## *AM73, AM122, and AM197 Troubleshooting*

Common errors and resolutions with the autosamplers. This article will not include steps on replacing or servicing parts, as it is recommended that a certified Mantech Technical Representative perform those tasks.

**Axis Legend:**

X - Movement on the autosampler bed from Left to Right.
Y - Movement on the autosampler bed from Forward and Backwards.
Z - Movement of the autosampler arm up and down.

The home position is the back-left corner of the autosampler bed with the arm up.
WD-40, Lithium Grease and Motor oil are acceptable lubricants for the Autosamplers.
These autosamplers are no longer in production, so spare parts are limited to availability.

**Section 1: AM73**

The AM73 has the following error codes and resolutions:

| Error | Description | Solution |
|---|---|---|
| 20 | X Motor Position Error. | Turn the autosampler off and back on again, and check for obstructions on the X- Axis. Lubricate the X axis. |
| 21 | Y Motor Position Error. | Turn the autosampler off and back on again, and check for obstructions on the Y-Axis. Lubricate the Y axis. |
| 22 | Z Motor Position Error. | Turn the autosampler off and back on again, and check for obstructions on the Z-Axis. Lubricate the Z axis. |
| 26 | X Target Position Out of Range | Use Manual Control and Nudgetool to keep the position in the autosampler bed range. |

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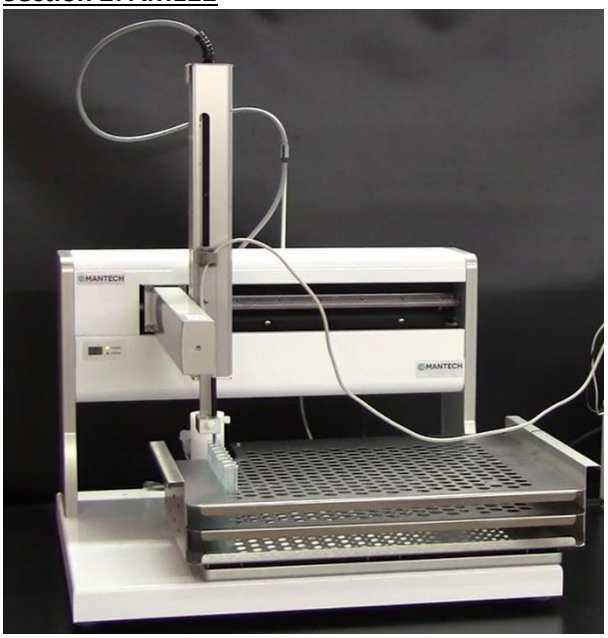
| 27 | Y Target Position Out of Range | Use Manual Control and Nudgetool to keep the position in the autosampler bed range. |
| 28 | Z Target Position Out of Range | Use Manual Control and Nudgetool to keep the position in the autosampler bed range. |
| 29 | X-Offset Out of Range | Use the Setup Utility to change the limit positions. |
| 30 | Y-Offset Out of Range | Use the Setup Utility to change the limit positions. |
| 31 | Z-Offset Out of Range | Use the Setup Utility to change the limit positions. |

**Section 2: AM122**



The AM122 has the following error codes and resolutions:

| Error | Description | Solution |
|---|---|---|
| 19 | X Encoder Error. Motion not detected on the homing phase of the X axis. | Check the cabling for the autosampler. Replace the encoder/motor or the PCB Board. Recommended to send the autosampler to Mantech for service. |
| 20 | Y Encoder Error. Motion not detected on the homing phase of the Y axis. | Check the cabling for the autosampler. Replace the encoder/motor or the PCB Board. Recommended to send the autosampler to Mantech for service. |
| 21 | X Homing Error | Check for obstructions. Turn the autosampler off and back on again. Lubricate the X axis. |
| 22 | Y Homing Error | Check for obstructions. Turn the autosampler off and back on again. Lubricate the Y axis. |

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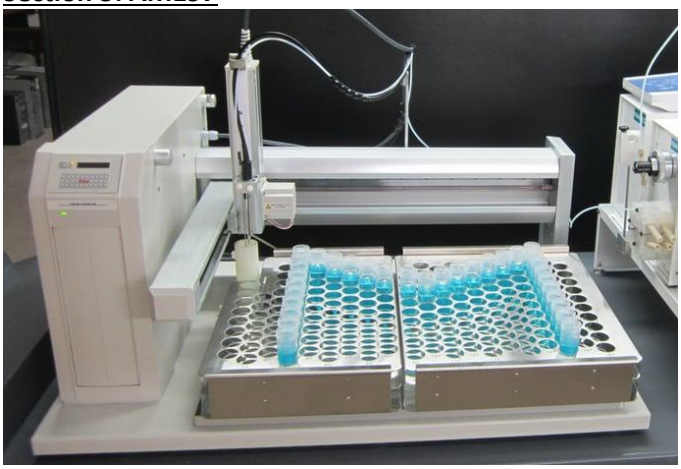
| 23 | XY Target Out of Range | Home the autosampler to clear the error. Use Manual Control and Nudgetool to fix the position to the autosampler bed. |
| 25 | X Stall or Jam | Check for obstructions. Turn the autosampler off and back on again. Lubricate the X axis. Home the autosampler to clear the error. |
| 26 | Y Stall or Jam | Check for obstructions. Turn the autosampler off and back on again. Lubricate the Y axis. Home the autosampler to clear the error. |
| 31 | Z Homing Error | Check for obstructions. Turn the autosampler off and back on again. Lubricate the Z axis. |
| 32 | Z Target Out of Range | Home the autosampler to clear the error. Use Manual Control and Nudgetool to fix the depth to the autosampler bed. |
| 34 | Z Stall or Jam | Check for obstructions. Turn the autosampler off and back on again. Lubricate the Z axis. Home the autosampler to clear the error. |

**Section 3: AM197**



The AM197 has the following error codes and resolutions:

| Error | Description | Solution |
|---|---|---|
| 20 | X Motor Position Error | Power off the autosampler, check for obstructions on the X axis. Power the autosampler back on again. |
| 21 | Y Motor Position Error | Power off the autosampler, check for obstructions on the Y axis. Power the autosampler back on again. |

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|---|---|---|
| 22 | Z Motor Position Error | Power off the autosampler, check for obstructions on the Z axis. Power the autosampler back on again. |
| 24 | X Target less than Minimum X | Use the Utility to send the Q command. Read the travel range given, then correct the position using Manual Control and Nudgetool. If the position is in range for the autosampler movement, adjust the homing phase of the autosampler in the utility. |
| 25 | X Target More than Maximum X | Use the Utility to send the Q command. Read the travel range given, then correct the position using Manual Control and Nudgetool. If the position is in range for the autosampler movement, adjust the homing phase of the autosampler in the utility. |
| 26 | Y Target less than Minimum Y | Use the Utility to send the Q command. Read the travel range given, then correct the position using Manual Control and Nudgetool. If the position is in range for the autosampler movement, adjust the homing phase of the autosampler in the utility. |
| 27 | Y Target More than Maximum Y | Use the Utility to send the Q command. Read the travel range given, then correct the position using Manual Control and Nudgetool. If the position is in range for the autosampler movement, adjust the homing phase of the autosampler in the utility. |
| 28 | Z Target Less than Minimum Z | Use the Utility to send the Q command. Read the travel range given, then correct the position using Manual Control and Nudgetool. |
| 29 | Z Target more than Maximum Z | Use the Utility to send the Q command. Read the travel range given, then correct the position using Manual Control and Nudgetool. |
| 34 | X Home Phase is Invalid | Run the Home Phase sequence in the utility. |
| 35 | Y Home Phase is Invalid | Run the Home Phase sequence in the utility. |
| 36 | X and Y Home Phase is Invalid | Run the Home Phase sequence in the utility. |

Note: Before running the Home Phase in the utility for any of the solutions, remove the rack(s) from the autosampler bed and the probe holder. This will ensure that the probes do not break as the autosampler moves.