

# OPERATION MANUAL

FOR  
CNC PRECISION AUTOMATIC LATHES

**NT11-II / NP11-II**

**NT17-II / NP17-II**

NT11-II : From Machine No.3462

NP11-II : From Machine No.3531

NT17-II : From Machine No.3312

NP17-II : From Machine No.3770

**TSUGAMI CORPORATION**

## TABLE OF CONTENTS

	Page
FOREWORD .....	1
SECTION 1. SAFETY .....	1-1
1-1 Cautionary Points in Regard to Operation .....	1-1
1-2 Tooling Cautions .....	1-1
1-3 Electrical Cautions .....	1-2
1-4 Cautions during Unmanned Operations .....	1-2
SECTION 2. SPECIFICATIONS .....	2-1
2-1 Machine Compositions .....	2-1
2-2 Types of Peripheral Equipment .....	2-1
2-3 Standard Machine & NC Specifications and Standard Accessories .....	2-2
2-4 Special Specifications & Accessories .....	2-8
2-5 Views of Machines, Dimensions & Nomenclature of Major Components .....	2-12
2-6 Machine Installation .....	2-18
SECTION 3. OPERATION .....	3-1
3-1 Operation Panel .....	3-1
3-2 Operation .....	3-5
3-2-1 Basic Operations (Switching the Power ON, Establishing the Stand-By Condition & Switching the Power OFF .....	3-5
3-2-2 Manual Operations .....	3-6
3-2-3 Automatic Operations .....	3-7
3-2-4 Setting T-Axis Offset .....	3-9
3-2-5 Setting B-Axis Offset .....	3-14
3-2-6 Operator's-Panel Display .....	3-15
3-2-7 Optional Functions .....	3-16
SECTION 4. ADJUSTMENTS, INSPECTION & MAINTENANCE .....	4-1
4-1 Replacing the Spindle and Sub-Spindle Collet Chucks .....	4-1
4-2 Main-spindle Chucking Force Adjustment & Toggle Replacement .....	4-2
4-3 Adjusting the Guide Bushing .....	4-3
4-4 Sub-spindle Chucking Force Adjustment & Toggle Replacement (for NP Machines) .....	4-3
4-5 Exchanging the Rotating-type Bushing Holder (3184-Y640) and the Stationary-type Guide - Bushing Holder (for NT11/NP11) .....	4-5
4-5-1 Exchanging the Rotating-type Bushing Holder (3185-Y550) and the Stationary-type Guide-Bushing Holder (for NT17/NP17)	4-6

4-6	Inspecting & Adjusting the Belt Tension .....	4-8
4-7	Lubrication & Coolant Table .....	4-9
4-8	Advance/Retract Cylinder Adjustment (for NT Machines) .....	4-9
4-9 0	Adjusting the Amount of Lubricating Oil & Filter Replacement .....	4-10
4-10	Machine-Origin Position Setting .....	4-11
4-11	Signal Self-Diagnosis System .....	4-11
4-12	I/O Signal Diagnosis System .....	4-17
4-13	Alarm Messages & Remedies .....	4-21
4-14	NC Alarms & Remedies .....	4-29
4-15	Additional NC Parameters * & Settings .....	4-33
4-16	Maintenance Parts Lists .....	4-36
SECTION 5. PROGRAMS .....		5-1
5-1	Program Composition .....	5-1
5-2	Program Methods .....	5-2
5-3	Coordinates .....	5-4
5-4	M-codes .....	5-6
5-5	G-codes .....	5-17
5-6	S-codes .....	5-22
5-7	T-codes .....	5-22
5-8	Special Functions .....	5-22
5-8-1	Back-End-Machining Control Functions .....	5-23
5-8-2	Z-Axis-Following Control Functions .....	5-25
5-8-3	Sub-Spindle Control .....	5-26
5-9	Setting the Machining Conditions .....	5-28
5-10	Program Examples .....	5-36
SECTION 6. APPENDIX .....		6-1
6-1	Pneumatic Circuit Diagram .....	6-1
6-2	NT11/NP11 Tooling-Selection Table .....	6-2
6-3	NT17/NP17 Tooling-Selection Table .....	6-3
7	Electrical System Data .....	7-1