



# PROCEDURE

## Spindle Replacement - TS150e

### 1.0 PURPOSE

This procedure provides technicians with instructions on how to replace the spindle on the TS150e.

### 2.0 SCOPE

The instructions apply only towards replacing the TS150e spindle.

### 3.0 APPLICABILITY

Only technicians responsible for making adjustments on the TS150e.

### 4.0 SUMMARY OF CHANGES / JUSTIFICATIONS OF CHANGES SINCE LAST REVISION

REVISION STATUS		
Rev.	Effective Date	Description of Change(s) & Justification of Change(s)
1.0	DEC 26 2018	Initial document.

### 5.0 DEFINITIONS

N/A

### 6.0 REFERENCES

N/A

### 7.0 RESPONSIBILITIES

TS150e technicians will be responsible for replacing the spindle.

### 8.0 MATERIAL/EQUIPMENT

- 8.1 Torque driver set at 1.4 Nm
- 8.2 New Spindle termination (PN 1008231)
- 8.3 Silicone Grease
- 8.4 Loctite 222MS Purple
- 8.5 Spindle Locating Tool (PN 1008212)
- 8.6 Allen Key Set
- 8.7 Zip ties, Cable Ties

### 9.0 PROCESS MAP/FLOW CHARTS

N/A



## Spindle Replacement - TS150e

### 10.0 PROCEDURE

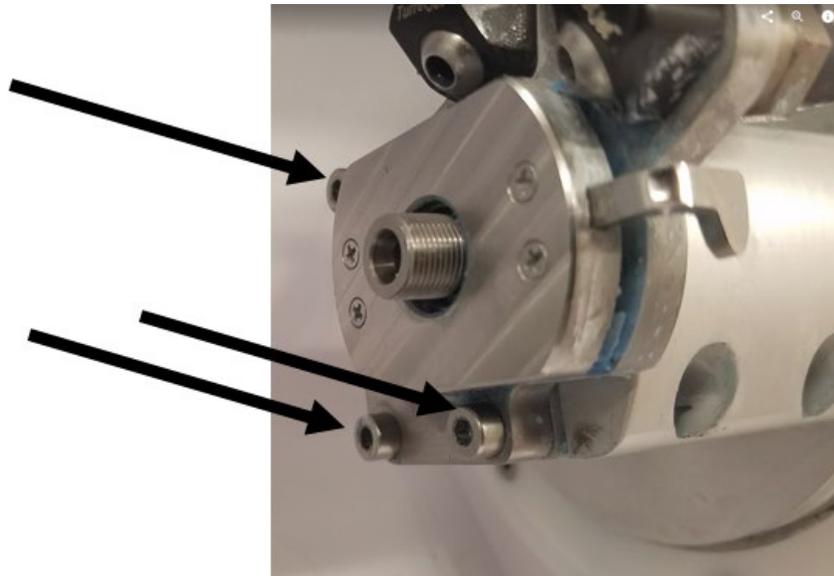
10.1 Disconnect power, air, and data from the back of the mill.

10.2 Remove Coolant Collar

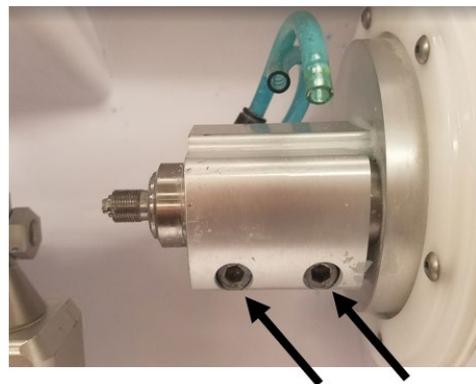
10.2.1 Disconnect both coolant hoses from the coolant nozzle assembly.

10.2.2 Remove Collet Nut.

10.2.3 Remove the three bolts holding the coolant nozzle assembly to the spindle holder.



10.2.4 Loosen both Spindle Clamping bolts.

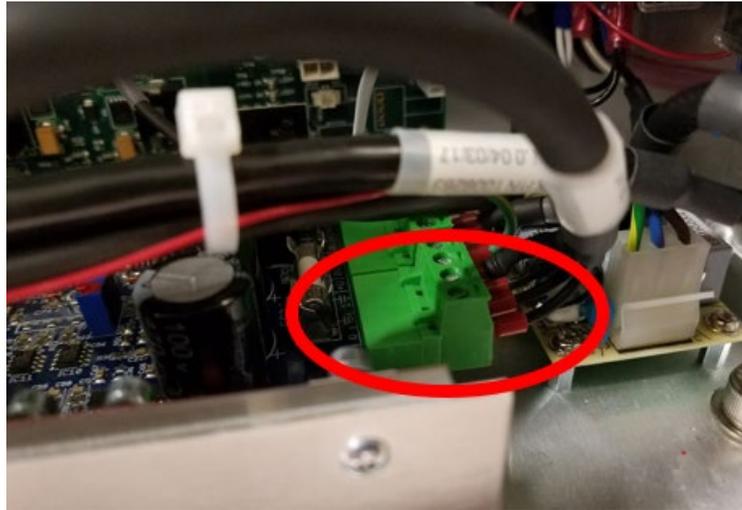


10.2.5 Press the spindle out of the spindle holder.



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- 10.2.6 Disconnect Spindle connector from VFD Board. Cable ties may need to be cut, note cable tie locations for replacement.



- 10.2.7 Remove the Air Hose from the back of old spindle.  
10.2.8 Remove plate surrounding cable routing hole on top right of the Electrical Control Panel by removing the 2X socket head cap screws. This is to allow the Spindle Cable to fit.



- 10.2.9 Remove old spindle.  
10.2.10 Clean inside of spindle holder with alcohol and wipe clean. Surface must be clean and free of dirt and moisture.



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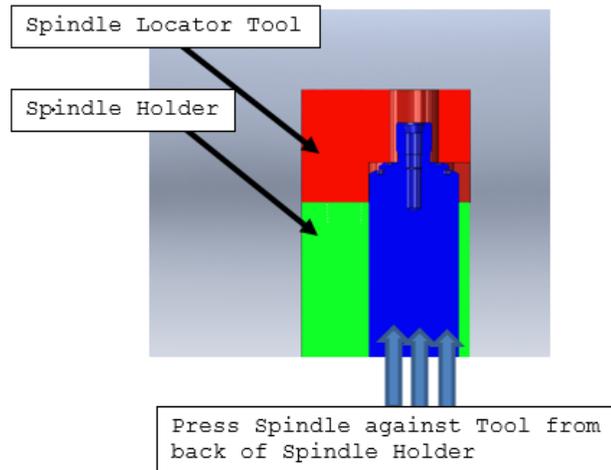
DOC ID: 10937

Effective Date: **DEC 26 2018**

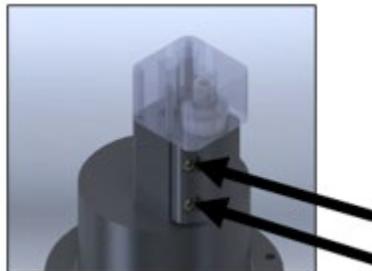
Revision: 1.0

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- 10.2.11 Attach 1008212 – Spindle Locator Tool to spindle holder where the Coolant Collar would normally attach using the supplied M4 x 35mm cap screws.
- 10.2.12 Attach Air Hose to back of Spindle.
- 10.2.13 Lightly coat the spindle with Silicone grease from the middle of the spindle, back towards the cable termination.
- 10.2.14 Press in new spindle until the spindle presses firmly into the locating tool as shown below.



- 10.2.15 Using the Torque Driver and Loctite 222, tighten the two M6x25 cap screws to 1.4 Nm. **DO NOT OVER-TIGHTEN.**



- 10.2.16 Remove spindle locator tool and re-install coolant nozzle assembly and coolant hoses.
- 10.2.17 Ensure spindle turns freely and doesn't bind on coolant nozzle assembly.
- 10.2.18 Route spindle cable and reattach to VFD board, ensure cable runs through metal ferrite. Reattach cable ties in previously noted positions.
- 10.2.19 Replace plate removed for cable routing.
- 10.2.20 Bypass air valve by connecting included hose in kit from air filter directly to the air inlet.



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### *Spindle Replacement - TS150e*



- 10.2.21 Reconnect air, power, and data to back of mill.
- 10.2.22 Turn on mill and initialize MCP in tech mode.
- 10.2.23 Click the Settings Button and select "Load NC File".
- 10.2.24 Select the latest break-in file provided by CTS.
- 10.2.25 Install a bur when prompted but do not load a material.
- 10.2.26 Allow the program to run until a prompt states "Job is finished".
- 10.2.27 Once break-in program is finished, close MCP, power down the mill, and disconnect air, data, and power from the back of the mill.
- 10.2.28 Replace stock air hoses and reattach air filter to mounting bracket with zip tie.
- 10.2.29 Reattach all skins.

#### **11.0 REQUIRED PROPERTIES**

N/A

#### **12.0 DOCUMENTATION**

N/A

**END OF DOCUMENT**