Teknatool International Limited
7D Dallan Place, Rosedale, Auckland, New Zealand
Tel: +64 09 477 5600
Fax: +64 477 5601
Email: service@teknatool.com
Website: www.teknatool.com

Frequently **A**sked **Q**uestions

Date Raised: 9 Oct 2020
Date Amended: 19 Oct 2020

Safe practices should always be employed to ensure the Health and Safety of yourself, employees and customers (if applicable) Refer to product manuals, exploded drawings and our website if further assistance is required, or contact us on service@teknatool.com

RPS State Error and Run Low RPM Error on DVR 3000

This guide can be used to troubleshoot the “RPS State Error” or the “Run low RPM” error that may appear on your device LCD screen.

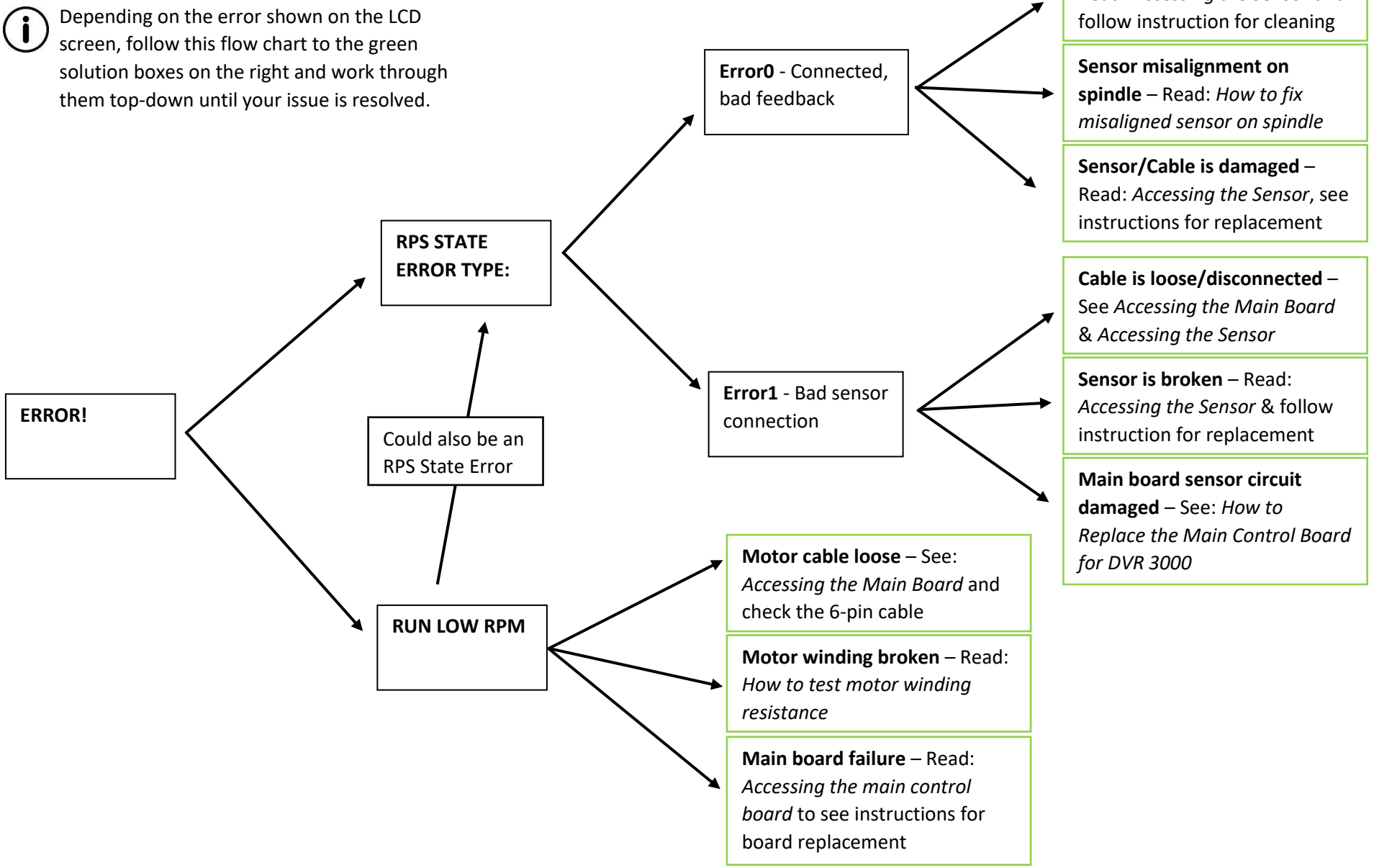
Please refer to the troubleshooting flow chart on the next page to identify the factors causing the error and what steps to take to resolve them.

Contents

Troubleshooting Flow Chart 2
Accessing the Sensor 3
Accessing the Main Control Board 5
How to Replace Your Main Control Board 6
How to Test Motor Winding Resistance 8
How to Fix a Misaligned Sensor on Spindle 9

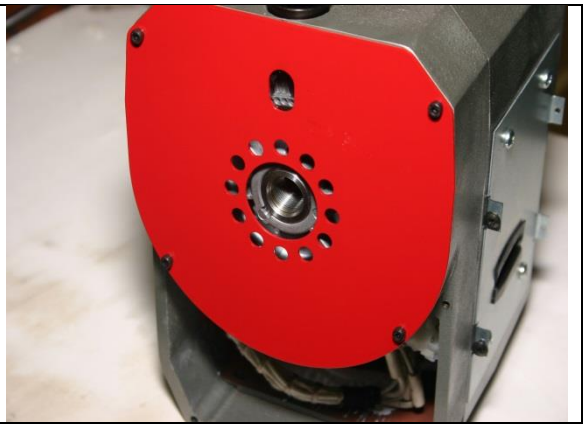
Troubleshooting Flow Chart

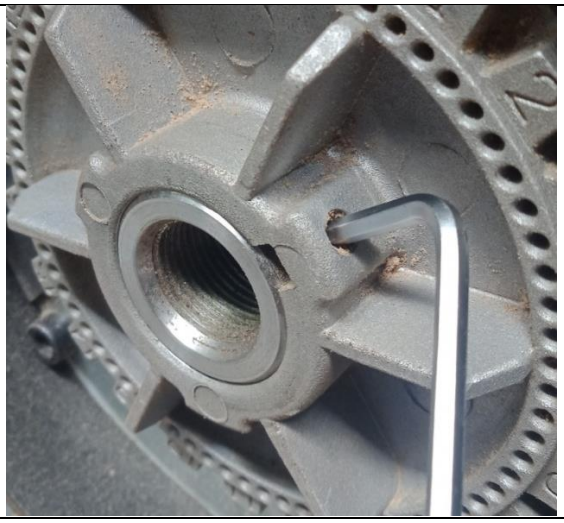
Depending on the error shown on the LCD screen, follow this flow chart to the green solution boxes on the right and work through them top-down until your issue is resolved.



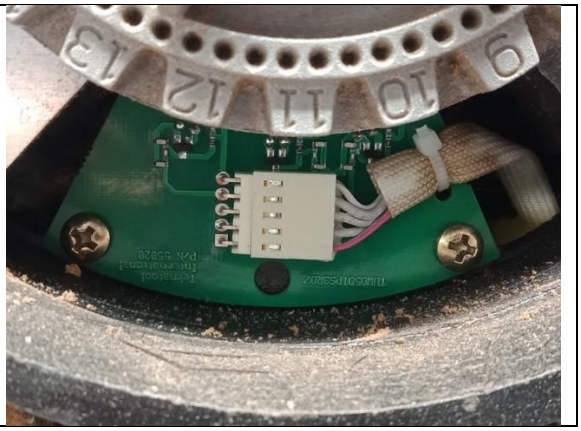
Accessing the Sensor

1	Unplug the lathe and wait for 2 minutes for the power to dissipate.

2	Unfasten the four 4mm Allen screws and remove the upper guard cap.	

3	Loosen the M6 grub screw with a 4mm Allen key on the side of the fan. Carefully remove the fan from the spindle with even pressure on both sides.	

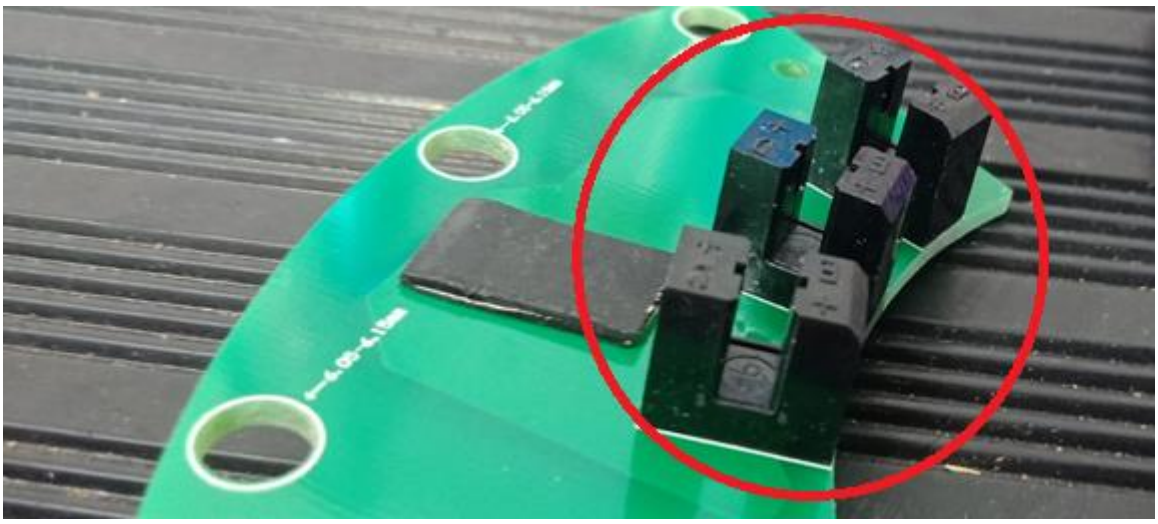
4	Unscrew the Allen screws securing the sensor cap plate and remove it to expose the sensor.	

5	Using a Phillips screwdriver, carefully remove the mounting screws holding the sensor board in place, before carefully removing the sensor board.	

To clean the sensor: use a cotton bud or cloth to wipe away any dust or dirt that has accumulated in the sensor cavities (shown in picture below).

To replace the sensor: carefully remove the sensor cable by sliding the head off the pins horizontally. Replace with a new sensor unit.

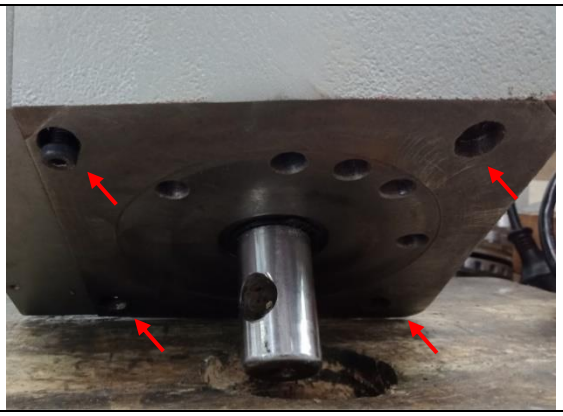
When done, carefully reassemble the headstock. Make sure that the sensor board is flat to prevent damage when the screws are put back in. Check that the sensor cable has no slack so that it does not get caught during operation.



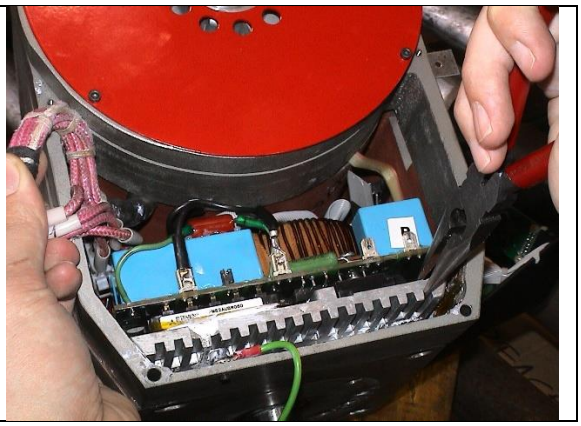
Accessing the Main Control Board

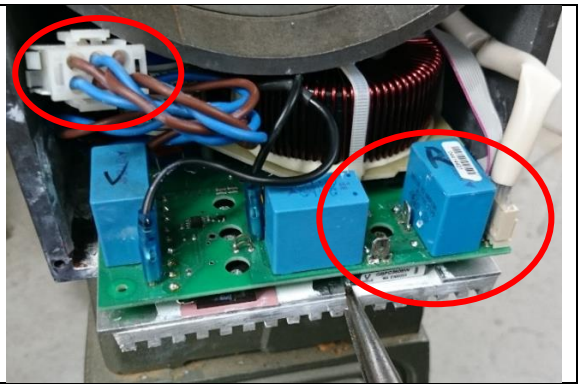
1	Unplug the lathe and wait for 2 minutes for power to dissipate.

2	Remove the headstock using the Headstock Extraction Lever and Brush. Instructions are provided with the headstock extraction kit. **CAUTION**: The headstock weighs approximately 40Kg, take extra caution when lifting.

3	Remove the four locking Allen screws underneath the headstock.	

4	Remove the head cap plate using your Allen keys.	

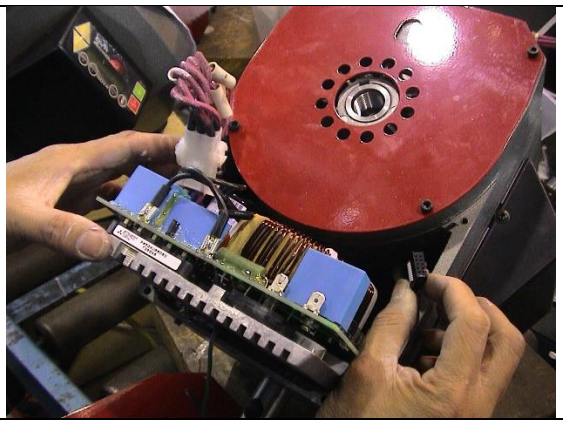
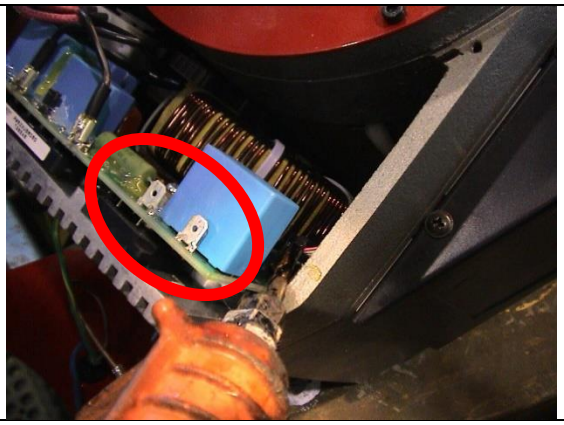
5	Carefully use your long nose pliers to begin to remove the control board by pulling on the heat sink. Be careful not to touch the control board with your pliers. NOTE: There may be thermal paste underneath the heat sink, while the substance is not dangerous, it may still make a mess.	

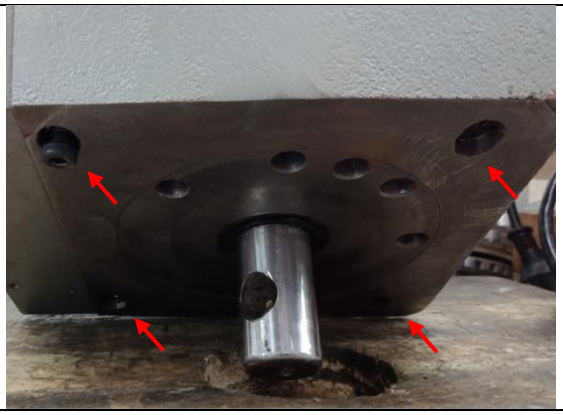
6	Whilst removing the control board, you may begin to disconnect wires connecting the control board to peripherals. This includes: - A brown phase wire - A blue neutral wire - A white sensor cable - An HMI control ribbon - A 6-pin stator cable	

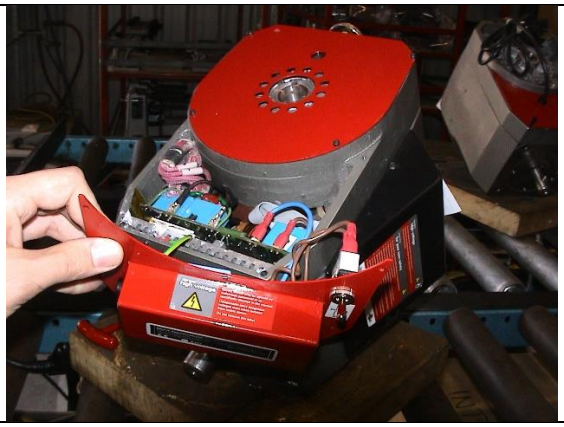
Having completed these steps, you may proceed with checking your sensor cable connection, checking your motor cable for loose pins, testing stator windings, or replacing the main control board itself. (Instructions can be found below)

How to Replace Your Main Control Board

Read: *Accessing the Main Control Board* first.

1	With the old control board removed, attach the stator cable, sensor cable, and control ribbon to your replacement control board and begin to replace it into the compartment. NOTE: You may glue the sensor cable and control ribbon down to prevent them from coming loose	
2	Then, reattach the brown phase wire and the blue neutral wire onto the two terminals shown.	

3	Replace the four Allen screws underneath the headstock to secure the control board in place.	

4	Replace the head cap plate. Secure the green & yellow earth wires tightly underneath a mounting screw.	

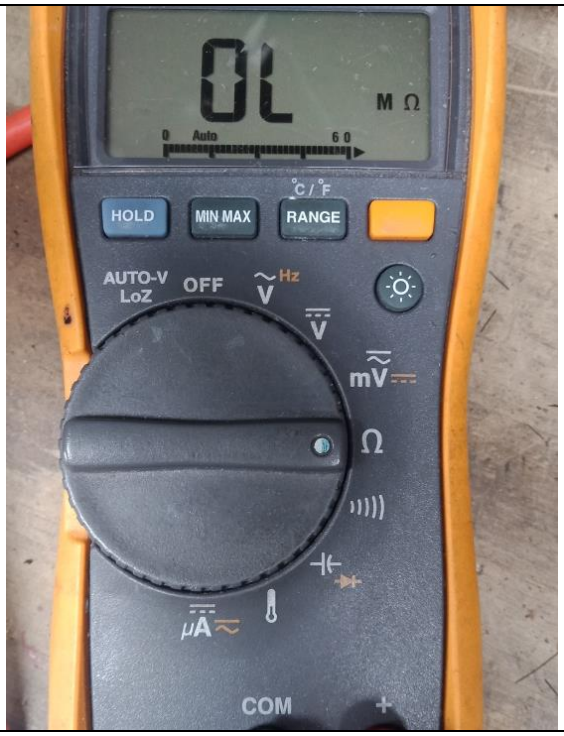
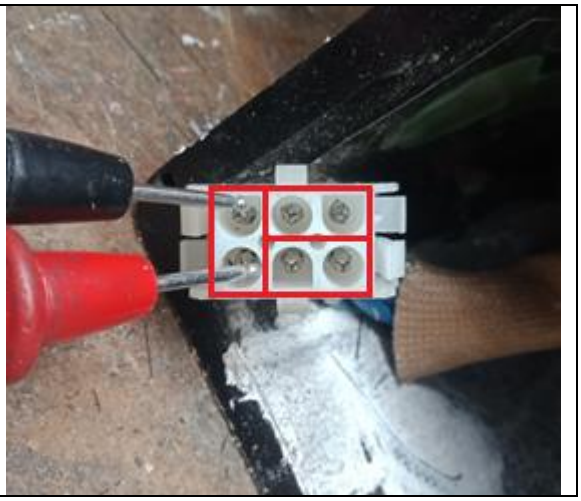
It is advisable to run the unit before replacing the headstock onto the lathe bed to check that you have wired everything properly. Connect the power and turn the DVR on. Check that all buttons are functioning and run the unit.

Once you are satisfied, replace the headstock back on the lathe bed. Check that the swivel pin is facing the correct direction so the locking pin will engage.

How to Test Motor Winding Resistance

It is very rare that the motor itself may become damaged. With your main board (from *Accessing the Main Control Board*) unplugged from the 6-pin motor cable, you may perform this quick motor winding resistance test to diagnose a malfunctioning motor.

You will need a digital multimeter for this task.

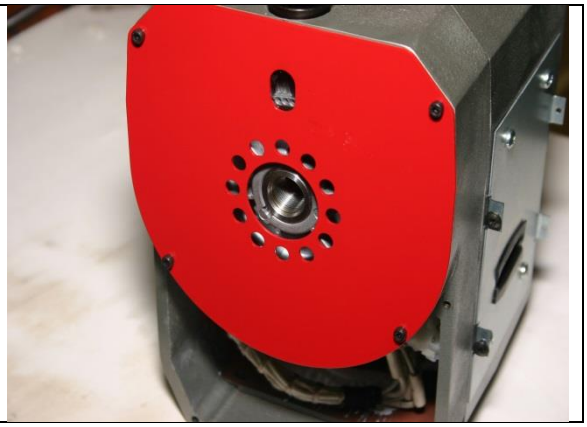
1	Set your multimeter dial to read resistance.	
2	With the 6-pin stator cable disconnected, probe the motor side stator cable in pairs. Each winding (2 pin pairs for three windings in total, as shown in the picture) should have approximately 10 Ohms of resistance between them. (Older models show 4 Ohms) Note that you may have the cable up-side-down if all windings test for 0L.	

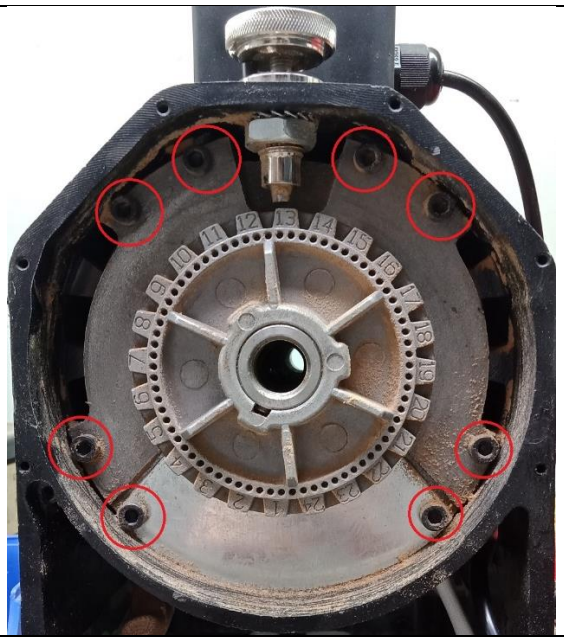
How to Fix a Misaligned Sensor on Spindle

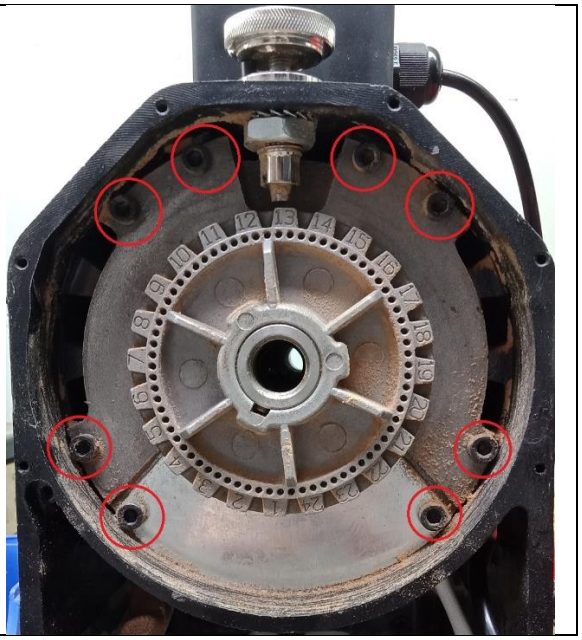
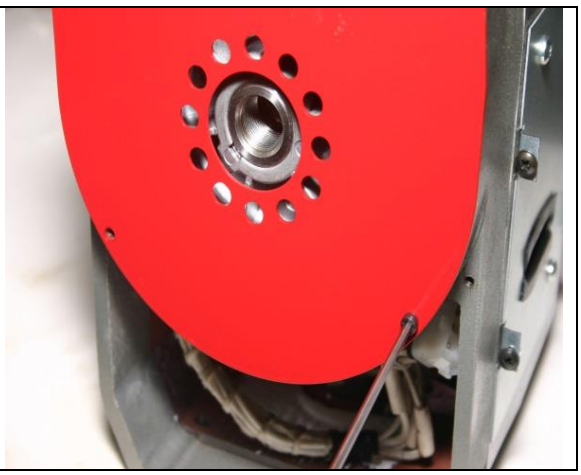
Sometimes the sensor plate attached to the spindle may slip out of alignment very slightly. It is recommended that you try to clean your sensors first (read: Accessing the sensor for cleaning or replacement) as dust is the most likely culprit for a “RPS State Error0” error.

Though unlikely, the error may also be caused by a damaged sensor. If neither cleaning or realigning the sensor resolves the issue, then consider installing a replacement sensor unit.

1	Unplug the lathe and wait for 2 minutes for the power to dissipate.

2	Remove the upper guard plate on the headstock by unfastening the four 4mm Allen screws.	

3	Loosen the 8 screws on the guard plate by a couple millimetres.	

4	Using a soft-faced mallet, tap the spindle on the other side of the headstock to shift the encoder back into place. Turn the spindle by hand to check that there are no scraping sounds internally to ensure that you have not tapped the encoder in too far.	
5	Secure the guard plate screws back into place. Be careful not to apply too much pressure so that encoder is pushed out of alignment again.	
6	Replace the outer guard plate onto the headstock before running the unit again.