

SEIKI VALVE & SPEAR SYSTEM

S2000 Controller Troubleshooting



SEIKI CORPORATION

CAUTION

Exercise sufficient care to avoid electric shock before removing the cover of the power to confirm the condition during troubleshooting.

Be sure to turn off the main breaker when there is a risk of touching the charged section during confirmation of the connection of cables and wires or when changing parts during inspection or repair.

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1. When an error message is given

1.1. Sensor disconnection error

- The sensor disconnection error is displayed when there is disconnection or poor contact in the body (spear and probe) or manifold sensor (thermocouple). The temperature display is 999°C.

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Is there any section where the connector pin not projecting enough in the sensor connector (body, cable, and connector box), causing poor engagement?	Yes.	Repair the defective section.
		No.	To 1-1
1.1	Is the sensor circuit disconnected?	Yes.	Check the disconnected section and repair it.
		No.	To 1-2
1-2	Will the room temperature be displayed when the sensor junction line is removed and the + and – pins of the pertinent zone of the controller sensor input connector are short-circuited by a cable or the like?	The display remains 999°C.	The controller seems to be abnormal. Check the sensor wiring inside the controller. When there is no nonconformance like separation of the connector in the wiring, contact the nearest sales office.
		The room temperature is displayed.	The mold including the cable seems to be nonconforming. * The body sensor may be disconnected when the temperature rises even if it is normal at room temperature. Contact the nearest sales office.

1.2. Sensor response error

- The sensor response error is displayed when the actually measured temperature becomes more than 50°C higher than the preset temperature in cases where the heater and sensor (thermocouple) of the same zone are connected to the different zones, respectively, in the body (spear and probe) or manifold.

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Has the preset temperature setting been changed to a value more than 50°C lower than the actually measured temperature?	No.	To 1-1
		Yes.	Wait until the temperature reaches the range within the preset temperature + 50°C, and then raise the temperature.
1-1	Is there any section where the heater circuit and sensor are connected to different zones?	Yes	Correct it.
		No.	The controller seems to be abnormal. Contact the nearest sales office.

1.3. Sensor reverse connection error

- The sensor reverse connection error is displayed when the + (plus) and – (minus) terminals of the body (spear and probe) or manifold sensor (thermocouple) are connected reversely.

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1.	Are the + and – pins of the sensor in the zone where an error occurred connected reversely in the connector box or in some other joint section?	There is reverse connection.	Connect them correctly.
		There is no reverse connection.	The controller seems to be abnormal. Contact the nearest sales office.

1.4. Operation of overcurrent protection circuit (spear and valve tip)

- This is displayed when an excessive current flows because of short-circuiting inside the heater or in wiring.

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Remove the junction line from the connector box, and measure the value of resistance of the circuit where an error has occurred by using a tester. The correct values of resistance of respective circuits are as follows: Spear tip: 0.2-1.0Ω Spear body: 3-5Ω Valve tip: Approx. 2Ω	The value of resistance has dropped.	Repair the defective section.
		The value of resistance is normal.	Contact the nearest sales office.

1.5. Heater disconnection error

- The heater disconnection error is displayed when the wiring of the heater or heater circuit is disconnected.

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Is there any section where the connector pin is not projecting enough in cases where a HARTING connector is used?	Yes.	Repair the defective section.
		No.	To 1-1
1-1	Is the heater circuit disconnected?	Yes.	Repair the defective section.
		No.	To 1-2
1-2	Does the disconnection error occurs again when the power is turned on and temperature is raised after connecting the cable again?	The error occurs again.	The controller seems to be abnormal. Check the heater wiring inside the controller. If the wiring is normal, contact the nearest sales office.
		The normal state is restored.	When the error occurs frequently or it occurs several times in a month, it is conceivable that the cable is disconnected due to thermal expansion when the temperature is raised. Contact the nearest sales office.

1.6. Temperature anomaly (upper limit) 《Body (spear and probe)》

- This is displayed when the body temperature exceeds the temperature monitoring upper limit.

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Has the preset temperature been changed greatly?	No.	To 1-1
		Yes.	Wait until the temperature enters the monitoring range.
1-1	Are the body temperature and temperature monitoring range settings appropriate?	Appropriate	To 1-2
		Inappropriate	Change the upper limit of the monitoring range
1-2	Stop molding. Is the temperature still higher than the preset temperature?	Yes.	To 1-3
		The temperature lowers gradually, reaching the preset temperature.	There is a possibility of the influence of the tip heating (tip preheating) or the temperature of the injected resin.
1-3	Is there any section where the body and sensor in the same zone are connected to different zones?	There is no error.	The controller seems to be abnormal. Contact the nearest sales office.
		There is an error.	Connect them correctly.

1.7. Temperature anomaly (upper limit) 《Manifold》

- This is displayed when the manifold temperature exceeds the temperature monitoring upper limit.

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Has the preset temperature been changed greatly?	No.	To 1-1
		Yes.	Wait until the temperature enters the monitoring range.
1-1	Are the manifold temperature and temperature monitoring range settings appropriate?	Appropriate	To 1-2
		Inappropriate	Change the upper limit of the preset value.
1-2	Is there any section where the manifold and sensor in the same zone are connected to different zones?	There is no error.	The controller seems to be abnormal. Contact the nearest sales office.
		There is an error.	Connect them correctly.

1.8. Temperature anomaly (lower limit) 《Body (spear and probe)》

- This is displayed when the body temperature lowers below the temperature monitoring lower limit after it once enters the temperature monitoring range.

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Has the preset temperature been changed greatly?	No.	To 1-1
		Yes.	Wait until the temperature enters the monitoring temperature range.
1-1	Are the body temperature and temperature monitoring range settings appropriate?	Appropriate	The controller seems to be abnormal. Contact the nearest sales office.
		Inappropriate	Change the lower limit of the monitoring range.

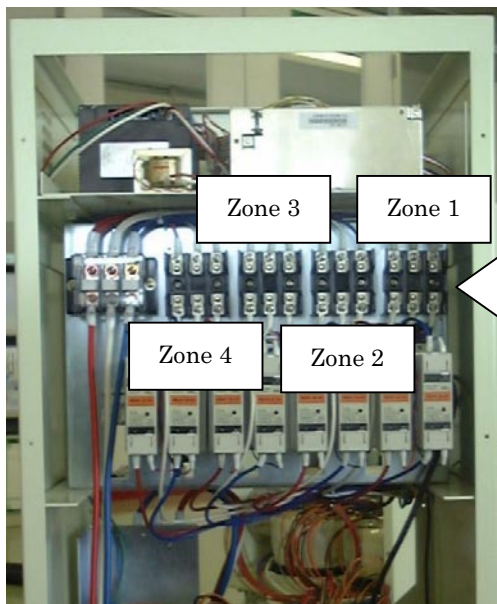
1.9. Temperature anomaly (lower limit) 《Manifold》

- This is displayed when the manifold temperature lowers below the temperature monitoring lower limit after it once enters the temperature monitoring range.

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Has the preset temperature been changed greatly?	No.	To 1-1
		Yes.	Wait until the temperature enters the monitoring temperature range.
1-1	Are the manifold temperature and temperature monitoring range settings appropriate?	Appropriate	To 2
		Inappropriate	Change the lower limit of the monitoring range.
2	Is there any section where the measured value is smaller than the standard value on the manifold current monitor screen?	Yes.	There is a heater that is disconnected. Remove the heaters one by one in the zone where the measured value is smaller than the standard value, and check the conduction.
		The standard value has not been set.	The heater may have been disconnected. Remove the heaters one by one in the zone where the temperature has dropped, and check the conduction. If there is no heater that is disconnected, the controller seems to be abnormal. Contact the nearest sales office.
		No.	The controller seems to be abnormal. Contact the nearest sales office.

1.10. Detection of blown fuse 《Manifold》

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Is the fuse in the zone where an error occurred blown? (Conduction check with a tester) * Refer to the photo below for the location of the fuse.	Blown	To 1-1
		Not blown	To 2
1-1	Is there a short circuit in the heater circuit in the zone where the fuse was blown? Is there a short circuit due to an electric wire clamped by the mold?	Yes.	Correct the heater circuit and change the fuse.
		No.	Change the fuse and see how it works.
2	Is the power supplied correctly to the three phases of the controller? (There is a display of blown fuse even if there is an open phase in the power.)	No. There is an open phase.	Connect the power cable correctly.
		Yes, the power is supplied correctly.	The controller seems to be abnormal. Contact the nearest sales office.

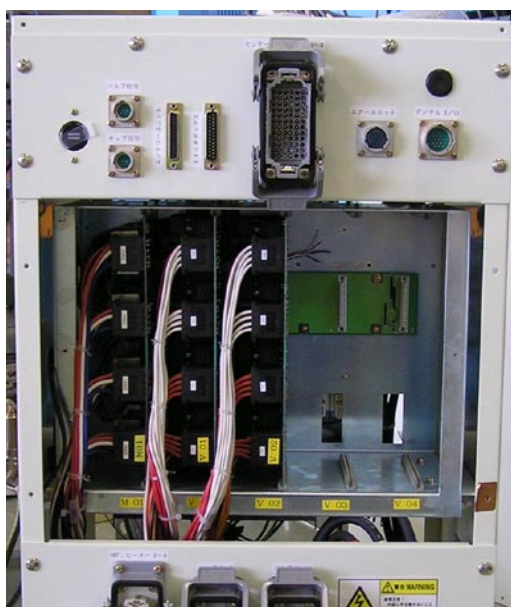


Remove the cover from the front of the controller, and the fuses of the manifold circuit will be seen at the front.
They are for Zones 1, 2, 3, and 4 from the right when viewed from the front.

Manifold circuit fuse:

1.11. Detection of blown fuse 《Valve》

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Is the fuse in the zone where an error occurred blown? (Conduction check with a tester) * Refer to the photo below for the location of the fuse.	Blown	To 1-1
		Not blown	To 2
1-1	Is there a short circuit in the valve circuit in the zone where the fuse was blown? Is there a short circuit due to an electric wire clamped by the mold?	Yes.	Correct the heater circuit and change the fuse.
		No.	Change the fuse and see how it works.
2	Is the power supplied correctly to the three phases of the controller? (There is a display of blown fuse even if there is an open phase in the power.)	No. There is an open phase.	Connect the power cable correctly.
		Yes, the power is supplied correctly.	The controller seems to be abnormal. Contact the nearest sales office.



Remove the panel with a fan from the back of the controller.
The boards with seals of V01, V02, ... are the valve output boards, and the boards are provided with a fuse of the valve circuit.

Rating of valve circuit fuse: 5 A

1.12. Output device breakage error 《Spear and valve》

- The output device breakage error is displayed in the event that the output device (FET, SSR) was broken in the short mode because it was not protected by the protection circuit when a short-circuited heater caused an overcurrent to flow.

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Is there a short circuit in the spear and valve heater circuits in the zone where an error occurred? Is there a short circuit due to an electric wire clamped by the mold?	Yes.	Correct the heater circuit and change the output board of the pertinent zone.
		No.	Change the output board of the pertinent zone and see how it works. When the error occurs again, there seems to be anomaly in some other section of the controller. Contact the nearest sales office.

1.13. Output device breakage error 《Manifold》

- The output device breakage error is displayed in cases where the output device SSR (SS201-3Z-D3 made by Fuji Electric) was broken in the short mode because it was not protected by the protection circuit when a short-circuited heater caused an overcurrent to flow.

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Is there a short circuit in the manifold heater circuit in the zone where an error occurred? Is there a short circuit due to an electric wire clamped by the mold?	Yes.	Correct the defective section and change the *SSR in question.
		No.	Change the *SSR of the pertinent zone and see how it works. When the error occurs again, there seems to be anomaly in some other section of the controller. Contact the nearest sales office.

*SSR: The manifold circuit has three phases, and two SSRs are used for one zone. Confirm the SSR that has failed by checking the resistance with a tester. In general, the resistance between the normal SSR and the output terminal is large (several mega Ω), and the resistance between the SSR that has failed and the output terminal is small (several Ω).

1.14. Manifold current monitor error (Manifold)

- An error judgment is made and the error is displayed when the current (standard current) flowing through the manifold heater, which is measured in advance, drops below 70% of the standard current.

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Is the standard value measured?	Yes.	To 1-1
		No.	Measure the standard value according to the manual, and use the monitor function.
1-1	Is there any section where the measured value is smaller than the standard value on the manifold current monitor screen?	Yes.	There is a heater that is disconnected. Remove the heaters one by one in the zone where the measured value is smaller than the standard value, and check the conduction.
		No.	The controller seems to be abnormal. Contact the nearest sales office.

1.15. Heat-up time monitor timer count-up error

- In cases where the temperature cannot be detected due to incomplete installation of a sensor, an error is displayed and power supply is stopped when the heat-up time exceeds the preset time.

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Is the heat-up time monitor timer setting appropriate?	No.	Set the timer appropriately according to the manual. * Setting range: 1-99 minutes (Set at 999 minutes before shipment)
		Yes.	To 1-1
1-1	Has the temperature of the mold, in which an error occurred, ever increased to the preset temperature under the same condition?	Yes.	To 2
		No.	The capacity of the heater in the pertinent zone may be insufficient.
2	Is the sensor (thermocouple) disconnected, or is the sensor line short-circuited?	Yes.	Correct the abnormal section.
		No.	The controller seems to be abnormal. Contact the nearest sales office.

1.16. Air pressure drop error

- The air pressure drop error is displayed when air is not supplied to the air unit or the pressure of the supplied air drops below 0.3 MPa in cases where an air unit or air controller is connected.

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Is an air unit or air controller connected?	Yes.	To 1-1
		No.	The controller seems to be abnormal. Contact the nearest sales office.
1-1	Is air over 0.3 MPa is supplied to an air unit or air controller? Does the air pressure fail to reach 0.3 MPa even when the valve is opened and closed?	It does not fail to reach 0.3 MPa.	To 2
		The air pressure has dropped.	The air compressor may have stopped or the air supply hose may have been removed.
		The air pressure drops below 0.3 MPa temporarily when the valve is opened and closed.	It is conceivable that the air filter of the air unit or air controller is clogged or the air supply is insufficient.
2	Is the air pressure drop error displayed even when the air unit connection cable is removed from the controller?	Yes.	The controller seems to be abnormal. Contact the nearest sales office.
		No.	It is conceivable that the pressure switch of the air unit etc. has failed or the cable is damaged.

1.17. External error

- The external error is displayed when an error signal from a molding machine and some other external equipment is being input to the controller and an error occurs in the external equipment.

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Is an external equipment error is being input?	Yes.	To 1-1
		No.	To 2
1-1	Did the error occur in external equipment?	Yes.	Reset the error of the external equipment.
		No.	To 2
2	Is the external error displayed even if the digital I/O cable is removed?	Yes.	The controller seems to be abnormal. Contact the nearest sales office.
		No.	The digital I/O cable may be nonconforming (short circuit etc.).

1.18. Output board error

- The output board error is displayed when the output board is removed from the backplane board.

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Are respective output boards inserted completely? * Output boards are inside the panel with a fan at the back of the controller.	Yes.	The controller seems to be abnormal. Contact the nearest sales office.
		No.	Insert them completely.

1.19. Higher-order communication error (02: xx)

- The higher-order communication error is displayed when the communication between the PLC and entry unit is abnormal in cases where the communication is affected by strong noise or the communication cable is removed.

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Is the connector of the entry unit cable connected completely?	It was about to be removed.	Connect it completely.
		Yes.	To 1-1
1-1	Is the entry cable unit damaged? Is there disconnection or short circuit in the entry unit or in the wiring of the cable connector section?	Yes.	Correct the abnormal section.
		No.	To 1-2
1-2	Is the display continuous, or is it occasional?	It is continuous.	The controller seems to be abnormal.
		It is occasional.	To 1-3
1-3	Is there any equipment that is generating noise in excess of the standard? * Refer to p.22 of the instruction manual.	Yes.	It is necessary to take measures for the equipment to prevent noise generation.
		No.	The controller seems to be abnormal. Contact the nearest sales office.

2. When no error message is given

2.1. No display on entry unit

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Is the power display lamp of the entry unit on?	Yes. A green light is on.	To 1-1
		Yes. An orange light is on.	The backlight has burned out. Change the backlight. * Refer to 3.2 for the replacement parts.
		No.	To 1-2
1-1	If the light went out during operation, touch the display section. Is there a display?	Yes.	The unit is set so that the display will disappear when there is no key operation for five minutes in order to extend the service life of the backlight.
		No.	To 1-2
1-2	Change the entry unit. Is there a display?	Yes.	To 2-2
		No.	The controller seems to be abnormal. Contact the nearest sales office.
		There is no substitute.	To 2
2	Is the cable of the entry unit completely connected to the entry unit connector of the controller?	Yes.	To 2-1
		No.	Connect it completely.
2-1	Is 24 VDC output from the entry unit connector pins No.21 and No.22 of the controller? 21: +24 V, 22: 0 V (Check the voltage with a tester.)	Yes.	To 2-2
		No.	The controller seems to be abnormal. Contact the nearest sales office.
2-2	Is the entry unit cable damaged? Is there disconnection inside the entry unit or in the wiring of the cable connector section?	Yes.	Correct the defective section.
		No.	The display seems to have failed. Contact the nearest sales office.

2.2. The earth leakage breaker of the power opens. (Tripping)

- The earth leakage breaker trips when the heater is short-circuited due to moisture.

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	When does it trip?	Right after the main breaker is turned on	To 1-1
		Right after the heater power key is pressed	To 1-2
		During heat-up or molding	The probe (valve) or manifold heater is likely to be short-circuited. Check to see if the heater circuit is short-circuited. Change the heater or take some other appropriate measures.
1-1	Does it trip even if the main breaker is turned on after all output cables are removed?	Yes.	To 2
		No.	The probe (valve) may be short-circuited. Check to see if the heater circuit is short-circuited. Change the probe or take some other appropriate measures.
1-2	Does it trip also when the heater power key is pressed after all output cables are removed?	Yes.	Some parts and wiring inside the controller may be short-circuited. Contact the nearest sales office.
		No.	The probe (valve) or manifold heater may be short-circuited. Check to see if the heater circuit is short-circuited. Change the heater or take some other appropriate measures.
2	Does it trip also when the main power of the factory, which supplies power to the S2K controller, is turned off and the main breaker is turned on?	Yes.	It seems that the main breaker is broken and cannot be turned on (locked). Change the main breaker.
		No.	The probe (valve) may be short-circuited. Check to see if the heater circuit is short-circuited. Change the probe or take some other appropriate measures.

2.3. The body temperature will not rise to the preset value or it rises slowly.

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Does it occur in all zones or in some zones?	All zones	To 1-1
		Some zones	To 5
1-1	Is the output value shown on the display?	Yes.	To 3
		No.	To 2
2	Was the heater power key pressed?	Yes.	To 2-1
		No.	Press the heater power key.
2-1	Is the heat-up delay timer used?	Yes.	To 2-2
		No.	To 4
2-2	Has the time set in the heat-up delay timer come?	Yes.	To 4
		No.	Heat-up will begin after the time set in the delay timer comes.
3	Is the two-step start-up function used?	Yes.	To 3-1
		No.	To 4
3-1	Is the manifold temperature within the monitor range?	Yes.	To 4
		No.	Keep the body at the heat-retention temperature until the manifold temperature enters the monitor range. Wait until the manifold temperature rises.
4	Are the unit of temperature and sensor type set appropriately?	Yes.	The controller seems to be abnormal. Contact the nearest sales office.
		No.	Set them correctly.
5	Is the sensor type set appropriately?	Yes.	To 5-1
		No.	Change the setting of the sensor type.
5-1	Is the output value shown on the display?	Yes.	To 5-2
		No.	The controller seems to be abnormal. Contact the nearest sales office.
5-2	Is there any section where the probe and sensor in the same zone are connected to different zones?	Yes.	Connect them correctly.
		No.	To 5-3
5-3	Is there any section where the sensor cable is short-circuited or in contact with the mold?	Yes.	Correct the defective section.
		No.	The controller seems to be abnormal. Contact the nearest sales office.

2.4. The manifold temperature will not rise to the preset value or it rises slowly.

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Does it occur in all zones or in some zones?	All zones	To 1-1
		Some zones	To 4
1-1	Is the output value shown on the display?	Yes.	To 3
		No.	To 2
2	Was the heater power key pressed?	Yes.	To 2-1
		No.	Press the heater power key.
2-1	Is the heat-up delay timer used?	Yes.	To 2-2
		No.	To 3-1
2-2	Has the time set in the heat-up delay timer come?	Yes.	To 3-1
		No.	Heat-up will begin after the time set in the delay timer comes.
3	Is the manifold soft-start function used?	Yes.	The heat-up time will be longer than usual because the output is increased slowly from the low level.
		No.	To 3-1
3-1	Are the unit of temperature and sensor (thermocouple) type set appropriately?	Yes.	To 3-2
		No.	Set them correctly.
3.2	Has the temperature of the mold, in which an error occurred, ever increased to the preset temperature under the same condition?	Yes.	The controller seems to be abnormal. Contact the nearest sales office.
		No.	The capacity of the heater in the pertinent zone may be insufficient. Contact the nearest sales office.
4	Is the sensor (thermocouple) type set appropriately?	Yes.	To 4-1
		No.	Change the setting of the sensor type.
4-1	Is the output value shown on the display?	Yes.	To 4-2
		No.	The controller seems to be abnormal. Contact the nearest sales office.
4-2	Has the temperature of the mold, in which an error occurred, ever increased to the preset temperature under the same condition?	Yes.	To 4-3
		No.	The capacity of the heater in the pertinent zone may be insufficient. Contact the nearest sales office.
4-3	Is there any section where the heater and sensor (thermocouple) in the same zone are connected to different zones?	Yes.	Connect them correctly.
		No.	To 4-4
4-4	Is there any section where the sensor cable is short-circuited or in contact with the mold?	Yes.	Correct the defective section.
		No.	The controller seems to be abnormal. Contact the nearest sales office.

2.5. Temperature drops during molding.

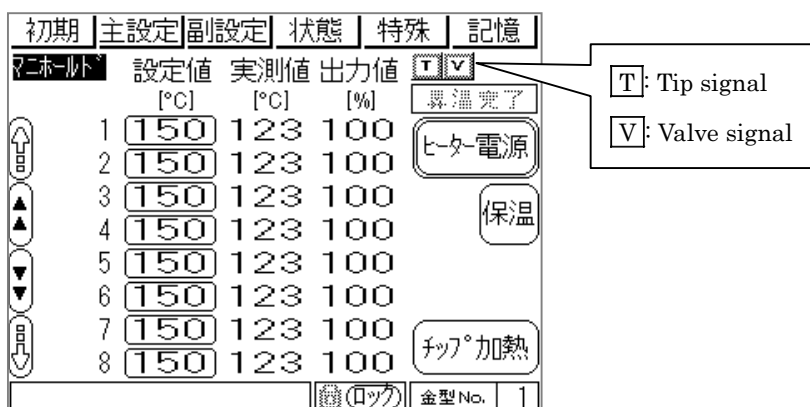
	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Does it occur in all zones or in some zones?	All zones	To 1-1
		Some zones	The controller seems to be abnormal. Contact the nearest sales office.
1-1	Is the operation delay timer used?	Yes.	Operation will shift automatically to heat-retention unless the tip timing signal or valve timing signal is input for some time longer than the time set in the operation delay timer. The machine is so set before shipment that the operation delay timer is to be used. Change the setting to "OFF" when the operation delay timer will not be used.
		No.	The controller seems to be abnormal. Contact the nearest sales office.

2.6. Resin will not come out when a mold with a spear is used

	<i>Confirmation item</i>	<i>Result of confirmation</i>	<i>Correction</i>
1	Does it occur in all zones or in some zones?	All zones	To 1-1
		Some zones	To 3
1-1	When did it occur?	During start-up	To 1-2
		During continuous molding	To 2
1-2	Was manual tip heating conducted during start-up?	Yes.	Conduct the operation again, and if resin will not come out, go to 4.
		No.	Approx. 5-10 seconds longer tip heating may be necessary during molding start-up. Conduct manual tip heating.
2	It is necessary to conduct tip heating before injection. Is the tip timing signal cable connected?	Yes.	When the tip timing signal enters, <input type="checkbox"/> T at the upper-right corner of the screen is shown in inverse video. Check it and go to 4.
		No.	Connect the tip timing signal cable to the mold opening start or mold opening completion signal of the molding machine.
3	Is the gate section clogged with foreign matter when the body current and tip current are normal?	Yes.	Remove the foreign matter.
		No.	Reexamine the setting conditions when the body current and tip current are normal.
4	Is <input type="checkbox"/> T at the upper-right corner of the screen shown in inverse video?	Yes.	The controller seems to be abnormal. Contact the nearest sales office.
		No.	No signal from the molding machine seems to be input. Check the signal output circuit on the molding machine side.

2.7. The tip (valve) timer will not operate

	Confirmation item	Result of confirmation	Correction
1	Are T and V at the upper-right corner of the display screen shown in inverse video when the mold opens and closes? * Refer to the figure shown below. T : Tip signal V : Valve signal	Yes.	The controller seems to be abnormal. Contact the nearest sales office.
		No.	To 1-1
1-1	Is the timing signal output normally from the molding machine?	Yes.	To 1-2
		No.	Check the signal output circuit of the molding machine.
1-2	Does the timing signal cable match the signal output from the molding machine? * The signal cable for contact input is different from the signal cable for voltage input.	Yes.	To 1-3
		No.	Use a timing signal cable that matches the signal specification.
1-3	Is the timing signal cable damaged? Is there disconnection inside the connector or poor connection with the molding machine?	Yes.	Correct the defective section.
		No.	The controller seems to be abnormal. Contact the nearest sales office.



3. Information

3.1. Table of error codes

<i>Error code</i>	<i>Details of error</i>
11	Manifold temperature lower limit error
12	Body temperature lower limit error
21	Manifold temperature upper limit error
22	Body temperature upper limit error
31	Manifold current monitor error
41	Manifold sensor disconnection
42	Body sensor disconnection
51	Manifold heater disconnection
52	Body heater disconnection
53	Tip heater disconnection
61	Manifold fuse blown
62	Body fuse blown
72	Body overcurrent error (shut-off circuit operation)
73	Tip overcurrent error (shut-off circuit operation)
A1	Manifold sensor reverse contact
A2	Body sensor reverse contact
B1	Manifold sensor response error
B2	Body sensor response error
F1	Manifold output device breakage
F2	Body output device breakage
F3	Tip output device breakage
38	External error (contact input)
39	Air pressure drop (contact input)
88	Heat-up time monitor timer count-up
F8	Output board error

3.2. Type of backlight of entry unit

The backlight is burned out when the screen of the entry unit blacks out and the LED at the lower-left corner of the entry unit is lit in orange (green when normal).

The burned backlight must be replaced with a new one.

<i>Type of display</i>	<i>Type of backlight</i>
GP-2301-LG41 (digital)	PS300-BU00 (digital)
GP377-LG41 (digital)	GP377L/S-BL00-MS (digital)

Backlights are available from our company as well.

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