temperature around the CPU is high. (EC input No. 8 bit 4)

Index	None
Character-string	None
Code	1
Probable Faulty Locations	- Clogging of cooling unit - Cooling fan motor is not operating. - Defective temperature sensor

<Alarm C>

903	Cooler filter

The cooler filter is clogged causing high CPU temperature. (EC input NO. 7 bit 3 is 1.)

Index	None
Character-string	None
Code	1

904	Spindle brush wear

Wear of spindle drive motor brush (EC input No. 8 bit 7)

Index	None
Character-string	None
Code	1
Probable Faulty Locations	The brush in the spindle drive motor has worn beyond the allowable limit.
Measures to Take	Replace the motor brush.

905	Oil filter

The hydraulic power unit filter is clogged to actuate the pressure switch and the pressure switch is kept actuated for more than two seconds. (EC input No. 1 bit 4)

Index	None
Character-string	None
Code	1
Probable Faulty Locations	Clogging of filter
Measures to Take	Clean the filter.

906	Spindle lube press

Spindle lubrication oil pressure has dropped and stays at the low level for more than two seconds. (EC input No. 5 bit 2).
The pressure is not checked for 8 seconds after the reset of the control.

Index	None
Character-string	None
Code	1
Probable Faulty Locations	- Defective spindle lubrication pump, or low oil level - Defective pressure switch

<Alarm C>

907	Lube tank flow

In the last 30 minutes* no lubrication oil flow for the slideways has been detected. (EC input No. 5 bit 1)

Motor has not been operated.

* (Set value at parameter (word) No. 16 (lubrication motor off time) plus one minute in case the slideway lubrication motor is controlled by software; LB10, LB15, etc.)

The pressure is not checked for 8 seconds after the reset of the control.

Index	None
Character-string	None
Code	1
Probable Faulty Locations	- Defective lubrication pump - Clogging

908	Lube tank level

Oil level in the slideway lubrication tank is low. The low level signal has been ON for two seconds or more. (EC input No. 5 bit 0)

Index	None
Character-string	None
Code	1
Probable Faulty Locations	Low slideway lubrication oil level
Measures to Take	Supply slideway lubrication oil.

909	User reserve code

Output variable VDOUT [991] is executed after assigning data to it.

That is, this alarm occurs when "VDOUT [991] = oooo" is executed.
data

Designation is possible by programmed commands or commands input from the keyboard.

Index	None
Character-string	None
Code	Numerical value assigned to the output variable
Probable Faulty Locations	Part program
Program Example	N100 IF[V1 LT 10] N200 N101 VDOUT[991] = 10 Alarm C if ten or more common variables V1 are designated N200 G00 ...
Measures to Take	Check the process and conditions how "VDOUT [992] = oooo" is used in the program.
Related Specifications	User task 2

<Alarm C>

912	Air pressure abnormal

The air source pressure is low.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Air source pressure dropped. (Bit 7 of EC input No. 12 is turned off.)

913	Robot control

Error with the robot

If this alarm occurs during robot request state, the control is placed in the slide hold mode and the run signal is turned off.

Index	None
Character-string	None (Refer to Alarm-P 60 (ECP bus error).)
Code	XXYY.....ECP status (Refer to Alarm-P 60 (ECP bus error).)
Probable Faulty Locations	Robot
Operation Example	An alarm with robot during machining
Measures to Take	Clear the robot alarm and reset the NC.
Related Specifications	OKUMA robot

914	ZA-axis overload

The ZA-axis load has exceeded the value set at the load detection meter relay for more than the preset period.

Load detection meter relays are provided on the operation panel for individual axes.

Duration is set at parameter (word) No. 17 in units of 0.1 seconds (initial value: 1).

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Program from the overload detection ON (M135) command block to the detection OFF (M134) command block, or the operations conducted by the commands in these blocks.
Program Example	N100 M135 N101 G01 : N199 M134 } Overload detection is active only for these blocks.
Measures to Take	Reduce depth of cut or other factors involved with cutting in the program to reduce load.
Related Specifications	Overload detection

<Alarm C>

915	ZB-axis overload

The ZB-axis load has exceeded the value set at the load detection meter relay for more than the preset period.

Load detection meter relays are provided on the operation panel for individual axes.

Duration is set at parameter (word) No. 17 in units of 0.1 seconds (initial value: 1).

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Program from the overload detection ON (M135) command block to the detection OFF (M134) command block, or the operations conducted by the commands in these blocks.
Program Example	N100 M135 N101 G01 : N199 M134 } Overload detection is active only for these blocks.
Measures to Take	Reduce depth of cut or other factors involved with cutting in the program to reduce load.
Related Specifications	Overload detection

916	Loader control

Alarm with the loader

This alarm is not used currently.

Index	None
Character-string	None
Code	XXYY.....ECP status (Refer to Alarm-P 60 (ECP bus error).)
Probable Faulty Locations	NC loader
Operation Example	An alarm with loader during machining
Measures to Take	Clear the loader alarm and reset the NC.
Related Specifications	Not applicable currently

<Alarm C>

917	XA-axis overload

The XA-axis overload has exceeded the value set at the load detection meter relay for more than the preset period.

Load detection meter relays are provided on the operation panel for individual axes.

Duration is set at parameter (word) No. 17 in units of 0.1 seconds (initial value: 1).

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Program from the overload detection ON (M135) command block to the detection OFF (M134) command block, or the operations conducted by the commands in these blocks.
Program Example	N100 M135 N101 G01 ... : N199 M134 } Overload detection is active only for these blocks.
Measures to Take	Reduce depth of cut or other factors involved with cutting in the program to reduce load.
Related Specifications	Overload detection

918	XB-axis overload

The XB-axis overload has exceeded the value set at the load detection meter relay for more than the preset period.

Load detection meter relays are provided on the operation panel for individual axes.

Duration is set at parameter (word) No. 17 in units of 0.1 seconds (initial value: 1).

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Program from the overload detection ON (M135) command block to the detection OFF (M134) command block, or the operations conducted by the commands in these blocks.
Program Example	N100 M135 N101 G01 ... : N199 M134 } Overload detection is active only for these blocks. Overload detection is active only for these blocks.
Measures to Take	Reduce depth of cut or other factors involved with cutting in the program to reduce load.
Related Specifications	Overload detection

<Alarm C>

919	Robot alarm/reset

Alarm state of the robot takes place or the robot is reset while the robot cycle is requested.

Index	TURRET
Character-string	None
Code	1 .....Robot alarm 2 .....Robot reset
Probable Faulty Locations	NC Robot
Operation Example	The reset button at the robot operation panel has been pressed mistakenly while the robot is operating in response to the robot request command from the NC.
Measures to Take	For code 1 Clear the robot alarm and reset the NC. For code 2 Reset the NC.
Related Specifications	OKUMA robot

920	Loader alarm/reset

Alarm state of the loader takes place or the loader is reset while the loader cycle is requested.

This alarm is not used currently.

Index	TURRET
Character-string	None
Code	1 .....Loader alarm 2 .....Loader reset
Probable Faulty Locations	NC Loader
Operation Example	The reset button at the robot operation panel has been pressed mistakenly while the robot is operating in response to the robot request command from the NC.
Measures to Take	For code 1 Clear the robot alarm and reset the NC. For code 2 Reset the NC.
Related Specifications	Not applicable currently

<Alarm C>

921	CEJ MATIC data read

The data is not read correctly in the measuring process using the CEJ MATIC.

Index	None
Character-string	None
Code	1 .....The "enter" command is not given at the end of the data.
	2 .....The read-in data is not a decimal number.
	3 .....The number of data sets to be read is too much.
Probable Faulty Locations	CEJ matic
Measures to Take	Data transmission from the CEJ matic is abnormal; make necessary adjustments referring to the instruction manual for CEJ matic.
Related Specifications	CEJ matic

922	MOP memory lack

The memory capacity of the MOP is insufficient.

Too much amount of data has been read during standard data reading process.

Monitoring length is too long. (Under normal conditions, machining data for about ten hours of operation can be read and stored.)

Index	None
Character-string	None
Code	6 .....Insufficient memory area for monitoring B-turret tool path
	7 .....Insufficient memory area for monitoring A-turret tool path
	8 .....Insufficient memory area for monitoring current pattern
Probable Faulty Locations	Monitoring range designated in the program
Program Example	An attempt is made to read the data for a program which accomplishes cutting for more than ten hours.
Measures to Take	- Reset the NC after resetting the MOP. - Shorten the monitoring area length; carry out standard data reading again.
Related Specifications	MOP

<Alarcm C>

923	MOP tool wear out

Tool wear out signal is received from the MOP. (Cutting load has exceeded the allowable limit for more than one second.)

Index	None
Character-string	None
Code	X: Bit 0 ..... ZB-axis Bit 1 ..... XB-axis Bit 3 ..... ZA-axis Bit 4 ..... XA-axis Bit 6 ..... Spindle
Probable Faulty Locations	Cutting tool
Measures to Take	Change the cutting tools.
Related Specifications	MOP

924	ATC ECP EC I/O power

The power supply for the ATC process EC I/O is not turned on.

Index	None
Character-string	None
Code	XX.....ECP status (Refer to Alarm A 193.)
Probable Faulty Locations	I/O rack, main fuse blown
Measures to Take	Check I/O rack main fuse.

925	ATC ECP bus error

Bus error occurred with the ATC processor.

Index	None
Character-string	None
Code	XX.....ECP status (Refer to Alarm A 193.)
Probable Faulty Locations	ATC ECP board
Measures to Take	Replace ATC ECP board.

<Alarm C>

944	Program select

The external program selection is not made correctly.

Index	None
Character-string	None
Code	1
Probable Faulty Locations	- The program designated for selection has not been registered. - Program selection is not possible.
Program Example	Program not containing the M02 has been selected.
Measures to Take	The cause that the program selection was impossible is displayed at the scroll line on the CRT screen. Take necessary measures meeting the cause indicated.
Related Specifications	External program selection A, B, C

948	MOP executive right

The control does not have the executive right for the MOP I/O RAM.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	- MOP unit or HC board - Cable connecting the MOP and the HC board
Operation Example	This alarm occurs during normal communication between the MOP and the NC.
Measures to Take	- Reset the MOP unit first and then reset the NC. - If the same alarm occurs frequently, replace the hardware.
Related Specifications	MOP

949	MOP check sum

Check sum error in the data transfer with the MOP.

Index	None
Character-string	None
Code	1 .....Check sum error in input data 2 .....Check sum error in output data
Probable Faulty Locations	1) MOP unit or HC board 2) Cable connecting the MOP and the HC board 3) Noise
Operation Example	This alarm occurs during normal communication between the MOP and the NC.
Measures to Take	- Reset the MOP unit first and then reset the NC. - If the alarm occurs frequently, take the following measures meeting the cause of the alarm. In the case of trouble 1) and 2) above, replace the hardware. With the HC board in the MOP unit which uses the photocoupler, the problem often occurred with the photocoupler. In the case of trouble 3) above, check the connection of FG cable.
Related Specifications	MOP

950	Cycle time over

One cycle execution time (from start to M02 or M30) exceeds the duration set by parameter (parameter (word) No. 27).
Setting is made in units of seconds (initial setting: 0).

Index	None
Character-string	None
Code	None
Probable Faulty Locations	- Total cutting time in a program is too long. - The operation designated in a program is not completed and thus the program execution is not completed.
Measures to Take	Check the cycle time required for the execution of a program. Or check the operations of the machine.

951	Work counter over

The active work counter data has exceeded the full count value.

Index	None
Character-string	None
Code	1 .....Alarm with work counter A
	2 .....Alarm with work counter B
	3 .....Alarm with work counter C
	4 .....Alarm with work counter D
Probable Faulty Locations	The number of workpieces
Measures to Take	- Set the COUNT value smaller than the SET value. - Set the SET value larger than the COUNT value. - Clear the SET value to 0. Take any of the measures indicated above, then reset the NC.
Related Specifications	NC work counter

952	Running hour over

The running hour meter data has exceeded the full count value.

Index	None
Character-string	None
Code	1 .....Alarm with power on time timer
	2 .....Alarm with NC on time timer
	3 .....Alarm with spindle on time timer
	4 .....Alarm with cutting time timer
	5 .....Alarm with external input time timer
Probable Faulty Locations	Operation hour of the item indicated by the code number.
Measures to Take	- Set the COUNT value smaller than the SET value. - Set the SET value larger than the COUNT value. - Clear the SET value to 0. Take any of the measures indicated above, then reset the NC.
Related Specifications	NC operation monitor

953	Oil cooler

Alarm with the static hydraulic power unit cooler. (EC input No. 7 bit 0*)

* This bit data is used for the LDU alarm for the DC servo system.

Index	None
Character-string	None
Code	1
Probable Faulty Locations	Defective static hydraulic pressure unit pump

954	Warm up run

Warming up running cannot be carried out.

Index	None
Character-string	None
Code	1 .....The warming up running program (W.WAF) is not registered. 2 .....Signal from the calendar timer is received in occasions other than power up. 3 .....The operation mode is other than automatic when the warming up run program is to be executed. Or any of the following mode is selected; Machine lock, single block, A/B independent operation
Probable Faulty Locations	Calendar timer ON/OFF switch or warming up running program (W.WAF)
Operation Example	The calendar timer ON/OFF switch is turned ON after the NC began running with power applied.
Measures to Take	- Turn off the calendar timer ON/OFF switch. - Check the warming up program (W.WAF); is it registered in memory, or is it correct?
Related Specifications	Calendar timer

959	CEJ matic data NG

The NG signal is read while the CEJ matic data is being read.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Worn or broken tool
Measures to Take	- The alarm state is cleared by resetting the NC. - Change the cutting tool.
Related Specifications	CEJ matic

<Alarm C>

960	Spindle over load

The spindle load has exceeded the value set at the load detection meter relay for more than the preset period.

Load detection meter relays are provided on the operation panel.

Duration is set at parameter (word) No. 29 in units of 0.1 seconds (initial value: 0).

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Worn or broken tool
Program Example	N001 G00 X500 Z1000 N002 M141 N003 G01 X800 Z700 F10 S200 M41 M03 : N100 M140
Measures to Take	Change the cutting tool.

Spindle overload detection within these blocks.

962	Coolant level

Coolant level is low (The low coolant level state has continued for more than one second.).

Input bit: Bit 1 of EC input No. 12

Index	None
Character-string	None
Code	1
Probable Faulty Locations	Coolant
Measures to Take	Replenish coolant.

963	Coolant flow

Coolant flow volume is insufficient. Coolant flow has not been detected for a period longer than the preset period (set at parameter) in the coolant ON state.

Index	None
Character-string	None
Code	1 .....No coolant flow for standard coolant supply system 2 .....No coolant flow for additional coolant supply system
Probable Faulty Locations	- Defective coolant pump - Clogging

968	Tailstock swing limit

The tailstock swing limit switch is turned off when power supply is turned on.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Tailstock
Operation Example	The alarm display is given when power is turned on.
Measures to Take	- Feed X-axis up to the emergency limit position manually. - Then, select the swing advance or retraction using the pushbutton switch. - Reset the NC in this condition, and the alarm state will be cleared. Note that the tailstock swing advance/retraction operation is possible only when the tailstock spindle is at the retracted position. Therefore, if the tailstock spindle is not at the retracted position, keep the swing limit switch ON forcibly to turn on and off power supply. Even when the limit switch is turned on while the alarm indicating lamp is illuminating, the alarm state is not cleared by the reset operation.
Related Specifications	Tailstock swing
Machine Model	LB10

969	Coupling device illegal

An alarm has occurred in the external coupling device (loader, ORA robot, etc.).

Index	None
Character-string	None
Code	Hexadecimal number of specification code (coupling specification 1 - 8) which is set.
Probable Faulty Locations	External coupling device (loader, ORA robot, bar feeder, etc.)
Measures to Take	After clearing the alarm state of the coupled device, reset the NC.
Related Specifications	Coupling specification 1 - 8

975	Block sequencer status

When the CNC auto/single mode is changed, the auto/single status signal from the block sequence has not been changed within one second.

Index	None
Character-string	None
Code	1 ..... The block sequencer auto/single status signal is not turned on within one second after the CNC auto/single signal is turned on. 2 ..... The block sequencer auto/single status signal is not turned off within one second after the CNC auto/single signal is turned off.

<Alarm C>

980	Panel/CRP receive

Error with the data received by the CRP transmitted from the operation panel.

Index None

Character-string None

Code *

Bit 0 ..... ACIA reception error
Bit 1 ..... Error with check sum of the received data or protocol
Bit 2 ..... Operation panel serial interface error
Bit 3 ..... Operation panel switch error
Bit 4 ..... Operation panel self-diagnosis error

Probable Faulty Locations
- Defective operation panel
- Defective CRP

Measures to Take
- Replace operation panel.
- Replace CRP.

981	CRP/panel send

Error with the data transmitted from the CRP to operation panel.

Index None

Character-string None

Code *

Bit 0 ..... ACIA transmission error
Bit 1 ..... Error with check sum of the transmitted data or protocol
Bit 2 ..... Operation panel serial interface error

Probable Faulty Locations
- Defective operation panel
- Defective CRP

Measures to Take
- Replace operation panel.
- Replace CRP.

<Alarm C>

982	Measure data out

Error during the measuring data printing out

Index	None
Character-string	Error number (4 digits) of the OS which has taken place. Error number: 21**
Code	Error code of the error which has taken place
Probable Faulty Locations	Error indicated by the error number displayed has occurred. For contents of the error, refer to the error list.
Operation Example	Punch error occurred during gauging data printout operation.
Measures to Take	Take measures meeting the error which has taken place.
Related Specifications	Measuring data printing

<Alarm C>

983	TMP comm. abnormal

An alarm has occurred in the communication to and from the temperature converter (TMP).

Index — None

Character-string — None

Code

1 ..... Temperature data sent from the TMP does not complete within an interval in which the data request command is transmitted from the NC.

2 ..... No response is received from the TMP although request-to-send for the temperature data is output from the NC.

3 ..... Response from the TMP is lost during communications between the NC and TMP.

4 ..... Format of the temperature data received from the TMP is wrong.

5 ..... Communication protocol is wrong. Invalid commands have been received two times in succession.

6 ..... TMP is not in the ready state. (Power supply to the TMP is off.)

7 ..... Data reception buffer is full.

8 ..... The interface used for the communication with the TMP cannot be determined.

9 ..... Reception data error (framing, overrun, parity error)

Probable Faulty Locations

- Time interval to send the data request signal to the TMP is too short (standard: 30 sec.) Code 1
- Power supply to the TMP is turned on after power supply to the NC has been turned on. Code 9
- Problems in the communication line between the TMP and the NC-cable breakage, loose connection, etc.
- Defective communication interface at the NC or the TMP
- Power supply to the TMP turned off
- Defective TMP
- Noise

Measures to Take

- Press the NC reset button to check if the same alarm occurs again.
- Check if power supply to the TMP is ON.
- Check the communication cables and connectors used in the communication line between the NC and the TMP.
- Replace the communication interface of the TMP or the NC.
- Replace the TMP.
- Take measures against noise.
- Set the thermal displacement compensation ineffective. (optional parameter (bit) No. 37 bit 0: OFF)

Related Specifications — Thermal displacement compensation

984	TMP av. times not renew

An alarm occurs while the average time data for the temperature data is being sent to the temperature converter (TMP).

Index	None
Character-string	None
Code	1 ..... Reception of the average time data sent from the NC has not terminated correctly at the TMP side. 2 ..... No answer is output from the TMP against the average time data sent from the NC. 3 ..... Error in communication protocol
Probable Faulty Locations	- Problems in the communication line between the TMP and the NC-cable breakage, loose connection, etc. - Defective communication interface at the NC or the TMP - Defective TMP - Noise
Measures to Take	- Check the communication cables and connectors used in the communication line between the NC and the TMP. - Replace the communication interface of the TMP or the NC. - Replace the TMP. - Take measures against noise. - Set the thermal displacement compensation ineffective. (optional parameter (bit) No. 37 bit 0: OFF)
Related Specifications	Thermal displacement compensation

985	DNC-B Buffer operation

An error has occurred during NC program transfer for buffer operation. (No error message is displayed at the console line.)

Index	None
Character-string	None
Code	None ..... Communication alarm (communication alarm is overwritten by this alarm.) XXXX ..... The error number at the occurrence of the error (4 digits)
Probable Faulty Locations	- In the case of communication error, the cause is described in the content of the communication error (alarm D) which has been displayed before the display of this alarm. Refer to the alarm history display on the CHECK DATA screen. - In the case of the code indication (error number), cause of the alarm is indicated by the error number.
Measures to Take	Take measures meeting the alarm D contents or the error contents.
Related Specifications	DNC-B

<Alarm C>

988	Heat variable comp. alarm sensor **CH

Displayed when code is 1 or 4 (**: 01 - 08)

When thermal displacement compensation is being made based on the data received from the temperature converter (TMP), compensation cannot be done due to wrong data.

Index: TURRET

Character-string: None

Code:

1 ..... Measuring of temperature becomes impossible.

The sensor detects temperature below -20°C, or sensor wire is broken.

The sensor detects temperature higher than +70°C, or sensor wire is shorted.

2 ..... No backup data.

Although the backup data is read before commencing the thermal displacement compensation because temperature distribution in the machine is not uniform, there is no backup data.

3 ..... The point data to be transferred to the servo processor is shifted outside the point data made by the EC task.

4 ..... Variation of temperature in each sampling, detected by sensors, exceeds the standard value five times in succession.

5 ..... Compensation value by the heat generation factors exceeds the preset limit value.

6 ..... Compensation value exceeds the preset limit value.

7 ..... Reading of backup data impossible

Although the backup data is read before commencing the thermal displacement compensation because temperature distribution in the machine is not uniform, the data is in the read inhibited status (any alarm of code 1, 2, 4, 5 and 6 of alarm 988 occurred once).

Note: Sensor **CH is displayed by the alarm comment statement.

Probable Faulty Locations

- Defective sensor, broken sensor wire
- Max. feedrate is too high (higher than 12 m/min.).
- Pitch amount is too small (2 - 65 mm, 0.4 - 6.5 mm for 0.1 μm specification).
- Setting error of thermal displacement compensation parameters
  Temperature compensation coefficients determined by heat generation factors are too large.
  Limit values determined by heat generation factors are too small.
  The maximum total compensation amount is too small.
- Allowable temperature difference (optional parameter (word) No. 68) for thermal displacement compensation is too small.

Measure to Take	- Check the temperature at sensor channels (OVER(+) or OVER(-)). - If defective sensors are found, replace them, or turn off the bits corresponding to those sensors at optional parameter (bit) No. 38 and No. 39. - Check the setting of the maximum feedrate (system parameter) and pitch amount; change the setting if necessary. - Check the setting values related with the thermal displacement compensation parameters (compensation values by heat generation factors, total compensation amount, etc.); change the setting if necessary. - Check the setting of the allowable temperature; change the setting if necessary. - Set the thermal displacement compensation ineffective. (optional parameter (bit) No. 37 bit 0: OFF)
Related Specifications	Thermal displacement compensation

989	Load monitor over load

During monitoring, cutting load has exceeded the first limit level longer than a designated period of time.

Index	TURRET
Character-string	None
Code	None .....Z-axis 1 .....X-axis 2 .....C-axis 3 .....Spindle 4 .....M-tool axis
Probable Faulty Locations	- Cutting capacity of the tool is lowered. - Cutting conditions have been set to exceed the limit value (feedrate or spindle speed override settings increased, feedrate increased, stock of workpiece increased).
Measures to Take	- Change the cutting tool. - Adjust the cutting conditions.

990	DNC receive text is unallowable

The received text is not allowed in this system.

Index	None
Character-string	Five characters of transfer command or transfer sub command at the beginning of the received text.
Code	None
Probable Faulty Locations	Unacceptable text
Measures to Take	Check the software of the host computer.
Related Specifications	DNC-C

<Alarm C>

991	DNC machine No. is unsame

The received machine number and the machine number registered in the CNC unit do not match.

Index	None
Character-string	Five characters of transfer command or transfer sub command at the beginning of the received text
Code	None
Probable Faulty Locations	- Unacceptable text - Setting error of machine number (optional parameter (word) No. 25) at CNC side
Measures to Take	Check the machine number for the CNC set at the host computer and the one set at the CNC; change the set machine number so that the same number is set.
Related Specifications	DNC-C

992	DNC text format error

Format error in the received text

Index	None
Character-string	Five characters of transfer command and transfer sub command at the beginning of the received text.
Code	None
Probable Faulty Locations	Unacceptable text
Measures to Take	Check the format of the text being processed by the host computer whether it conforms with the text format specification.
Related Specifications	DNC-C

<Alarm C>

993	DNC receive abort

An error is detected in the text during reception or analysis of the text. (Remaining data is ignored.)

Index — None

Character-string — Five characters of transfer command and transfer sub command at the beginning of the received text

Code — Content differs depending on the text. For details, refer to the following.

In case of D,MST:

1 ..... Text is received during the interrupt mode. Or reception is made without transmitting C,MST.

2 ..... In the request for automatic mode, response for single mode setting completion is received.

3 ..... In the request for single mode, response for automatic mode setting completion is received.

In case of D,INT:

1 ..... Text is received during the automatic mode. Or reception is made without transmitting C,INT.

2 ..... In the request for interrupt mode ON, request for interrupt mode OFF is received.

3 ..... In the request for interrupt mode OFF, request for interrupt mode ON is received.

In case of C,OPC:

1 ..... Reception is made in a mode other than the automatic mode.

2 ..... Reception is made before responding to all C,OPC for the previous C,OPC.

In case of C,EXE:

1 ..... Automatic mode is not selected.

2 ..... During alarm occurrence (Alarms higher than level C alarms)

3 ..... During machine lock mode

4 ..... During dry run mode

5 ..... Main program is not selected

6 ..... Schedule drive mode is selected.

7 ..... During operation

8 ..... Either one of "Turret-A single operation" and "Turret-B single operation" is selected or both of these are selected.

In case of C,SEL:

1 ..... Automatic mode is not selected.

2 ..... Reception is made before responding to the C,SEL command received previously.

3 ..... During automatic program selection after turning of power.

4 ..... During warming up sequence

5 ..... During operation

6 ..... Designated file is not found in the bubble memory

7 ..... Error while executing selection (Refer to the error message at the console line for details.)

8 ..... Reception file name contains characters exceeding the designated number, or it contains an illegal character.

9 ..... Gauging file data is being generated.

In case of C,ALM:

1 ..... Automatic mode is not selected

In case of C,DEL:

1 ..... Automatic mode is not selected.

2 ..... Reception is made before responding to the C,DEL command received previously.

3 ..... Designated file is not found in the bubble memory.

4 ..... Designated file is protected.

5 ..... Error while executing deletion. (Refer to the error message at the console line for details.)

6 ..... Reception file name contains characters exceeding the designated number, or it contains an illegal character.

7 ..... Gauging file data is being generated.

In case of D,NCP:

1 ..... Single mode is selected. Or although the control is in the interrupt mode, reception of NC program is made in C,NCP.

2 ..... Finish code "%" exists within the NC program.

3 ..... Finish code "%" does not exist at the end of NC program.

4 ..... In the automatic mode, at reception, the same file name already exists in the bubble memory and the attempt to delete the name is made but the file is protected.

5 ..... Error during the reception of NC program. (Refer to the error message at the console line.)

6 ..... Reception file name contains characters exceeding the designated number, or it contains an illegal character.

7 ..... Gauging file data is being generated.

In case of N,NCP:

1 ..... Interrupt mode is not selected. Or even in the interrupt mode, reception is made although the request for the NC program with C,NCP is not made.

In case of D,MSG:

1 ..... Automatic mode is not selected. Or reception is made although the request has not been made. (including the double-reception* for the identical page when request is being made)

2 ..... Display page is other than 0 through 3.

3 ..... Display starting position in the horizontal direction is other than 0 through 63.

4 ..... Display starting position in the vertical direction is other than 0 through 13.

In case of C,TOF:

1 ..... Automatic mode is not selected.

2 ..... Reception is made before responding to the C,TOF received previously.

3 ..... $1 \leqq$ Transfer starting tool offset number $<$ Transfer completion tool offset number $\leqq 32$ (96) is not satisfied.

4 ..... With the single saddle type, data in B column is requested.

In case of D,TOF:

1 ..... Automatic mode is not selected. Or reception is made although the request has not been made. (including the double-reception* after the request)

2 ..... Upper and lower limit error in data

3 ..... Data other than numerical data exists.

4 ..... With the single saddle specification, an attempt to change the data in B column is made.

In case of C,TLM:

1 ..... Automatic mode is not selected.

2 ..... Reception is made before responding to the C,TLM command previously received.

3 ..... 1 ≦ Transfer start tool number ≦ Transfer completion ≦ 12 (63)

4 ..... With the single saddle specification, an attempt to change the data in B column is made.

In case of D,TLM

1 ..... Automatic mode is not selected. Or reception is made although the request has not been made. (including the double-reception* after the request)

2 ..... Upper and lower limit error in data

3 ..... Data other than numerical data exists.

4 ..... With the single saddle specification, an attempt to change the data in B column is made.

In case of C,COM

1 ..... Automatic mode is not selected.

2 ..... Reception is made before responding to the C,COM command received previously.

3 ..... 1 ≦ Transfer start common variable number ≦ Transmission completion common variable number ≦ 32 is not satisfied.

In case of D,COM

1 ..... Automatic mode is not selected. Or reception is made although the request has not been made. (including the double-reception* after the request)

2 ..... Upper and lower limit error in data.

3 ..... Data other than numerical data exists.

In case of N,TOF

1 ..... The tool offset data is received although the request has not been made. (including the double-reception* after the request)

In case of N,TLM

1 ..... The tool life data is received although the request has not been made. (including the double-reception* after the request)

In case of N,COM

1 ..... The command variable data is received although the request has not been made. (including the double-reception* after the request)

In case of N,MSG

1 ..... The message data is received although the request has not been made. (including the double-reception* after the request)

In case of D,STR

1 ..... All data is received although the request has not been made.

In case of D,END

1 ..... All data is received although the request has not been made (although [D.STR] is not received).

In case of N,DTA

1 ..... All data is received although the request has not been made.

In case of C,ATC

1 ..... Automatic mode is not selected.

2 ..... Reception is made before responding to the [C, ATC] command received previously.

3 ..... 1 ≦ Transfer start tool pot number ≦ Transfer end tool pot number ≦ 50 is not satisfied.

In case of D,ATC

1 ..... Automatic mode is not selected. Or reception is made although the request has not been made. (including the double-reception* after the request)

2 ..... Upper and lower limit error in data.

3 ..... Data other than numerical data exists.

In case of N,ATC

1 ..... The ATC data is received although the request has not been made.

* Double-reception:
This indicates that the same data ([D,???] or negative acknowledgement [N,???]) is received two times for a single request-to-send command.

Probable Faulty Locations
- Error in text data received
- Faulty reception timing

Related Specifications
DNC-C

<Alarm C>

994	DNC text send abort

During text transmission, an error which does not allow transmission has occurred.

Index	None
Character-string	Five characters of transfer command or transfer sub command of the transmitted text
Code	Content differs depending on the text. Refer to the following for details. In case of D,NCP 1 ..... File reading impossible during transmission in the single mode. (Refer to the error message at the console line for details.) 2 ..... In the single mode, program to be transferred is not in the bubble memory. (In this case, D,NCP is not transmitted.) 3 ..... In the single mode, main program to be transferred is not selected. (In this case, D,NCP is not transmitted.)
Probable Faulty Locations	Varies depending on the text; - Operation error the CNC side - Timing error in operation
Related Specifications	DNC-C

995	FMS coupling mode change

Conditions are not satisfied to change to the automatic mode.

Index	None
Character-string	None
Code	1 .....Automatic operation mode is not selected.
Probable Faulty Locations	Operation mode selection error
Measures to Take	Select the automatic mode for the FMS mode only
Related Specifications	DNC-C

996	FMS HOST CPU alarm

An alarm is reported from the host computer. (Regulations of the reported alarm number are up to the host computer.)

Index	None
Character-string	Received alarm number, 4 digits
Code	None
Probable Faulty Locations	Indicated by the alarm number sent from the host computer.
Measures to Take	Take measures according to the contents of the alarm from the host computer.
Related Specifications	DNC-C

997	FMS operation mode select

When the TRIAL MAC END button is pressed, none of AUTO/MDI/MANUAL is selected.

D,OPC (trial machining completed) or D,NCP (NC program transmission) is not transmitted. Select one of the three modes and press the TRIAL MAC END button.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Operation error
Measures to Take	Press the first product machining button after selecting the FMS automatic mode in any of the AUTO, MDI and MANUAL CNC modes.
Related Specifications	DNC-C

998	DNC-B Buffer operation change

During the operation in the protocol A, command to switch buffer operation ON/OFF is designated.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	Faulty [SET] command data received
Measures to Take	Change the buffer operation ON/OFF at the timing when the [SET] command is sent after the completion of machining.
Related Specifications	DNC-B

<Alarm C>

999	DNC start condition

DNC start conditions are not sufficient.

Index	None
Character-string	None
Code	1 ..... For buffer operation of protocol A in DNC-B, operation preparation is not completed yet. 2 ..... For buffer operation of DNC-B, animation scale setting is not completed. 3 ..... For buffer operation of DNC-B, program is not selected by Method B. 4 ..... An attempt to conduct buffer operation after the completion of MDI operation.
Probable Faulty Locations	Operation error
Operation Example	The system has been started in the automatic mode but not in the animated display scale setting mode. In the case of the NC program transmission method B (file name used), the file name must have been selected by the program selection operation before the start up.
Measures to Take	Select the program in accordance with the alarm code after resetting the NC in the automatic mode, or set the scale for animated display before starting the DNC mode operation.
Related Specifications	DNC-B

SECTION 7 ALARM D

Alarm Table - ALARM D

Alarm No.	Alarm Message
W01	Power on effective parameter set
W02	Load monitor spindle parameter non set
W03	ROBOT ECP battery
W04	ATC ECP battery
W05	Loader ECP battery
W06	External start disable
W07	VAC motor not ready to start
W08	
W09	
W10	
W11	
W12	
W13	
W14	
W15	
W16	
W17	
W18	
W19	
W20	Communication buffer over
W21	RS232C transmit not ready
W22	Receive no answer
W23	Receive NAK/WACK command
W24	Receive illegal text
W25	Receive ENQ command
W26	Receive EOT command
W27	Receive TTD command
W28	DNC-B communication error
W29	DNC-B message format error
W30	DNC-B communication system abort

<Alarm D>

W01	Power on effective parameter set

A parameter which requires to turn on power again to make it effective is designated.

Index	None
Character-string	None
Code	None
Operation Example	The alarm lamp lights up when the parameters related with RS232C are set.
Measures to Take	Turn off power supply once two to three minutes after lighting up of the alarm lamp, then reapply power.

W02	Load monitor spindle parameter non set

Spindle input max. value parameter (Optional parameter (word)) is 0.

Index	None
Character-string	None
Code	The optional parameter (word) No. for which setting is required.
Probable Faulty Locations	Data at optional parameter (word) No. 65 or No. 66 (Multi-machining model) or No. 73 is 0. Note that this alarm always occurs after loading the control software since loading the control software clears the data at optional parameter (word) No. 65, No. 66 and No. 73 to 0.
Measures to Take	Set proper parameter at optional parameter (word) No. 65, No. 66 and No. 73.
Related Specifications	Load monitor B specification

W03	ROBOT ECP battery

Battery voltage for the ROBOT ECP processor is lower than the specified voltage.

Index	None
Character-string	None
Code	XX.....ECP status (Refer to Alarm-A 193.)
Probable Faulty Locations	Battery life is expired.
Measures to Take	Change the battery on the robot ECP board.
Related Specifications	Robot specification

W04	ATC ECP battery

Battery voltage for the ATC ECP processor is lower than the specified voltage.

Index	None
Character-string	None
Code	XX.....ECP status (Refer to Alarm-A 193.)
Probable Faulty Locations	Battery life is expired.
Measures to Take	Change the battery on the ATC ECP board.

<Alarm D>

W05	Loader ECP battery

The loader EC processor battery voltage is lower than the specified voltage.

Index	None
Character-string	None
Code	0 .....Battery error 1 .....EC I/O power shut-off error 2 .....ECC error 5 .....EDRQ INT signal 6 .....ECP INT signal 7 .....ECP RUN signal
Probable Faulty Locations	EC processor battery
Measures to Take	Check or replace the EC processor battery
Related Specifications	Gantry loader

W06	External start disable

The cycle start switch is pressed when the external start disable signal is input.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	The panel input (PMPNI26.0 bit 1) signal is turned off from the on state when the external start disable signal (PECI24.11 bit 0) is on.
Operation Example	An attempt is made to start the cycle when the external start disable signal stays on.
Measures to Take	Start the cycle after turning off the external start disable signal.

<Alarm D>

W07	VAC motor not ready to start

A spindle (main or M-tool) start command is designated while the Okuma VAC motor is not ready to start*.

* The Okuma VAC motor gets ready only approximately 10 seconds after the power is turned on or level A alarm is reset.

Index — None

Character-string — None

Code

1 .....The main spindle start command is designated while the Okuma VAC motor is not ready to start.

2 .....The M-tool spindle start command is designated while the Okuma VAC motor is not ready to start.

Probable Faulty Locations

1) A spindle (main or M-tool) start command is designated within approximately 10 seconds after the power has been turned on or level A alarm has been reset.

2) The VAC ready signal is not input from the Okuma VAC.

Wiring error

Faulty Okuma VAC

Measures to Take

1) Do not input the spindle (main or M-tool) start command for approximately 10 seconds after the power has been turned or a level A alarm has been reset.

2) - Check whether the operation ready signal is correctly input to the NC from the spindle (main or M-tool) drive Okuma VAC motor.

- Signal input status can be checked using the Check data display screen:

EC input 01: No. 8 bit 7	Main spindle drive VAC motor operation ready signal
EC input 02: No. 22 bit 6	M-tool spindle drive VAC motor operation ready signal

- If the ready signal is not input, known from the check indicated above, check the wiring and the VAC motor itself.

<Alarm D>

W22	Receive no answer

Transmission from the remote station is stopped during communication procedures.

Index None

Character-string None

Code XXYY (Hexadecimal number)

XX:

1 ..... No response is received for TM1 second for RC1 + 1 times in response to the call ENQ in phase 2. (transmitting station)

2 ..... No response is received for TM1 second for RC1 + 1 times in response to text transmission in phase 3. (transmitting station)

3 ..... No response is received for TM1 second for RC1 + 1 times in response to TTD transmission in phase 3. (transmitting station)

4 ..... No response is received for TM2 second in the text receive wait status in phase 3. (receiving station)

5 ..... No response is received for TM2 seconds in the response wait status after WACK transmission in phase 3. (receiving station)

6 ..... No response is received for TM2 seconds in the EOT receive wait status in phase 4. (receiving station)

7 ..... Text reception has stopped for TM8 seconds in the way in phase 3. (receiving station)

8 ..... ENQ, ACK, WACK response lasted RC8 + 1 times in response to the TTD transmission in phase 3. (transmitting station)

YY:

Bit 5 ..... RS232C framing error

Bit 4 ..... RS232C overrun error

Bit 3 ..... RS232C parity error

Because YY is concerned with the errors on RS232C, it is ignored as an ineffective response and when no response is received, "1" is set at related bit.

* The diagnosis period TM* and the retry number RC* are changeable using the communication parameters. Initial values are shown in the table below:

Diagnosis Period and Retry No.

Diagnosis Period	Value (sec.)	Contents	Use Station
TM1	3	Judgment time for no response	Transmission
TM2	15	Command waiting time after response	Reception
TM3	0	Transmission waiting time after receiving WACK	Transmission
TM4	10	TTD transmission waiting time after receiving ACK	Transmission
TM5	2	WACK transmission waiting time after receiving selecting or text	Reception
TM6	0	Transmission waiting time after receiving NAK in response to the transmission of selecting	Transmission
TM7	2	NAK transmission waiting time after receiving selecting	Reception
TM8	3	Inter-character waiting time when interruption occurs during receiving text	Reception
TM9	5	Period in which the station not given priority in case selection signals interfere each other	Transmission/ Reception

<Alarm D>

Retry Number	Value (times)	Contents	Use Station
RC1	7	Number of ENQ transmission retry times for requesting reply in case of reply is not received	Transmission
RC2	35	Number of ENQ transmission retry times for requesting WACK reply	Transmission
RC3	7	Number of NAK transmission retry times for TTD reply	Reception
RC4	7	Number of selecting transmission retry times when interference occurs	Transmission/ Reception
RC5	7	Number of NAK transmission retry times when abnormal text is received	Reception
RC6	7	Number of ENQ or text transmission retry times when NAK is received	Transmission
RC7	∞	Number of continuous reception times for reply request	Reception
RC8	7	Number of ENQ transmission retry times for ENQ, ACK, WACK reply after the transmission of TTD	Transmission

Retry or continuous reception is allowed up to the number indicated in this column.

Note 1: Values in the table above are initial values.

Note 2: Diagnosis period and the number of retries can be changed by changing parameter setting.
However, TM1 through TM9 must satisfy the relationship indicated below.
TM3 < TM1, TM5 < TM1, TM6 < TM1, TM7 < TM1, TM9 > TM1, TM2 > TM4

Probable Faulty Locations
- Defective hardware or software of the host computer
- Defective RS232C interface at the CNC side
- Mismatch between the actual communication line specification (baud rate, code configuration, etc.) and the communication set by the communication parameters.

Operation Example
No operations related with this type of alarm at the CNC

Measures to Take
- Check the hardware and software of the host computer.
- Change the channel being used to other channel by setting proper data at communication parameter. Change the connection of the connector to the proper position, accordingly.
- Check the following communication specifications between the actual communication line specification and the communication parameters:
  RS232C interface channel being used
  Parity
  Number of stop bits
  Transmission code
  Baud rate
  Use of WACK/TTD control
  Effective/ineffective transparent mode

Related Specifications
DNC-C

<Alarm D>

W23	Receive NAK/WACK command

NAK or WACK is received more than designated times during communication procedures.

Index	None
Character-string	None
Code	1 .....NAK is received for consecutive RC6 + 1 times in phase 2. (transmitting station) 2 .....WACK is received for consecutive RC2 + 1 times in phase 2. (transmitting station) 3 .....NAK is received for consecutive RC6 + 1 times in phase 3. (transmitting station) 4 .....WACK is received for consecutive RC2 + 1 times in phase 3. (transmitting station)
Probable Faulty Locations	The reception busy status is not cleared at the host computer side, or the text from the CNC cannot be received correctly.
Measure to Take	Check the cause that the host computer is in the busy state or the text cannot be received correctly. Then, reset the communication by setting "1" at bit 3 of optional parameter (bit) No. 11.
Related Specifications	DNC-C

<Alarm D>

W24	Receive illegal text

A text with a transmission error is received for consecutive RC5 + 1 times. (receiving station)

Index	None
Character-string	None
Code	YY (Hexadecimal number): Bit 5 ..... RS232C framing error Bit 4 ..... RS232C overrun error Bit 3 ..... RS232C parity error Bit 2 ..... Format error Bit 1 ..... BCC error Bit 0 ..... Transparent mode error
Probable Faulty Locations	- Defective RS232C interface - Defective hardware or software of the host computer - Mismatch between the actual communication line specification (baud rate, code configuration, etc.) and the communication set by the communication parameters.
Operation Example	No operations related with this type of alarm at the CNC
Measures to Take	- Check the hardware and software of the host computer. - Change the channel being used to other channel by setting proper data at communication parameter. Change the connection of the connector to the proper position, accordingly. - Check the following communication specifications between the actual communication line specification and the communication parameters: RS232C interface channel being used Parity Number of stop bits Transmission code Baud rate Use of WACK/TTD control Effective/ineffective transparent mode
Related Specifications	DNC-C

<Alarm D>

W25	Receive ENQ command

ENQ is received more than permissible times in communication procedures.

Index: None

Character-string: None

Code:

1 ..... ENQ is interfered for consecutive RC4 + 1 times in phase 2. (transmitting station)

2 ..... ENQ to urge response has lasted for consecutive RC7 times in phase 3. (receiving station) (This system does not involve this alarm.)

3 ..... ENQ to urge response has lasted for consecutive RC7 times in phase 4. (receiving station) (This system does not involve this alarm.)

Probable Faulty Locations:

- Defective RS232C interface
- Defective hardware or software of the host computer
- Mismatch between the actual communication line specification (baud rate, code configuration, etc.) and the communication set by the communication parameters.

Measures to Take:

- Check the hardware and software of the host computer.
- Change the channel being used to other channel by setting proper data at communication parameter. Change the connection of the connector to the proper position, accordingly.
- Check the following communication specifications between the actual communication line specification and the communication parameters:
  - RS232C interface channel being used
  - Parity
  - Number of stop bits
  - Transmission code
  - Baud rate
  - Use of WACK/TTD control
  - Effective/ineffective transparent mode

Related Specifications: DNC-C

<Alarm D>

W26	Receive EOT command

EOT which indicates that the party station has detected a communication alarm is received during communication procedures.

Index	None
Character-string	None
Code	1 .....Reception in phase 2 (transmitting station) 2 .....Reception in phase 3 (transmitting station) 3 .....Reception in phase 3 (receiving station)
Probable Faulty Locations	- Defective RS232C interface - Defective hardware or software of the host computer - Mismatch between the actual communication line specification (baud rate, code configuration, etc.) and the communication set by the communication parameters.
Measures to Take	- Check the hardware and software of the host computer. - Change the channel being used to other channel by setting proper data at communication parameter. Change the connection of the connector to the proper position, accordingly. - Check the following communication specifications between the actual communication line specification and the communication parameters: RS232C interface channel being used Parity Number of stop bits Transmission code Baud rate Use of WACK/TTD control Effective/ineffective transparent mode
Related Specifications	DNC-C

<Alarm D>

W27	Receive TTD command

TTD is received for consecutive RC3 + 1 times during communication procedures.

Index	None
Character-string	None
Code	None
Probable Faulty Locations	- Defective RS232C interface - Defective hardware or software of the host computer - Mismatch between the actual communication line specification (baud rate, code configuration, etc.) and the communication set by the communication parameters.
Measures to Take	- Check the hardware and software of the host computer. - Change the channel being used to other channel by setting proper data at communication parameter. Change the connection of the connector to the proper position, accordingly. - Check the following communication specifications between the actual communication line specification and the communication parameters: RS232C interface channel being used Parity Number of stop bits Transmission code Baud rate Use of WACK/TTD control Effective/ineffective transparent mode
Related Specifications	DNC-C

<Alarm D>

W28	DNC-B communication error

Communication error has occurred in the communication protocol A of the host computer.

Index — None

Character-string — None

Code — XXXXXXYZ

XXXXXX: Hexadecimal number of the received command when error occurred. (ISO or ASCII code)

Y: Status of CNC when communication alarm takes place.

- 0 ..... Operation preparation is not completed.
- 1 ..... CNC normal status
- 2 ..... Remote operation status
- 3 ..... Alarm status

Z: Cause

- 1 ..... Check sum error has occurred Ne times (parameter set) continuously.
- 2 ..... Parity error (higher than RS232C) has occurred Ne times (parameter set) continuously.
- 5 ..... DSR signal OFF or no response
- 6 ..... Reception of unexpected message. (including Ne times of continual reception of [RTY] command.)
- 9 ..... Reception from the host computer is made when the control is not in response wait status.

Probable Faulty Locations

- Defective RS232C interface
- Defective hardware or software of the host computer
- Mismatch between the actual communication line specification (baud rate, code configuration, etc.) and the communication set by the communication parameters.

Measures to Take

- Check the hardware and software of the host computer.
- Change the channel being used to other channel by setting proper data at communication parameter. Change the connection of the connector to the proper position, accordingly.
- Check the following communication specifications between the actual communication line specification and the communication parameters:
  - RS232C interface channel being used
  - Parity
  - Number of stop bits
  - Transmission code
  - End code
  - Baud rate

Related Specifications — DNC-B

<Alarm D>

W29	DNC-B message format error

Error has occurred in the reception message in the protocol A. As for the cause of the alarm, "6. Reception of unexpected message" is reported to the host computer.

Index — None

Character-string — None

Code
- None ..... Message exceeds 72 bytes (4000 bytes for NC program).
- XXXXYY..... Mistake in the data designated by the [SET] command.
- XXXX ..... Hexadecimal number of the wrong data (numerical data)
- YY ..... Byte position inside the data

Probable Faulty Locations
- Defective software used at the host computer
- Text format mismatch due to mismatch of the version of DNC-B specification at the CNC

Measures to Take — Check the set data against the upper and lower limits of the text format specified in the DNC-B specification.

Related Specifications — DNC-B

W30	DNC-B communication system abort

Unrestorable error has occurred in the protocol A. (This alarm is not cleared unless the power is turned on again.)

Index — None

Character-string — None

Code
- 1 ..... No response is received when operation preparation is not completed.
- 2 ..... DSR OFF is detected when operation preparation is not completed.
- 3 ..... Check sum parity error has occurred when operation preparation is not completed.
- 4 ..... Overrun or framing error has occurred in RS232C interface.
- 5 ..... Overflow of reception buffer

Probable Faulty Locations
- Defective RS232C interface
- Defective hardware or software of the host computer
- Mismatch between the actual communication line specification (baud rate, code configuration, etc.) and the communication set by the communication parameters.

Measures to Take
- Check the hardware and software of the host computer.
- Change the channel being used to other channel by setting proper data at communication parameter. Change the connection of the connector to the proper position, accordingly.
- Check the following communication specifications between the actual communication line specification and the communication parameters:
  - RS232C interface channel being used
  - Parity
  - Number of stop bits
  - Transmission code
  - End code
  - Baud rate

Related Specifications — DNC-B

SECTION 8 ERROR

Generally, causes of generation of an error include the following four problems. These are, however, not discussed in the individual error items. Furthermore, there is little possibility of occurrence of an error caused by these problems.

(1) Defective main board (especially, CPU, DMA controller, and D-RAM)

(2) Defective main card 1 or 5

(3) Defective bubble card

(4) Bugs in software

Remark:

When an error has occurred due to the problems indicated above, explanations for the individual alarm do not apply.

If the error of an error number 20** occurs from the time the CRT displayed the message OPERATING SYSTEM PROGRAM .... up to system reset or power reapplication, problems indicated above will be the cause of such an error.

Error Table

Error No.	Error Message
2000	Memory write/read test
2001	Operation panel ready
2002	Sector device
2003	Bubble memory time out
2004	Bubble memory IB
2005	DMA transfer sector over
2006	Bubble memory access sector over
2007	Bubble memory write verify
2008	DMA transfer
2009	Floppy disk not ready
2010	Bubble memory write
2011	Bubble memory read
2012	Floppy disk access sector over
2013	Floppy disk time out
2014	Floppy disk read/write
2015	Floppy disk seek
2016	Floppy disk recalibrate
2017	PTR erratic operation detection
2018	PTR read time out
2019	Tape file name
2020	Tape file format
2021	Device sector full
2022	File attribute
2023	System file data
2024	Memory load verify
2025	SBP monitor data
2026	Command syntax
2027	MSB file exist
2028	System tape data
2029	Load address
2030	Tape read
2031	Data block size
2032	File data nothing
2033	Tape parity
2034	Load object attribute
2035	BBM file load

Error Table

Error No.	Error Message
2036	SYS file load
2037	No bubble memory cards
2038	ROM transfer sector over

Error Table

Error No.	Error Message
2100	Not found utility command file
2101	Load object address
2102	Load verify
2103	Initialize device name
2104	Load object attribute
2105	Device name
2106	Data block size
2107	Patch sector area
2108	Patch sector address over
2109	Sector device name
2110	
2111	Bubble memory access sector over
2112	Bubble memory write verify
2113	Floppy disc read/write
2114	Floppy disc access sector over
2115	Floppy disc write verify
2116	Floppy disc seek
2117	Floppy disc recalibrate
2118	Floppy disc formatting
2119	Print device name
2120	
2121	Printer
2122	Reader device name
2123	PTR read
2124	Puncher device name
2125	Puncher
2126	
2127	RS232C device read
2128	RS232C terminal not ready
2129	RS232C ready status time out
2130	
2131	PTR erratic operation detect
2132	PTR ready status time out
2133	PTR ready interrupt time out
2134	RS232C ready interrupt time out
2135	Bubble memory time out

Error Table

Error No.	Error Message
2136	Bubble memory read
2137	Bubble memory write
2138	
2139	DMA transfer
2140	DMA transfer sector over
2141	Bubble memory IB
2142	
2143	
2144	
2145	
2146	
2147	Floppy disc time out
2148	Floppy ready
2149	File write protect
2150	RS232C channel in use
2151	Command character
2152	File name
2153	File attribute
2154	SAT full
2155	Command syntax
2156	Option
2157	Floppy uninitialized
2158	File label area over flow
2159	Error-map information
2160	Volume-label information
2161	File regist
2162	Floppy disc initialize
2163	Console line setting
2164	Multi volume information
2165	ROM transfer sector over
2166	No bubble memory cards
2167	Read only memory write
2168	RS232C device name

Error Table

Error No.	Error Message
2500	Main program execution
2501	Not found main program file
2502	Not found main program name
2503	Tape vertical check
2504	No tape data
2505	Tape parity
2506	Tape file name
2507	Tape read verify
2508	GAG-CAL command
2509	Input data overflow
2510	Input file name not same
2511	No sub program
2512	Sub program name
2513	Sequence No. direct
2514	Sequence No. over
2515	Decimal point
2516	INIT command
2517	Time data
2518	Number figure
2519	Number character data
2520	Screen buffer overflow
2521	Schedule program search
2522	Schedule program execution
2523	Stroke end limit over
2524	No file data
2525	Tool entry
2526	Check address
2527	Program end code
2528	Program search
2529	Program stack overflow
2530	Program buffer overflow
2531	Edit buffer move
2532	Edit buffer overflow
2533	Program execute
2534	Auto area set execute
2535	Scale factor over

Error Table

Error No.	Error Message
2536	File name stack overflow
2537	File record read
2538	
2539	Restart command
2540	Illegal tape code
2541	Record buffer overflow
2542	Record buffer move range
2543	Tool kind command
2544	Invalid EIA code
2545	CAL command impossible
2546	RS232C channel in use
2547	D not found
2548	
2549	
2550	Program
2551	No W-axis data
2552	No C-axis data
2553	Command impossible
2554	RS232C device read
2555	Tape data
2556	Sequential attribute
2557	DNC device
2558	DNC verify
2559	RS232C device not ready
2560	RS232C read buffer overflow
2561	RS232C ready interrupt time out
2562	
2563	
2564	ATC magazine tool registrate
2565	ATC tool number input format
2566	No inductosyn data
2567	SAT full
2568	Measure data print execution
2569	System coupling mode
2570	DNC backup file name nothing
2571	DNC file name not equal

Error Table

Error No.	Error Message
2572	
2573	DNC NC program not found
2574	Set condition
2575	DNC transmitting
2576	
2577	
2578	
2579	Answer time over
2580	FMS coupling mode
2581	
2582	ADD command impossible
2583	Table data
2584	NC LOB memory load
2585	Tape file name not same
2586	File format
2587	Data command
2588	Input data over flow
2589	Stroke end limit over
2590	Time data
2591	Data not same
2592	Tool entry
2593	Output data over flow
2594	Output data under flow
2595	
2596	Not found pitch comp. data file
2597	Tool item code not equal
2598	Edit buffer empty
2599	RAM overflow
2600	DNC can not transmit
2601	Buffer operation mode
2602	DC code
2603	Set impossible
2604	Load monitor time set
2605	Load monitor execute
2606	No M-axis data
2607	Extend name

Error Table

Error No.	Error Message
2608	
2609	DNC data kind
2610	DNC data range
2611	Tool layout execution
2612	Data calculation
2618	
2622	ATC tool number set

Error Table

Error No.	Error Message
2801	Process number designate
2802	Process number over
2803	IGF data capacity over
2804	Roughing copy command
2805	No data setting
2806	IGF file read
2807	Input data overflow (+/-)
2808	Material name input
2809	
2810	Numerical digit
2811	Decimal point
2812	IGF graphic panel command data table
2813	Pattern edit buffer over
2814	Pattern designate calculation
2815	Pattern package calculation
2816	File & machine unit system mismatch
2817	Angle command
2818	No depth of cut command
2819	Cutting start point
2820	IGF program overflow
2821	Program name
2822	File name
2823	Program read buffer over
2824	Tool pattern number no entry
2825	Spindle rotate direction unmatched
2826	Process combination impossible
2827	Data set
2828	Process change
2829	Not found main program name
2830	Program end code
2831	Program record read
2832	Program buffer overflow
2833	M machining X, Y data
2834	Program making calculation
2835	Face contour generating data
2836	V-groove angle data

Error Table

Error No.	Error Message
2837	
2838	IGF file machine code not same
2839	IGF file spec.: code not same

Error Table

Error No.	Error Message
2900	Expression: right part
2901	Expression: calculation
2902	Expression: syntax
2903	Expression: buffer over
2904	Program bad direct: G-code
2905	Program bad direct: M-code
2906	Program bad direct: common var.
2907	Program bad direct: sequence name
2908	Program factor over
2909	Program bad direct: use of character
2910	Program bad direct: program name
2911	Unusable: G-code
2912	Change timing G13/G14
2913	Unusable: M-code
2914	Equal is not exist
2915	Unusable: direct of left
2916	Special G-code table
2917	Unusable: turret direct code
2918	Program end code not found
2919	Data word: 'F'
2920	Data word: 'F' or 'E'
2921	Data word: 'I'
2922	Data word: 'J'
2923	Data word: 'K'
2924	Data word: 'L'
2925	Data word: 'P'
2926	Data word: 'S'
2927	Data word: no 'S'
2928	Data word: 'T'
2929	Data word: 'X'
2930	Data word: 'X', 'Z'
2931	Data word: 'Z'
2932	Data word: arc cal.
2933	Data word: angle
2934	Data word: radius
2935	Data word: C command

Error Table

Error No.	Error Message
2936	Multi cycle: B illegal order
2937	Multi cycle: D illegal order
2938	Multi cycle: F illegal order
2939	Multi cycle: H illegal order
2940	Multi cycle: H-U (W) less than D (M73)
2941	Multi cycle: parameter I, K over
2942	Multi cycle: I, K illegal order
2943	Multi cycle: L illegal order
2944	Multi cycle: entry in LAP
2945	Multi cycle: U (W) illegal order
2946	Multi cycle: U (W) greater than H
2947	Multi cycle: X, Z illegal order
2948	Multi cycle: angle
2949	Multi cycle: tool offset
2950	Multi cycle: cycle start point
2951	Multi cycle: entry in NOSE-R
2952	Multi cycle: width
2953	Chamfering: G01 mode
2954	Chamfering: parameter L over
2955	Chamfering: L illegal order
2956	Chamfering: X, Z illegal order
2957	LAP: B illegal order
2958	LAP: D illegal order
2959	LAP: DA (DB) illegal order
2960	LAP: H illegal order
2961	LAP: H-U (W) less than D (M73)
2962	LAP: U (W) illegal order
2963	LAP: U (W) greater than H
2964	LAP: XA (ZA), XB (ZB) illegal order
2965	LAP: calculation
2966	LAP: a number of down stair over
2967	LAP: entry in LAP
2968	LAP: sequence name
2969	LAP: control
2970	LAP: G-code
2971	LAP: entry in NOSE-R

Error Table

Error No.	Error Message
2972	NOSE-R comp.: calculation
2973	NOSE-R comp.: cancel impossible
2974	NOSE-R comp.: no cross point
2975	NOSE-R comp.: no spec.
2976	NOSE-R comp.: start up impossible
2977	NOSE-R comp.: thread cycle
2978	Tool life control: no spec.
2979	Tool life control: tool group
2980	Tool life control: no T-entry
2981	Tool life control: tool offset group
2982	Tool life control: no T-offset
2983	Cannot IGF-convert G82 command (N****)
2984	Cannot IGF-convert G32 command (N****)
2985	Cannot IGF-convert G37 command (N****)
2986	Cannot IGF-convert B command (N****)
2987	Cannot IGF-convert L command (N****)
2988	Cannot IGF-convert K command (N****)
2989	
2990	Cannot IGF-convert TG command (N****)
2991	Cannot IGF-convert OG command (N****)
2992	
2993	LAP: NOSE-R not cancelled
2994	NOSE-R comp.: NOSE-R circle-R
2995	
2996	
2997	
2998	
2999	Output buffer over
3000	C-axis connect command
3001	C-axis clamp/unclamp
3002	C-axis command
3003	Create process calculation
3004	
3005	Data word: SB
3006	Fixed cycle: no spec.
3007	Fixed cycle: C

Error Table

Error No.	Error Message
3008	Fixed cycle: I, K
3009	Fixed cycle: Q
3010	Fixed cycle: F
3011	Fixed cycle: L
3012	Fixed cycle: D
3013	Fixed cycle: X, Z
3014	Fixed cycle: SA
3015	Fixed cycle: feed G94
3016	
3017	Fixed cycle: thread cycle
3018	Data word: QA
3019	Data word: X,Y command
3020	Data word: incremental
3021	Data word: no X,Y
3022	Data word: 'Y'
3023	Data word: distance cal.
3024	Data word: 'R'
3025	Unusable: create process command code
3026	Create process calculation
3027	
3028	ATC: syntax
3029	ATC: TC
3030	ATC: TN
3031	ATC: no spec.

<Error>

2000	Memory write/read test

In the read/write test of the main memory, read data and written data do not match each other.

Character-string	None
Code	Address which caused the error in main memory test
Probable Faulty Locations	- Main memory (main board, main card 1 or 5) Code 0 - 7FFFF ..... Main board Others..... Main card 1 or 5 - Settings of switches related with main board memory
Measures to Take	- Check the switch settings at the main board. - Replace the main board, or main card 1 or 5.

2001	Operation panel ready

Error during the initialization of the operation panel (problem of communication protocol for the communication between the operation panel)

Character-string	None
Code	1 .....The operation panel ready flag is not turned on. 2 .....The operation panel receive data effective flag is not turned on.
Probable Faulty Locations	- Operation panel - Communication lines between the CRP and the operation panel (communication circuit in the CRP and communication cables)
Measures to Take	- Check the wiring and connection of the operation panel and the CRP board. - Replace the operation panel, the CRP board or the communication cables.

2002	Sector device

Device name designated in the read out operation is the device name not permitted.

Character-string	None
Code	Hexadecimal number of the designated device name
Probable Faulty Locations	CPU or memory device

2003	Bubble memory time out

The bubble memory controller did not return the answer signal within the specified period.

Character-string: None

Code:

1 ..... Bubble memory is not placed in the ready state when power is turned on.

2 ..... IB command processing does not complete.

3 ..... Bubble memory is not placed in the ready state for the read/write operation of bubble memory.

4 ..... Read/write processing of the bubble memory does not complete.

5 ..... The bubble memory is not placed in the ready state after the correct processing of the command.

Probable Faulty Locations:

- The bubble memory card is not placed (code 1).
- Switch settings related with the bubble memory are wrong.
- Bubble memory interface or DMA controller

Measures to Take:

- Check the connection of the bubble memory card.
- Check the settings of the switches at the main board.
- Replace the main board or the bubble card.

2004	Bubble memory IB

Error during the bubble memory initialization (abnormal termination of the bubble memory IB command)

Character-string: None

Code: XXXX: Error status of the bubble memory interface

- Bit 15 - 12 ..... Error occurrence DCF
- Bit 11 ..... Device type error
- Bit 10 ..... Write protect error
- Bit 9 ..... Error generation loop (0 = data loop, 1 = map loop)
- Bit 8 ..... Device #0 not actually mounted
- Bit 6 ..... 1 bit error
- Bit 5 ..... Range over of the number of pages of mounted device
- Bit 4 ..... Error of 2 or more bits
- Bit 3 ..... Transfer error
- Bit 2 ..... Illegal loop
- Bit 1 ..... Address marker
- Bit 0 ..... Undefined command

Probable Faulty Locations:

- Switch settings related with the bubble memory
- Bubble memory interface

Measures to Take:

- Check the settings of the switches at the main board.
- Replace the main board or the bubble card.

2005	DMA transfer sector over

In read or write operation of the bubble memory or floppy disk, designated number of sectors for DMA transfer exceeds 256 sectors.

Character-string	None
Code	XXXX.....The number of sectors
Probable Faulty Locations	CPU or memory device

2006	Bubble memory access sector over

In read or write operation of the bubble memory, the maximum number of the bubble memory sector is exceeded.

Character-string	None
Code	XXXX.....The number of sectors
Probable Faulty Locations	- File management information of the bubble memory has been destroyed. - The BBM file used for the loading of the control software using floppy disk or tape does not match the actual bubble memory capacity.
Measures to Take	- Check the file management information of the bubble memory. - Replace the BBM file with correct one and reload the control software.

2007	Bubble memory write verify

Data mismatch in verification of the data stored in bubble memory

Character-string	None
Code	XXXX.....Sector at which error is detected.
Probable Faulty Locations	- Bubble card - Main board DMA or D-RAM
Measures to Take	- Replace the bubble card. - Replace the main board.

2008	DMA transfer

DMA transfer does not complete within a specified cycle time.

Or an error occurs during DMA transfer process.

Character-string: None

Code: FFFFFFFF: DMA transfer does not complete.

XX: DMA error code

0	No error
1	Configuration error
2	Operation timing error
4 - 7	Address error
8 - B	Bus error
C - F	Count error
10	External forced halt
11	Forced halt by software

Probable Faulty Locations:
- DMA controller
- Bubble memory controller
- Floppy disk drive controller

Measures to Take:
- Replace the main board.
- Replace the bubble card.
- Replace the data board or the FDC board.
- Replace the FDD.

2009	Floppy disk not ready

The floppy disk drive is not in the ready state.

Character-string: None

Code: None

Probable Faulty Locations:
- The floppy disk is not set in the floppy disk drive, or the setting orientation of the floppy disk is not correct.
- The door of the floppy disk drive is not closed.
- Defective floppy disk drive or the cable

Measures to Take:
- Set the floppy disk correctly.
- Replace the floppy disk drive or cable.

<Error>

2010	Bubble memory write

In the writing processing into the bubble memory, bubble card error as indicated by the character-string occurs.

Character-string

'undefined command'..... An undefined command is output to the bubble memory card.

'address marker' ..... The marker bit cannot be found; data reading from bubble memory is impossible.

'illegal loop' ..... The number of illegal loops is greater than the specified number.

'transfer error' ..... Error in the data transfer between the bubble memory card and floppy disk, bubble memory card or paper tape.

'parity' ..... One-bit error in bubble memory reading operation (2-bit error with 4 Mbyte memory)

'page size over' ..... An access was attempted exceeding the page range of the mounted device.

'data bus parity'..... This error does not occur with the currently used bubble memory card.

'undefined device'..... The #0 device is not mounted.

'protect'..... An attempt was made to write the data to the write-protected area.

'device type' ..... This error does not occur with the currently used bubble memory.

None ..... Error other than those indicated above.

Code

XXYYZZZZ

XX: Error status register 2 (4 Mbyte bubble memory)
(not for 1 Mbyte bubble memory)

Bit 0 ..... Undefined device

Bit 1 ..... 0: Data loop
1: Map loop

Bit 2 ..... Write protect error

Bit 3 ..... Device type error

Bit 4

Bit 5 Device number of the device involved with the error (0, 1, 2, 3)

Bit 6

Bit 7

YY: Error status register 1 (4 Mbyte/1 Mbyte bubble memory)

Bit 0 ..... Undefined command error

Bit 1 ..... Address marker error

Bit 2 ..... Illegal loop error

Bit 3 ..... Transfer error

Bit 4 ..... Parity error

Bit 5 ..... Page size over error

Bit 6 ..... Single bit error

Bit 7 0

(With SBP3-A V1.01, SBP3-B V1.02, and versions before SPV3.01C, XXYY indicates the number of contiguous access sectors. In this case, XXYY is either "1" or "8".)

ZZZZ: Access sector number

Probable Faulty Locations

Bubble memory card

Measures to Take

Replace the bubble memory card on which the error occurs.

2011	Bubble memory read

Error detected during data reading out from bubble memory

Character-string

'undefined command'..... An undefined command is output to the bubble memory card.

'address marker' ..... The marker bit cannot be found; data reading from bubble memory is impossible.

'illegal loop' ..... The number of illegal loops is greater than the specified number.

'transfer error'..... Error in the data transfer between the bubble memory card and floppy disk, bubble memory card or paper tape.

'parity'..... One-bit error in bubble memory reading operation (2-bit error with 4 Mbyte memory)

'page size over' ..... An access was attempted exceeding the page range of the mounted device.

'data bus parity'..... This error does not occur with the currently used bubble memory card.

'undefined device'..... The #0 device is not mounted.

'protect'..... An attempt was made to write the data to the write-protected area.

'device type' ..... This error does not occur with the currently used bubble memory.

None ..... Error other than those indicated above.

Code

XXYYZZZZ

XX: Error status register 2 (4 Mbyte bubble memory)
(not for 1 Mbyte bubble memory)

Bit 0 ..... Undefined device
Bit 1 ..... 0: Data loop
1: Map loop
Bit 2 ..... Write protect error
Bit 3 ..... Device type error
Bit 4
Bit 5 Device number of the device involved with the error (0, 1, 2, 3)
Bit 6
Bit 7

YY: Error status register 1 (4 Mbyte/1 Mbyte bubble memory)

Bit 0 ..... Undefined command error
Bit 1 ..... Address marker error
Bit 2 ..... Illegal loop error
Bit 3 ..... Transfer error
Bit 4 ..... Parity error
Bit 5 ..... Page size over error
Bit 6 ..... Single bit error
Bit 7 0

(With SBP3-A V1.01, SBP3-B V1.02, and versions before SPV3.01C, XXYY indicates the number of contiguous access sectors. In this case, XXYY is either "1" or "8".)

ZZZZ: Access sector number

Probable Faulty Locations

Bubble memory card

Measures to Take

Replace the bubble memory card on which the error occurs.

2012	Floppy disk access sector over

An attempt to access the floppy disk assuming the number of sectors more than the actually available sectors for read/write operation.

Character-string: None

Code: XXXX.....Sector number accessed

Probable Faulty Locations: File management information of the floppy disk is destroyed.

Measures to Take: Replace or initialize the floppy disk.

2013	Floppy disk time out

The floppy disk drive controller does not return the answer within a specified cycle time.

Character-string: None

Code: 1.....Error during read/write operation

Probable Faulty Locations:
- Floppy disk media (scratches, etc.)
- Floppy disk drive or cable
- Data board or FDC board

Measures to Take:
- Retry after changing the floppy disk.
- Replace the floppy disk drive or cable.
- Replace the data board or FDC board.

2014	Floppy disk read/write

Read/write processing from and to a floppy disk is not correctly completed.

Character-string: None

Code: XXXXXXYY

XXXXXX (left 6 digits):

Contents of result status 0 - 2 of the floppy disk drive controller

YY (right 2 digits):

05 or 45..... Error in writing
05: FDD0
45: FDD1

06 or 46..... Error in reading
06: FDD0
46: FDD1

Probable Faulty Locations:
- Floppy disk media (scratches, formatting error, defective writing, etc.)
- Floppy disk drive or cable (switch setting inside the FDD, with/without terminator, etc.)
- Data board or FDC board

Measures to Take:
- Retry after changing the floppy disk.
- Replace the floppy disk drive or cable.
- Replace the data board or FDC board.

2015	Floppy disk seek

Floppy disk seek operation is not correctly completed. ("Seek" indicates the operation to move the FDD head to the designated track position.)

Character-string: None

Code: XXYY:
XX (left 2 digits)..... Result status 0 of the floppy disk drive controller
YY (right 2 digits)..... Cylinder number

Probable Faulty Locations:
- Floppy disk drive
- Data board or FDC board (floppy disk controller)

Measures to Take:
- Replace the floppy disk drive.
- Replace the data board or FDC board.

2016	Floppy disk recalibrate

Floppy disk recalibration is not correctly completed. ("Recalibration" means the operation to move the FDD head to the track No. 0 position.)

Character-string: None

Code: XXYY:
XX (left 2 digits)..... Result status 0 of the floppy disk drive controller
YY (right 2 digits)..... Cylinder number

Probable Faulty Locations:
- Floppy disk drive
- Data board or FDC board (floppy disk controller)

Measures to Take:
- Replace the floppy disk drive.
- Replace the data board or FDC board.

2017	PTR erratic operation detection

Asynchronization error of the PTR (tape reader)

Character-string: None

Code: 1

Probable Faulty Locations:
- Tape roll diameter is too large to feed the tape correctly.
- The previous error has not been reset.

Program Example:
- Reset the PTR error.
- Divide program into more than one tape rolls.

<Error>

2018	PTR read time out

The PTR (tape reader) does not return the answer signal within a specified cycle time.

Character-string: None

Code: 7F

Probable Faulty Locations:
- Paper tape set lever of PTR is not in position.
- Defective PTR

Measures to Take:
- Place the paper tape set lever in position to set the tape correctly.
- Replace PTR.

2019	Tape file name

Format of file name punched on tape is wrong, or extension not allowed is used for tape loading operation.

Designated tape format:

Main file name and extension consist of alphabetic characters, numbers and the "-" (hyphen). The first character must be an alphabetic character.

Main file name must be 16 characters or less; extension must be 3 characters or less.

Character-string: None

Code:
1 ..... No "$" symbol at the beginning of a tape
2 ..... A character other than an alphabetic character is used for the first character.
3 ..... Characters other than alphabets, numbers and "-".
4 ..... Main file name contains more than 16 characters, or extension contains more than 3 characters.
5 ..... Extension not allowed is used for extension for tape loading operation

Probable Faulty Locations: Error in making control tape

Measures to Take: Replace the control tape.

2020	Tape file format

Tape format of the control software (load object type) is wrong.

Character-string: None

Code:

1 ..... File does not begin with $FE

2 ..... Block does not begin with $FE

3 ..... Check sum error

4 ..... Mismatch between the number of blocks defined at the beginning of the tape and the actual number of blocks.

5 ..... Delimiter for block number registration is not $FD

6 ..... The number of blocks is too much to make the data block 0.

7 ..... The number of data sets is more than the number of registered data sets

10 ..... Data is input preceding the LF which indicates the start of program data.

Probable Faulty Locations: Error in making control tape

Measures to Take: Replace the control tape.

2021	Device sector full

No space left in bubble memory to write entire file.

Character-string: None

Code: 1

Probable Faulty Locations:
- Remaining space in the memory device is smaller than the file size to be made.
- The file management information has been destroyed.
- The bubble memory capacity determined by the BBM file does not match the actual bubble memory capacity.

Measures to Take:
- Delete unnecessary files.
- Carry out the following operations as required:
  Re-load the control software from floppy disk or tape.
  Change BBM file.
  Add bubble card.

2022	File attribute

An attempt is made to read a file other than sequential file or contiguous file. Or an attempt is made to read contiguous file using the sequential file read processing, or to read sequential file using the contiguous file reading processing.

Character-string: None

Code: Attribute code of the file to be read

1 .....Read out is impossible because the file is a contiguous file.

2 .....Read out is impossible because the file is a sequential file

Others .....Unknown file

Probable Faulty Locations:
- The file management information of the device used to read has been destroyed.
- Mismatch between the extension and attribute code of the file stored in the floppy disk

Measures to Take:
- If the file management information of the device has been destroyed, initialize the device.
- If the alarm occurs during the loading of the control software floppy disk, write the control software to floppy disk again.

2023	System file data

Although an attempt is made to load the system software (with extension SYS) files, basic data in the file is wrong.

Character-string: None

Code:

1 .....Mismatch of start address of system file

2 .....Wrong load address

3 .....File data block 0, offset 0 is not "LOB1".

Probable Faulty Locations:
- The file management information of the device (BB0: or RM0:) in which the system software is stored has been destroyed.
- The system software has not been introduced through the correct procedure.

Measures to Take: After examining the cause carefully, load the control software from floppy disk or tape.

2024	Memory load verify

In file loading to the main memory, read/write test has completed abnormally.

Character-string: None

Code: Main memory address at which an error has occurred in the read/write test.

Probable Faulty Locations:
- Defective main memory (main board, main card 1 or 5)
- Main card 1 or 5 is not mounted although it is actually necessary. Main board switch setting is also wrong.
- An attempt to load unnecessary control software (POL file) into main memory.

Probable Faulty Locations:
- Check the result of the main memory test conducted after power application. The display at the operation panel must be 0000.
- Replace or add the main board or main card 1 or 5.
- Delete unnecessary control software files.

2025	SBP monitor data

A command not actually existing is input from the keyboard when the SBP monitor is used.

Warning: The SBP monitor should not be used by users.

Character-string	None
Code	None
Probable Faulty Locations	Input of a command not actually existing
Measures to Take	Input the correct command from the keyboard.

2026	Command syntax

Grammatical error in the command operand when the SBP monitor is used

Warning: The SBP monitor should not be used by users.

Character-string	Programmed command
Code	1 .....Incorrect data size 2 .....Memory verify error 3 .....Wrong delimiter code 4 .....Address of an odd number designated for other than byte
Probable Faulty Locations	- Grammatical error in the command input from the keyboard (code 1, 3) - An attempt is made to write to read-only I/O address (code 2). - An odd number address is designated to access the word size or long word size (code 4).
Measures to Take	Input a correct command from the keyboard.

2027	MSB file exist

When the file with extension MSB is loaded in the control software tape loading operation, the file of the same file name is already present in the bubble memory.

Character-string	None
Code	1
Probable Faulty Locations	An attempt is made to load the MSB file which has already been loaded.
Operation Example	Control software tape loading
Measures to Take	- The MSB file attempted to be loaded is already present in the bubble memory and it is not necessary to load it again. - Delete or rename the MSB file in the bubble memory before loading the required MSB file.

2028	System tape data

In an attempt to load the SYS file into the bubble memory, allocation of the SYS file at the beginning of the bubble memory is impossible. (The file must be located at the beginning of the files to be loaded into the bubble memory.)

Character-string: None

Code:
1 ..... The file size is greater than the SYS file previously loaded.
4 ..... The file registered in the PDB of the bubble memory is not the SYS file.
5 ..... No space is left in the bubble memory to register the SYS file at the beginning of the bubble memory.

Probable Faulty Locations: An attempt is made to register the SYS file into the bubble memory through the loading of the BBM file.

Measures to Take: Control software tape loading should be conducted in the following order:
1) BBM file
2) SYS file ....

2029	Load address

Wrong address is designated to load the control software using tape or floppy disk directly to the main memory. (MLO file, MPB file, etc.)

Character-string: None

Code:
1 ..... Error in file address information in the memory device
Others ..... Address accessed (An attempt is made to load in working area of SBP.)

Probable Faulty Locations: Error in making control software floppy disk (tape)

Measures to Take: Replace control software floppy disk (tape).

2030	Tape read

Error during tape reading through tape reader

Character-string: None

Code: PTR error status
Bit 1 ON ..... Asynchronization error

Probable Faulty Locations:
- Tape roll diameter is too large to feed the tape correctly.
- Defective PTR (tape reader)

Program Example:
- Divide program in more than one tape rolls.
- Replace PTR.

2031	Data block size

Contradiction in information related with the file size in the file management information (Size of the file determined by the data block 0 is smaller than the size of the file registered in the PDB.)

Character-string	None
Code	1
Probable Faulty Locations	- Wrong manipulation of information related with file size - File management information has been destroyed.
Measures to Take	Remake the file which has caused the error.

2032	File data nothing

An attempt is made to read the tape which has no file data when reading the part program tape (MSB file). This error might occur when an invalid code is present at the end of the file.

Character-string	None
Code	None
Probable Faulty Locations	Error in the control software tape (MSB file)
Measures to Take	Replace the control software tape (MSB file).

2033	Tape parity

Parity error is detected in the read data when reading the part program tape (MSB file). (even parity)

Character-string	None
Code	Data with which parity error is detected.
Probable Faulty Locations	- Punched holes are blocked by dirt. - Tape reading section (light emitting area, light receiving area) is contaminated.
Measures to Take	- Remove dirt. - Clean tape reading section.

2034	Load object attribute

Error in load object attribute of the load object file. (The data block 0 and offset 0 of the file is other than "LOB1")

Character-string	None
Code	Contents of file at data block 0, offset 0 - 3.
Probable Faulty Locations	- Correspondence between the file contents and file name is wrong. - File management information of the device (floppy disk) has been destroyed.
Measures to Take	- Replace the control software floppy disk. - Reload the control software.

<Error>

2035	BBM file load

Format of the BBM file is wrong in loading the control software using floppy disk.

Character-string: None

Code:
1 ..... Contradiction in information concerning the physical sector of bubble memory when initializing the file management information
2 ..... Contradiction in information concerning BBM file size

Probable Faulty Locations:
- Error in BBM file internal data
- Error in file management information of control software floppy disk

Measures to Take:
- Replace the control software floppy disk.
- Reload the control software.

2036	SYS file load

In an attempt to load the SYS file into the bubble memory, allocation of the SYS file at the beginning of the bubble memory is impossible. (The SYS file must be located at the beginning of the files to be loaded into the bubble memory.)

Character-string: None

Code:
1 ..... The file size is greater than the SYS file previously loaded.
3 ..... The file registered in the PDB of the bubble memory is not the SYS file.
4 ..... No space is left in the bubble memory to register the SYS file at the beginning of the bubble memory.

Probable Faulty Locations: BBM file is not present in the control software floppy disk. (Error in making control software floppy disk.)

Measures to Take:
- Replace control software floppy disk.
- Reload the control software.

2037	No bubble memory cards

Bubble card is not mounted.

Character-string: None

Code: None

Probable Faulty Locations:
- For the ROM card specification, bubble card is not mounted (faulty cable connection).
- Error in switch settings related with ROM card and bubble card on the main board.

Measures to Take:
- Check the connection of the ROM card and the bubble card.
- Check the switch setting at the main board.

<Error>

2038	ROM transfer sector over

Designated number of sectors to be read in the ROM card exceeds 256.

Character-string None

Code XXXXYYYY:

XXXX (left 4 digits) ..... The number of sectors

YYYY (right 4 digits) ..... Transfer start sector number

Probable Faulty Locations CPU or memory device

<Error>

2100	Not found utility command file

The utility file or program file designated is not found in the designated device.

Character-string	Designated utility name
Code	None
Probable Faulty Locations	- Error in designating the device name - Spelling error in utility file name - The utility is not actually registered.
Measures to take	Check the files in the designated device using the DIR command.

2101	Load object address

The allocate address in the main memory for the load object file (program) exists in the system program area, the vector area or the system program variable area. Or the allocated start address is greater than the allocated end address.

Character-string	None
Code	1
Probable Faulty Locations	- The contents of the first data block (DB 0) of the load object file has been destroyed. - When developing a program, area overlap has not been taken into consideration. - An attempt to load the load object file to main memory
Measures to take	Check the contents of the first data block (DB 0) of the program file in question using the DUMP utility.

2102	Load verify

In the loading operation of the load object file, the data set at the main memory address does not match the source data.

Character-string	None
Code	Address at which mismatch has occurred.
Probable Faulty Locations	- Defective main memory - During the execution of the multi-task, other task has changed the memory contents.
Measures to take	- Check if the result of the main memory test conducted when power is applied is correct. The display on the operation panel must be 00. - Replace the main board and the memory card (MC1, MC5). - Load the load object file individually using the debugger utility.

2103	Initialize device name

Device name "BB0" or "RM0" is designated, which must not be designated with the initialize command, INIT or IN.

Character-string	"BB0" or "RM0"
Code	None
Probable Faulty Locations	Designation of device BB0: for which initialization using the initialization command is not allowed or RM0: which cannot be initialized by the initialization command
Measures to Take	Initialization of BB0: and RM0: using the initialization command is not possible.

2104	Load object attribute

Error in load object attribute of the load object file (The data block 0 and offset 0 of the file is other than "LOB1".)

Character-string	None
Code	1
Probable Faulty Locations	- Designation of contiguous file such as PBU file - Contents of file data block 0 have been destroyed.
Measures to Take	Check the contents of the first data block (DB 0) of the program file in question using the DUMP utility.

2105	Device name

Wrong device name is designated.

Or when a device name is designated for the name after renaming in renaming operation, it differs from the source device name.

Character-string	Designated device name or None
Code	1 .....Mismatch of device name in renaming operation None .....Cases other than "code 1".
Probable Faulty Locations	- Error in spelling of the input device name - Designation of device name whose use is not allowed. - Designation of device name differing from the source device name (RENAME command)
Measures to Take	- Refer to the operation manual. - In the RENAME operation, designation of device name for the changed name is not required.

2106	Data block size

In the load object file, the number of sectors of the data block which is indicated by the file directory is smaller than "the number of sectors + 1" of the data block which is to be loaded to the memory which is indicated at data block 0 of the file.

Character-string	None
Code	1
Probable Faulty Locations	- File directory information or the contents at data block 0 (DB0) of the load object file have been destroyed. - During multi-task processing, contents of the file management variable has been changed through file processing by other task.
Measures to Take	Check the file directory information and the contents at DB0 by using the DUMP utility.

2107	Patch sector area

The sector designated by patch does not exist.

Character-string: None

Code: 1

Probable Faulty Locations:
- In the designation of the correction sector number of the PATCH command, a value greater than the number of data blocks (sectors) has been input.
- A decimal number has been designated for the data to be designated by a hexadecimal number.
- In the designation of a device, a value greater than the capacity of that device has been designated.

Measures to Take: Check the number of sectors of the file using the DIR command.

2108	Patch sector address over

The address within the sector specified by patch is outside 0 through $FF.

Character-string: Contents of input data for the addresses exceeding the allowable range

Code:
1 ..... Input of the correction data is too much and the addresses for the correction exceeds "$FF".

2 ..... When correcting the data to the identical data continuously, designation of the last address is made with a number greater than 100 (hexadecimal).

Probable Faulty Locations:
- The number of input data sets is too large.
- Error in address designation

Measures to Take: In either cases of the error indicated above, memory correction up to address $FF has been completed. Therefore, if the processing is terminated using the Q command to check the contents, contents of the device or the file are updated accordingly. To quit without updating the contents, do so with ABORT CONTROL C.

2109	Sector device name

As the sector device name, one of the parameters to be transferred to the sector device driver routine, any device name other than BB0:, BB1:, FD0:, FD1:, FD2:, FD3: and RM0: is designated. Or the physical starting sector of the user bubble memory (BB1:) is "0".

Character-string: Designated device name

Code: None

Probable Faulty Locations:
- Contents of the sector device name variable PSCDV4 (SP external variable) has been destroyed.
- Contents of the VID sector of the bubble memory have been destroyed (BB1: designated).
- Contents of the user bubble memory starting variable has been destroyed (BB1: designated).

Measures to Take: Check the user bubble memory information in the VID of BB0: using the DUMP utility (for the designated device name BB1:).

2111	Bubble memory access sector over

The bubble memory sector accessed (read or write operation) using the transfer parameter to the bubble memory driver routine is greater than the largest sector number of the bubble memory.

Character-string: None

Code: Physical sector number designated

Probable Faulty Locations:
- Contents of VID, SDB of the device have been destroyed.
- File directory contents have been destroyed.
- BIN file (for initialization of bubble memory) does not match the actual bubble memory capacity.
- Pointer data which indicates the connection of the sequential file data block has been destroyed.

Measures to Take:
- Display the sequential file list.
- Check the VID, SDB and directory contents using the DUMP utility.

2112	Bubble memory write verify

Data mismatch is discovered when the data written into bubble memory is verified against source data.

Character-string: None

Code: Physical sector number at which error has occurred

Probable Faulty Locations:
- Defective bubble memory card
- Defective main board DMA
- During execution of multi-task, contents of main memory being accessed by other task have been changed.

Measures to Take:
- Replace the bubble memory card.
- Replace the main board.

2113	Floppy disc read/write

Read/write operation using floppy disk has not been completed correctly.

Character-string: None

Code: XXXXXXYY

XXXXXX: Contents of result status 0, 1, 2 of floppy disk drive

YY:

05 or 45..... Error in writing
05: FDD0
45: FDD1

6 or 46..... Error in reading
06: FDD0
46: FDD1

Probable Faulty Locations:
- Floppy disk
- Floppy disk drive

Measures to Take:
- Read all sectors using DUMP utility.
- Try again using other floppy disk.
- Try again using the floppy disk causing the error at another floppy disk drive.
- In case data on the floppy disk may be deleted, initialize the floppy disk then try read/write operation again.

2114	Floppy disc access sector over

A value greater than actual floppy disk capacity is designated for the access sector using the parameter to be transferred to the floppy disk drive routine.

Character-string	None
Code	Accessed sector number
Probable Faulty Locations	- Type of floppy disk - VID and SDB contents of the floppy disk have been destroyed. - File directory contents have been destroyed. - Pointer data which indicates the connection of the sequential file data block has been destroyed.
Measures to Take	- Display the sequential file list. - Check the contents of VID, SDB and directory using the DUMP utility.

2115	Floppy disc write verify

Data mismatch is discovered when the data written into bubble memory is verified against source data.

Character-string	None
Code	Physical sector number at which error has occurred
Probable Faulty Locations	- Defective floppy disk or floppy disk drive - Defective main board DMA - During execution of multi-task, contents of main memory being accessed by other task have been changed.
Measures to Take	- Try again using other floppy disk. - Try again using the floppy disk causing the error at another floppy disk drive. - Replace the main board.

2116	Floppy disc seek

Error during seek operation for the floppy disk

"Seek" indicates the operation to move the FDD head to the designated track position.

Character-string	None
Code	XXYY: XX ..... Contents of result status 0 of floppy disk drive YY ..... Cylinder number
Probable Faulty Locations	- Floppy disk - Floppy disk drive
Measures to Take	- Try again using other floppy disk. - Try again using the floppy disk causing the error at another floppy disk drive.

2117	Floppy disc recalibrate

Error during floppy disk recalibration.

"Recalibration" means the operation to move the FDD head to the track No. 0 position.

Character-string	None
Code	XXXX.....Contents of result status 0, 1 of floppy disk drive.
Probable Faulty Locations	- Floppy disk - Floppy disk drive
Measures to Take	- Try again using other floppy disk. - Try again using the floppy disk causing the error at another floppy disk drive.

2118	Flppy disc formatting

Error during floppy disk formatting

Character-string	None
Code	XXXXXXXX.....Contents of result status 0, 1, 2, 3 of floppy disk drive
Probable Faulty Locations	- Defective floppy disk - Defective floppy disk drive - Wrong designation of floppy disk type
Measures to Take	Avoid re-formatting of floppy disks.

2119	Print device name

A device name not allowed as a print device name is designated in one of parameters to be transferred to printer driver routine.

Character-string	Designated device name
Code	None
Probable Faulty Locations	Contents of print device name variable PPRDV4 have been destroyed.

2121	Printer

The printer is placed in the error state. Or it is not set in the ready state within a preset cycle time.

Character-string: None

Code: Printer status

- Bit 0 ON ..... Printer ready (RDY)
- Bit 2 ON ..... Printer busy (BUSY)
- Bit 3 ON ..... Paper out (PE)
- Bit 4 ON ..... Printer in on-line mode (SEL)
- Bit 5 ON ..... Video signal OFF (LD)
- Bit 6 ON ..... Printer in error state (FLT)
- Bit 7 ON ..... Interruption to main CPU (INT)
- FFFFFFFF ..... The printer is not set in the ready state within a preset cycle time.

Probable Faulty Locations:
- Paper out
- Printer is not in the ON-LINE mode.
- Improper setting at ready check timer
- Printer cable is not connected.

Measures to Take:
- Correct the timer setting.
- Check the printer status.
- Check the printer cable connection.

2122	Reader device name

A device name not allowed as a print device name is designated in one of parameters to be transferred to tape reader driver routine.

Character-string: Designate device name

Code: None

Probable Faulty Locations: Contents of tape reader device name variable PTRDV4 have been destroyed.

2123	PTR read

Error in tape reading through the tape reader

Character-string: None

Code: PTR error status

- Bit 1 ON ..... Asynchronization error

Probable Faulty Locations:
- Tape roll size is too large causing a problem in tape feed by the PTR.
- Defective PTR

Measures to Take: Reduce tape size of a program.

<Error>

2124	Puncher device name

A device name not allowed as a print device name is designated in one of parameters to be transferred to punch driver routine.

Character-string — Designated device name

Code — None

Probable Faulty Locations — Contents of punch device name variable PPRDV4 have been destroyed.

2125	Puncher

The punch is not ready or error with the punch.

Character-string — None

Code — FFFFFFFF .....Punch is not ready.

Others .....Punch status

Bit 1 ON: Remaining tape volume low
Bit 2 ON: Tape cut off or too tight

Probable Faulty Locations
- Remaining tape volume is low.
- Tape is cut off, or tape tension is too high and tape punching is impossible.
- Improper setting at ready check timer

Measures to Take
- Replace paper tape roll, or re-set it.
- Correct timer setting.

2127	RS232C device read

The DSR signal which indicates that the device connected is ready, has been turned off during data reading operation through the RS232C interface.

Character-string — None

Code — Contents of RS232C interface status

Bit 0 ..... DSR signal ON/OFF status

Probable Faulty Locations
- Defective device
- Defective communication cables.
- Connection specification is not proper.

Measures to Take
- Check wiring diagram.
- Continuity test of communication cables using a multi-tester.
- Check the signal operation specification of the device connected.

<Error>

2128	RS232C terminal not ready

The DSR signal which indicates that the device connected is ready, is not turned on.

Character-string
Error has occurred at
input: input
output: output
print: printer output

Code
Contents of RS232C interface status
Bit 0 ..... DSR signal ON/OFF status

Probable Faulty Locations
- The device is not in the ready state.
- Defective communication cables
- Connection specification is not proper.
- Improper setting at check timer

Measures to Take
- Check to be sure that the device is in the ON-LINE mode.
- Check the wiring diagram.
- Check the continuity test using a multi-tester.
- Check the signal operation specification of the device connected.

2129	RS232C ready status time out

Signals and status of the device connected through the RS232C interface are not set in the ready state.

During input (read operation):

RXRDY of RS232C USART status is not turned on (no data transmitted from the device connected).

During output (punch operation), during print out:

TXEMP and TXRDY of RS232C USART status are not turned on.

CTS signal of RS232C interface status is not in the ON state. In case the communication parameter is set at "READY YES", CI signal is not in the ON state.

Character-string
Error has occurred at
input: input
output: output
print: printer output

Code
FFFFFFFF

Probable Faulty Locations
- Device connected is not in the ready state or defective.
- Improper communication parameter setting
- Defective communication cable
- Improper setting at check timer
- Improper wiring specification

Measures to Take
- Check the wiring diagram.
- Check the continuity of communication cables with a multi-tester.
- Check the operation specifications of the device connected.
- Check the communication parameter settings.

2131	PTR erratic operation detect

Asynchronization error with the PTR

Character-string	None
Code	PTR status Bit 1 ON..... Asynchronization error
Probable Faulty Locations	- Tape roll size is too large causing a problem in tape feed by the PTR. - Previous error has not been reset.
Measures to Take	- Press the PTR error reset button. - Divide program into several segments.

2132	PTR ready status time out

The ready status of the PTR is not turned on within one second.

Character-string	None
Code	FFFFFFFF
Probable Faulty Locations	- The paper tape set lever of PTR is not in position. - Defective PTR
Measures to Take	Make sure that the paper tape set lever of PTR is in position.

2133	PTR ready interrupt time out

The interruption by the PTR ready does not occur within ten seconds.

Character-string	None
Code	FFFFFFFF
Probable Faulty Locations	Defective PTR

2134	RS232C ready interrupt time out

The interruption of the RS232C device by transmit/receive processing does not occur within the time specified for individual channels.

Character-string	Error has occurred at input: input output: output
Code	FFFFFFFF
Probable Faulty Locations	- During input No data transmission from the device connected - Defective communication cables. - Connection specification is not proper. - Improper setting at check timer. - Improper communication parameter setting
Measures to Take	- Check the wiring diagram. - Check the continuity test using a multi-tester. - Check the signal operation specification of the device connected. - Check the communication parameter settings.

2135	Bubble memory time out

The bubble memory status does not change within 10 seconds.

Character-string None

Code

1 ..... Bubble memory card is busy in bubble memory IB processing.

2 ..... IB command is not completed in bubble memory IB processing.

3 ..... Bubble memory card is busy in bubble memory read/write processing.

4 ..... Read/write command is not executed in bubble memory read/write processing.

5 ..... Bubble memory card is busy after the completion of read/write processing of bubble memory.

Probable Faulty Locations

- Defective bubble memory card
- Improper setting at main board switches

2136	Bubble memory read

In bubble memory read processing, an error as indicated by the character-string has occurred with the bubble memory card.

Character-string

'undefined command'..... An undefined command is output to the bubble memory card.

'address marker' ..... The marker bit cannot be found; data reading from bubble memory is impossible.

'illegal loop' ..... The number of illegal loops is greater than the specified number.

'transfer error'..... Error in the data transfer between the bubble memory card and floppy disk, bubble memory card or paper tape.

'parity'..... One-bit error in bubble memory reading operation (2-bit error with 4 Mbyte memory)

'page size over' ..... An access was attempted exceeding the page range of the mounted device.

'data bus parity'..... This error does not occur with the currently used bubble memory card.

'undefined device'..... The #0 device is not mounted.

'protect'..... An attempt was made to write the data to the write-protected area.

'device type' ..... This error does not occur with the currently used bubbe memory.

None ..... Error other than those indicated above.

Code

XXYYZZZZ

XX: Error status register 2 (4 Mbyte bubble memory)
(not for 1 Mbyte bubble memory)

Bit 0 ..... Undefined device

Bit 1 ..... 0: Data loop
1: Map loop

Bit 2 ..... Write protect error

Bit 3 ..... Device type error

Bit 4
Bit 5
Bit 6
Bit 7

} Device number of the device involved with the error (0, 1, 2, 3)

YY: Error status register 1 (4 Mbyte/1 Mbyte bubble memory)

Bit 0 ..... Undefined command error

Bit 1 ..... Address marker error

Bit 2 ..... Illegal loop error

Bit 3 ..... Transfer error

Bit 4 ..... Parity error

Bit 5 ..... Page size over error

Bit 6 ..... Single bit error

Bit 7 0

(With SBP3-A V1.01, SBP3-B V1.02, and versions before SPV3.01C, XXYY indicates the number of contiguous access sectors. In this case, XXYY is either "1" or "8".)

ZZZZ: Access sector number

Probable Faulty Locations

Bubble card

Measures to Take

Replace the bubble card on which the error occurs.

2137	Bubble memory write

In bubble memory write processing, an error as indicated by the character-string has occurred with the bubble memory card.

Character-string

'undefined command' ..... An undefined command is output to the bubble memory card.

'address marker' ..... The marker bit cannot be found; data reading from bubble memory is impossible.

'illegal loop' ..... The number of illegal loops is greater than the specified number.

'transfer error' ..... Error in the data transfer between the bubble memory card and floppy disk, bubble memory card or paper tape.

'parity' ..... One-bit error in bubble memory reading operation (2-bit error with 4 Mbyte memory)

'page size over' ..... An access was attempted exceeding the page range of the mounted device.

'data bus parity' ..... This error does not occur with the currently used bubble memory card.

'undefined device' ..... The #0 device is not mounted.

'protect' ..... An attempt was made to write the data to the write-protected area.

'device type' ..... This error does not occur with the currently used bubble memory.

None ..... Error other than those indicated above.

Code

XXYYZZZZ

XX: Error status register 2 (4 Mbyte bubble memory)
(not for 1 Mbyte bubble memory)

Bit 0 ..... Undefined device

Bit 1 ..... 0: Data loop
1: Map loop

Bit 2 ..... Write protect error

Bit 3 ..... Device type error

Bit 4, Bit 5, Bit 6, Bit 7 } Device number of the device involved with the error (0, 1, 2, 3)

YY: Error status register 1 (4 Mbyte/1 Mbyte bubble memory)

Bit 0 ..... Undefined command error

Bit 1 ..... Address marker error

Bit 2 ..... Illegal loop error

Bit 3 ..... Transfer error

Bit 4 ..... Parity error

Bit 5 ..... Page size over error

Bit 6 ..... Single bit error

Bit 7 0

(With SBP3-A V1.01, SBP3-B V1.02, and versions before SPV3.01C, XXYY indicates the number of contiguous access sectors. In this case, XXYY is either "1" or "8".)

ZZZZ: Access sector number

Probable Faulty Locations

Bubble card

Measures to Take

Replace the bubble card on which the error occurs.

2139	DMA transfer

An error has occurred during DMA transfer, or DMA operation has not been completed.

Character-string	Floppy	Floppy disk drive channel
	Bubble memory	Bubble memory channel
Code	DMA error code	
	0	No error
	1	Configuration error
	2	Operation timing error
	4 - 7	Address error
	8 - B	Bus error
	C - F	Count error
	10	External forced halt
	11	Forced halt by software
	FFFFFFFF	DMA operation has not been completed.
Probable Faulty Locations	Main board DMA	
Measures to Take	Replace the main board	

2140	DMA transfer sector over

A numerical value 0 or 9 or larger is designated as the number of sectors for a single access operation at one of parameters to be transferred to the bubble memory or floppy disk drive driver routine.

Character-string	None
Code	The number of sectors designated.
Probable Faulty Locations	The number of sectors has not been set at parameter.

2141	Bubble memory IB

In bubble memory initialization process IB processing has not been completed correctly.

Character-string: None

Code: Error status of bubble memory

- Bit 15 - 12 ..... Error occurrence DCF
- Bit 11 ..... Device type error
- Bit 10 ..... Write protect error
- Bit 9 ..... Error generation loop (0 = data loop, 1 = map loop)
- Bit 8 ..... Device #0 not actually mounted
- Bit 6 ..... 1 bit error
- Bit 5 ..... Range over of the number of pages of mounted device
- Bit 4 ..... Error of 2 or more bits
- Bit 3 ..... Transfer error
- Bit 2 ..... Illegal loop
- Bit 1 ..... Address marker
- Bit 0 ..... Undefined command

Probable Faulty Locations: Bubble memory card

Measures to Take: Replace the bubble memory card.

2147	Floppy disc time out

The floppy disk operation completion status (service request: SRQ) has not been changed to the completed status within 10 seconds.

Character-string: None

Code:

1 .....During read/write processing

2 .....During formatting

Probable Faulty Locations: Floppy disk or floppy disk drive

2148	Floppy ready

The floppy disk drive is not ready.

Character-string: None

Code: None

Probable Faulty Locations:

- Floppy disk is not set in the floppy disk drive.
- Floppy disk is not correctly set in the floppy disk drive.
- Floppy disk drive door is open.

Measures to Take: Check the illumination of the ready lamp at the front of the floppy disk drive.

2149	File write protect

An attempt to release the protect state of the file which is protected by the protect command.

Character-string	None
Code	Protect level
Probable Faulty Locations	- An attempt to release the protect state of the system program file - An attempt to release the protect state of the control program file - An attempt to release the protect state of the PBU file - An attempt to release the protect state of the MSB file
Measures to Take	- For system program, protect state cannot be released. - For other files in BB0:, select the OS mode to release the protect state.

2150	RS232C channel in use

An attempt to use the RS232C channel being used.

Character-string	None
Code	1
Probable Faulty Locations	During multi-task execution, an attempt is made to use the RS232C channel which is being used by other task.

2151	Command character

A command not in the command table has been designated.

Character-string	Command characters which have been input.
Code	None
Probable Faulty Locations	- Spelling error of a command - Input of a command not allowed in the mode currently selected
Measures to Take	Input the command using function keys.

2152	File name

Characters "*" and "?" are used for a command not used as a file name.

Or either or both of the file name and the extension are omitted in the setting of default file name for the USE command.

Character-string	Designated file name
Code	None
Probable Faulty Locations	- In the file name designation step (except default), characters "*" and "?" have been used. - File name and/or extension has been omitted in setting the default file name for the USE command.
Measures to Take	Refer to the instructions for individual commands.

2153	File attribute

An attempt is made to read a file other than sequential file and condtiguous file. Or an attempt is made to read a contiguous file in the sequential file reading processing, or to read a sequential file in the contiguous file reading processing.

Character-string: None

Code: File attribute code

1 ..... Contiguous file
2 ..... Sequential file
Others ..... Unknown file

Probable Faulty Locations:
- Contiguous file has been designated in the list display, editing and other processing.
- File directory of the bubble memory, floppy disk, etc. has been destroyed.
- During multi-task execution, directory of other file has been read by other task.
- Part program file has been designated in reading the control program file.

2154	SAT full

Available storage area size of the designated device is smaller than the required number of sectors.

Character-string: None

Code: Necessary number of remaining sectors

Probable Faulty Locations:
- Available area is not actually sufficient.
- SAT sector information of the device has been destroyed.

Measures to Take:
- Delete unnecessary files.
- Check the available area size with the FREE command.
- Subtract the sizes of files registered from the device memory capacity and compare it with the data displayed for FREE command.

2155	Command syntax

Syntax error of commands

Character-string — Designated command

Code

1 ..... Delimiter is not ",".

2 ..... A command contains more than 8 characters.

3 ..... A device name contains more than 3 characters.

4 ..... A device name does not end with a colon ":".

5 ..... A file name contains more than 19 characters.

6 ..... A file name contains characters other than alphanumeric characters, and symbols "*", "?" and "-".

7 ..... The first character of a file name or extension is other than an alphabetic character, and symbols "*" and "?".

8 ..... The option specification contains more than 16 characters (";" not counted).

$21 ..... Hexadecimal data contains more than 8 digit figures.

$22 ..... Decimal data contains more than 10 digit figures.

$23 ..... Hexadecimal data contains more than 4 digit figures.

$24 ..... Delimiter is not "-".

$25 ..... Numerical value of hexadecimal data is wrong.

$26 ..... The first alphabetic character is wrong.

$27 ..... Delimiter is not "=".

$28 ..... Hexadecimal data contains more than 2 digit or 3 digit figures.

$29 ..... Register name is wrong.

$2A ..... Surplus data is still used.

$2B ..... Delimiter is not ",".

$2C ..... Trace register too much

$2D ..... Trace memory too much

$2E ..... Hexadecimal data is not an even number.

$2F ..... Hexadecimal data contains more than 2 digit figures.

Probable Faulty Locations

- Input has been made by decimal number although hexadecimal number should be used.
- In the word size designation, an odd number address has been designated.
- Input has been made mistakenly.

Measures to Take

Refer to the instructions for individual commands.

2156	Option

Wrong option characters have been designated.

Character-string	Commanded option
Code	None
Probable Faulty Locations	An option not usable with the command designated has been designated.
Measures to Take	Refer to the instructions for individual commands.

2157	Floppy uninitialized

The floppy disk is not initialized to the OSP format.

Character-string	None
Code	None
Probable Faulty Locations	- Floppy disk or bubble memory formatted to other format (EXORMACS, IBM, etc.) - Contents of VID of floppy disk or bubble memory have been destroyed.
Measures to Take	- To use an IBM format floppy disk, change the setting. - Check the contents at sector 0 (VID) using the DUMP utility. - Usually, new floppy disks are formatted to IBM format. Therefore, initialize the disk to the OSP format using the INIT command.

2158	File label area over flow

There is no area for registering file label on the IBM-formatted floppy disk.

Character-string	None
Code	None
Probable Faulty Locations	File area of the IBM-formatted floppy disk is full.
Measures to Take	- Delete unnecessary files using DEL command. - Check the number of files registered using the DIR command. 45 files for FD2-128 71 files for FD2-256 19 files for FD1-128

2159	Error-map information

Wrong sector identification name for error map information (containing faulty track information) of the IBM-formatted floppy disk.

Character-string	None
Code	0.....Wrong sector identification name 1.....Wrong data of faulty track
Probable Faulty Locations	Error map information sector has been destroyed.
Measures to Take	Check the contents of the error map sector using the DUMP utility. (Designate option E; information is written in EBCDIC code.)

2160	Volume-label information

Wrong volume label information* on the IBM-formatted floppy disk.

* Equivalent VID of OSP-formatted floppy disk.

Character-string	None
Code	None
Probable Faulty Locations	Volume label information sector has been destroyed.
Measures to Take	Check the contents of the volume label sector using the DUMP utility. (Designate option E; information is written in EBCDIC code.)

2161	File regist

In the file directory information of the IBM-formatted floppy disk, sector address data of the data block indicates "0" cylinder.

Character-string	None
Code	None
Probable Faulty Locations	- File directory sector has been destroyed. - In file registration process, the data block sector information indicates "0" cylinder.
Measures to Take	Check the contents of the file directory using the DUMP utility. (Designate option E; information is written in EBCDIC code.)

2162	Floppy disc initialize

For initialization, the floppy disk type is other than FD2-128, FD2-256, FD2-256D, FD1-128.

Character-string	None
Code	None
Probable Faulty Locations	- Floppy disk format information is other than OSP and IBM. - Record length of the floppy disk in question is 512 or 1024 bytes. - VID or volume label information has been destroyed.
Measures to Take	- Determine forcibly using the F option of the INIT command. - Do not use floppy disk whose record length is 512 or 1024 bytes.

2163	Console line setting

In setting console line range for the CRT display using the use command, the beginning and the end of the console line numbers are outside 0-23, or the beginning line number is greater than the end line number.

Character-string	None
Code	None
Probable Faulty Locations	An attempt to change the beginning or the end line without checking the default values.
Measures to Take	Default Beginning line ..... 18 End line 21

2164	Multi volume information

In the registration of the file directory information to the IBM-formatted floppy disk, a symbol not allowable as the multi-volume identifier is used or the volume order number is outside 0 -99.

Character-string	None
Code	1 .....Multi-volume identifier is other than "sp", "C" and "L".
	2 .....Multi-volume order number is outside 0 - 99.
Probable Faulty Locations	File directory data in the main memory has been destroyed.

2165	ROM transfer sector over

A numerical value other than 1 through 8 is designated as the number of sectors at one of the parameters to be transferred to the driver routine used for reading the data from the ROM card device.

Character-string	None
Code	XXXXYYYY:
	XXXX..... The number of sectors requested for transmission
	YYYY..... The transmission request start sector number
Probable Faulty Locations	As the number of sectors to be read, a numerical value greater than 8 has been designated.

2166	No bubble memory cards

An attempt is made to access the bubble memory although none of bubble memory cards are mounted in the main board.

Character-string	None
Code	None
Probable Faulty Locations	- No bubble memory card mounted on main board - Improper setting at main board switches - Defective flat cable - Defective memory card
Measures to Take	Check the settings of the main board, flat cable, etc.

2167	Read only memory write

An attempt is made to delete a file, rename, patch or set (or release) write-protect for files in the ROM card device.

Character-string	"RM0"
Code	1 .....File deletion 2 .....Renaming 3 .....Patch 4 .....Setting (releasing) write-protect
Probable Faulty Locations	- RM0: device has been designated for file deletion. - RM0: device has been designated for renaming. - RM0: device has been designated for patch. - RM0: device has been designated for setting (releasing) write-protect.
Measures to Take	Write processing is impossible for ROM card device.

2168	RS232C device name

A channel device name other than TT, CN0, CN1, CN2, CN3, or CN4 has been designated at one of parameters which are transferred to the RS232C communication control signal driver routine.

Character-string	None
Code	None
Probable Faulty Locations	Designation of a device other than RS232C device.

2500	Main program execution

An attempt to select a program during the execution of a main program.

Character-string: None

Code:
1 .....An attempt to select a program
2 .....An attempt to select a schedule program
3 .....An attempt to execute sequence number search
4 .....An attempt to execute restart

Measures to Take: Select the program after resetting the NC.

2501	Not found main program file

Main program file is not found.

Character-string: None

Code: 1

Probable Faulty Locations: Operation error

Measures to Take:
- Designate a main program file correctly.
- Create a file if there is no file.

2502	Not found main program name

Main program name to be loaded is not found.

Character-string: None

Code: 1

Probable Faulty Locations: Operation error

Measures to Take:
- Designate a main program file correctly.
- Create a file if there is no file.

2503	Tape vertical check

In the TV check for one block of read tape, the number of data in the block is odd.

Character-string: None

Code: XX.....Data which has caused tape TV check error

Probable Faulty Locations: Error in punching tape

Operation Example: R A.MIN ←—

Measures to Take: Make correct tape TV data.

2504	No tape data

There is no data although verify has been attempted.

Character-string: None

Code: None

Probable Faulty Locations: Error in punching tape

Operation Example: R A. MIN ←

Measures to Take: Make tape correctly.

2505	Tape parity

Tape parity inconformity

Character-string: None

Code: XX.....Data which caused the parity error

Probable Faulty Locations: Error in punching tape

Measures to Take: Check the tape

2506	Tape file name

Wrong tape file name - illegal characters used, too many characters, etc.

Character-string: Commanded file name

Code:

5.....The number of characters in a file name is more than 19.

6.....Other than a period "," is used as a delimiter between the file name and extension.

7.....The first character of the file name and extension is other than alphabet.

Probable Faulty Locations: Error in punching tape

Operation Example: R ←

Measures to Take: Read tape on which file name is punched correctly.

2507	Tape read verify

Mismatch between taped information and file information

Character-string: None

Code: XXYY

XX ..... Information at the memory location where verify error has occurred

YY ..... Information in the tape block where verify error has occurred

Probable Faulty Locations: Error in tape reading operation

Operation Example: V A. MIN ←

Measures to Take: Check the tape and read it again.

2508	GAG-CAL command

Calculation command for gauging processing is wrong.

Character-string	None
Code	None .....TOOL OFFSET page is not selected. 2 .....Cursor is not at the tool offset position. 4 .....Numbers designating the sensor contact surface are other than 1 or 2.
Probable Faulty Locations	Operation error
Operation Example	Gauging calculation command has been designated while the TOOL OFFSET page is not selected, or the cursor is not located at the tool offset data location. Or the gauging calculation command has been input mistakenly.
Measures to Take	Display the TOOL OFFSET page and locate the cursor at the required tool offset position, then input the command correctly.
Related specifications	Tool gauging

2509	Input data overflow

Input data size is too large or too small.

Character-string	None
Code	XXXXXXXX .....The maximum and minimum values that can be set are indicated by hexadecimal numbers. Added value is displayed when the control is provided with the adding limit. The operation error status is displayed for common variables.
Probable Faulty Locations	Operation error
Operation Example	S 99999 ←
Measures to Take	Input a numerical value within the allowable range.

2510	Input file name not same

Mismatch between the input file name and the designated file name

Character-string	Tape file name (input file name)
Code	None
Probable Faulty Locations	Mismatch between the file name on tape and the designated input file name for read or verify operation.
Operation Example	R A. MIN ←
Measures to Take	Designate the input file name correctly.

<Error>

2511	No sub program

Subprogram name designated is not found in the file.

Character-string — Subprogram name not found

Code — 1

Probable Faulty Locations — Error in making program

Operation Example — PS A. MIN, O1000, A.SUB

Measures to Take — Make necessary subprogram.

2512	Sub program name

Wrong subprogram name or subprogram name is not found.

Character-string — Record buffer called out

Code

1 ..... The subprogram name is not found in the record buffer called.

2 ..... Program name exceeds five characters including address character "O".

Probable Faulty Locations — Program error

N100 CALL
N100 CALL OABCDE

Measures to Take — Check program and designate subprogram call command correctly.

Related specifications — Subprogram specification

2513	Sequence No. direct

Error with an operand in the sequence number arrange command

Reference: Operand

AR 1, 10 ..... Data indicated by the under line.

Character-string — None

Code

1 ..... Starting sequence number or the increment of the sequence numbers is a number of more than three digits.

2 ..... Not delimiting comma

3 ..... Empty operand

Probable Faulty Locations — Operation error

Operation Example — >AR Occurrence of code 3 error

Measures to Take — Input the operand correctly.

Example:

>AR 1, 10
Sequence numbers are assigned in increments of 10 beginning from N1
>AR ,10
Sequence numbers are assigned in increments of 10 beginning from N0
>AR 1
Sequence numbers are assigned in increments of 1 beginning from N1

<Error>

2514	Sequence No. over

A sequence number exceeds three digits during sequence number allocation steps.

Character-string	None
Code	Hexadecimal number of a sequence number allocated
Probable Faulty Locations	- The number of sequences to which sequence numbers are to be assigned is too much. - Increment value for sequence number assignment is too much.
Operation Example	AR 1,1000
Measures to Take	Designate the beginning sequence number and an increment value taking the number of sequences to be assigned with the sequence number into consideration.

2515	Decimal point

The decimal point is specified for the data which must be an integer, or decimal point value is improper.

Character-string	None
Code	Position of the decimal point specified
Probable Faulty Locations	Operation error
Operation Example	S 1.234567
Measures to Take	Input the data correctly.

2516	INIT command

An attempt to execute the INIT command although the display is not the TOOL LIFE MANAGEMENT ****TOOL INFORMATION TABLE****.

Character-string	None
Code	3
Probable Faulty Locations	Operation error
Measures to Take	Designate the INIT command on the TOOL LIFE MANAGEMENT ****TOOL INFORMATION TABLE**** screen.
Related specifications	Tool life management

<Error>

2517	Time data

Wrong time data specified

Character-string	None
Code	1
Probable Faulty Locations	Error in time data designation
Operation Example	= S 1:286
Measures to Take	Designate the time data correctly. Designation of hour:minute: 6:12 (6 hours 12 minutes) Designation of hour:minute: 2:6:28 (2 hours 6 minutes 28 seconds)
Related Specifications	NC operation monitor Tool life management, etc.

2518	Number figure

Data set at the data setting screen is not correct.

The number of digits of the set data exceeds 8 for integer type data and real number type data. Note that data of up to 9 digits is allowed only for APA offset data.

Character-string	None
Code	The number of digits of the set data
Probable Faulty Locations	Data setting error
Operation Example	= S 10000.0000 [WRITE]
Measures to Take	Set the data correctly. (The number of digits must be within the allowable range.)

2519	Number character data

Data set at the data setting screen is not correct.

Characters other than "0" and "1" are contained in parameter bit data.

Characters other than numerical values are contained in integer type data and real number type data.

Real number type data contains two or more decimal points.

Character-string	Numerical value data display or None Character which has caused the error
Code	XX.....ASCII code (bit-string, decimal code with a decimal point) of a character causing an error 1 .....Illegal character in other than bit- string or decimal code with a decimal point
Probable Faulty Locations	Data setting error
Operation Example	S 0 = 12 [WRITE]
Measures to Take	- Set the data correctly. - Set the correct numerical value. (An attempt was made to set 0 = 12 for the numerical value 0.12.)

<Error>

2520	Screen buffer overflow

The screen buffer for editing is full.

Character-string: None

Code:
None .....No screen area record in screen buffer
1 .....The size of the data transferred to the screen buffer is greater than the area designated in the edit buffer.

Probable Faulty Locations: This alarm does not usually occur.

2521	Schedule program search

Schedule program is not found in the search operation.

Character-string: None

Code: 1

Probable Faulty Locations: Operation error

Operation Example:
SS ABC.SDF
This program is not registered.

Measures to Take: Check to be sure that the required schedule program is in the memory using the DIR command. Then, select the program again.

2522	Schedule program execution

The operations indicated below have been attempted during the execution of a schedule program.

* Program selection
* Schedule program selection
* Sequence number search
* Restart

Character-string: None

Code:
1 .....An attempt to select a program
2 .....An attempt to select a schedule program
3 .....An attempt to execute sequence number search
4 .....An attempt to execute restart

Probable Faulty Locations: Operation error

Measures to Take: Reset the NC first before attempting the operations above.

2523	Stroke end limit over

Error in setting variable limit data (work coordinate system, machine coordinate system) with user parameter

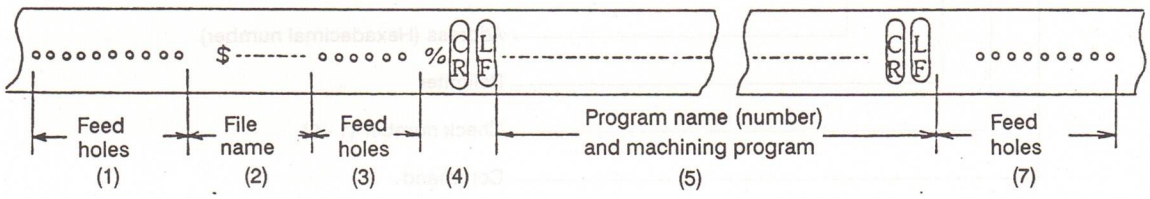
When the variable limit data is set on the machine coordinate system, the set position is outside the travel end position.

When the variable limit data is set on the work coordinate system, the set data is first converted into the limit value on the machine coordinate system; after the conversion, the set position is outside the travel end position.

Character-string	None
Code	The exceed amount in a hexadecimal number
Probable Faulty Locations	Data setting error
Program Example	An attempt to set 2935.000 for positive variable limit (machine) XA-axis although the travel position end has been set at XA 2932.000.
Measures to Take	Check the travel end position value and change the variable limit data so that it is within the axis travel range. With the example above, variable limit position is outside the travel end limit by 3 mm.

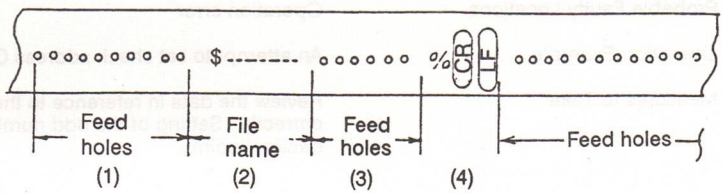
2524	No file data

An attempt is made to read the tape not containing file data



The tape which has been read does not conform to the format indicated above, and portion (5) is not contained.

Character-string	None
Code	None
Probable Faulty Locations	- Error in making NC tape. Tape like the one shown at the below is made and read.



Measures to Take	Make a correct tape.

<Error>

2525	Tool entry

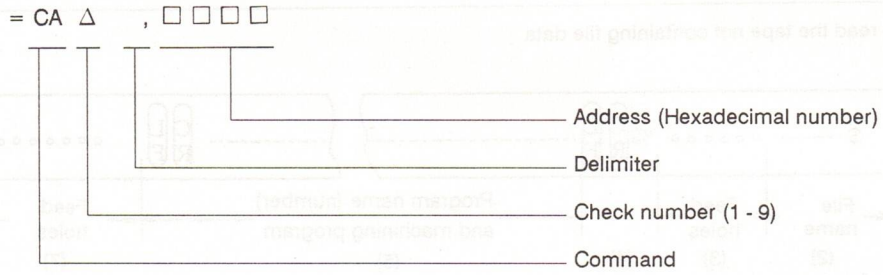
A tool number not registered in a tool group has been designated.

Character-string	None
Code	Hexadecimal number of designated tool number
Probable Faulty Locations	Operation error
Measures to Take	Designate the tool number registered in the tool group, or register the tool number to be designated to the tool group.
Related Specifications	Tool life management

2526	Check address

To display the contents of a variable shown on the first page of the CHECK display, the address of that variable is set. An error is made in this setting.

Format:



Character-string	None
Code	1 .....Check number is other than 1 - 9. 2 .....No delimiter "," between the address number and the address 3 .....The address to be checked has exceeded the maximum address. 4 .....The address is odd for other than bit data.
Probable Faulty Locations	Operation error
Operation Example	An attempt to set check address CA 0, 1111
Measures to Take	Review the data in reference to the alarm code displayed and set the data again correctly. Setting of the odd number address is not allowed for decimal data with a decimal point.

2527	Program end code

The end of program code is not specified at the end of a file.

Character-string None

Code

1 ....No end code (M02 M30) in a main program

2 ....No end code (RTS) in a subprogram

Probable Faulty Locations Error in making program

Program Exampl

```
:
CALL O1234          Subprogram
:                     O1234
M02                 N010 G00 X  Z
                      :
                    N020 X  Z
```

Measures to Take Check the end code of the main or subprogram. With the example above, since end code RTS is not specified, it is necessary to specify it.

2528	Program search

In the sequence number search operation, the block assigned with the sequence number designated has not been found.
The program search command is given under alarm occurrence state.

Character-string None

Code

1 ....Main program has not been loaded or an alarm has occurred.

2 ....Designated sequence name not found.

Probable Faulty Locations Program error or operation error

Operation Example An attempt to search N010 sequence, which is not actually present in the program

Measures to Take

- Check whether or not an alarm has occurred.
- Check whether or not a main program has been loaded.
- Check whether or not the designated sequence exists.
- Check the designated sequence name and the sequence name in the program.

2529	Program stack overflow

The number of subprogram names called by the CALL or MODIN command in the main program, subprogram and maker subprogram has exceeded 128.

Character-string	None
Code	1
Probable Faulty Locations	Program error
Operation Example	An attempt to call a program which contains more than 128 program names (main programs, subprograms)
Measures to Take	- Delete unnecessary subprograms. - Make a program taking this limit into consideration.

2530	Program buffer overflow

Program size is large and program buffer is full.

Character-string	None
Code	1 .....Program size too large 2 .....MSB too large 3 .....MSB unusable because of the size of memory
Probable Faulty Locations	Program error
Operation Example	An attempt to call a program which exceeds the program buffer size.
Measures to Take	Make a program within the program buffer size (standard: 30 m).

2531	Edit buffer move

Movable range is exceeded during edit buffer moving operation.

Character-string	None
Code	XXXXXXXX .....Data end point

2532	Edit buffer overflow

The edit buffer is full.

Character-string	None
Code	XXXX .....Address in edit buffer to which an access has been attempted exceeding the edit buffer.
Probable Faulty Locations	Operation error
Operation Example	An attempt to make a program which exceeds the edit buffer size.
Measures to Take	Make a program within the program buffer size (standard: 30 m).

2533	Program execute

An attempt to switch the graphic display mode between ENLARGE and STANDARD during program execution

Character-string: None

Code: 1

Probable Faulty Locations: Operation error

Measures to Take: Change display mode after resetting the NC.

Related Specifications: Graphic

2534	Auto area set execute

An error has occurred during machining program reading when the automatic scaling is set on the standard display screen for the graphic function.

Character-string: None

Code:
1 ..... Not in auto mode; alarm occurring; independent A/B mode; program not selected.
2 ..... NC reset button pressed during automatic area setting.

Probable Faulty Locations: Operation error

Measures to Take: Carry out automatic scale setting under the conditions which allow the setting.

Related Specification: Graphic

2535	Scale factor over

An attempt is made to set scale factor for graphic display outside the range of 50 to 1/50

Character-string: None

Code: XXXXXXXX ..... Hexadecimal number of size for one dot corresponding to the scale set.

Probable Faulty Locations: Operation error

Measures to Take: Scale setting range is as indicated below:
Standard page
1/50 - 2
Enlarged page
1/50 - 50

Set the scale within the range indicated above.

Related Specification: Graphic

2536	File name stack overflow

When the work selection has been executed, the number of files designated in the index program selected exceeds 8. This is checked when a main program is being loaded.

Character-string: None

Code: 1

Probable Faulty Locations: More than three subprogram files of the index program have been registered.

<Error>

2537	File record read

When a file has been read in loading the file into program buffer or program punch out operation, the given command cannot be executed since the file data is faulty.

Example:

$ A.MIN

N001 G00 X100 .....
$ M03 .....
$ T0101 ...

1 block

If a file where more than 156 characters are contained in one block (record) is punched out, this error occurs (code 1).

Character-string None

Code
1 .....One record contains more than 156 characters
2 .....File end and record end do not match in file reading

Probable Faulty Locations Error in file editing

Measures to Take Correct wrong file data

2539	Restart command

The restart command for sequence restart operation in the automatic mode is wrong (See the code below.).

Character-string None

Code
1 .....Commanded value is greater than 99999999.
2 .....No sequence number or block counter designated
3 .....The data exceeding 9999 has been specified for the number of repetitions.
4 .....A character other than "," is specified following a sequence number or a block counter.

Probable Faulty Locations Operation error

Program Example Input has been made as "=RE 100000000"

Measures to Take Input the data in accordance with the specification given in the Instruction Manual.

2540	Illegal tape code

Special code is punched on tape.

Designation how to manipulate special codes is possible by optional parameter (bit) No. 1 bits 6 and 7:

Bit 7	Bit 6	
0	0	Special codes are read as they are.
0, 1	1	Error occurs when a special code is read.
1	0	Special codes are ignored.

Character-string — None

Code — XX.....Data which has caused an error

Probable Faulty Locations — Wrong data (Code not used by EIA or ISO system is read.)

Measures to Take — Check the tape punched data whether codes not allowed by the EIA or ISO coding system are present.

2541	Record buffer overflow

During program editing, editing operation becomes impossible due to wrong file data.

* The number of characters in one block exceeds the limit of buffer memory.

Example:

```
$ A.MIN
N001 G0 X0
& M03 S100
& T0102
& G91
:
```

} 1 block

The program as shown at the left is edited: Since the number of characters in a block (record) exceeds 57 characters, the error occurs when transferring the contents in the screen buffer to the edit buffer after the completion of editing or when changing display pages.

Character-string — One record which has caused an error, or None

Code

1 .....Error has occurred when one record has been read from the edit buffer.

2 .....Error has occurred when one record has been read from the screen buffer.

Probable Faulty Locations — Faulty program editing operation

Program Example — Refer to the example above.

Measures to Take — Correct the file as needed.

<Error>

2542	Record buffer move range

Movable range is exceeded during edit buffer moving.

Character-string	None
Code	1 .....Move end point < Move start point
	2 .....Movement to a point upstream the record buffer
Probable Faulty Locations	This error does not occur usually.
Measures to Take	After pressing EDIT AUX key, edit the program again. This recovery is possible by option R command.

2543	TOOL KIND command

An attempt is made to execute a tool kind command from other than TOOL FORM selection page

Character-string	None
Code	None
Probable Faulty Locations	Operation error
Measures to Take	Execute the tool kind command after displaying the TOOL FORM selection screen.
Related Specifications	Graphic

2544	Invalid EIA code

In file punch and read operations, characters not usable as the EIA code are found. ($, *, =, [,], etc.)

Character-string	None
Code	XX.....The data which has caused an error
Probable Faulty Locations	Data error
Measures to Take	Check whether the code other than the codes used in the EIA code system is used. For codes often used but not defined by the EIA coding system, bit patterns corresponding to them can be set at parameter (bit) No. 26 through No. 30. By setting the bit pattern for special codes, they are read or punched without causing an error.

2545	CAL command impossible

An operation attempted to calculate the data using the calculation function was incorrect.

Character-string	None
Code	1 .....The CAL command is programmed during the execution of a main program
Probable Faulty Locations	Operation error
Measures to Take	Wait until the completion of program execution or reset the control, then calculate the data again.

2546	RS232C channel in use

The RS232C channel specified is being used for other job.

Character-string	None
Code	1 .....CN0:(TI:) 2 .....CN1: 3 .....CN2: 4 .....CN3: 5 .....CN4:
Probable Faulty Locations	Operation error
Measures to Take	Use another RS232C channel or wait until the job which uses the RS232C designated completes.

2547	D not found

The program for which the conversion is to be made does not contain the D command.

Character-string	None
Probable Faulty Locations	Programming error of the program to be converted
Measures to Take	Check the program and insert a D command as needed.

2550	Program

In the tape conversion processing, G80 command is not specified at the end of the LAP fixed cycle.

Character-string	None
Code	None
Probable Faulty Locations	Programming error of the program to be converted
Measures to Take	Insert the G80 command at the end of the LAP fixed cycle.

2551	No W-axis data

An attempt is made to set W-axis data for items which do not require setting W-axis data at the data setting screens in the ZERO SET mode, TOOL DATA SET mode, and PARAMETER SET mode.

Character-string	None
Code	None
Probable Faulty Locations	Operation error
Measures to Take	Do not set W-axis data at items which do not require setting.
Related Specifications	Tow-along tailstock

<Error>

2552	No C-axis data

An attempt is made to set C-axis data for items which do not require setting C-axis data at the data setting screens in the ZERO SET mode, TOOL DATA SET mode, and PARAMETER SET mode.

Character-string	None
Code	None
Probable Faulty Locations	Operation error
Measures to Take	Do not set C-axis data at items which do not require setting.
Related Specifications	Multi-machining model

2553	Command impossible

ADD or CAL command is not allowed for the data to be set.

Character-string	None
Code	1 .....An attempt to execute ADD command 2 .....An attempt to execute CAL command
Probable Faulty Locations	Operation error
Measures to Take	Set the data using other command, such as SET.

2554	RS232C device read

Data reading from the RS232C device is impossible, or an error has occurred with the RS232C device.

Character-string	None
Code	FFFFFFFF .....Data reading from the RS232C device is impossible. XX.....Error
Probable Faulty Locations	Defective RS232C device or problem in wiring
Measures to Take	- Check the RS23C device. - Check the setting of RS232C related parameters. - Check the wiring.

2555	Tape data

Error during tape reading or verifying

Character-string	None
Code	Frequencies of error occurrence in hexadecimal number
Probable Faulty Locations	Faulty tape data (code not used in EIA/ISO code used; parity error)
Measures to Take	Check the punched data; are there any codes which are not used in the EIA or ISO code system?

2556	Sequential attribute

The input or output file is not the sequential file (machining program) when option A is designated for the copy command.

Character-string	None
Code	1 ..... Input file is not the sequential file. 2 ..... Output file is not the sequential file.
Probable Faulty Locations	Error in designation of input/output file for copy
Measures to Take	Check the file name and designate correct file name (machining program).

2557	DNC device

RS232C device number set by parameter (word) No. 46 is wrong (other than 0 - 4). However, in actual setting, setting of a number other than 0 - 4 is not accepted and thus this alarm will not occur.

Character-string	None
Code	None
Probable Faulty Locations	Setting of parameter (word) No. 46
Measures to Take	Change the setting to a value from 0 to 4.

2558	DNC verify

A verify error has occurred in DNC when verifying.

Character-string	None
Code	-2 ..... Reception NC data still exists although the file is over. -1 ..... File still exists although reception NC data is over. Other than above ..... The number of mismatching items through comparison between reception data and file
Probable Faulty Locations	- NC program data contents - Wrong program is used for verify operation.
Measures to Take	- Correct the program data contents. - Check the name of program (or file) to be verified.

2559	RS232C device not ready

During communication through the RS232C interface in the PIP or DNC mode, the DSR signal has been interrupted for the same duration set by parameter (parameter (word) No. 34 - No. 38).

Character-string	None
Code	0 - 4 (RS232C device number)
Probable Faulty Locations	- Power supply to the mating station is not turned on. - RS232C interface of mating station or OSP is faulty. - Faulty communication cable
Measures to Take	- Check and turn on power supply for the mating station. - Check the RS232C interface of the mating station or OSP. - Check the communication cable.

2560	RS232C read buffer overflow

Overflow with the read buffer for the PIP or DNC equipped with DC code.

Character-string	None
Code	None
Probable Faulty Locations	- Data transmission from the mating station is not stopped although DC3 code is sent from the CNC. - RS232C interface of the mating station or CNC is faulty. - Faulty communication cable
Measures to Take	- Check if the data transmission from the mating station stops by sending the DC3 code to it. - Check the RS232C interface of CNC or the mating station. - Check the communication cable.

2561	RS232C ready interrupt time out

Transmission of data from the mating station has been interrupted for the same duration set by parameter (parameter (word) No. 34 -No. 38) during the communication in the PIP or DNC mode.

Character-string	None
Code	None
Probable Faulty Locations	- RS232C interface of the mating station or OSP is faulty. - Faulty communication cable
Measures to Take	- Check the RS232C interface of the mating station or OSP. - Check the communication cable.

2564	ATC magazine tool registrate

In the ATC tool data setting mode, an attempt is made to register the tool to the magazine under the registration impossible condition.

Character-string	None
Code	1 .....An attempt to register for dummy pot 2 .....An attempt to register for the pot not empty 3 .....An attempt to register standard tool for the pot for which standard tool cannot be set 4 .....An attempt to register large diameter tool for the pot for which large diameter tool cannot be set
Measures to Take	Check the cause of the error and register the tool again in correct manner.

<Error>

2565	ATC tool number input format

Input format error for ATC data

Character-string: None

Code:
1 ..... Negative data
2 ..... Decimal point used
3 ..... No delimiting comma
4 ..... Tool type code is other than L or M
5 ..... Size code is other than B and E

Operation Example:
S -5, L
This causes the error (code 1)

Measures to Take: Check the cause and input the tool data correctly.

Example:

Standard tool
S 5, L
RH large tool
S 5, L, BR
LH large tool
S 5, L, B
Super large tool
S 5, L, E

Note: For M-tool, use M instead of L.

2566	No inductosyn data

At the inductosyn connection compensation data setting screen, an attempt is made to set the connection compensation data for the axis for which setting is impossible (inductosyn not used).

Character-string: None

Code: None

Measures to Take: Setting should be made only for the axis on which inductosyn is used.

2567	SAT full

Memory area of the designated device (bubble memory, floppy disk) is insufficient.

Character-string: None

Code: XXXX ..... Hexadecimal number of the required number of continuous free sectors

Probable Faulty Locations: Insufficient memory area (bubble memory or floppy disk)

Measures to Take: Delete unnecessary files from the bubble memory or floppy disk to increase available memory area.

2568	Measure data print execution

An attempt is made to print a machining program using a command such as LIST other than the command used for gauging data printout while gauging data is being printed.

Character-string	None
Code	None
Measures to Take	Do not print out the machining program while gauging data is being printed out.

2569	System coupling mode

Program selection, program search (including cursor-search), restart, schedule program selection, or schedule program search is attempted during automatic system operation mode.

Character-string	None
Code	None
Probable Faulty Locations	Operation error
Measures to Take	Select the independent operation mode.

2570	DNC backup file name nothing

During OUTPUT and VERIFY in the DNC mode, the backup file name is not found when a backup file name is specified with both storing and requesting file names and extensions omitted.

Character-string	None
Code	None
Probable Faulty Locations	Operation error
Operation Example	OUT [WRITE]
Measures to Take	Designate the file name to be output or verified.
Related Specifications	DNC-C

2571	DNC file name not equal

During INPUT and VERIFY in the DNC mode, the name of the file requested to the host computer does not match the name of the file received.

Character-string	Received file name
Code	None
Probable Faulty Locations	Error in processing at the host computer
Measures to Take	Check the processing operation of the host computer.
Related Specifications	DNC-C

<Error>

2573	DNC NC program not found

NC program requested in the DNC mode (INPUT or VERIFY command) is not found in the host computer.

Character-string	Requested file name
Code	None
Probable Faulty Locations	Operation error
Measures to Take	Request the program again after confirming the file names present in the host computer.
Related Specifications	DNC-C

2574	Set condition

An inconsistency is found in the set diagnosis period within the DNC communication parameter.

Setting standard

TM6 < TM1
TM7 < TM1
TM1 < TM9
TM4 < TM2
TM3 < TM1
TM5 < TM1

(For TM*, refer to the DNC-C instruction manual.)

Character-string	None
Code	None
Probable Faulty Locations	Operation error
Measures to Take	Set the data meeting the conditions specified above.
Related Specifications	DNC-C

2575	DNC transmitting

During transmission with the host computer, execution of unexecutable command has been attempted.

Character-string	None
Code	1 ..... Execution of the following commands has been attempted during NC program reverse transmission in the independent mode. Program selection Schedule program selection Number search Restart Number search by placing cursor Schedule program search Standard/enlargement scale setting for animation
Probable Faulty Locations	Operation error
Measures to Take	Wait until the reverse program transmission is completed. (Wait until the DATA COMMUNICATE lamp goes off.)
Related Specifications	DNC-C

2579	Answer time over

With the INPUT, VERIFY, DATA INPUT and DATA VERIFY operations, text response from the host computer has not been obtained for a duration set by parameter (word) No. 57.

Character-string	None
Code	1 .....No text response 2 .....In all data input or all data verify operation, data number which cannot be designated is designated.
Probable Faulty Locations	Response time at the host computer is greater than the period set by parameter No. 57.
Measures to Take	Re-set timer data at parameter No. 57.
Related Specifications	DNC-C

2580	FMS coupling mode

In the automatic operation mode with the DNC-C2, C3 specifications, the following operations have been attempted.

- Program selection
- Schedule program selection
- Number search
- Number search by placing cursor
- Restart
- Schedule program search
- Standard/enlargement scale setting for animation

Character-string	None
Code	None
Probable Faulty Locations	Operation error
Measures to Take	After changing the operation mode to the independent or interruption mode, carry out the required operation again.

2582	ADD command

This error does not occur with the OSP5020-L.

Character-string	None
Code	None

2583	Table data

This is an error of the NC internal data and it does not occur under normal operations.

Character-string	None
Code	None
Probable Faulty Locations	Problem with software

2584	NC LOB memory load

Failure in attempt to read the load object file from the bubble memory in the program operation.

Character-string — File name attempted to read

Code
1 ..... File to be loaded is not found
2 ..... File attribute is not LOB1.
3 ..... Address for loading is wrong.

Probable Faulty Locations
- Although the specification codes corresponding to the tape convert and data input/output function are set, corresponding software is not resident.
- Bubble memory destroyed.

Measures to Take
- Check whether the following file is resident:
  LCM ..... LOB, tape conversion
  LCM ..... LOB, data input/output
- Re-load the control software floppy disks.
- Replace bubble memory.

2585	Tape file name not same

In the data input/output function, the file name input or designated in the verify operation does not match the file name punched on tape.

Character-string — File name on tape

Code — None

Measures to Take — Assign a correct file name.

2586	File format

In the data input/output function, the data format of the tape through the input or verify operation is incorrect.

Character-string — Data record (block) which caused an error

Code
1 ..... File record (block) data does not end correctly.
2 ..... The first character of the file is not an alphabetic character, or the number of digits in the data is too large.
3 ..... The data does not have data ID (Tn, On, Pn) at the beginning.
4 ..... Data number Nn is not used at the beginning or the place following the data ID in the record data.
5 ..... Data which cannot be set is contained in the tape data.
6 ..... On the 2-saddle model, turret designation G code is wrong.
7 ..... Data ID Tn, On, or Pn is not correct.
8 ..... Data number Nn is not correct.

Measures to Take — Correct the record data which contains an error.

<Error>

2587	Data command

In the data input/output function, data ID designation is wrong in the designation of the output data.

Character-string	Data ID which is designated
Code	1 .....Designation method is wrong.
	2 .....A character other than T, O or P is designated as data ID.
	3 .....Data ID number not contained in the data to be output is designated.
Measures to Take	Designate correct data ID.

2588	Input data over flow

In the data input/output function, setting is impossible as the data input is too small or too large.

Character-string	Record in which error has occurred.
Code	None
Probable Faulty Locations	Punch error in data output, or setting error of output data
Measures to Take	Set the output data to a correct value and punch the tape, then read the tape again.

2589	Stroke end limit over

In the data input/output function, variable limit data input is outside the travel end limit range.

Character-string	Record in which error has occurred.
Code	None
Probable Faulty Locations	Setting error of travel end limit
Measures to Take	Set a value greater than the variable limit value to be set as the travel end limit value.

2590	Time data

In the data input/output function, time data input is not correct.

Character-string	None
Code	1 .....Hour:minute data is wrong.
	2 .....Hour:minute:second data is wrong.
Probable Faulty Locations	- Defective tape - Defective tape reader
Measures to Take	- Check the tape. If it is faulty, check the punch and punch the tape again. If it is correct, check the tape reader and read the tape again.

2591	Data not same

In the data input/output function, verify error occurs during the input verify operation.

Character-string	Record in which error has occurred.
Code	None
Probable Faulty Locations	- Error in punching tape - Data setting error
Measures to Take	- Check the tape. - Correct the data which caused the error.

2592	Tool entry

In the data input/output function, S (selection tool number) of T5 (tool life management group information) has not been registered.

Character-string	Record in which error has occurred.
Code	None
Probable Faulty Locations	Tool life management data has not been initialized.
Measures to Take	Initialize the tool life management data.

2593	Output data over flow

In the data input/output function, the data to be output is too large.

Character-string	None
Code	None
Probable Faulty Locations	Data setting error
Measures to Take	Correct the data.

2594	Output data under flow

In the data input/output function, the data to be output is too small.

Character-string	None
Code	None
Probable Faulty Locations	Data setting error
Measures to Take	Correct the data.

2596	Not found pitch comp. data file

Pitch compensation data file is not found in the designated device or file size is different when pitch error compensation data is to be backed up.

Character-string	None
Code	1 .....Pitch error compensation data file not found 2 .....Pitch error compensation data file size different
Probable Faulty Locations	Operation error
Operation Example	PCDW ←
Measures to Take	After re-loading the pitch error compensation data file to the bubble memory, write the compensation data again.

2597	Tool item code not equal

When selecting tool item code for the second position of the ATC, its kind is different from the code designated for the first position.

Character-string	None
Code	None
Probable Faulty Locations	Operation error
Measures to Take	Set classification code so that there is no inconsistency between the first and the second positions.

2598	Edit buffer empty

No data in the edit buffer when edit data is to be recovered using the option R function at the beginning of the editing.

Character-string	None
Code	None
Probable Faulty Locations	Operation error
Operation Example	E A.MIN;R
Measures to Take	Recovery is impossible.

2599	RAM overflow

Program is too large during tape conversion from the OPS3000L to the OSP500/5000L-G.

Character-string	None
Code	None
Probable Faulty Locations	Program error
Measures to Take	Change size of a program so that it is smaller than 30 m after conversion.
Related Specifications	Tape conversion

<Error>

2600	DNC can not transmit

A batch transfer of an NC program is attempted while the DNC is not ready for communication.

Character-string: None

Code:
1 .....The attempt is made during communication alarm.
2 .....DNC communication is OFF.
3 .....Interrupt mode is not established. (only for DNC-C3 specification)
4 .....Ready status is not established. (only for DNC-B specification)

Probable Faulty Locations: Operation error

Measure to Take:
1 .....Reset the communication mode.
2 .....Turn the communication ON/OFF switch to ON and then turn on power supply again.
3 .....Select the interruption mode.
4 .....Wait until the ready status is established.

Related Specifications: DNC-B, C

2601	Buffer operation mode

When buffer operation is turned ON or during buffer operation in the DNC-B mode, one of the following operations has been attempted. (common to protocol A, B)

a) NC program batch transfer (disabled only for remote operation)
b) Sequence number search
c) Sequence number search by placing cursor
d) Schedule program sequence No. search
e) Schedule program selection
f) Program selection (only for remote operation method (2) in protocol A)
g) Standard/enlargement scale setting for animation
h) When carrying out program selection in remote operation method (2) in protocol A, main program name or subprogram name has been specified.

Character-string: None

Code:
1 .....An attempt to execute a) is made.
2 .....An attempt to execute b) - f) is made.
3 .....An attempt to execute h) is made.
4 .....An attempt to execute g) during remote operation is made.

Probable Faulty Locations: Operation error

<Error>

2602	DC code

DC code other than receive waiting DC code has been received in the DC code control communication.

Character-string	None
Code	X.....Received DC code
Probable Faulty Locations	The mating device or RS232C interface is faulty.
Measures to Take	Check the RS232C interface or mating device.

2603	Set impossible

An attempt to set the text not usable for transmission parameter of DNC-C specification has been made.

Character-string	None
Code	None
Probable Faulty Locations	Operation error
Measures to Take	The communication parameter attempted to be used cannot be used with the specification selected.
Related Specifications	DNC-C

2604	Load monitor time set

Setting value exceeds the setting range or a different format is used.

Character-string	Data to be set
Code	None
Probable Faulty Locations	Operation error
Measures to Take	Re-set the data after confirming the format or setting range.

2605	Load monitor execute

An attempt to set the monitoring time during program execution has been made.

Character-string	None
Code	None
Probable Faulty Locations	Operation error
Measures to Take	Set the monitoring time while a program is not being executed.

2606	No M-axis data

An attempt to set load monitoring data for M-axis on B-turret side has been made.

Character-string	None
Code	None
Probable Faulty Locations	Operation error

2607	Extend name

Extension is other than SS, SU, MI, SD, or space for files registered in the IBM-formatted media device.

Character-string	File name
Code	None
Probable Faulty Locations	Operation error
Measures to Take	Use only allowable extensions.

2609	DNC data kind

In the data input, data output, and data verify operations in the DNC-C mode, the data number which cannot be designated is designated.

Character-string	None
Code	None
Probable Faulty Locations	Operation error
Measures to Take	Designate the data number in the range of 0 - 5 and the one which is allowed by the specification selected.
Related Specifications	DNC-C

2610	DNC data range

In the data input, data output, and data verify operations in the DNC mode, wrong data number is designated in the request or transmission data.

Character-string	None
Code	1 .....An error in the data designation format
	2 .....An attempt is made to designate more than one range for the same data (same turret).
	3 .....The following conditions are not satisfied: 1 < start number < end number < maximum number
	4 .....The data for B turret is designated on the one-saddle model.
Probable Faulty Locations	Operation error
Operation Example	1, A, 1, 12, A, 15, 16 [WRITE]
Measures to Take	Enter in the correct format using the correct data number.
Related Specifications	DNC-C

2611	Tool layout execution

An error occurred during tool layout processing.

Character-string	None
Code	1 ..... Not in the automatic mode; in alarm state; independent A/B mode; main program and schedule program is not selected.
	2 ..... Error occurred or the control is reset during tool layout processing.
Probable Faulty Locations	Mode setting is wrong or program is not selected.
Measures to Take	Tool layout processing is allowed in the automatic mode, after the selection of the program and not in the independent A/B mode.

2612	Data calculation

An error occurred during nuemrical operation for the input data.

Index	None
Character-string	Character-string including an error
Code	Refer to operation function manual.
Probable Faulty Locations	Wrong formular has been input.

2622	ATC tool number set

The tool number already existing is set for ATC magazine or ATC tool information for tool data setting operation.

Index	None
Character-string	None
Code	3 ..... The tool number already existing in the ready station, L-tool turret, M-tool turret, or magazine information is set again.
Probable Faulty Locations	ATC magazine information, ATC tool information screen
Related Specifications	LC40M-ATC

<Error>

2801	Process number designate

The process number specified in the process operation (create, copy, deletion, etc.) in the graphic edit is not correct.

Character-string None

Code None

2802	Process number over

The number of processes exceeded the allowable size in the process operation (creation, insertion, etc.).

Character-string None

Code None

2803	IGF data capacity over

During the IGF graphic editing, process data has exceeded the memory capacity and the data cannot be stored in the memory.

Character-string None

Code None

2804	Roughing copy command

An attempt to make ROUGH COPY operation in other than the finishing process definition.

Character-string None

Code None

2805	No data setting

An attempt to advance the process by pressing the function key [ORDER] although required data has not all been entered.

Character-string None

Code None

2806	IGF file read

Attribute or the size of the IGF file designated in the IGF graphic edit process or in the program making process is improper.

Character-string None

Code None

<Error>

2807	Input data overflow (+/-)

Input data overflow

Character-string None

Code None

2808	Material name input

An attempt to set improper data for the material file name in the material data setting process.

Character-string None

Code None

2810	Numerical digit

The number of digits of the data to be entered is improper.

Character-string None

Code None

2811	Decimal point

An attempt to enter the data with decimal point for parameters which accept only integer data.

Character-string None

Code None

2812	IGF graphic panel command data table

The graphic panel command data table is incorrect.

Character-string None

Code None

2813	Pattern edit buffer over

The number of shape elements used for defining the rough, copy and finish shape exceeded the maximum capacity of 48.

Character-string None

Code None

2814	Pattern designate calculation

An operation error occurred during the execution of the rough, copy and finish shape definition.

Character-string None

Code None

2815	Pattern package calculation

An error occurred in the graphic calculation package during the definition of the rough, copy and finish shape.

Character-string None

Code None

2816	File & machine unit system mismatch

Mismatch between the unit system of the IGF file designated in the IGF graphic edit process or in the program making process and the machine unit system. Two unit systems, metric and inches, are selectable.

Character-string None

Code None

2817	Angle command

NC program cannot be compiled since the angle command in the thread cutting process is improper.

Example: Angle command = 90° for longitudinal thread cutting.

Character-string None

Code None

2818	No depth of cut command

NC program cannot be compiled since step infeed amount for pecking cycle or tool retraction amount is not set for the grooving or drilling process.

Character-string None

Code None

2819	Cutting start point

Cutting starting point is set on the reference point for the rough, copy and finish processes.

Character-string None

Code None

2820	IGF program overflow

The size of the NC program to be made using the graphic edit function is too large.

Character-string None

Code None

2821	Program name

Program name does not meet the following requirements.

a) Begins with character "O"; within five characters.

b) Spaces between characters not allowed.

c) If the character following the character "O" is an alphabet, then four characters following "O" may be alphanumeric.

d) If the character following the character "O" is a figure, then four characters following "O" must be figures.

Character-string None

Code None

2822	File name

File name does not meet the following requirements.

a) Extension must be .MIN, .SUB or .SSB. (.MIN is omissible.)

b) If the extension is .SSB or .SUB, a program name must be specified.

Character-string None

Code None

2823	Program read buffer overflow

When registering the input file to the program buffer for IGF conversion function, input file cannot be registered into the buffer due to overflow.

Character-string None

Code Program buffer end pointer

2824	Tool pattern number no entry

This error occurs when the tool pattern is checked to determine whether the processes are to be combined on the two-saddle model, but tool pattern number has not been registered.

Character-string None

Code FFFFFFFF

Error code

The number inside the work area of process No.
(A turret side, B turret side)

2825	Spindle rotation direction unmatched

The spindle rotation directions required by the processes to be carried out by the A turret and B turret do not match each other when the process change has been made.

Character-string None

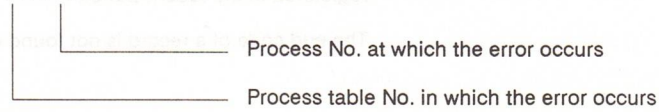
Code None

2826	Process combination impossible

This error occurs when an attempt to combine the NC processes or multiple-machining processes with other processes is made by the process change operation.

Character-string None

Code FFFFFFFF



2827	Data set

In setting the blank material shape with multiple OD or ID, the data of the next step is set without setting the Z data of the preceding step, or the OD or ID data set is outside the OD or ID limit.

Character-string None

Code None

2828	Process change

When the data is established after the process is changed, simultaneous cutting is impossible.

Character-string None

Code None

2829	Not found main program name

The required program is not registered in the program buffer when the program is to be transferred to the simulation buffer to execute the process test.

Character-string None

Code None

2830	Program end code

Data is not left in the program buffer while the program is being transferred from the program buffer before the end of program code is sent.

Character-string None

Code None

2831	Program record read

The end of a record is not found when the NC program is being read from the program buffer.

Character-string None

Code Data size of a record is larger than the record buffer and the entire record cannot be registered in the record buffer.

The end code of a record is not found in the program buffer.

2832	Program buffer overflow

The data of a record cannot be stored in the simulation buffer.

Character-string None

Code None ..... The entire data of the NC program, being transferred from the record buffer to the simulation buffer, cannot be stored in the simulation buffer.

Entire data of user graphic command data being transferred cannot be stored in the simulation buffer.

2833	M machining X, Y data

For multiple-machining operation, X or Y data to define the machining shape is not correct and program cannot be made.

Character-string None

Code None

2834	Program making calculation

Calculation error has occurred while NC program is being made.

Character-string None

Code None

2835	Face contour generation data

The shape defined for face machining operation is erroneous and NC program cannot be made.

Character-string None

Code None

<Error>

2836	V-groove angle data

Shape angle data for V-groove definition is erroneous and NC program cannot be made.

Character-string None

Code None

2838	IGF file machine code not same

Machine code of the IGF file being loaded in the graphic edit mode does not match the machine for which the system is set.

Character-string None

Code Machine code of the file being loaded

2839	IGF file spec.: code not same

The specification code of the IGF file being loaded in the graphic edit mode does not match the specification code for which the system is set.

Character-string None

Code Specification code of the file being loaded

2840	Undefined auxiliary shape error

An auxiliary shape function key has been pressed even though no auxiliary shape data has been designated.

2841	Undefined gauging object process error

The process for which gauging is to be made was not present when the gauging process is being made.

<Error>

2842	Unmatched gauging object process error

The process selected is the one which was not selectable as the gauging process, or the process selected did not contain the machined surface meeting the designated gauging direction (OD, ID, FACE)

Code	Contents
1	The process for which the gauging cycle cannot be conducted was selected as the object of the gauging process. → Change the process.
2	The process which dose not have the machined surface meeting the designated gauging direction was selected as the gauging process. → Change the process or the gauging direction.

2843	Calculating expression error

An error was discovered in the calculating expression, or an error occurred during calculation.

Code	Contents
100	Improper operator is used.
200	Calculation order is improper.
300	Calculation stack overflow
400	No "]" corresponding to "["
500	No "[" corresponding to "]"
600	Inconsistency in operand
700	Overflow of the number of digits of input data
800	More than one decimal point (.) is used in input data.
9XX	Real number calculation error XX ..... Status information Bit 0 ..... Overflow in converting into integer Bit 1 ..... Exponential underflow Bit 2 ..... Exponential overflow Bit 3 ..... Calculation of root of a negative number Bit 4 ..... Division by 0 Bit 5 ..... Angle overflow for TAN
AXX	Integer calculation error XX ..... Status information Bit 0 ..... Overflow in addition Bit 1 ..... Oerflow in subtraction Bit 2 ..... Overflow in multiplication Bit 3 ..... Underflow in multiplication Bit 4 ..... Overflow in division Bit 5 ..... Underflow in division

<Error>

2844	Shape reference command error

An attempt was made to reference the shape in the process for which shape reference is not allowed, or the attempt to reference the shape was made although the shape has not been defined.

Code	Contents
1	An attempt was made to reference the shape for which shape reference is not allowed. Shape reference is allowed for rough, copy, finish and creation face machining.
2	An attempt was made to reference the shape although shape has not been defined.

2845	Turret No. error

For LR15-M ATC, L/M designation of the turret position selected does not match the L/M designation of the tool data number.

<Error>

2900	Expression: right part

An illegal command is designated in the right part of the expression.

Commands other than numerical data, input variables, system variables, common variables, local variables and extended address characters are designated.

Index — TURRET

Character-string — None

Code — Command factor classification code (table 1)

2901	Expression: calculation

Calculation error of expression

Index — TURRET

Character-string — None

Code — XXYY

XX:

Bit 0 ..... Overflow in addition

Bit 1 ..... Overflow in converting ABS data into integer

Bit 2 ..... Conversion form BCD to BIN

Bit 3 ..... Conversion form BIN to BCD

Bit 4 ..... DROUND, DFIX and DFUP command were designated in other than mm (inch) unit system.

YY: Floating-point calculation error

Bit 0 ..... Overflow in converting into integer

Bit 1 ..... Exponential underflow

Bit 2 ..... Exponential overflow

Bit 3 ..... Calculation of root of a negative number

Bit 4 ..... Division by 0

Bit 5 ..... Angle overflow

2902	Expression: syntax

Syntax error of expression

Index TURRET

Character-string None

Code
1 ..... Calculation of subscript expression is intended within calculation of subscript expression.
2 ..... No left bracket "[" at the beginning of the subscript expression
3 ..... Three or more subscript expressions
4 ..... The number of the left bracket "[" and that of the right bracket "]" do not match.
5 ..... The number of operands and their handling elements do not match.
6 ..... The sequence terminates within the expression.
7 ..... There are more than one solution.

2903	Expression: buffer over

The number of expressions too many, making calculation impossible.

Index TURRET

Character-string None

Code
1 ..... Overflow of operand stack in calculation of subscript expressions and operation expressions (more than 16).
2 ..... Overflow of operator data stack in calculation of operation expressions (more than 8).

2904	Program bad direct: G-code

Illegal G code

Numerical value greater than 199 or less than 0 is assigned to the address character G ($0 \leq G \leq 199$).

Index TURRET

Character-string None

Code Hexadecimal number of the designated numerical value

2905	Program bad direct: M-code

Illegal M code

Numerical value greater than 253 or less than 0 is assigned to the address character M ($0 \leq M \leq 253$).

Index TURRET

Character-string None

Code Hexadecimal number of the designated numerical value

<Error>

2906	Program bad direct: common var.

Wrong common variable designation

Index — TURRET

Character-string — None

Code — None ..... Characters other than alphanumerics are designated following address character V, or V0 is programmed.

Others ..... Variable number other than 1 ≦ V ≦ 32 and 901 ≦ V ≦ 932 is designated.

Hexadecimal number of the designated variable number

2907	Program bad direct: sequence name

Sequence name contains characters other than alphanumerics or too many characters are used.

Index — TURRET

Character-string — None

Code — 1 ..... No character follows address character N, or characters other than alphanumerics follow it.

2 ..... The number of characters following address character N is more than four.

2908	Program factor over

The buffer register storing program factors is full.

Index — TURRET

Character-string — None

Code — 1 ..... More than 127 factor classification codes and factor parameters are designated.

2 ..... More than 64 factor data are designated.

3 ..... Move range of factor classification code and/or factor parameter stack is wrong. (This alarm does not occur usually.)

4 ..... Move range of factor data stack is wrong. (This alarm does not occur usually.)

2909	Program bad direct: use of character

Illegal symbols are designated.

Designatable symbols are "]", "[", "=", "*", "/", "+", "-", ",", DEL, BS, CR, HT and SP.

Index — TURRET

Character-string — None

Code — Hexadecimal number of ASCII code of the designated symbol

2910	Program bad direct: program name

Program name contains characters other than alphanumerics or it contains too many characters.

Index — TURRET

Character-string — None

Code
1 ..... No character follows address character 0, or characters other than alphanumerics follow it.
2 ..... The number of characters following address character 0 is more than four.

2911	Unusable: G-code

G code not available with the selected specification is designated.

Index — TURRET

Character-string — None

Code — Hexadecimal number of the designated G code

2912	Change timing G13/G14

On two-turret models, G13 and G14 mode is changed while in incremental programming mode, tool nose radius compensation mode, LAP mode, and constant cutting speed mode.

Index — TURRET

Character-string — None

Code
1 ..... Changed in incremental programming mode.
2 ..... Changed in tool nose radius compensation mode.
3 ..... Changed in LAP mode.
4 ..... Changed in constant cutting speed mode.
5 ..... Changed in buffer reading for required angle chamfering operation

2913	Unusable: M-code

M code not available with the selected specification is designated.

Index — TURRET

Character-string — None

Code — Hexadecimal number of the designated M code

<Error>

2914	Equal is not exist

A code other than "=" (equal) sign is designated at a place where the equal sign is to be designated (in G codes, M codes, extended address characters, local variables, common variables, system variables, I/O variables).

Index	TURRET
Character-string	None
Code	Classification code and parameter of the factor designated at a position where "=" should be designated. XXYY: XX ..... Factor classification code (See Table 1 for details.) YY ..... Factor parameter (See Table 1 for details.)

<Error>

2915	Unusable: direct of left

Illegal command in the left part of the expression

Index

TURRET (None with schedule program)

Character-string

None

Code

Schedule program:
Left part is not common variable (V1 through V32) or output variable in VSET sequence.

Main program, Subprogram:
The left part contains other than G codes, M codes, address characters, extended address characters, local variables, common variables, system variables, and output variables.

XXYY: Classification code of factor and parameter designated at left part

XX ..... Factor classification code (See Table 1 for details.)

YY ..... Factor parameter (See Table 1 for details.)

XX = 3 .....]	YY = 00
XX = 4 .....EOR	YY = 00
XX = 6 .....OR	YY = 00
XX = 8 .....AND	YY = 00
XX = A.....NOT	YY = 00
XX = C .....Relative operator	YY = 01 .....LT
	YY = 02 .....LE
	YY = 03 .....EQ
	YY = 04 .....NE
	YY = 05 .....GT
	YY = 06 .....GE
XX = E.....	YY = 00
XX = 10 .....Adding/subtracting operator	YY = 01 ..... +
	YY = 02 .....-
XX = 12 .....Multiplying/dividing operator	YY = 01 .....*
	YY = 02 ...../
XX = 18 .....Function operator	YY = 01 .....SIN
	YY = 02 .....COS
	YY = 03 .....TAN
	YY = 04 .....ATAN
	YY = 05 .....ATAN2
	YY = 06 .....SQST
	YY = 07 .....ABS
	YY = 08 .....BIN
	YY = 09 .....BCD
	YY = 0A.....BOCW
	YY = 0B .....FIX
	YY = 0C .....FUP
	YY = 0D .....DTOUN
	YY = 0E.....DFIX
	YY = 0F.....DFUP
	YY = 10.....MOD
XX = 1A.....[	YY = 0
XX = 1C ..... =	YY = 0
XX = 22 .....Numerical value	YY = Position of a decimal point

<Error>

2916	Special G-code table

Designation of the G code, which can only be used following the sequence number, is incorrect.

The internal constant table determined by the special G code is incorrect.

(This alarm does not occur usually.)

Index	TURRET
Character-string	None
Code	Hexadecimal number of the designated G code

2917	Unusable: turret direct code

G13 and G14 commands are designated on machines having only one turret.

Index	TURRET
Character-string	None
Code	Hexadecimal number of the designated G code

2918	Program end code not found

No program end code is designated at the end of a block.

Index	TURRET
Character-string	None
Code	1 .....No program end code
	2 .....After the symbol "(" is designated, corresponding symbol ")" does not appear up to the end of the program.

2919	Data word: 'F'

Numerical value of an F command in other than the G04 mode is either negative or zero.

When the numerical value of an F command in the G04 mode is converted into "0.01 sec" unit, it does not satisfy the following inequality: $0 < F < 99999999$

Index	TURRET
Character-string	None
Code	1 .....F value does not satisfy: $-99999999 \leqq F \leqq 99999999$
	2 .....F value is either negative or zero.

< Error >

2920	Data word: 'F' or 'E'

Illegal F or E command

When F or E command is converted into "μ/rev" or "0.1 mm/min" unit, the result of conversion does not satisfy the following inequality: -99999999 ≦ F (or E) ≦ 99999999

Overflow in calculation of the number of feed pulse in the G34 or the G35 mode.

Index: TURRET

Character-string: None

Code:
1 ..... F or E value does not satisfy: -99999999 ≦ F (or E) ≦ 99999999
3 ..... Overflow in calculation of feed pulse numbers

2921	Data word: 'I'

Illegal I command

Numerical value of I command is not: -99999.999 ≦ I ≦ 99999.999

Index: TURRET

Character-string: None

Code:
1 ..... I command in circular arc commands
Others ..... Hexadecimal number of I command in thread cutting fixed cycle

Hexadecimal number of I command in other than circular arc commands or thread cutting fixed cycle

2922	Data word: 'J'

Illegal J command

Numerical value of J command is not: 0 < J ≦ 99999.999

Index: TURRET

Character-string: None

Code:
1 ..... J value is negative
2 ..... J value does not satisfy: 0 < J ≦ 99999.999

2923	Data word: 'K'

Illegal K command

Numerical value of K command is not: -99999.999 ≦ K ≦ 99999.999

Index: TURRET

Character-string: None

Code:
1 ..... K command in circular arc commands
Others ..... Hexadecimal number of K command in thread cutting fixed cycle

Hexadecimal number of K command in other than circular arc commands or thread cutting fixed cycle

<Error>

2924	Data word: 'L'

Illegal L command

Numerical value of L command in circular interpolation mode is not: 0 < L ≦ 99999.999

The chamfering amount in thread cutting fixed cycle calculated from L and K (or I) commands is not 0 through 99999.999.

Numerical value of L word in a gauging cycle is not 0 through 99999.999.

In other modes, numerical value of L command is not: -99999.999 ≦ L ≦ 99999.999

Index	TURRET
Character-string	None
Code	1 .....In circular interpolation mode, L command does not satisfy: -99999.999 ≦ L ≦ 99999.999
	2 .....L value is negative in circular interpolation mode
	Others .....Hexadecimal number of L value in other than circular interpolation mode

2925	Data word: 'P'

Illegal P command

Numerical value of P command is not: -9999 ≦ P ≦ 9999

Index	TURRET
Character-string	None
Code	Hexadecimal number of programmed P command

2926	Data word: 'S'

Illegal S command

Numerical value of S command is not: 0 ≦ S ≦ 9999

Index	TURRET
Character-string	None
Code	Hexadecimal number of programmed S command

2927	Data word: no 'S'

No S command in the block containing G96 or G97.

Index	TURRET
Character-string	None
Code	1

2928	Data word: 'T'

Illegal T command

In T******, respective two-digit numbers expressing tool number, tool offset number and tool nose radius compensation number are larger than 32.

Index	TURRET
Character-string	None
Code	Hexadecimal number of the designated T command when it is not: 0 < T < 99999999
	When tool offset number, tool number or tool nose radius compensation number is greater than 32, hexadecimal number of that number is in the right four digits.

2929	Data word: 'X'

Illegal X command

Numerical value of X command is not: -99999.999 ≦ X ≦ 99999.999

Or the X command designated in incremental word is not -99999.999 ≦ X ≦ 99999.999 when converted into the absolute value.

Index	TURRET
Character-string	None
Code	Hexadecimal number of the programmed X command

2930	Data word: 'X', 'Z'

The first block of the G31, G32 and G33 mode (thread cutting fixed cycle) has only either of X and Z commands, or it has neither X nor Z command.

In the G30 gauging cycle mode, both X and Z commands are programmed.

Index	TURRET
Character-string	None
Code	1

2931	Data word: 'Z'

Illegal Z command

Numerical value of Z command is not: -99999.999 ≦ Z ≦ 99999.999

Or the Z command designated in incremental word is not -99999.999 ≦ Z ≦ 99999.999 when converted into the absolute value.

Index	TURRET
Character-string	None
Code	Hexadecimal number of the designated Z command
	1 .....In the G102 and G103 modes, Z command is programmed.

<Error>

2932	Data word: arc cal.

In direct arc radius command, the coordinates of the arc center can not be calculated from the L command and X and Z commands.

The command error between I and K commands and X and Z commands in circular interpolation exceeds the tolerance (std.: 20 m).

Index: TURRET

Character-string: None

Code:

1 ..... L value is so small that the arc passing the target coordinates cannot be defined.

2 ..... Overflow in calculation of arc center or error

3 ..... Error between the radius which is calculated from I and K commands and the distance between the end point and the center is greater than tolerance.

4 ..... I command is zero.

10 ..... End point of the arc command after calculation of LAP, tool nose radius compensation, or tool offset is offset from the programmed arc more than the specified tolerance.

2933	Data word: angle

In the G00, G01, G02, G03, G34 or G35 sequence, an A command is designated both with X and Z commands.

The target point calculated from the angle does not fall within a range of -99999.999 and 99999.999.

In the G31 or G33 sequence, both A and I commands are designated.

In the G32 sequence, both A and K commands are designated.

The target point in the thread cutting fixed cycle calculated from the angle command does not fall within a range of -99999.999 and 99999.999.

Index: TURRET

Character-string: None

Code:

1 ..... Both X and Z commands are designated, or I or K command is designated.

2 ..... Neither X nor Z command is designated.

3 ..... The target point calculated from the angle command does not fall within a range of -99999.999 and 99999.999.

Others ..... Hexadecimal number of the target point calculated from angle command A in thread cutting fixed cycle

<Error>

2934	Data word: radius

Either I and/or K command is designated, or no X and Z commands are designated with L command.

No L command in the G102 and G103 sequence.

Index TURRET

Character-string None

Code
1 .....I or K command is designated.
2 .....Either X or Z command is not designated, or neither X nor Z command is designated.
3 .....No L command in the G102 and G103 sequence.

2935	Data word: C command

Alarm of C command

Numerical value of designated C command calling for spindle orientation is either $C < 0°$, or $C \geqq 360°$

C command is designated at B-turret side on a multi-machining model.

C command is designated in other than G00, G01, G50, G101, G102, G103 mode.

C command value is outside of $-360° < C < 360°$.

Index TURRET

Character-string None

Code
1 .....C command at B-turret side on a multi-machining
2 .....C command is designated in other than G00, G01, G50, G101, G102, G103 mode.
3 .....C command calling for zero movement in the G101 mode
Others .....Hexadecimal number of designated C value

2936	Multi cycle: B illegal order

$B < 0°$ or $B \geqq 180°$

In G71, G72 thread cutting cycle, tangent (B/2) is negative or resulted in overflow.

Index TURRET

Character-string None

Code Hexadecimal number of mantissa of floating-point of tangent (B/2)

<Error>

2937	Multi cycle: D illegal order

In G71, G72, G73 or G74 mode, no D command is designated or numerical value of D command is not: $0 < D \leqq 99999.999$

Index TURRET

Character-string None

Code FFFFFFFF .....No D command

Others .....Hexadecimal number of D value

2938	Multi cycle: F illegal order

In G71, G72, G73 or G74 mode, no F command is designated or numerical value of F command is not: $0 < F \leqq 99999.999$

Index TURRET

Character-string None

Code FFFFFFFF .....No F command

Others .....Hexadecimal number of F value

2939	Multi cycle: H illegal order

In G71 and G72 thread cutting mode, no H command is designated or numerical value of H command is not: $0 < H \leqq 99999.999$

Index TURRET

Character-string None

Code FFFFFFFF .....No H command

Others .....Hexadecimal number of H value

2940	Multi cycle: H-U (W) less than D (M73)

In M73 of G71 or G72 thread cutting mode, the value "H-U (W)" is smaller than D.

Index TURRET

Character-string None

Code None

2941	Multi cycle: parameter I, K over

In the G73 and G74 grooving cycle, the parameter of I or K is greater than the allowable value causing negative groove depth.

Index TURRET

Character-string None

Code None

<Error>

2942	Multi cycle: I, K illegal order

In the G71 mode, K command is designated, both A and I commands are designated, or neither A nor I command is designated.

In the G72 mode, I command is designated, both A and K commands are designated, or neither A nor K command is designated.

In G73 and G74 grooving cycle, I and K are not: $0 \leqq I, K \leqq 99999.999$

Index: TURRET

Character-string: None

Code:
- None ..... Either K command is designated in G71 mode, or I command in G72 mode.
- 1 ..... Either both A and I commands are designated, or neither A nor I command is designated in G71 mode, or either both A and K commands are designated, or neither A nor K command is designated in G72 mode.
- Others ..... Hexadecimal number of I or K value

2943	Multi cycle: L illegal order

In G73 and G74 grooving cycle, numerical value of L command is not: $0 < L \leqq 99999.999$

Index: TURRET

Character-string: None

Code: Hexadecimal number of L value

2944	Multi cycle: entry in LAP

During LAP control, multi cycle command is designated.

Index: TURRET

Character-string: None

Code: None

2945	Multi cycle: U (W) illegal order

In G71 thread cutting cycle, either W command is designated or the numerical value of U command is not: $0 < U \leqq 99999.999$

In G72 thread cutting cycle, either a U command is designated or the numerical value of a W command is not: $0 < W \leqq 99999.999$

Index: TURRET

Character-string: None

Code:
- None ..... In G71, W command is designated, or in G72, U command is designated.
- Others ..... Hexadecimal number of U (W) value

<Error>

2946	Multi cycle: U (W) greater than H

In G71 or G72 thread cutting cycle, designated finish allowance U or W is larger than the thread height H.

Index	TURRET
Character-string	None
Code	None

2947	Multi cycle: X, Z illegal order

In G71, G72, G73 or G74 mode, either X or Z command is not designated, or the value of them is not: -99999.999 ≦ X (Z) ≦ 99999.999

Index	TURRET
Character-string	None
Code	FFFFFFFF .....Either X or Z command is not designated. Others .....Hexadecimal number of X or Z value

2948	Multi cycle: angle

In the G71, G72 thread cutting cycle, A command is illegal and floating point of thread radius difference cannot be calculated.

Index	TURRET
Character-string	None
Code	Bit 0.....Overflow in converting into integer Bit 1.....Exponential underflow Bit 2.....Exponential overflow Bit 3.....Calculation of root of a negative number Bit 4.....Division by 0 Bit 5.....Angle overflow for TAN

2949	Multi cycle: tool offset

In the G73, G74 grooving cycle, tool offset value specified in the program differs form the designated shift direction.

Index	TURRET
Character-string	None
Code	Hexadecimal number of tool offset shift amount

< Error >

2950	Multi cycle: cycle start point

In the G71, G72 thread cutting cycle, H command is too large and the reference point of thread cutting is not located in the infeeding direction from the cycle start point.

Index TURRET

Character-string None

Code None

2951	Multi cycle: entry in NOSE-R

During tool nose radius compensation mode, compound fixed cycle is designated.

Index TURRET

Character-string None

Code None

2952	Multi cycle: width

In the G73, G74 grooving cycle, the tool width calculated from the tool offset value is larger than the groove width.

Index TURRET

Character-string None

Code Hexadecimal number of final grooving amount

2953	Chamfering: G01 mode

Chamfering commands are designated in other than G01 mode.

Index TURRET

Character-string None

Code None .....No G code programmed

2 .....G02

3 .....G03

1F G31

20 .....G32

21 .....G33

22 .....G34

23 .....G35

FE G00

<Error>

2954	Chamfering: parameter L over

In chamfering commands, designated L value is larger than the axis movement distance.

Index	TURRET
Character-string	None
Code	Hexadecimal number of axis movement distance

2955	Chamfering: L illegal order

In chamfering commands, no L command is designated, or designated L value is not: -99999.999 ≦ L ≦ 99999.999

Index	TURRET
Character-string	None
Code	Hexadecimal number of L value

2956	Chamfering: X, Z illegal order

In chamfering commands, either both X and Z commands are designated, or neither X nor Z command is designated.
Designated X or Z value is not: -99999.999 ≦ X (Z) ≦ 99999.999

Index	TURRET
Character-string	None
Code	FFFFFFFF ..... Either both X and Z are designated, or neither X nor Z is designated.
	Others ..... Hexadecimal number of X or Z value

2957	LAP: B illegal order

B command specifying the tool tip angle in G88 LAP mode is either B < 0° or B ≧ 180°.

Index	TURRET
Character-string	None
Code	None

<Error>

2958	LAP: D illegal order

In G85, G86 and G88 LAP mode, either no D command is designated, or the designated D value is either negative or there are too many digits.

Index TURRET

Character-string None

Code
1 ..... Designated D value is not: -99999.999 ≦ D ≦ 99999.999
2 ..... Either negative or zero
3 ..... No D command designated

2959	LAP: DA (DB) illegal order

In G84 and G85 LAP mode, when either XA (ZA) command or XB (ZB) command is designated, the designated DA or DB value is either negative or these are too many digits.

Code
1 ..... Designated DA (DB) value is not: -99999.999 ≦ DA (DB) ≦ 99999.999
2 ..... Either negative or zero

2960	LAP: H illegal order

In G88 LAP mode, no H command is designated, or designated H value is negative or there are too many digits.

Index TURRET

Character-string None

Code
1 ..... Designated H value is not: -99999.999 ≦ H ≦ 99999.999
2 ..... Either negative or zero
3 ..... No H command designated

2961	LAP: H-U (W) less than D (M73)

In M73 of G88 LAP mode, the value "H-U (W)" is smaller than D, and finish cut cycle is impossible.

Index TURRET

Character-string None

Code None

< Error >

2962	LAP: U (W) illegal order

The U or W command value in G85, G86, G87 and G88 LAP mode is negative or larger than the allowable maximum value.

Numerical value of U and W commands must be: $0 \leqq U\ (W) \leqq 99999.999$

Index — TURRET

Character-string — None

Code

1 ..... Designated U value is not: $0 \leqq U \leqq 99999.999$

2 ..... Designated U or W command value is negative.

3 ..... Infeeding direction is reversed by finish allowance.

2963	LAP: U (W) greater than H

In G88 LAP mode, designated finish allowance U or W is larger than the thread height H.

Index — TURRET

Character-string — None

Code — None

2964	LAP: XA (ZA), XB (ZB) illegal order

In G85 LAP mode, the number of digits of the designated XA (ZA) or XB (ZB) command is larger than the allowable number when G84 is specified.

Index — TURRET

Character-string — None

Code

1 ..... In longitudinal cycle, designated XA or XB command is not:
$-99999.999 \leqq XA\ (XB) \leqq 99999.999$

2 ..... In transverse cycle, designated ZA or ZB command is not:
$-99999.999 \leqq ZA\ (ZB) \leqq 99999.999$

2965	LAP: calculation

Calculation alarm during LAP processing. (When calculating arc center and radius in G85)

Index — TURRET

Character-string — None

Code — XX:

Bit 0 ..... Overflow in converting into integer

Bit 1 ..... Exponential underflow

Bit 2 ..... Exponential overflow

Bit 3 ..... Calculation of root of a negative number

Bit 4 ..... Division by 0

Bit 5 ..... Angle overflow for SIN, COS, TAN and COT

<Error>

2966	LAP: a number of down stair over

In G85 LAP mode, the number of descending steps exceeds ten.

Index TURRET

Character-string None

Code None

2967	LAP: entry in LAP

During LAP control, LAP command (G85, G86, G87 and G88) is designated.

Index TURRET

Character-string None

Code None

2968	LAP: sequence name

In the block containing G85 or G86 calling for LAP mode, no sequence name is designated, or the designated sequence name is not found in the program.

Index TURRET

Character-string None

Code 1 ..... No sequence name is designated in G85 or G86 block.

2 ..... The block assigned with the sequence name specified is not found.

2969	LAP: control

LAP control is impossible.

(Overflow of control counter for LAP control)

Index TURRET

Character-string None

Code None

2970	LAP: G-code

No G80 command up to the end of the program after G81 or G82 is designated.

G81 or G82 is not designated in the sequence assigned with the sequence name designated in the sequence containing G85 or G86.

Index TURRET

Character-string None

Code 1 ..... No G80 designated.

2 ..... G81 or G82 is not designated in the sequence assigned with the sequence name designated in the sequence containing G85 or G86.

<Error>

2971	LAP: entry in NOSE-R

While nose radius compensation mode is active, G code calling for LAP mode (G85, G86, G87 and G88) is designated.

Index TURRET

Character-string None

Code None

2972	NOSE-R comp.: calculation

Error in floating-point calculation for nose radius compensation.

Index TURRET

Character-string None

Code XYY

YY:

Bit 0 ..... Overflow in converting into integer

Bit 1 ..... Exponential underflow

Bit 2 ..... Exponential overflow

Bit 3 ..... Calculation of root of a negative number

Bit 4 ..... Division by 0

Bit 5 ..... Angle overflow for SIN, COS, TAN and COT

X:

1 ..... Calculation of graphic factor of straight line

2 ..... Calculation of graphic factor of arc

3 ..... Offset calculation of graphic factor of nose radius compensation amount

4 ..... Vertical vector calculation of straight lines and arcs

6 ..... Calculation of point of intersection: straight line and straight line

7 ..... Calculation of point of intersection: straight line and arc

8 ..... Calculation of point of intersection: arc and arc

9 ..... Calculation to select the target point from possible two points of inter-section with an arc

A ..... Recalculation of graphic factor of arc

B ..... Calculation of I and K from nose radius compensation point

C ..... Calculation of commands X, Z , I and K

<Error>

2973	NOSE-R comp.: cancel impossible

Code G40 cancelling tool nose radius compensation mode is designated in other than the G00 or G01 mode.

Index TURRET

Character-string None

Code None

2974	NOSE-R comp.: no cross point

Point of intersection cannot be calculated in line to arc or arc to arc intersection.

Index TURRET

Character-string None

Code 1 .....Straight line to arc

2 .....Arc to straight line

3 .....Arc to arc

2975	NOSE-R comp.: no spec.

G41 and G42 calling for tool nose radius compensation mode is designated although the control has no nose radius compensation specification.

Index TURRET

Character-string None

Code None

2976	NOSE-R comp.: start up impossible

Tool nose radius compensation mode entry is intended in other than permissible manner, and compensated point cannot be calculated.

Index TURRET

Character-string None

Code None .....G41 or G42 is designated in other than G00 or G01 mode.

10 .....The value commanded in the G41 or G42 block and the value commanded in the following block are the same.

11 .....X or Z command is not designated in the block following G41 or G42 block.

40 .....G40 is designated in the block following G41 or G42 block.

<Error>

2977	NOSE-R comp.: thread cycle

G31, G32 or G33 calling for thread cutting cycle is designated during the tool nose radius compensation mode.

Index TURRET

Character-string None

Code 1F.....G31 was designated

20.....G32 was designated

21.....G33 was designated

2978	Tool life control: no spec.

Tool life management variables are designated although the control has no tool life management specification.

Tool group TG and tool offset group OG are designated.

Mnemonic G code or TLID is designated.

Index TURRET

Character-string None

Code 1.....Tool life management variables are designated in the left part of the expression.

2.....Tool life control variables are designated in the right part of the expression.

5.....Tool group TG and tool offset group OG are designated.

Mnemonic G code or TLID is designated.

2979	Tool life control: tool group

Numerical value of tool group command TG is: TG < 1 or TG > 13

Index TURRET

Character-string None

Code Hexadecimal number of the designated TG

2980	Tool life control: no T-entry

Tools are not registered in the designated tool group.

Index TURRET

Character-string None

Code FFFFFFFF

<Error>

2981	Tool life control: tool offset group

Illegal tool offset group number is designated.

Index	TURRET
Character-string	None
Code	Hexadecimal number of the designated tool offset group number

2982	Tool life control: no T-offset

Tool offset number is not registered for the designated tool offset group.

Index	TURRET
Character-string	None
Code	FFFFFFFF

2983	Cannot IGF-convert G82 command (N****)

2984	Cannot IGF-convert G32 command (N****)

2985	Cannot IGF-convert G72 command (N****)

Conversion of G72 (Compound fixed thread cutting cycle: Transverse) for OSP3000 program is not possible.

2986	Cannot IGF-convert B command (N****)

Conversion of G71 (compound fixed thread cutting cycle: Longitudinal) is not possible when B (tool nose angle) is not zero.

2987	Cannot IGF-convert L command (N****)

Conversion of G71 (Compund fixed thread cutting cycle: Longitudinal) is not possible when M23 (chamfering ON) and L value (chamfering size) are designated.

2988	Cannot IGF-convert K command (N****)

2990	Cannot IGF-convert TG command (N****)

Conversion of TG (tool group command) for OSP3000 program is not possible.

<Error>

2991	Cannot IGF-convert OG command (N****)

Conversion of OG (offset group command) for OSP3000 program is not possible.

2993	LAP: NOSE-R not cancelled

Nose radius compensation mode is not cancelled at the end of LAP (sequence containing G80).

Index TURRET

Character-string None

Code None

2994	NOSE-R comp.: NOSE-R circle-R

Point of intersection cannot be calculated since the radius of the designated arc is smaller than nose radius.

Index TURRET

Character-string None

Code

1 ..... When obtaining the point of intersection - straight line to arc

2 ..... When obtaining the point of intersection - arc to straight line

3 ..... When obtaining the point of intersection - arc to arc

4 ..... The arc radius in the sequence following the G41/G42 sequence is smaller than nose radius.

2999	Output buffer over (N****)

Program buffer for output program becomes full during conversion.

3000	C-axis connect command

C-axis connect/disconnect command (M110, M109) is designated while such command is not designatable.

Index — TURRET

Character-string — None

Code

1 ..... The command is designated when the spindle is not at zero speed.

2 ..... The command is designated when the spindle is not at a still.

3 ..... The command is designated while the spindle rotation command is active.

4 ..... The command is designated while C-axis is clamped.

5 ..... The command is designated while C-axis is interlocked.

None ..... Intermediate connection signal is not turned off (0) from the ON state (1) when the spindle is rotated after the execution of M110. (Bit 1 of EC input No. 21 must change from "0" to "1".) Or connect input (EC input No. 21, bit 2 is not changed from "0" to "1") although C-axis connect signal is output high-speed C-axis connection specification.

3001	C-axis clamp/unclamp

C-axis clamp/unclamp (M147/146) command is designated when the C-axis is not connected.

Index — TURRET

Character-string — None

Code — 1 ..... The code is always "1".

Probable Faulty Locations
- Program error
- Operation error

Program Example
M109 ..... C-axis disconnected
M147 ..... C-axis clamp

Operation Example — M146/M147 is designated when the C-axis is not connected.

Measures to Take — Correct the program.

3002	C-axis command

C-axis movement command is designated while C-axis is connected but not unclamped.

Index — TURRET

Character-string — None

Code

1 ..... C-axis is not connected.

2 ..... C-axis is not unclamped.

<Error>

3003	Create process calculation

Calculation error has occurred during the tool path generation of profile generation function of G101, G102 or G103.

Index: TURRET

Character-string: None

Code: XYY

YY:

- Bit 0 ..... Overflow in converting into integer
- Bit 1 ..... Exponential underflow
- Bit 2 ..... Exponential overflow
- Bit 3 ..... Calculation of root of a negative number
- Bit 4 ..... Division by 0
- Bit 5 ..... Angle overflow for SIN, COS, TAN and COT

X:

- 1 ..... Former half of G101 tool path generation operation
- 2 ..... Latter half of G101 tool path generation operation
- 3 ..... Former half of G102 (G103) tool path generation operation
- 4 ..... Latter half of G102 (G103) tool path generation operation

3005	Data word: SB

Designated SB command is not: $0 \leqq SB \leqq 9999$

SB command is designated for B-turret.

Index: TURRET

Character-string: None

Code:

- 1 ..... SB command is designated for B-turret.
- Others ..... Hexadecimal number of commanded SB value

3006	Fixed cycle: no spec.

G code calling fixed cycle for multi-machining model is designated for a lathe without multi-machining function.

Index: TURRET

Character-string: None

Code: 1

< Error >

3007	Fixed cycle: C

Programmed C value is not: -360° < C < 360°

Index	TURRET
Character-string	None
Code	Hexadecimal number of designated C value

3008	Fixed cycle: I, K

In G181 through G184 and G189 mode cycle, both I and K or neither I nor K is designated.

In G181 through G184 and G189 mode cycle, designated I and K values are not: 0 < I, K < 99999.999

In G185 through G188 mode cycle, designated I and K values are not: -99999.999 < I, K < 99999.999

Index	TURRET
Character-string	None
Code	1 .....Both I and K commands are designated.
	FFFFFFFF .....No I and K commands
	Others .....Hexadecimal number of I and K values

3009	Fixed cycle: Q

Designated Q value is not: 1 ≦ Q ≦ 9999

Index	TURRET
Character-string	None
Code	Hexadecimal number of designated Q value

3010	Fixed cycle: F

Designated F value is either 0 or negative.

No F command

Index	TURRET
Character-string	None
Code	FFFFFFFF .....No F command
	Others .....Hexadecimal number of designated F value

3011	Fixed cycle: L

Designated L value is not: 0 < L ≦ 99999.999

Index	TURRET
Character-string	None
Code	Hexadecimal number of designated L value

<Error>

3012	Fixed cycle: D

Designated D value is not: $0 < D \leqq 99999.999$

No D command

Index	TURRET
Character-string	None
Code	EEEEEEEE .....No D command
	Others.....Hexadecimal number of designated D value

3013	Fixed cycle: X, Z

In the block containing G181 through G189, either X or Z is not designated. Or, numerical value of X and Z is not: $-99999.999 \leqq X, Z \leqq 99999.999$

Index	TURRET
Character-string	None
Code	FFFFFFFF .....No X and Z command
	Others.....Hexadecimal number of designated X and Z value

3014	Fixed cycle: SA

Designated SA value is not: $0 < SA \leqq 20$

No SA command

Index	TURRET
Character-string	None
Code	FFFFFFFF .....No SA command
	Others.....Hexadecimal number of designated SA value

3015	Fixed cycle: feed G94

G185 through G188 is designated in the G94 mode.

Index	TURRET
Character-string	None
Code	None

3017	Fixed cycle: thread cycle

In thread cutting cycle, designated I or K value is too large.

Index	TURRET
Character-string	None
Code	1

< Error >

3018	Data word: QA

QA command is designated for B-turret.

QA command is designated in other than the G00 and G01 mode.

Programmed QA value is not: $0 \leqq QA \leqq 1999$

Index TURRET

Character-string None

Code 1 ..... QA command is designated for B-turret.

2 ..... QA command is designated in other than G00 and G01 mode.

Others ..... Hexadecimal number of QA value

3019	Data word: X,Y command

For coordinate system conversion, both X and Y are assigned with "zero".

Index TURRET

Character-string None

Code None

3020	Data word: incremental

In the coordinate system conversion, the G code (G91) calling incremental mode is designated.

Index TURRET

Character-string None

Code Hexadecimal number of commanded code

3021	Data word: no X,Y

For coordinate system conversion, only one of X and Y is designated.

Index TURRET

Character-string None

Code None

3022	Data word: 'Y'

For coordinate system conversion, the numerical value of "Y" is not within the range below: $-99999.999 \leqq Y \leqq 99999.999$

Index TURRET

Character-string None

Code Hexadecimal number of commanded Y value

<Error>

3023	Data word: distance cal.

In coordinate system conversion, the value after the conversion is larger than 99999.999.

Index TURRET

Character-string None

Code None

3024	Data word: 'R'

In a block containing G181 through G184 or G189, either R=0 command is designated or an R command is designated with X and Z commands. Or the numerical value of X, Z or R does not fall within the following range: -99999.999 ≦ X, (Z or R) ≦ 99999.999

Index TURRET

Character-string None

Code 1 .....Simultaneous designation of R with X and/or Z

FFFFFFFF .....No X, Z or R command

Others.....Hexadecimal number of numerical value of designated X, Z or R

Note 1: For error message other than those indicated above, refer to the messages for Alarm B in Appendix 1 given in the Maintenance Manual.

Note 2: If a file other than the one created using the IGF function is designated as the input file, the Cannot IGF-convert message not shown above might be displayed.

3025	Unusable: create process command code

Profile generation commands G101, G102 and G103 are designated with B turret selected.

Index TURRET

Character-string None

Code Hexadecimal number of designated G code

3026	Create process calculation

Floating point calculation error in the preparation processing for the function generation of the G101, G102 and G103 main task.

Index — TURRET

Character-string — None

Code — XYX

YY:

Bit 0 ..... Overflow in converting into integer
Bit 1 ..... Exponential underflow
Bit 2 ..... Exponential overflow
Bit 3 ..... Calculation of root of a negative number
Bit 4 ..... Division by 0
Bit 5 ..... Angle overflow for SIN, COS, TAN and COT

X:

1 ..... Error in G101 processing
2 ..... Error in G102/G103 processing

3028	ATC: syntax

The ATC command is incorrect, or the ATC command is designated from the B turret program.

Index — None

Character-string — None

Code

0 ..... An ATC command is designated from the B turret program.
2 ..... Both TC and T commands are designated simultaneously.
3 ..... Both M06 and TC commands are designated simultaneously.
4 ..... Both M06 and MG commands are designated simultaneously.
5 ..... Both M06 and T commands are designated simultaneously.

3029	ATC: TC

A number not used for the turret numbers is designated as the turret index position command.

3030	ATC: TN

TN command value is not proper.

Index — None

Character-string — None

Code — None

< Error >

3031	ATC: no spec.

The ATC command is designated although the ATC specification is not supported.

Index	None
Character-string	None
Code	None

Table 1 Factor Classification Code/Factor Parameter

Factor Classification Code (XX)	Factor Parameter (YY)
03.....] 04..... EOR 06..... OR 08..... AND 0A ..... NOT	00 00 00 00 00
0C ..... Relative operator	01 .....LT 02 .....LE 03 .....EQ 04 ..... NE 05 ..... GT 06 ..... GE
0E	00
10..... Adding/subtracting operator	01 ..... + 02 ..... -
11..... Multiplying/deviding operator	01 .....* 02 ..... /
18..... Function operator	01 .....SIN 02 ..... COS 03 .....TAN 04 ..... ATAN 05 .....ATAN2 06 ..... SQRT 07 .....ABS 08 ..... BIN 09 .....BCD 0A ..... ROUND 0B.....FIX 0C..... FUP 0D.....DROUND 0E ..... DFIX 0F .....DFUP 10 ..... MOD
1A ..... [	00 .....
1C ..... =	00
22..... Numerical value	00 - 07 .....Position of decimal point
24..... I/O variable	01 .....Input variable 02 ..... Output variable
26..... System variable	01 .....Zero offset 02 ..... Zero shift 03 .....Tool offset 04 ..... Nose radius 05 .....Tool interference 06 ..... Plus variable stroke limit 07 .....Minus variable stroke limit 08 ..... Chuck barrier 09 .....Droop
28..... Common variable	01 .....V1 - V32 02 ..... V901 - V932
2A ..... Local variable	00
2C ..... Extended address character	00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 00 = AA AB DA DB FA FB IA IB KA KB LA LB RA RB SA 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D SB TA TB UA UB WA WB XA XB ZA ZB BC BR TG OG 00 - 1D
2E ..... Address character	00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 00 = A B C D E F H I J K L P Q R S 0F 10 11 12 13 14 T U W X Y Z 00 - 14

Factor Classification Code (XX)	Factor Parameter (YY)
30 .....M code	01 ..... M code 02 ..... Mnemonic M code 03 ..... Variable assignment (M=)
32 .....G code	01 ..... G code 02 ..... Mnemonic G code 03 ..... Variable assignment (G=)
34 .....Special G code	01 ..... G code 02 ..... Mnemonic G code 03 ..... Variable assignment
36 .....Sequence name	01 ..... Sequence number 02 ..... Sequence name
38 .....Program name	01 ..... Program number 02 ..... Program name
63 .....NL	00

Table 2 Alarm Code Table of User Graphic Command (UGC)

Alarm Code	Alarm Character	Contents of Alarm
(03)	"]"	
(0E)	","	
(10)	"+"	
(12)	"*"	
(1A)	"["	
(1C)	"="	
(22)		Numerical Value (integer)
(26)		System variable (S0 - S99)
(28)		User variable (D0 - D99)
(3C)	"TIP"	Tip shape registration
(3D)	"TIF"	Tool interference check data creation
(3F)		Substitute statement
(43)	"CALL"	Call of graphic macro
(46)	"WINDOW" "WD"	2-D development area Abbreviated form of WINDOW statement
(47)	"VIEW" "VI"	View plane coordinate system Abbreviated form of VIEW statement
(48)	"PLAIN" "PL"	Designation of draw plane Abbreviated form of PLAIN statement
(50)	"POINT" "PO"	Setting of drawing starting point Abbreviated form of POINT statement
(51)	"LINE" "LI"	Drawing line Abbreviated form of LINE statement
(52)	"CIRCLE" "CI"	Drawing circle Abbreviated form of CIRCLE statement
(53)	"PAINT" "PF"	Painting arbitrary shape Abbreviated form of PAINT statement
(54)	"PAINTI" "PI"	PAINT statement using incremental value Abbreviated form of PAINTI statement
(55)	"PAINTS" "PS"	Painting rectangle Abbreviated form of PAINTS statement
(56)	"PAINTP" "PP"	Painting rectangle plus triangle Abbreviated form of PAINTP statement
(63)		Line field
(90)	"-"	
(92)	"/"	
(A0)	"W"	Tool shape registration Designation of tool shape registration area (Z: 150 mm * X: 90 mm)

Alarm Code	Alarm Character	Contents of Alarm
(A1)	"L"	1) Tool shape registration Designation of tool shape registration area (Z: 90 mm * X: 150 mm) 2) CIRCLE statement Direction of circle rotation (left)
(A2)	"R"	CIRCLE statement Direction of circle rotation (right)
(A3)	"O"	1) Tool interference check data creation Designation of tool interference check pattern (outside) 2) Chuck shape registration Chuck type (OD gripping)
(A4)	"I"	1) Tool interference check data creation Designation of tool interference check pattern (inside) 2) Chuck shape registration Chuck type (ID gripping)
(C0)	"CL"	1) PAINTS statement (reference point position: lower center) 2) PAINTP statement (reference point position: lower center)
(C1)	"RC"	1) PAINTS statement (reference point position: center right) 2) PAINTP statement (reference point position: center right)
(C2)	"CU"	1) PAINTS statement (reference point position: upper center) 2) PAITNP statement (reference point position: upper center)
(C3)	"LC"	1) PAINTS statement (reference point position: center left) 2) PAINTP statement (reference point position: center left)
(C4)	"RL"	PAINTS statement (reference point position: lower right)
(C5)	"RU"	PAINTS statement (reference point position: upper right)
(C6)	"LU"	PAINTS statement (reference point position: upper left)
(C7)	"LL"	PAINTS statement (reference point position: lower left)
(D0)	"DEF"	Registration declaration
(D1)	"TOOL"	Tool shape registration
(D2)	"TAIL"	Tailstock spindle shape registration
(D3)	"WORK"	Blank shape registration
(D4)	"CHUCK"	Chuck shape registration
(D5)	"MACRO"	Graphic macro registration
(D6)	"DELETE"	Deletion of user graphic command
(D7)	"END"	End declaration

Table 3 FDC Result Status

Result Status 0 (ST0)

Bit No.	Status Name	Abbreviation	Contents
D7	Interrupt Code	IC	Indicates the cause of generating INT request: D7 D6 0 0 Normal termination of command (NT) 0 1 Abnormal termination of command (AT) 1 0 The command read is invalid. Command not executed (IC) 1 1 Device status changed (AI)
D6			
D5	Seek End	SE	The bit data is set when the seek processing invoked by SEEK or RECALIBRATE command has terminated (normally or abnormally).
D4	Equipment Check	EC	The bit data is set when the fault signal is received from the device, or the track 0 signal has not been detected within a preset cycle time in response to the RECALIBRATE command.
D3	Not Ready	NR	The bit data is set when the device designated is not in the ready state.
D2	Head Address	HD	This indicates the head status when the INT is requested. The bit data is always "0" when the SENSE INTERRUPT STATUS command is executed.
D1	Unit Select 1	US1	This indicates the device number when INT request is made.
D0	Unit Select 0	US0	

Abbreviation:

NT: Normal Terminate
AT: Abnormal Terminate
IC: Invalid Command
AI: Attention Interrupt

Result Status 1 (ST1)

Bit No.	Status Name	Abbreviation	Contents
D7	End of Cylinder	EN	The bit data is set when an attempt is made to continue access exceeding the designated final sector.
D5	Data Error	DE	The bit data is set if the CRC error is detected when the ID or data on a floppy disk is read. Distinction between ID and data is made with the DD bit at ST2.
D4	Over Run	OR	The bit data is set when the main system service does not complete with a preset cycle time during the processing of data in a sector.
D2	No Data		1. The bit data is set when the sector designated by the IDR is not detected on the track during the execution of the following four commands: READ DATA, WRITE DATA, WRITE DELETED DATA, SCAN 2. The bit data is set when the ID free of error is not detected on the track during the execution of READ ID command.
D1	Not Writable	NW	The bit data is set when write-disable condition is detected during execution of WRITE DATA, WRITE DELETED DATA and WRITE ID commands.
D0	Missing Address Mark	MA	1. The bit data is set when the AM (Address Mark) is not detected before the IM (Index Mark) is detected twice by the command to access the disk ID. 2. The bit data is set when the DAM or DDAM is not detected when reading the disk data. The MD bit of ST2 is also set.

Remark: D3 and D6 are not used and "0" is always set at them.

Result Status 2 (ST2)

Bit No.	Status Name	Abbreviation	Contents
D6	Control Mark	CM	The bit data is set when the data of sector containing DDAM is processed during execution of READ DATA or SCAN command.
D5	Data Error in Data Field	DD	The bit data is set when the CRC error is detected during reading of the disk data.
D4	No Cylinder	NC	This is the status attributing to the ND bit of ST1. The bit data is set when the C bytes of the ID do not match.
D3	Scan Equal Hit	SH	The bit data is set when the equal conditions in the SCAN command are satisfied.
D2	Scan Not Satisfied	SN	The bit data is set when the data meeting the condition is not detected after the completion of scanning, by the SCAN command, up to the final sector.
D1	Bad Cylinder	BC	This is the status attributing to the ND bit of ST1. The bit data is set when the C bytes of the ID do not match with the C bytes being FF (16).
D0	Missing Address Mark in Data Field	MD	The bit data is set if the DAM or DDAM is not detected when reading the disk data.

Remark: D7 is not used and "0" is always set at them.

Result Status 3 (ST3)

Bit No.	Status Name	Abbreviation	Contents
D7	Fault	FT	Status of Fault signal from the device.
D6	Write Protected	WP	Status of Write Protect signal from the device.
D5	Ready	RY	Status of Ready signal from the device.
D4	Track 0	T0	Status of Track 0 signal from the device.
D3	Two Side	TS	Status of Two Side signal from the device.
D2	Head Address	HD	Stauts of Side Select signal from the device.
D1	Unit Select 1	US1	Status of Unit Select 1 signal from the device.
D0	Unit Select 0	US0	Status of Unit Select 0 signal from the device.

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