BOY 22A INJECTION MOLDING QUICK START GUIDE

Basic Operation

VERSION 2.0

4/16/2019
TABLE OF CONTENTS

CLICK/TAP TO JUMP TO SECTION

CONTROL PANEL - SIDE BUTTONS

MAIN SCREEN CYCLE DIRECT SELECTION BUTTONS

CONTROL PANEL-BOTTOM BUTTONS

ICON LEGEND

PARAMETERS TO ADJUST

MAIN GUIDE

COLOR CHANGING GUIDE
MAIN SCREEN CYCLE DIRECT SELECTION BUTTONS

CLICK/TAP CALLOUT FOR MORE INFORMATION

1. CLAMPING UNIT CLOSE
2. PLASTICIZING UNIT (NOZZLE ADVANCE)
3. INJECTION PROCESS (FILLING PHASE)
4. INJECTION PROCESS (HOLDING PRESSURE-PHASE)
5. PLASTICIZING
6. PLASTICIZING (DECOMPRESSION)
7. CYCLE TIME ANALYSIS (COOLING TIME)
8. PLASTICIZING UNIT (RETRACT NOZZLE)
9. CLAMPING UNIT OPEN
10. EJECTOR (ADVANCE / RETURN EJECTOR)
11. CYCLE TIME ANALYSIS (END OF CYCLE)
CONTROL PANEL-BOTTOM BUTTONS 

CLICK/TAP CALLOUT FOR MORE INFORMATION

MENU SCREEN
CLAMPING UNIT SCREEN
EJECTOR SCREEN
HEATING ZONE SCREEN
SCREEN SHOT BUTTON
ALARM REPORTS SCREEN
PLASTICIZING UNIT SCREEN
INJECTION PROCESS/FILLING PHASE SCREEN
CYCLE TIME ANALYSIS SCREEN
INFO SCREEN

RETURN TO TABLE OF CONTENTS
PARAMETERS TO ADJUST

CLICK/TAP CALLOUT FOR MORE INFORMATION

COOLING TIME

SHOT SIZE

HOLDING PRESSURE, HOLDING TIME (PACKING)

RETURN TO TABLE OF CONTENTS
1. Turn on Chiller (Side of machine)
2. Turn on Main power (Front)
3. Press KEY Icon to sign in as a Level 2 User
   a. User Name: 1234
   b. Password: 1234
4. Turn on both Heaters and let them reach operating temp. Note: this process takes a while and is normal. You can observe the process by pressing the HEATING ZONE button at the bottom of the Control Panel.
5. Install the Cavity mold on the MUD insert. (Remember not to force it!)
6. Install the Core mold on the MUD insert
7. Install Ejector Pins
   a. To help do this, you may want to shine a light through the other side to help with placement, or even put the pins in from the other side to ensure they are located properly.
   b. Also, don’t forget the sprue ejector pin!
8. Remember to spin each pin with your fingers so as to test to see if they bind. If they do not spin once inserted, change them out as they may be bent.
9. Attach the back push-plate
10. Install the large bolt onto the Core MUD insert
11. Load the MUD inserts into the MUD Frame within the machine
   a. Remember: if the inserts start to bind and don’t move easily, remove them, take a breath, and start again
12. Press and hold the Manual Mode Button for more than 3 seconds. (You should see a progress bar fill, followed by “SET-UP MODE” at the top-right of the screen)
13. Close the Safety Gate
14. Test the ejector pins by pressing the Ejector button.
15. Retract the ejector pins by pressing the Ejector button.

   a. This process is done to check that you have installed all the necessary ejector pins and the sprue pin, that they all properly eject, and that they still move somewhat freely in the mold. If your ejector pins are not all ejecting properly, remove the MUD insert and confirm you’ve followed the proper steps to set up the mold.
16. While still in SETUP MODE, press the Clamping Unit Button to close the mold fully closed. (The mold should move slowly during this process)
17. While the molds are closed, open the safety gate and turn the large bolt on the core insert counter clockwise until it reaches the surface of the cavity insert. Turn the locking nut clockwise until it is tight against the core insert, thus locking the bolt in place. This step will ensure the mold inserts will not “yawn” and create flash at the top of the mold.
18. After the bolt is tightened against the cavity, set the position of the mold to zero by pressing the SET button on the pop-up number pad.

1. PRESS HERE FIRST

2. THEN SET ZERO SECOND HERE

NOTE: THE GRAPHIC SHOULD DISPLAY A “CLOSED” MOLD CLAMP
19. Close the safety gate
20. Retract the mold by pressing the Clamping Unit button.
21. To return to the Main screen, press the button on the bottom of the control panel.
22. Check the Resin Hopper, (located on top of the machine body) to make sure enough resin is available. Add more if needed by removing the lid and adding about 1 coffee can of resin.
23. Press the “SEMI-AUTO” button
24. Press the START button, (or open and close safety gates) to begin the run cycle.
25. After cycle is complete, open safety gate and remove part.
26. Close safety gate to create a new part OR return to Manual mode to change parameters by pressing the MANU-AL button
27. When finished with the run, remove all parts, make sure ejector pins are fully retracted, make sure clamping system (mold) is fully open, and finally, remove MUD inserts
28. Disassemble mold and return all ejector pins, shims, screws, and anything else used in this process to its proper home.
29. Turn off Main power
30. Turn off chiller
1. CLAMPING UNIT CLOSE

RETURN TO MAIN CYCLE SCREEN
2. PLASTICIZING UNIT (NOZZLE ADVANCE)

RETURN TO MAIN CYCLE SCREEN
3. INJECTION PROCESS (FILLING PHASE)

TO CHANGE SHOT SIZE, PRESS THIS BUTTON AND ADJUST ACCORDINGLY.
4. INJECTION PROCESS (HOLDING PRESSURE PHASE)

TO CHANGE HOLDING TIME AND PRESSURE, PRESS THESE BUTTONS AND ADJUST ACCORDINGLY

RETURN TO PARAMETERS SCREEN

RETURN TO MAIN CYCLE SCREEN
5. PLASTICIZING
6. PLASTICIZING (DECOMPRESSION)
7. CYCLE TIME ANALYSIS (COOLING TIME)

TO CHANGE COOLING TIME, PRESS THIS BUTTON AND ADJUST ACCORDINGLY
8. PLASTICIZING UNIT (RETRACT NOZZLE)
9. CLAMPING UNIT OPEN

RETURN TO MAIN CYCLE SCREEN
10. EJECTOR (ADVANCE-RETURN EJECTOR)
11. CYCLE TIME ANALYSIS (END OF CYCLE)
ALARM REPORTS

0.00 Fault signals, current

00151 04.03.2019 11.56.39 am
Monitoring of heating (Monitoring time expired)

RETURN TO BOTTOM BUTTON SCREEN
Screen page "0.10 Menu"

By color change, the key itself shows green if the associated function in the cycle is active. If the cycle stops unexpectedly, this is the first indication for locating a problem.

5 Cycle time
BOY-Logo

Press on the BOY logo (transparent key) to call up the first page of the table of contents. From there, all screen pages can be selected.

6 Display clamping force

Here, the current clamping force is shown as a bar graph and numerically in kN (Kilo-Newton).

7 Display cylinder temperature

Here, the graphic image of the cylinder temperature zones and the water-cooled feed throat zone is indicated, if the selector switch "feed throat zone cooling ring" is switched on at the screen page 14.22. If the selector switch "Rubber / Thermostat processing" is switched on there, the graphic image of the cylinder temperature zones is masked out. The current temperature actual values are shown numerically. In addition, the temperatures are also shown graphically and the temperature range is marked by colors:
- blue under-temperature
- green temperature within the working area
- red over-temperature

RETURN TO BOTTOM BUTTON SCREEN
HEATING ZONE SCREEN

5.10 Heating zones

<table>
<thead>
<tr>
<th>Zone</th>
<th>Temp (°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>390</td>
</tr>
<tr>
<td>2</td>
<td>390</td>
</tr>
<tr>
<td>3</td>
<td>430</td>
</tr>
<tr>
<td>4</td>
<td>420</td>
</tr>
<tr>
<td>5</td>
<td>27</td>
</tr>
</tbody>
</table>

Lever temperature manually

Software: 15.21.51, Project: 02.22.00
INFO/ONLINE MANUAL

Screen page "0.10 Menu"

By color change, the key itself shows green if the associated function in the cycle is active. If the cycle stops unexpectedly, this is the first indication for locating a problem.

5 Cycle time

BOY-Logo

Press on the BOY logo (transparent key) to call up the first page of the table of contents. From there, all screen pages can be selected.

6 Display clamping force

Here, the current clamping force is shown as a bar graph and numerically in kN (Kilo-Newton).

7 Display cylinder temperature

Here, the graphic image of the cylinder temperature zones and the water-cooled feed throat zone is indicated, if the selector switch "feed throat zone cooling ring" is switched on at the screen page 14.22. If the selector switch "Rubber / Thermoset processing" is switched on there, the graphic image of the cylinder temperature zones is masked out. The current temperature actual values are shown numerically. In addition, the temperatures are also shown graphically and the temperature range is marked by colors:

- blue under-temperature
- green temperature within the working area
- red over-temperature

RETURN TO BOTTOM BUTTON SCREEN
HEATING ZONE SCREEN
1. Close shut-off gate on the hopper
2. Remove resin hopper by unscrewing the bolt and dump all clean resin into Clear resin bucket
3. Replace hopper onto machine
4. Mix the color:
   a. Ratio
      i. 1 coffee can or 500 grams of clear resin
      ii. 1 teaspoon or 2.5 grams of colored resin
   b. Combine the colors in a mixing container and shake and mix appropriately. You want the colored resin to be distributed evenly throughout the clear polypropylene.
5. Pour the colored mixture into the hopper
6. Open shut-off gate on the hopper
AFTER YOUR RUN...
1. Close the hopper shut-off gate
2. Remove the hopper and dump all contents into the bucket labeled “TYE DYE”
3. Replace the hopper (Remember to tighten the bolt on the side!)
4. Dump about ½ coffee can of Dyna-purge into the hopper
5. Go into “manual” mode by pressing the (HAND) button
6. Retract the PLASTICIZING NOZZLE
7. Extrude all the Dyna-Purge in the hopper by repeatedly pressing the \[ \text{circled} \] and \[ \text{arrow} \] buttons.
8. After every 1-2 extrudes, open the Nozzle Protection Door and remove the extruded plastic from the Nozzle using the knife. Be careful! The plastic may still be hot!
9. After the Dyna-Purge is finished, add about a ½ coffee can of clear resin to the hopper
10. Extrude the clear resin until it no longer has any color by repeating step #7.

Remember to clean the extruded plastic like in step 8!
11. When the plastic is finally clear, go into the “Setup” mode by pressing and holding the (HAND) button for longer than 3 seconds (SEE STEP #12 IN MAIN GUIDE), then move PLASTICIZING UNIT back to operating position.