Turning servo ON

When the **T/B ENABLE key** 1 (search for number on page 5 "**Overview of Mitsubishi T/B**") is enabled (the white LED lights up), press **DEADMAN switch** 24 lightly when carrying out functions with the **SERVO button** 9, such as jog operations.

When **DEADMAN switch** 24 is released or pressed with force, the servo will turn OFF.

If **EMERGENCY stop button** 3 or servo OFF have been applied, and the servo is OFF, the servo will not turn ON even when **DEADMAN switch** 24 is pressed. In this case, carry out the servo on operation again **(SERVO button** 9 **)**.

JOG manipulation

1. Speed setting

Push **OVRD buttons** 13 [OVRD Upper arrow] or [OVRD Lower arrow] of T/B, and change operation speed.

Available speed:

LOW – HIGH – 3% - 5% - 10% - 30% - 50% - 70% - 100%

The changed speed is displayed on the combo box in the screen lower left of T/B.

Selection of this combo box can also do the setup of speed.

2. Jog mode

There are 6 different ways of manipulating robot in jog mode:

JOINT   XYZ   TOOL   3-axis XYZ   Cylinder   WORK

Push the **JOG button** 15 **<a>** of T/B, the JOG operation screen will be displayed. The current jog mode is displayed in the combo box **<b>.** Jog mode can be selected from this combo box.

3. Switching Tool Data

Tool data helps operation with attached grippers.

If tool data is set in parameters, Tool Center Point can be shifted. Changes are conducted by selecting required tool number from combo box on the top of the screen.

4. Jog operation

- Push the **T/B ENABLE key** 1 and enable the T/B. The white LED lights up.

- Press the **JOG button** 15 **<a>** of T/B and display the JOG operation screen.

- Select jog mode (JOINT/XYZ/TOOL/Other).

- Turn servo ON with the **SERVO button** 9 **<d>** pressed, in the condition that the **DEADMAN switch** 24 is pushed.

  Note: When the servo turns on, LED (green) of the SERVO button lights up.

- Execute jog feeding by pushing the button of each coordinate (**+/- buttons** 16) **<b>**, continuing pushing the **DEADMAN switch** 24 of T/B**<c>**.

  Note: Jogging movement is in the servo power supply ON state. By pushing in the DEADMAN switch still more strongly during jog feeding, or detaching, the servo power supply can be turned off and can stop the robot.

- If the button corresponding to the axis to move is pushed, only while pushing, the robot will move.

- If it finishes, tap the [Close] button of the T/B screen and close the JOG operation screen.
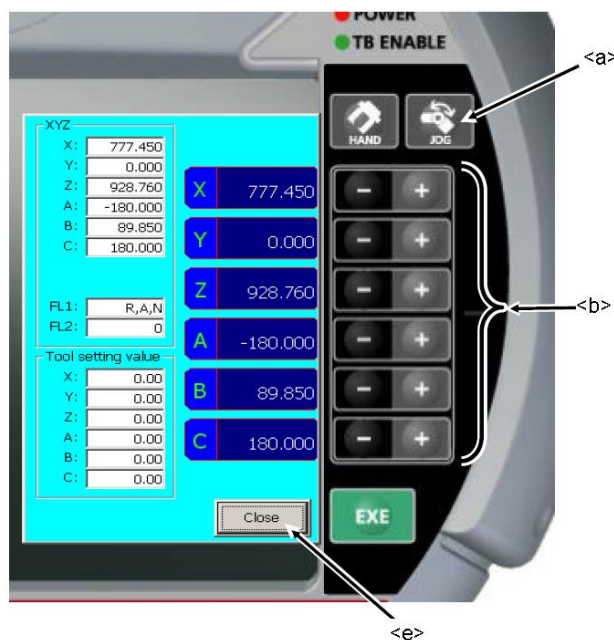
5. Aligning the Hand

The posture of the hand attached to the robot can be aligned in units of 90 degrees.

This feature moves the robot to the position where the A, B and C components of the current position are set at the closest values in units of 90 degrees.

If the tool coordinates are specified by the TOOL instruction or parameters, the hand is aligned at the specified tool coordinates.

If the tool coordinates are not specified, the hand is aligned at the center of the mechanical interface.

- Push the **HAND button** 14 of T/B and display the hand operation screen.

- Make sure that servo is ON.

- While the **EXE button** 17 of T/B is pushed, the robot will move toward the alignment position.

  Note: In the condition that the servo is ON, during movement at the lower left of the T/B screen, notice displayed icon , and if alignment is completed, displayed at there.

- If it finishes, tap the [Close] button of the T/B screen and close the hand operation screen.

Operation panel

This screen has functions equal with controller's operation panel. This screen can be started by selecting the program. This screen is possible to use it even in "AUTOMATIC" and "MANUAL" mode.

1. Starting

(1) Tap the [MENU] button (**<a>** or **MENU button** $\boxed{18}$) of a T/B screen and display menu panel.

(2) Tap the [Operation panel] button <b> in the menu.

(3) The [Operation panel] screen is displayed.
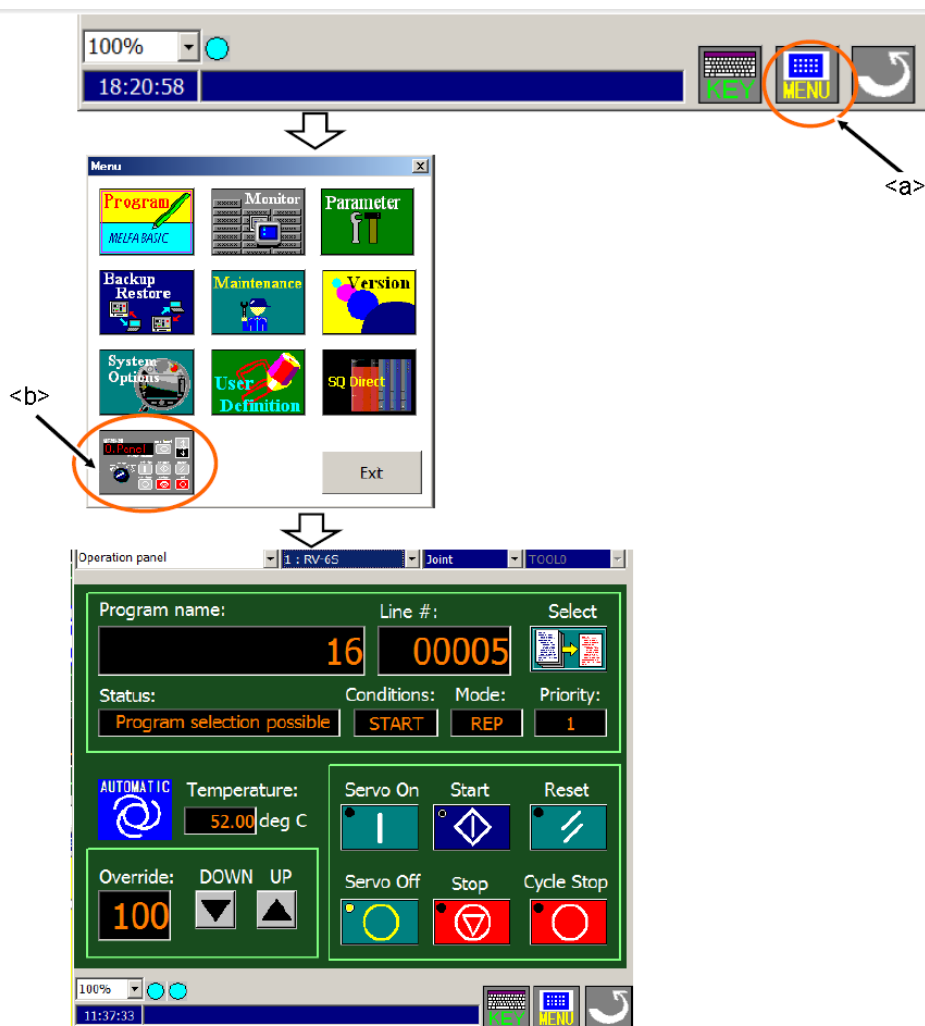
2. Program selection

- Tap the [Select] button(top-right corner).
- [Select] dialog is displayed.
- Select the program and Tap the [Select] button
- Since the confirmation screen is displayed, the [Yes] button is tapped.
- Program selection is done

3. *Servo ON/OFF*

Tap the [Servo On] button **<a>**, the servo power is turned on. Tap the [Servo Off] button **<b>**, the servo power is turned off.

4. *Reset*

The [Reset] button can be reset the controller's error. This also resets the program's halted state and resets the program.
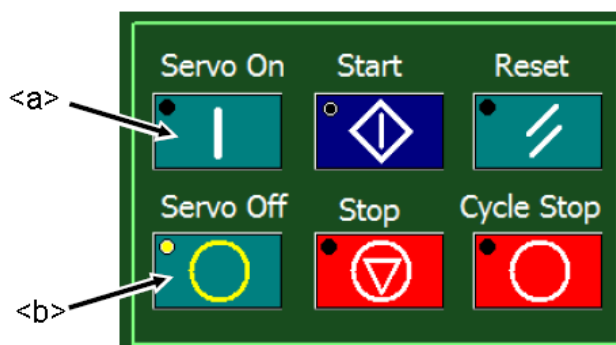
5. *Start operation*

- Make sure that program is in [Program Selection possible] mode. If not, perform *4.Reset* operation.
- Tap the [Start] button **<a>**
- The Caution dialog **<b>** is displayed.
- An automatic driving begins when [OK] button **<c>** is tapped after safety is confirmed.
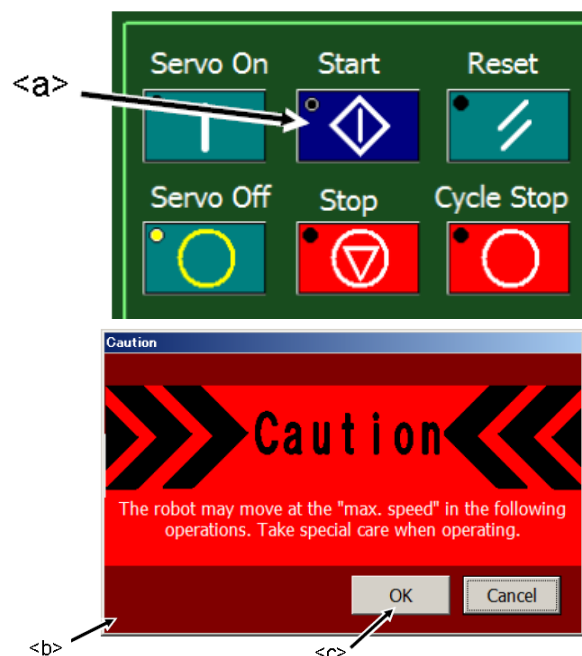
6. *Stop*

Tap the [Stop] button, the running program is immediately stopped, and the moving robot is decelerated to a stop. The servo power is hold turning on. To turn servo off, simply tap the [Servo Off] button or release **DEADMAN switch** 24 .

7. *Cycle stop*

If the [Cycle Stop] button is tapped during the continuous operation, the program will stop after one cycle. The lamp on button blinks during the cycle stop.
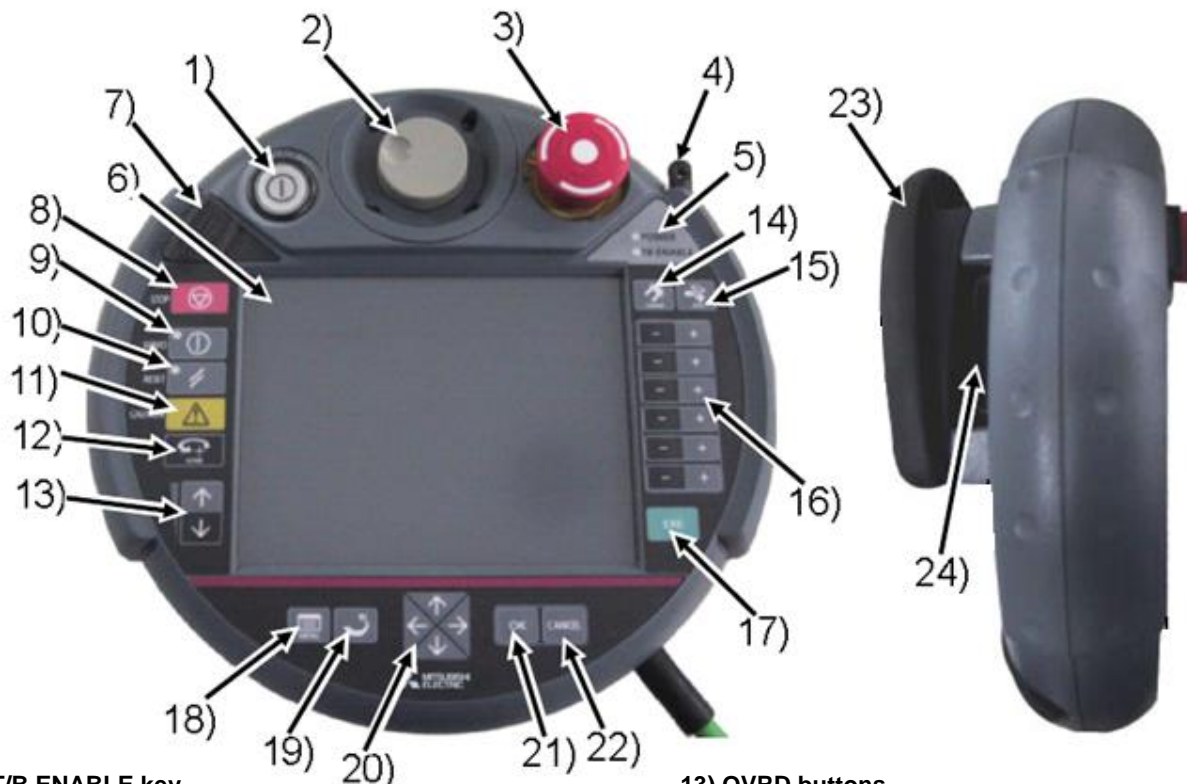
It returns to a continuous operation when the [Cycle Stop] button is tapped again during cycle stop.

Overview of Mitsubishi T/B

1) T/B ENABLE key	**13) OVRD buttons**
2) Wheel	**14) HAND button**
3) EMERGENCY stop button	**15) JOG button**
4) The pen which operates the touch panel.	**16) +/- buttons**
5) Power supply LED, T/B enable LED POWER	**17) EXE button**
6) Touch panel	18) MENU button
7) USB connecter Plug-in the USB memory.	19) RETURN button
8) STOP button	20) Arrow button
9) SERVO button	21) OK button
10) RESET button	22) CANCEL button
11) CAUTION button	23) Multi grip handle
12) HOME button	**24) DEADMAN switch**

DEADMAN switch has 3 possible states: Released (OFF) || Pressed slightly (ON) || Pressed with force (OFF). Keep **DEADMAN switch** ON for manual operation.

DEADMAN switch is placed on both sides of T/B. For correct functioning use one trigger on any side.