SERVICE MANUAL

10 Position Magnetic Hotplate Stirrer

MS-H-S10 Magnetic Hotplate Stirrer

MS-M-S10 Magnetic Stirrer

VERSION20170307

CONTENTS

Chapter 1: Working Principle 1
1.1 Introduction 1
Chapter 2: Removal and Installation of Instrument 2
2.1 Removal 2
2.2 Main spare part 3
2.3 Circuit Connections 4
2.4 Replace the main board. 5
2.4 Replace the power board 5
2.5 Replace the motor board 5
2.6 Replace the motor 6
2.7 Replace the belt 6
2.8 Replace the hotplate models 7
Chapter 3: Trouble shooting 8

Chapter 1: Working Principle

1.1 Introduction

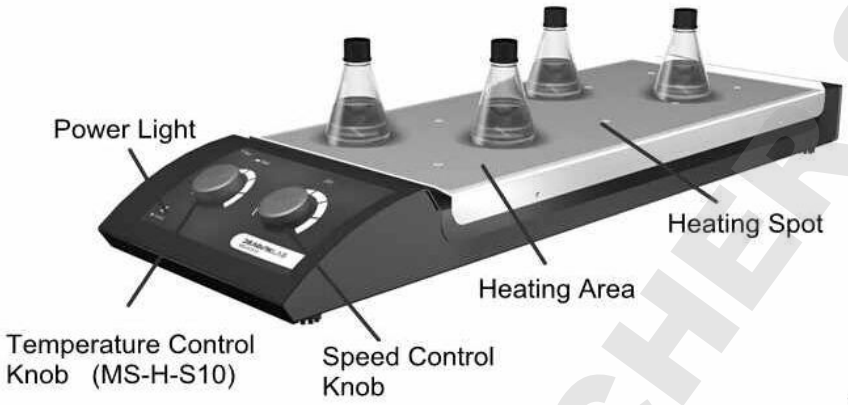


Fig.1

You can mix the sample in vessel by 10-Channel Classic Magnetic Hotplate Stirrer with stir bar. When you operate MS-H-S10 with heating function, hotplate can be heated up to 120℃ from room temperature.

Fig. 1 is the diagram of MS-H-S10 10-Channel Classic Magnetic Hotplate Stirrer. There are temperature control knob and speed control knob on instrument control panel; power switch on the side of instrument; power socket on the rear of the instrument. After properly connect the power cord and turn on power switch, users are able to set experimental conditions on the control panel by temperature control knob and speed control knob.

- ✓ Power supply: 220V (or 110V) → PCB→System control power supply
- ✓ Stirring: motor drives the magnet fixed on it to rotate synchronously when turn the motor on, The pulley and the belt turn to their connection with wheel, then on the driven pulley magnet synchronous rotation, makes ten way magnet synchronous rotation, which forms a varying magnetic field; the varying magnetic field drives stir bar to rotate synchronously with motor, for stirs the target sample.
- ✓ Heating: There are two sets of built-in temperature sensors (thermistors) at the place where the Work Plates are fixed, and the feedback end of temperature sensor is connected to Master Control Board. Thereof, one set of temperature measurement circuit is for temperature control, and the other is for temperature protection, to avoid hardware failure's devastating injury to users.

Chapter 2: Removal and Installation of Instrument

When instrument failure occurs, first, you should conduct a failure analysis; if the failure is caused by the damage of instrument hardware, the related component must be repaired or replaced. Here are the relevant contents of the replacement and disassembly of instrument.

2.1 Removal

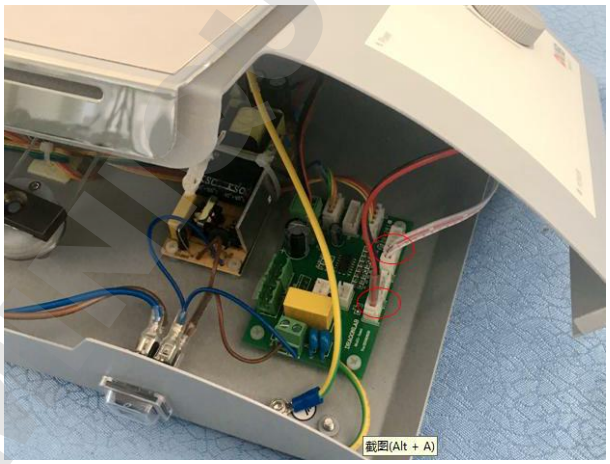
Tool：Socket head screwdriver

Step 1:

Remove the screws (4 pcs) at the side of the instrument.

Step 2:

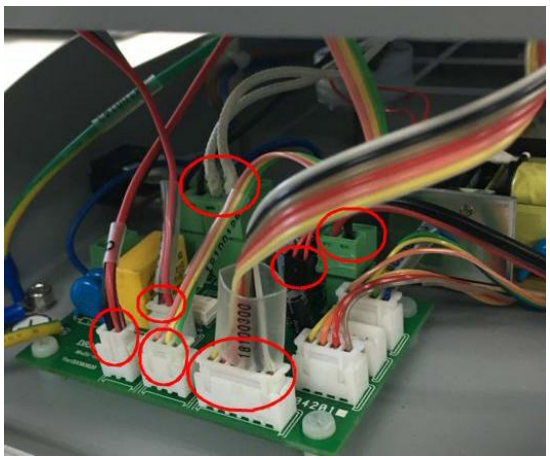
Take off the top cover by tool, Separate it from the bottom cover.



Step 3:

Unplug the connectors that connect the top cover and the bottom cover.

MS-M-S10

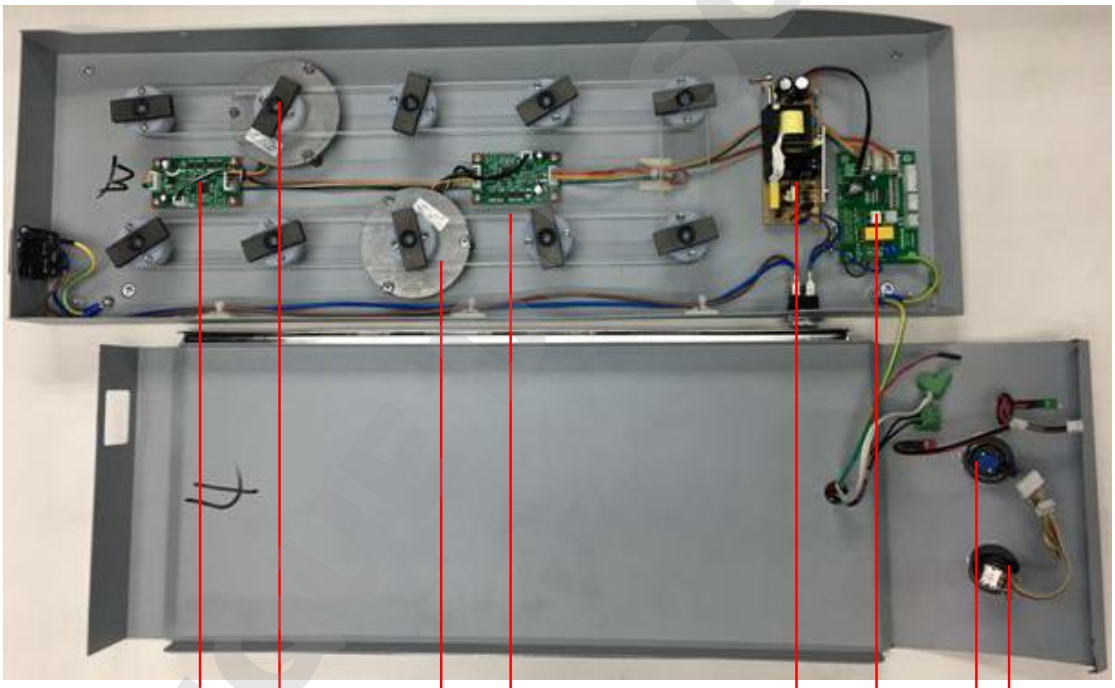


MS-H-S10

Step 4

Unplug the connectors that connect the top cover and the bottom cover.

2.2 Main spare part



Item	Spare part	MS-H-S10	MS-M-S10
1	Motor board	18101058	18101058
2	Magnet	18100029	18100029
3	Motor	18101057	18101057
4	Belt	18200088	18200088
5	Power board	18100299	18100299
6	Driven board	18100302	18100302
7	Potentiometer(Heat)	18100129	/
8	Potentiometer(Stir)	18101144	18101144

2.3 Circuit Connections

Fig2 is the circuit connections between the main board and the connectors at the top cover. When installed, please carefully check the cable is connected correctly.
Fig.3 is the circuit connections of the PCB. Please carefully check the cable is connected correctly when replace a PCB.

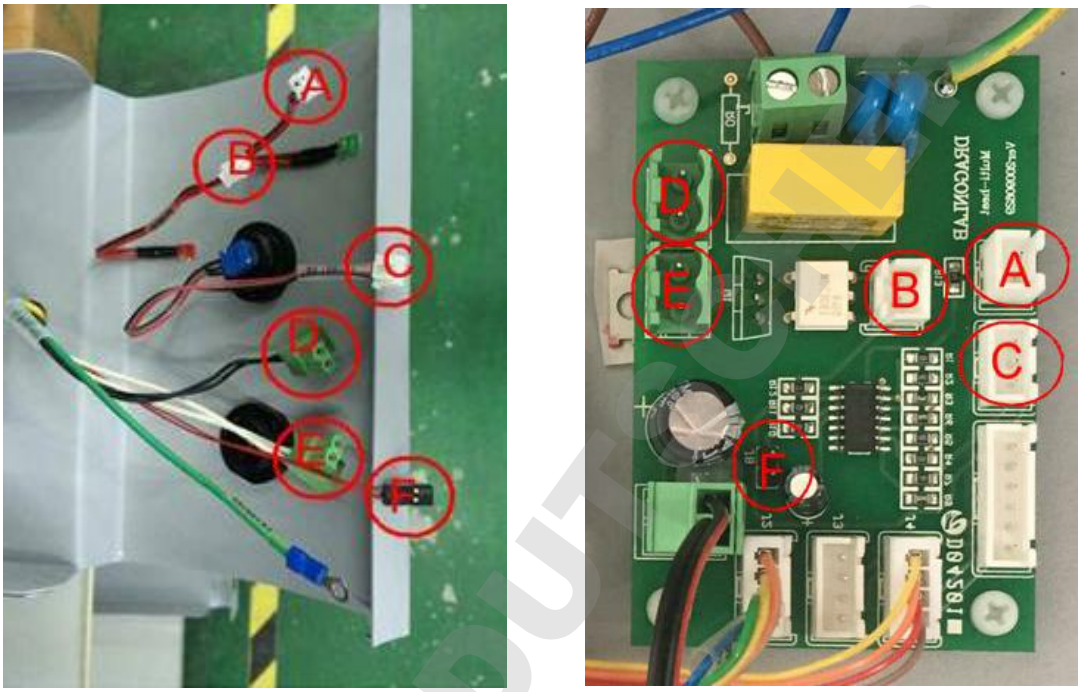


Fig.2

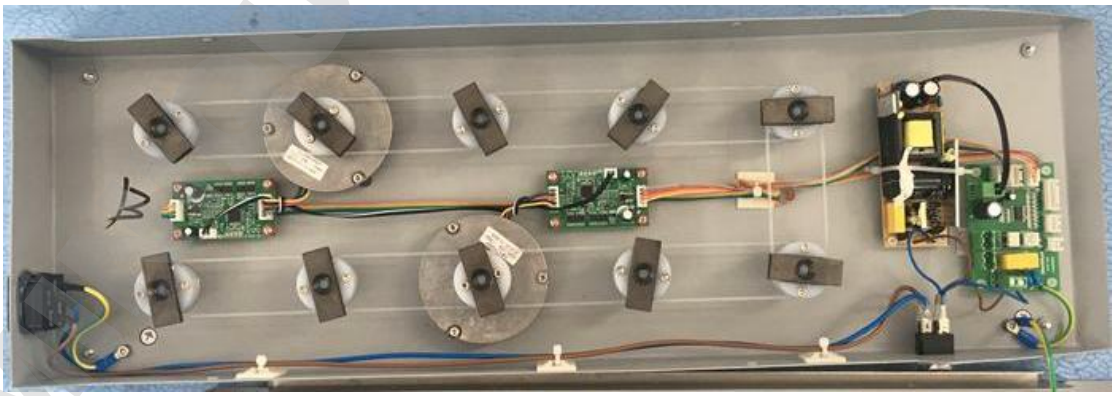
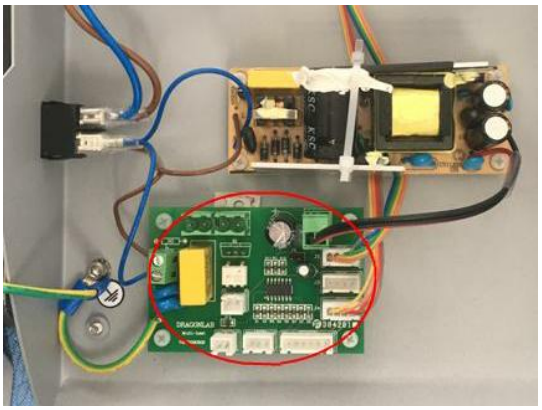


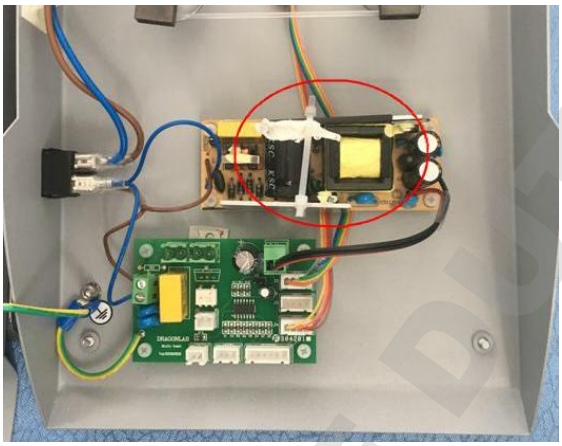
Fig.3

2.4 Replace the main board.



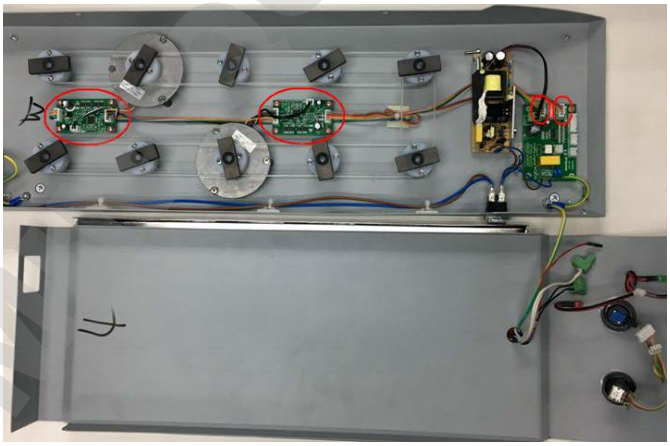
Unplug the connector on the main board in red circle. Remove the screws (4 pcs) and keep them well, replacement of the main board. Please connect the cables by Fig.2.

2.4 Replace the power board



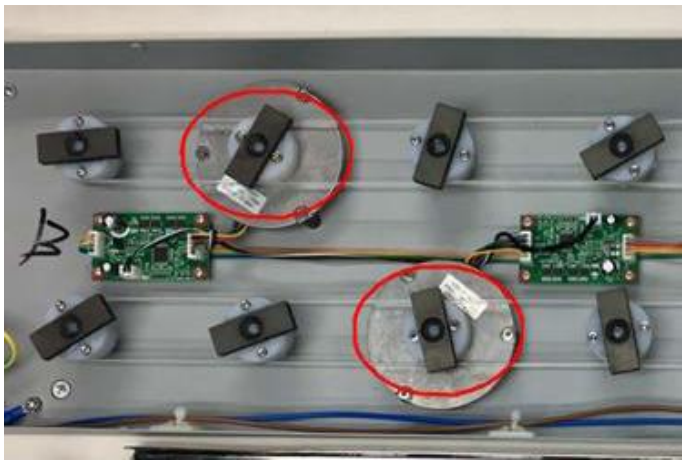
Unplug the connectors that connected the power board in red circle. Replacement of the power board, Please make sure the cable connected correctly.

2.5 Replace the motor board



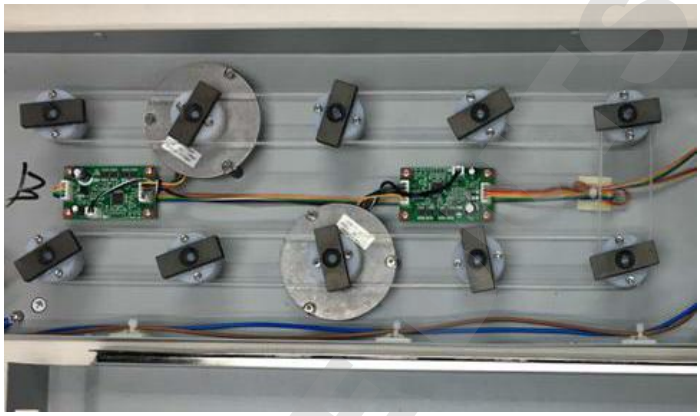
Unplug the connectors that connected the motor board in red circle. Remove the screws fixed the motor PCB, replacement of the motor board, after fixed the motor board, Please make sure the cable connected correctly.

2.6 Replace the motor



Remove the belt on the belt wheel parts, pull up the belt wheel parts from the motor, remove the screws in the red circle by tool, replace the new motor.

2.7 Replace the belt



Remove the belt on the belt wheel parts, Replace the new belt, According to the left picture way to install.

2.8 Replace the hotplate models

Remove the connector in the red small circle according to the left picture. Unplug the cable form the middle hole on the top cover, Replace the hotplate models in the red big circle.

Chapter 3: Trouble shooting

FAULT CODE	PROBLEM	CAUSE	SOLUTION
E01	No operation response (LED off)	No power supply	Check and connect the power supply, then power on again
		The power switch put off	Put on the power switch
		The fuse is broken	Replace the fuse
		Connection is failure	As shown in the chapter 2.3, open the instrument and check all the connection, re-connect.
E02	Instrument doesn't heating	No setting target temperature	Set a target temperature, and the temperature indicator is on.
		The drive board is failure	Replace the drive board, please reference chapter 2.5
		The power board is failure	Replace power board
		The heating component is failure	Replace the heating component
E03	Instrument doesn't stirring	no setting target speed	Set a target temperature, and the speed indicator is on
		Belt is broken	Replace a set of new belt
		The drive board is failure	Replace the drive board, please reference chapter 2.5
		The power board is failure	Replace power board
		The motor board are failure	Replace motor board
		The motor is failure	Replace the motor component
E04	Temperature control isn't accurate	the drive board is failure	Replace the drive board, please reference chapter 2.5
		The heating component is failure	Replace the heating component