

CNC SYSTEM FOR MACHINING CENTERS YASNAC J300M/J100M OPERATING MANUAL

Upon receipt of the product and prior to initial operation, read these instructions thoroughly, and retain for future reference.

REFERENCE

YASNAC J300M/J100M PROGRAMMING MANUAL	TOE-C844-2.2
YASNAC J300M LARGE-SIZE PROGRAM OPERATING MANUAL	TOE-C844-2.1-1



YASKAWA

MANUAL NO. TOE-C844-2.1

CONTENTS

Safety Information	iii
Visual Aids	iv
About this Manual	xi
Related Manuals	xi
CAUTIONS	xii
NOTES FOR SAFE OPERATION	xiii

1 OUTLINE OF THE PRODUCT

1.1 OUTLINE OF YASNAC SYSTEM	1 - 2
1.1.1 System Configuration	1 - 2
1.1.2 Environmental Requirements	1 - 5
1.1.3 Machine Operation Panel	1 - 7
1.1.4 General Specifications	1 - 8
1.2 PROTECTIVE FUNCTIONS	1 - 12
1.2.1 Emergency Stop	1 - 12
1.2.2 Overtravel	1 - 13
1.2.3 Stored Stroke Limit	1 - 14
1.2.4 Interlock Inputs	1 - 16

2 BASIC OPERATION OF YASNAC

2.1 GENERAL FLOW OF OPERATION	2 - 4
2.2 INSPECTION BEFORE TURNING THE POWER ON	2 - 5
2.2.1 Inspection of the NC Unit	2 - 7
2.2.2 Inspection of the Tape Reader	2 - 8
2.2.3 Preparation before Turning the Power ON	2 - 9
2.3 TURNING THE POWER ON AND INSPECTION AFTER POWER ON	2 - 10
2.3.1 Procedure for Turning the Power ON	2 - 10
2.3.2 Checking the Motors for Abnormalities	2 - 11
2.3.3 Procedure for Turning the Power OFF	2 - 12
2.3.4 Inspection of the Battery	2 - 13
2.4 MANUAL OPERATION (1)	2 - 17
2.4.1 Manual Rapid Traverse (RAPID)	2 - 17
2.4.2 Jog Feed (JOG)	2 - 18
2.4.3 Step Feed (STEP)	2 - 18
2.4.4 Handle Feed (HANDLE)*	2 - 19
2.5 MANUAL OPERATION (2)	2 - 20
2.5.1 Simultaneous 2- or 3-axis Handle Feed *	2 - 20
2.5.2 Manual Reference Point Return	2 - 21
2.5.3 Manual Reference Point Return to the Second Reference Point *	2 - 24
2.5.4 1-line MDI	2 - 25

2.6	AUTOMATIC OPERATION (1)	2 - 26
2.6.1	Preparation of Automatic Operation	2 - 26
2.6.2	Memory Operation	2 - 28
2.6.3	MDI Operation	2 - 29
2.6.4	Feed Hold	2 - 30
2.6.5	Override	2 - 31
2.7	AUTOMATIC OPERATION (2)	2 - 33
2.7.1	Optional Stop	2 - 33
2.7.2	Optional Block Skip	2 - 33
2.7.3	Dry Run	2 - 34
2.7.4	Display Lock and Machine Lock	2 - 35
2.7.5	Auxiliary Function Lock	2 - 36
2.7.6	Z-axis Command Neglect	2 - 36
2.7.7	4th-axis Command Neglect	2 - 36
2.7.8	5th-axis Command Neglect	2 - 37
2.8	OPERATION INTERVENTION DURING AUTOMATIC OPERATION	2 - 38
2.8.1	Manual Operation Intervention during Automatic Operation	2 - 38
2.8.2	MDI Operation Intervention during Automatic Operation	2 - 39
2.8.3	Automatic Handle Mode Offset *	2 - 40
2.8.4	Manual Absolute	2 - 42
2.9	AUTOMATIC OPERATIONS AT ENHANCED LEVEL	2 - 44
2.9.1	Tool Length Measurement *	2 - 44
2.9.2	Return to the Operation Interrupted Point *	2 - 48
2.9.3	Manual Centering Operation *	2 - 50
2.9.4	Program Restart *	2 - 51
2.9.5	Playback Function *	2 - 57

3 BASICS OF DISPLAY AND WRITING OPERATION

3.1	BASICS OF TERMS RELATED TO OPERATION	3 - 2
3.1.1	Process Screens	3 - 3
3.1.2	Jobs and Functions	3 - 3
3.1.3	YASNAC Function Structure	3 - 4
3.2	NC OPERATION PANEL	3 - 9
3.2.1	Keys and Display Screen on NC Operation Panel	3 - 9
3.2.2	Normal Display on CRT Screen	3 - 16
3.2.3	Pop-up Menu	3 - 21
3.2.4	Key Buffer Edit Function	3 - 22
3.2.5	Buzzer Function	3 - 23

4 EDIT PROCESS OPERATION

4.1	PART PROGRAM EDIT JOB	4 - 3
4.1.1	Calling a Part Program	4 - 4
4.1.2	Editing a Part Program	4 - 7
4.1.3	Saving a Part Program after Editing	4 - 23
4.1.4	Deleting a Part Program	4 - 25
4.2	PART PROGRAM DIRECTORY JOB	4 - 28
4.2.1	Display of the Directory of Part Programs	4 - 28
4.2.2	Calling a Part Program	4 - 35
4.2.3	Deleting a Part Program	4 - 37
4.2.4	Renaming a Part Program	4 - 39
4.2.5	Copying a Part Program	4 - 41
4.3	PART PROGRAM INPUT/OUTPUT AND VERIFY JOB	4 - 42
4.3.1	Inputting a Part Program	4 - 42
4.3.2	Outputting a Part Program	4 - 46
4.3.3	Verifying the Part Programs	4 - 53
4.3.4	Setting the Communication Conditions	4 - 57
4.3.5	Other Function	4 - 62
4.4	PROGRAM PATH DRAWING JOB	4 - 63
4.4.1	Features of the Program Path Drawing Screen	4 - 63
4.4.2	Description of the Program Path Drawing Screens	4 - 64
4.4.3	Basic Program Path Drawing Operation	4 - 87
4.4.4	Switching the Program Path Drawing Screen	4 - 89
4.4.5	Differences between the Program Path Drawing Job and the NC Path Drawing Job	4 - 90

5 SETUP PROCESS OPERATION

5.1	WORKPIECE COORDINATE SYSTEM JOB	5 - 3
5.1.1	Writing the Workpiece Shift Amount	5 - 4
5.1.2	Writing the Workpiece Coordinate System Shift Correction Amount	5 - 5
5.1.3	Writing the Workpiece Shift POS Value	5 - 6
5.1.4	Selecting the Absolute/Incremental Mode	5 - 8
5.2	TOOL DATA CONTROL JOB	5 - 9
5.2.1	Writing the Offset Data	5 - 9
5.2.2	Displaying and Writing the Tool Pot Number	5 - 15
5.2.3	Displaying the ATC Tool Status	5 - 17
5.2.4	Writing the Measured Tool Length Offset Amount	5 - 18

5.3	TOOL LIFE CONTROL JOB	5 - 23
5.3.1	Writing the Tool Life Control Data	5 - 23
5.3.2	Displaying the Tool Life Control Data	5 - 23
5.3.3	Setting the Tool Life Control Data	5 - 24
5.3.4	Erasing the Tool Life Control Data	5 - 27

6 RUN PROCESS

6.1	PROGRAM JOB	6 - 3
6.1.1	Program Information Displayed on Screen	6 - 3
6.1.2	Program Number Search	6 - 5
6.1.3	Address Search	6 - 7
6.1.4	Editing the Part Program Stored in Memory	6 - 9
6.1.5	Execution of a Part Program	6 - 10
6.1.6	Display of Subprogram Nesting Information	6 - 11
6.2	MDI OPERATION JOB	6 - 12
6.2.1	Entry of an MDI Program	6 - 12
6.2.2	Editing an MDI Program	6 - 12
6.2.3	Execution of an MDI Program	6 - 13
6.2.4	Deleting an MDI Program	6 - 14
6.2.5	Storing an MDI Program	6 - 14
6.3	COMMAND VALUE DISPLAY JOB	6 - 15
6.3.1	Collective Display of Command Values	6 - 15
6.4	SETTING JOB	6 - 16
6.4.1	Internal Switch Function *	6 - 16
6.4.2	Software Switch Function *	6 - 17
6.4.3	Macro Variable Function	6 - 17
6.4.4	F1-digit Function	6 - 19
6.4.5	Setting Function	6 - 20
6.4.6	Stored Stroke Limit Function *	6 - 21
6.5	OTHER JOB	6 - 22
6.5.1	NC Path Drawing Job *	6 - 22

7 COMMON PROCESS OPERATION

7.1	PRESENT POSITION DATA CONTROL JOB	7 - 2
7.1.1	Collective Display of Present Position Data	7 - 2
7.1.2	Display of Present Position Data in the Workpiece Coordinate System	7 - 4
7.1.3	Display of Present Position Data in the External Coordinate Values	7 - 5
7.1.4	Display of Remaining Distance	7 - 6
7.1.5	Setting the Coordinate Systems	7 - 7
7.1.6	Error Pulse Display Function	7 - 9

7.2	ALARM DISPLAY JOB	7 - 10
7.2.1	Alarm Function	7 - 10
7.2.2	Servo Alarm Function	7 - 11
7.2.3	User's Message Function	7 - 12
7.3	TIME CONTROL JOB	7 - 13
7.3.1	Calendar Function	7 - 14
7.3.2	Operating Time Function	7 - 15

8 MAINTENANCE PROCESS

8.1	PARAMETER JOB	8 - 3
8.1.1	Parameter Function	8 - 3
8.1.2	Setting Function	8 - 6
8.1.3	Sequence Parameter Function	8 - 7
8.1.4	Pitch Error Function *	8 - 8
8.2	I/O MONITORING JOB	8 - 13
8.2.1	Displaying the ON/OFF Status of the I/O Signals	8 - 13
8.2.2	Displaying the ON/OFF Status of the Selected I/O Signals	8 - 14
8.2.3	Turning ON/OFF I/O Signals Forcibly	8 - 16
8.3	INPUT/OUTPUT AND VERIFY JOB	8 - 17
8.3.1	Input/output and Verify Function	8 - 17
8.3.2	Background Reset Function	8 - 19
8.3.3	I/O Device Setting Function	8 - 19
8.4	INTERNAL INFORMATION JOB	8 - 20
8.4.1	Version Number Function	8 - 20
8.4.2	Memory Dump Function	8 - 21
8.4.3	Key Memory Function	8 - 21
8.4.4	Servo Configuration Function	8 - 22

9 MAINTENANCE

9.1	MAINTENANCE DATA	9 - 2
9.1.1	Checking the Status of Troubles	9 - 2
9.1.2	Checking the NC Information	9 - 3
9.1.3	Cause of Errors Detected in Self-diagnosis and Corrective Action	9 - 6
9.1.4	Display of Alarm Information	9 - 13
9.1.5	Cause of Alarm and Corrective Action	9 - 14
9.1.6	Troubleshooting (1)	9 - 15
9.1.7	Troubleshooting (2)	9 - 29
9.1.8	Alarms Not Indicated by Alarm Numbers	9 - 35

Appendix 1 LIST OF NC INPUT/OUTPUT SIGNALS

APPENDIX 1.1	INPUT SIGNALS (PLC → NC)	A1 - 2
1.1.1	Operation Mode Control Signals	A1 - 2
1.1.2	Servo Axis Control Signals (X-axis to 5th-axis)	A1 - 5
1.1.3	Spindle Control	A1 - 7
APPENDIX 1.2	OUTPUT SIGNALS (NC → PLC)	A1 - 9
1.2.1	Operation Mode Control Signals	A1 - 9
1.2.2	Servo Axis Control (X-axis to 5th-axis)	A1 - 13
1.2.3	Spindle Control	A1 - 16
1.2.4	Constants	A1 - 18

Appendix 2 PARAMETER TABLE

APPENDIX 2.1	CLASSIFICATION OF THE PARAMETERS	A2 - 2
APPENDIX 2.2	PARAMETER TABLE (J300M)	A2 - 3
APPENDIX 2.3	PARAMETER TABLE (YENET1200 COMPATIBLE DRIVER FOR J300M/J100M)	A2 - 48

Appendix 3 ALARM TABLE

APPENDIX 3.1	CLASSIFICATION OF ALARMS	A3 - 2
APPENDIX 3.2	ALARM TABLE (J300M)	A3 - 3
APPENDIX 3.3	ALARM TABLE (YENET1200 COMPATIBLE DRIVER FOR J300M/J100M)	A3 - 20