

SERVICE MANUAL

■ Applicable Specifications ■

Programmable Tailstock

■ Applicable Model ■

SL-150, 150MC, 150Y	TL-40, 40MC, 40Y
SL-200, 200MC	CL-15, 20, 25
SL-250, 250MC	ZL-150, 150MC
SL-300, 300MC	ZL-200, 200MC
SL-400, 400MC	ZL-250, 250MC

■ Applicable NC Unit ■

MSC-500	MSC-501
MSD-501	MSD-501II
MSC-518	MSD-518
MSD-518II	MSC-521

Before starting operation, maintenance, or programming, carefully read the manuals supplied by Mori Seiki, the NC unit manufacturer, and equipment manufacturers so that you fully understand the information they contain.
Keep the manuals carefully so that they will not be lost.

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- The contents of this manual are subject to change without notice due to improvements to the machine or in order to improve the manual. Consequently, please bear in mind that there may be slight discrepancies between the contents of the manual and the actual machine. Changes to the instruction manual are made in revised editions which are distinguished from each other by updating the instruction manual number.
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1. GENERAL

This manual deals with the procedure for setting and changing the data in the data table, PC parameters, and timers related with the programmable tailstock.

WARNING

The parameters are set on shipment in accordance with the machine specifications; do not change them without first consulting Mori Seiki. If the parameters are changed without consultation, the machine may operate in an unexpected manner, causing accidents involving serious injuries or damage to the machine.

CAUTION

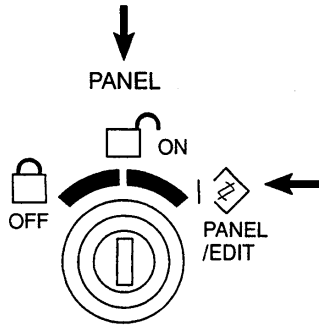
Do not change the data carelessly. Improper data will cause damage to the machine.



The configuration of the NC operation panel may vary depending on the specifications of the NC. For the purpose of explanation, NC operation panel used on MSC-500 is used.

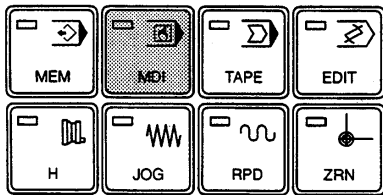
2. PROCEDURE FOR SETTING AND CHANGING THE DATA

To set or change the data for programmable tailstock, follow the steps indicated below.

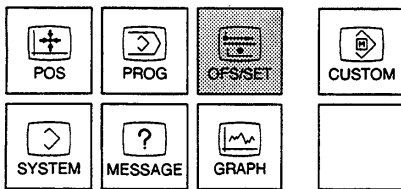


- 1) Place the PANEL key-switch in the (ON) or (PANEL/EDIT) position.

MODE



- 2) Press the MODE selection switch (MDI).



- 3) Press the function selection key (OFS/SET).

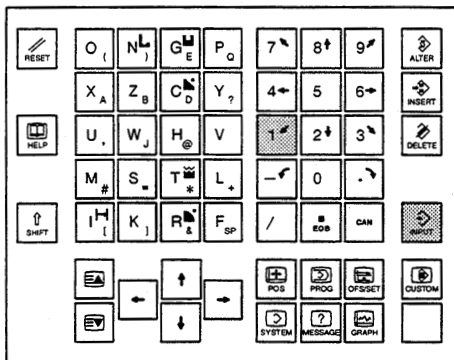
ABS	REL	ALL		
OFFSET	SETTING (highlighted)	WORK		(OPRT)

- 4) Press the [**SETTING**] soft-key.

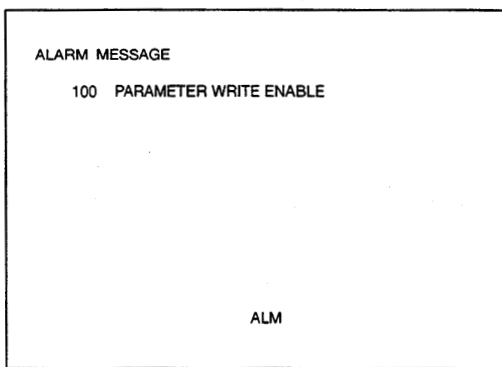


SETTING (HANDY)	
PARAMETER WRITE	= 0 (0: DISABLE 1: ENABLE)
TV CHECK	= 0 (0: OFF 1: ON)
PUNCH CODE	= 1 (0: EIA 1: ISO)
INPUT UNIT	= 0 (0: MM 1: INCH)
I/O CHANNEL	= 0 (0-3: CHANNEL NO.)
SEQUENCE NO.	= 0 (0: OFF 1: ON)
TAPE FORMAT	= 0 (0: NO CNV 1: F 15)
SEQUENCE STOP	= 0 (PROGRAM NO.)
SEQUENCE STOP	= 0 (SEQUENCE NO.)
[CONTRAST]	(+ = [ON: 1] -- = [OFF: 0])

- 5) Press the page selection keys (return) and (advance) to display the SETTING (HANDY) screen.
- 6) Move the cursor to "PARAMETER WRITE" using the cursor control keys and .

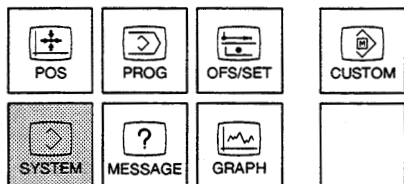


- 7) Press the key.
- 8) Press the (INPUT) key.

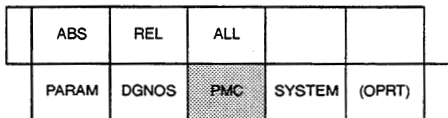


The data setting is enable when the following message is displayed:

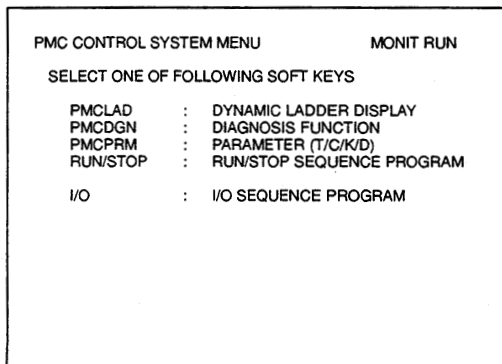
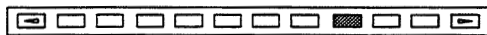
“100 PARAMETER WRITE ENABLE”



- 9) Press the function selection key (SYSTEM).



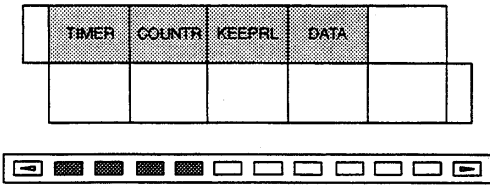
- 10) Press the [**PMC**] soft-key.



The PMC CONTROL SYSTEM MENU screen is displayed.

- 11) Press the [**PMCPRM**] soft-key.

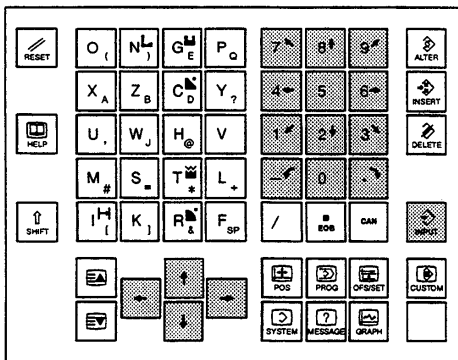
The setting screen for the timers, counters, keep relays, or the data table is displayed.



12) Press the soft-key corresponding to the data to be set.

[**TIMER**], [**COUNTR**], [**KEEPRL**],
[**DATA**]

The setting screen for the timers, counters, keep relays, or the data table is displayed in response to the pressed soft-key.

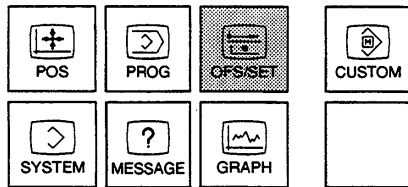



13) Move the cursor to the data number for which the data should be set or changed.

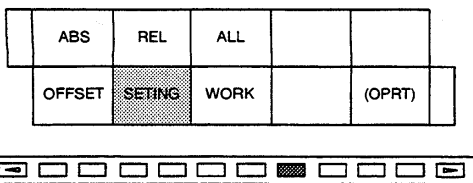
14) Input the data using the data entry keys.

15) Press the  (INPUT) key.

16) Set or change the data by repeating steps 12) to 15) above.



17) After finishing the setting or changing of the data, press the function selection key  (OFS/SET).





18) Press the [**SETTING**] soft-key.



The SETTING screen is displayed.

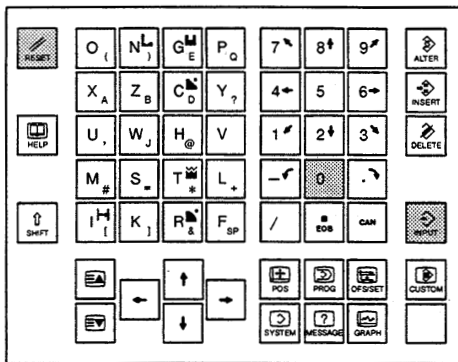
SETTING (HANDY)


PARAMETER WRITE = 0 (0: DISABLE 1: ENABLE)
 TV CHECK = 0 (0: OFF 1: ON)
 PUNCH CODE = 1 (0: EIA 1: ISO)
 INPUT UNIT = 0 (0: MM 1: INCH)
 I/O CHANNEL = 0 (0-3: CHANNEL NO.)
 SEQUENCE NO. = 0 (0: OFF 1: ON)
 TAPE FORMAT = 0 (0: NO CNV 1: F15)
 SEQUENCE STOP = 0 (PROGRAM NO.)
 SEQUENCE STOP = 0 (SEQUENCE NO.)

[CONTRAST] (+ = [ON: 1] - = [OFF: 0])

19) Press the page selection keys  (return) and  (advance) to display the SETTING (HANDY) screen.

20) Move the cursor to "PARAMETER WRITE" using the cursor control keys  and .




21) Press the  key.

22) Press the  (INPUT) key.



Always return the setting for "PARAMETER WRITE" to "0" to disable parameter change after finishing the setting and changing of the parameter data.

23) Press the  (RESET) key to clear the alarm state.

3. CLAMP POSITION DATA FOR THE PROGRAMMABLE TAILSTOCK

The clamp position of the programmable tailstock body is written to the data table (retained if power is turned off) and is updated automatically as the tailstock is moved.

If the memory area is cleared, it is necessary to set the clamp position data correctly.

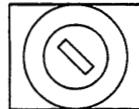
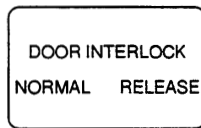
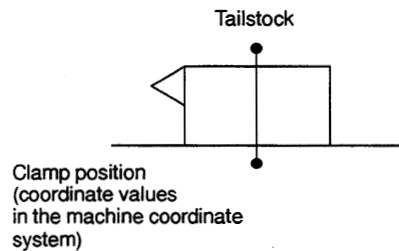


The clamp position data must be set correctly. If the setting is incorrect, the tailstock cannot be connected with the saddle correctly.

3.1 Resetting the Clamp Position Data

The procedure to set the clamp position data, for the tailstock, is indicated below.

<Example>



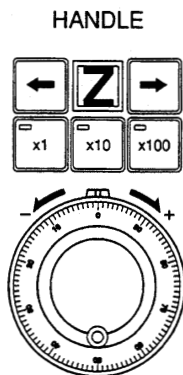
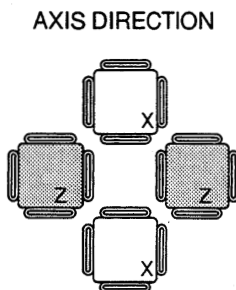
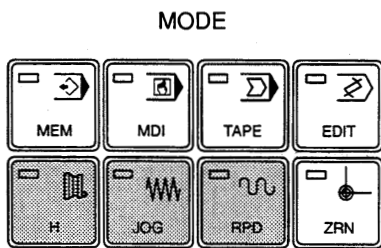
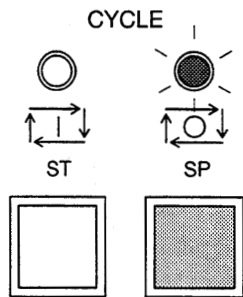
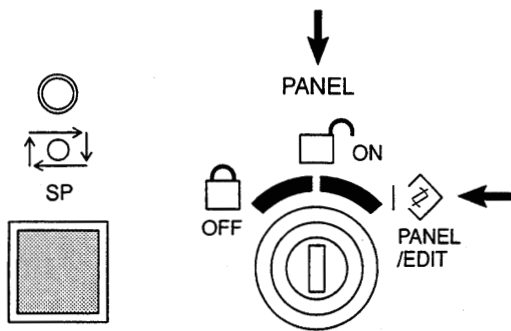
- 1) Place the DOOR INTERLOCK key-switch in the **NORMAL** position.
- 2) Close the front door.


- 3) Make the on-site adjustment mode valid.


- ① Make sure that the STATUS indicator [**MRDY**] is lit.

STATUS


- | | |
|-------------------------------|---------------------------------------|
| <input type="radio"/> ERR | <input checked="" type="radio"/> MRDY |
| <input type="radio"/> M00/M01 | <input type="radio"/> TRCL |
| <input type="radio"/> M02/M30 | <input type="radio"/> X |
| <input type="radio"/> CHCL | <input type="radio"/> Z |




② Press and hold down the  (SP) switch, place the PANEL key-switch as follows.

 (PANEL/EDIT) position.



 (ON) position.

The indicator above the  (SP) switch blinks and on-site adjustment mode is made valid.

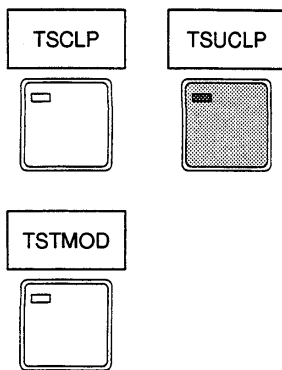
4) Set "4" for "D149" of the PC parameter.



For the procedure used for setting, refer to page P-2 (2.)

5) Press any of the shaded MODE selection switches shown to the left.

6) Move the saddle to the position where the tailstock can be connected with the saddle by moving the Z-axis with rapid traverse, jog feed, or handle feed operation.



7) Press the [**TSUCLP**] switch.

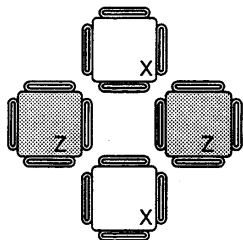
The tailstock is unclamped and the joint pin extends from the tailstock so that it is connected to the saddle.

The indicator in the [**TSUCLP**] switch is lit.

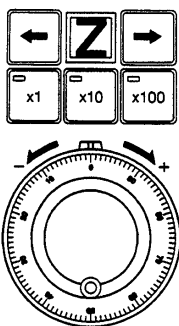
NOTE If the indicator in the [**TSUCLP**] switch is not lit when the [**TSUCLP**] switch is pressed, follow the procedure below.

- ① Press the [**TSCLP**] switch to clamp the tailstock once.
- ② Move the Z-axis to the required position and press the [**TSUCLP**] switch again.

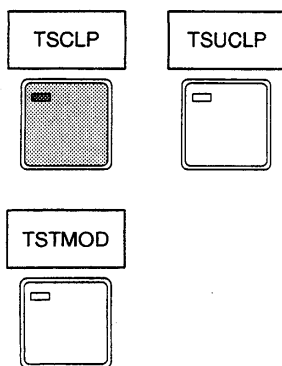
AXIS DIRECTION



HANDLE



8) After making sure that the indicator in the [**TSUCLP**] switch has been lit, move the tailstock to the required position in the selected operation mode (rapid feed, jog feed, handle feed).



9) Press the [**TSCLP**] switch.

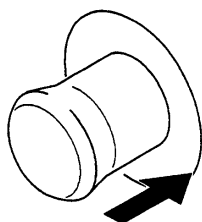
The tailstock is clamped; it is disconnected from the saddle.

The indicator in the [**TSUCLP**] switch goes off and the indicator in the [**TSCLP**] switch is lit.

When the tailstock is clamped, the connective position data for storing is automatically updated.

10) Press the emergency stop button.

The on-site adjustment mode is cleared.



4. PC PARAMETERS RELATED WITH PROGRAMMABLE TAILSTOCK






This section deals with the PC parameters related with the programmable tailstock.



WARNING


The parameters are set on shipment in accordance with the machine specifications; do not change them without first consulting Mori Seiki. If the parameters are changed without consultation, the machine may operate in an unexpected manner, causing accidents involving serious injuries or damage to the machine.



For the setting of the parameter, refer to page P-2 (2.)

Address	Description
PCLPOK. P (D125.6)	<p>1: Clamp is enabled after Z-axis movement in the positive direction (manual mode)</p> <p>0: Clamp is disabled after Z-axis movement in the positive direction (manual mode)</p> <p> Standard setting is "0".</p>
TSRPD. P (K4.3)	<p>1: Rapid override is 25% or lower while programmable tailstock is unclamped.</p> <p>0: Rapid override is 50% or lower while programmable tailstock is unclamped.</p> <p> Standard setting is "0".</p>
TSJOG. P (K4.1)	<p>1: Manual rapid traverse rate is fixed at  (fine feed) while programmable tailstock is unclamped.</p> <p>0: Manual rapid traverse rate is according to the rapid override while tailstock is unclamped while programmable tailstock is unclamped.</p> <p> Standard setting is "0".</p>
TSOCOK. P (D149.2)	<p>1: Unclamp is enabled even when the programmable tailstock is not at the tailstock connective position.</p> <p>0: Unclamp is disabled only when the programmable tailstock is at the tailstock connective position.</p> <p> Standard setting is "0".</p> <p>This parameter is the on-site adjustment parameter.</p>

Address	Description
NTSDEC. P (D279.7) (ZL series)	1: Tailstock feed deceleration switch is not used. 0: Tailstock feed deceleration switch is used.  Standard setting is "0".
TSCLSIFT. P (D281.6) (ZL series)	1: Clamp with Z-axis 1 shifted after clamp command is executed. 0: Unclamp without Z-axis 1 shifted after clamp command is executed.  Standard setting is "0".

