

*DC PRECISION CERAMICS*

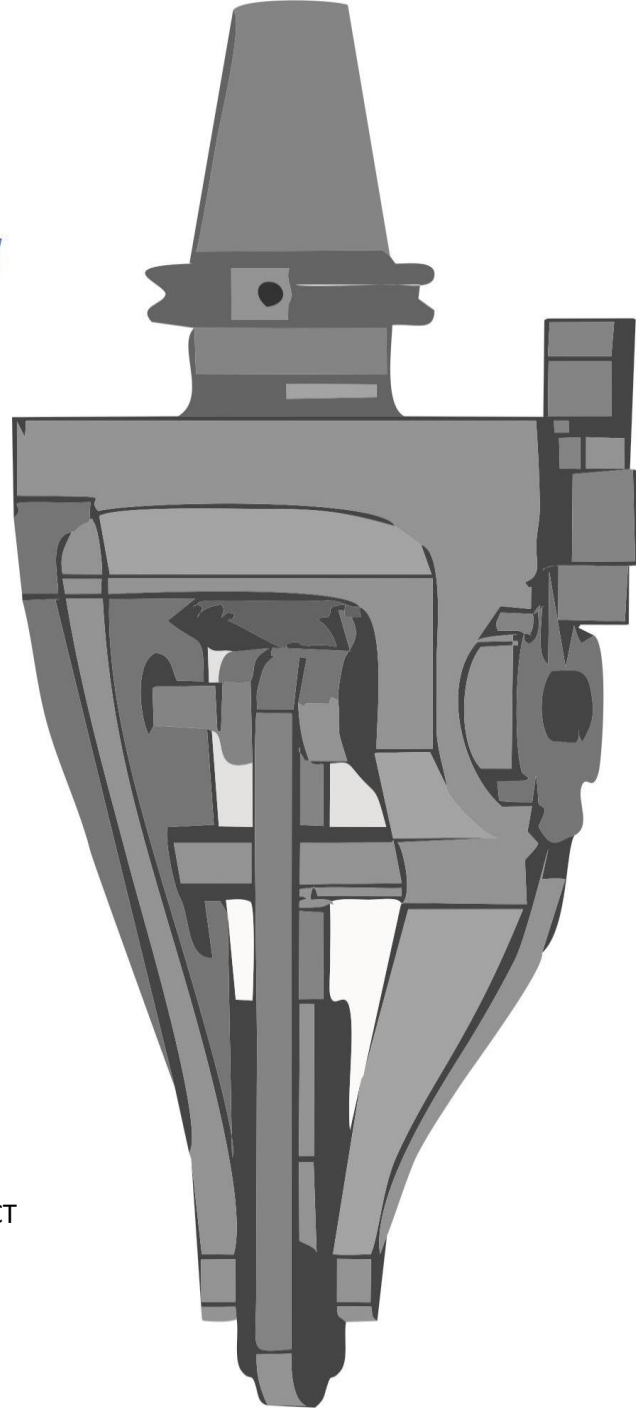
Instruction Manual  
Patent Pending  
PCT/US2023/010196

[www.dcprecisionceramics.com](http://www.dcprecisionceramics.com)



**WARNING:**

TO REDUCE THE RISK OF INJURY, USER MUST READ  
INSTRUCTION MANUAL BEFORE OPERATING PRODUCT



## DEFINITIONS - SAFETY GUIDELINES

 **DANGER:**

Indicates an imminently hazardous situation which, if not avoided, will result in **death** or **serious injury**.

 **WARNING:**

Indicates a potentially hazardous situation which, if not avoided, could result in **death** or **serious injury**.

 **CAUTION:**

Indicates a potentially hazardous situation which, if not avoided, could result in **minor** or **moderate injury**.

**CAUTION:**

Used without the safety alert symbol indicates potentially hazardous situation which, if not avoided, may result in property damage.

## General Safety Rules

 **WARNING:**

TO REDUCE THE RISK OF INJURY, USER MUST READ INSTRUCTION MANUAL BEFORE OPERATING PRODUCT

## SAVE THESE INSTRUCTIONS

### 1) Work area safety

- a) Keep work area, tooling, and equipment clean and well lit. Cluttered or dark areas invite accidents.
- b) Do not operate tool in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. Tool can create sparks which may ignite the dust or fumes.
- c) Keep children and bystanders away while operating the till. Distractions can cause a loss of control.

## 2) Personal safety

- a) **Stay alert, watch what you are doing and use common sense when operating equipment. Do not use equipment while you are tired or under the influence of drugs, alcohol, or medication.**
- b) **Use safety equipment and make sure all safety functions are in place and functioning properly. Always wear eye protection.** Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injury.
- c) Remove any adjusting key, wrench, tools from unit before use. A wrench or a key left attached to a rotating part of the tool may result in injury.
- d) Dress properly. Do not wear loose clothing or jewelry. Keep hair, clothing and gloves away from moving parts. Loose clothes, jewelry or long hair can be caught in moving parts.
- e) **Make sure doors are closed on CNC when unit is in service. Do not exceed max RPM of unit.**

## 3) Service

- a) Have your equipment serviced by a qualified by a repair person using only identical replacement parts. This will ensure that the safety of the equipment is maintained.



### WARNING:

Some dust created by power sanding, sawing, grinding, drilling, and other manufacturing activities contains chemicals known to cause cancer, birth defects or other reproductive harm.



### WARNING:

Avoid Prolonged contact with dust from prolonged contact with dust from sanding, sawing, grinding, drilling, and other manufacturing. Wear protective clothing and wash with appropriate equipment.



### WARNING:

Use of this tool can generate and/or disburse dust, which may cause serious and permanent respiratory or other injury. Always use NIOSH/OSHA approved respiratory protection appropriate for dust exposure. Always provide proper dust removal in a well-ventilated area. Use dust and proper filtration system wherever possible.



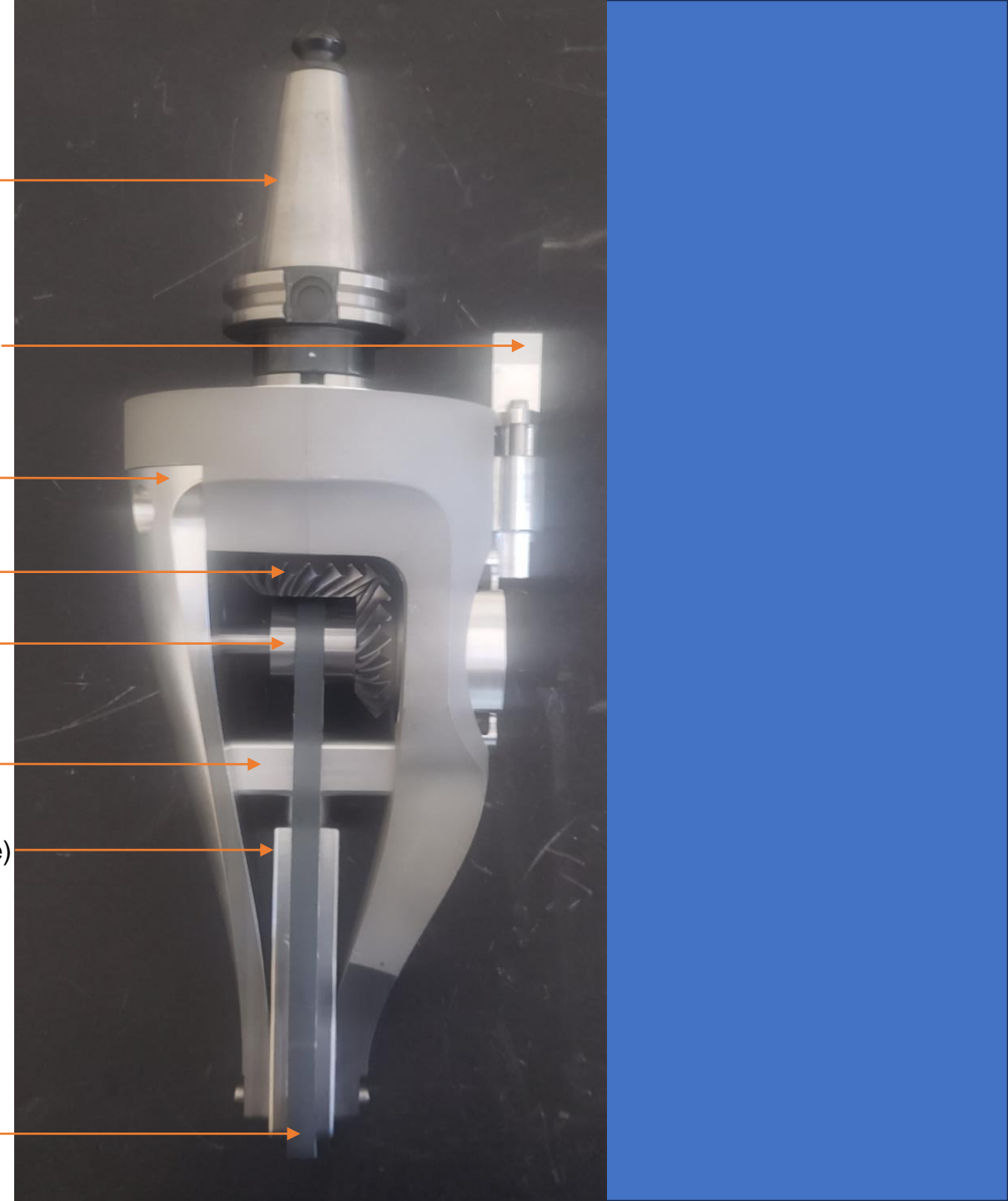
### WARNING:

ALWAYS USE SAFETY GLASSES. (ANSI Z87.1 or to locations required specs.) Everyday eye are not safety glasses.

# OPERATION

FIG. 1

- 1) Interchangeable spindle taper (CT 40 shown)
- 2) Disengagement pin (CAD models available with purchase for customization to machine)
- 3) Support plate
- 4) Spiral bevel gear
- 5) Drive shaft (exchangeable for different belt types)
- 6) Support Brace (contains gas strut for belt tension. Available with locking CAM)
- 6) Wheel mount(exchangeable for different belt types(CAD Models available with purchase)
- 7) Belt (Silicon Carbide 16.375" x .375" as shown)



OPERATION

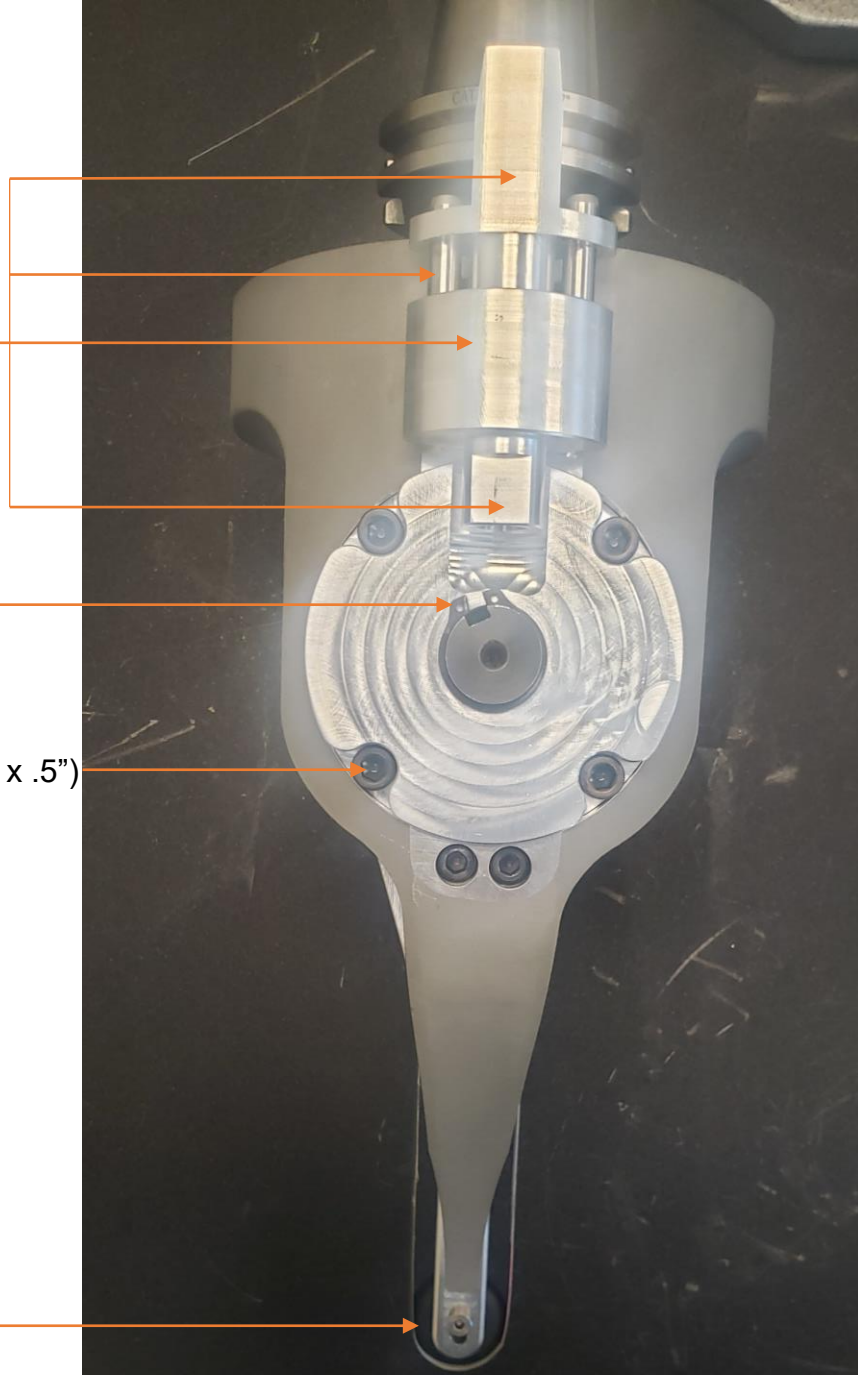
FIG. 2

8) Disengagement assembly (CAD models available at purchase form DCPC)

9) External Retaining Ring (McMaster part # 97633A250)

10) Drive shaft mounting plate screws can be removed for shaft exchange(1/4-20 x .5")

11) 3/8" Contact wheel (part number Dynabrade 11093)



## OPERATION

FIG. 3

12) Alignment bolts for mounting bracket to main body to be removed for belt exchange (3/8-16 thread)

13) Support brace/gas strut mount to be removed for belt exchange (10-32 thread)

14) Wheel mount guide shoulder bolt to be removed for belt exchange (5-40 thread)



## OPERATION

### **⚠ WARNING:**

FIG. 6  
Disengagement Pin Assembly Exchange  
**(Remove tool from Spindle and Machine Prior to Change)**

15) Alignment pin (2x) for disengagement pin ( McMaster #98381A544)

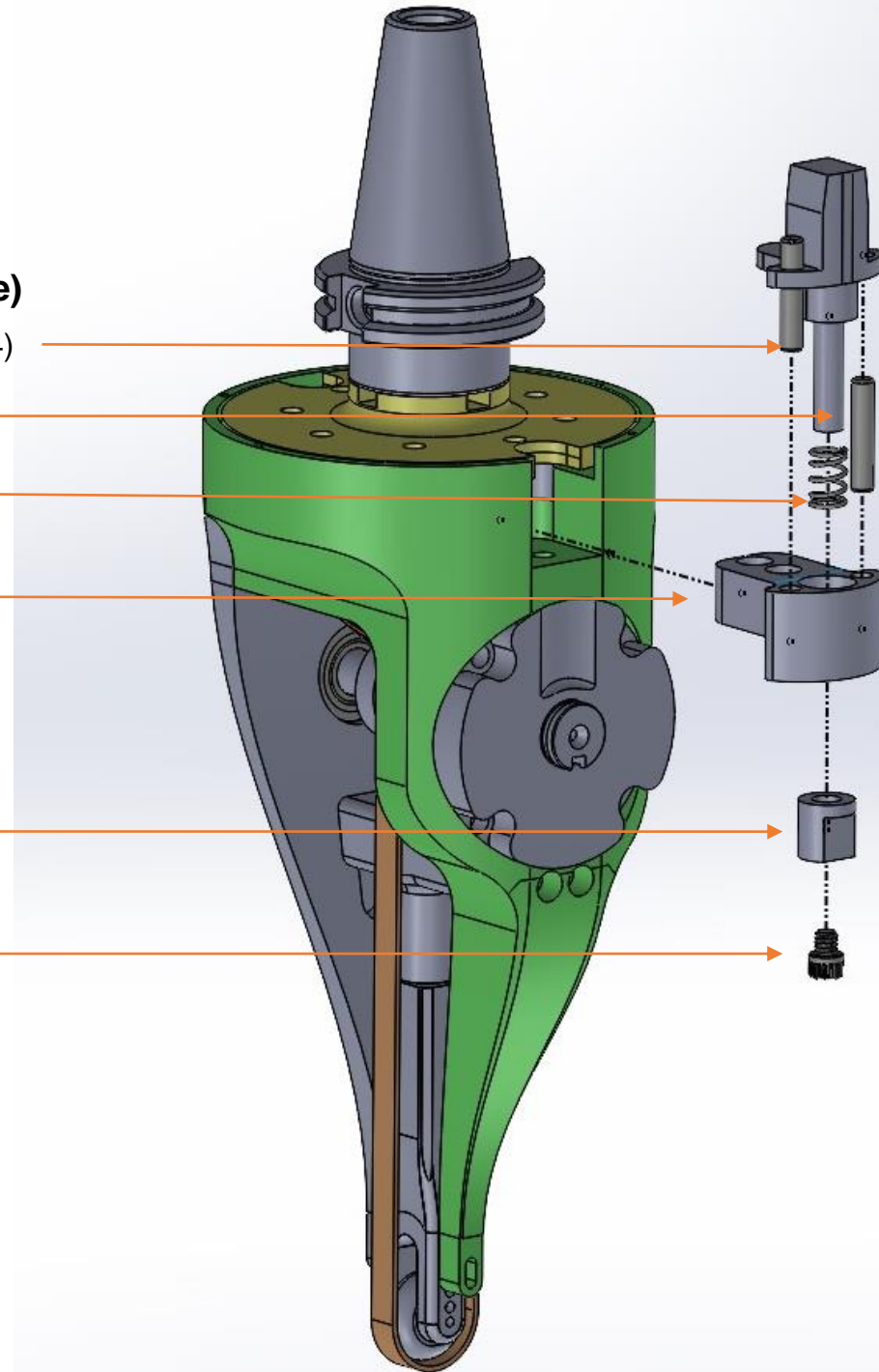
16) Alignment pin.

17) Return Spring (McMaster #9657K661)

18) Brace for disengagement pin

19) Disengagement pin cap

20) Socket head cap screw (1/4-20) (McMaster #91251A533)





## OPERATION

### ⚠ WARNING:

FIG. 5  
Belt Exchange (Remove tool from Spindle and  
Machine Prior to Change)

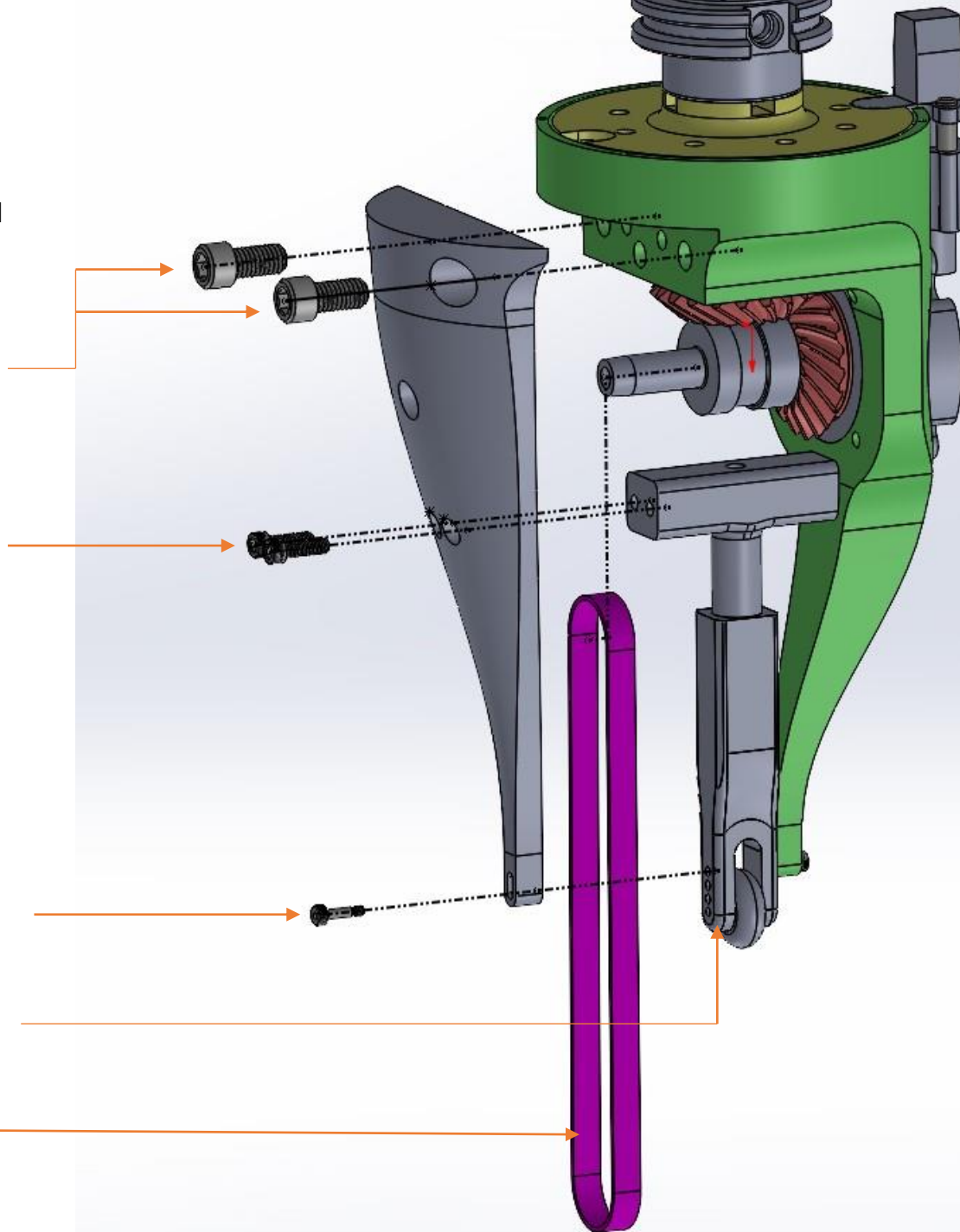
1) Remove alignment bolts for mounting bracket to  
main body. (3/8-16 thread).

2) Remove support brace/gas strut mount bolts  
(10-32 thread).

3) Wheel mount guide shoulder bolt to be removed  
for belt exchange (5-40 thread).

4) Compress the wheel mount toward the gear  
assembly to remove tension on the belt.

5) Replace belt.





## OPERATION



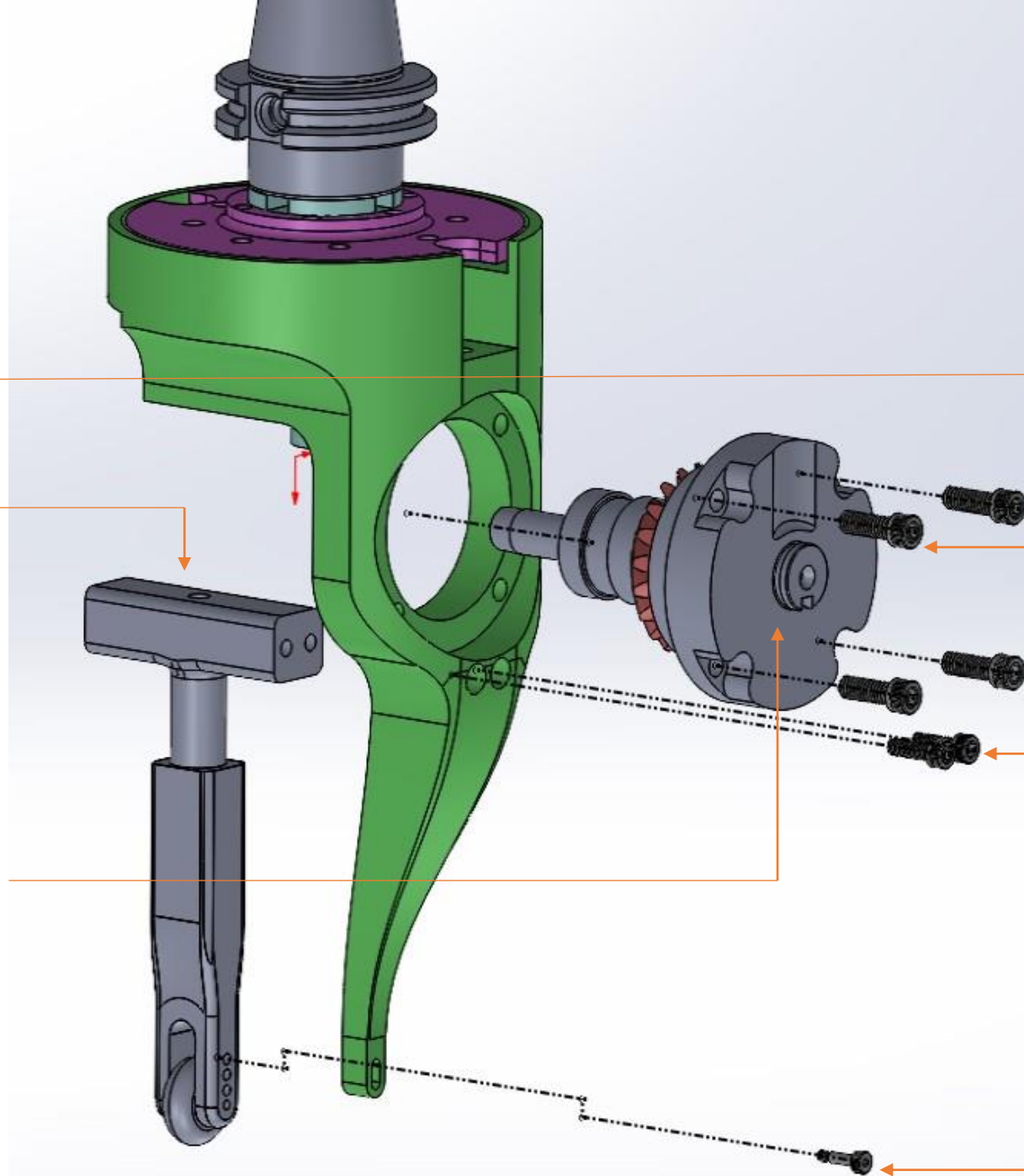
**WARNING:**

(Remove tool from Spindle and Machine Prior to Change)

Fig. 6

### Spindle taper exchange

- 1) Remove 1/4-20 Socket head cap (4x)
- 2) Remove 10-32 Socket head cap (2x)
- 3) Remove 5-40 Shoulder bolt
- 4) Remove support bracket and contact wheel assembly to access socket head cap screw to shell mill holder.
- 5) Slide drive shaft and gear assembly from main body of sander assembly to access socket head cap screw to shell mill holder



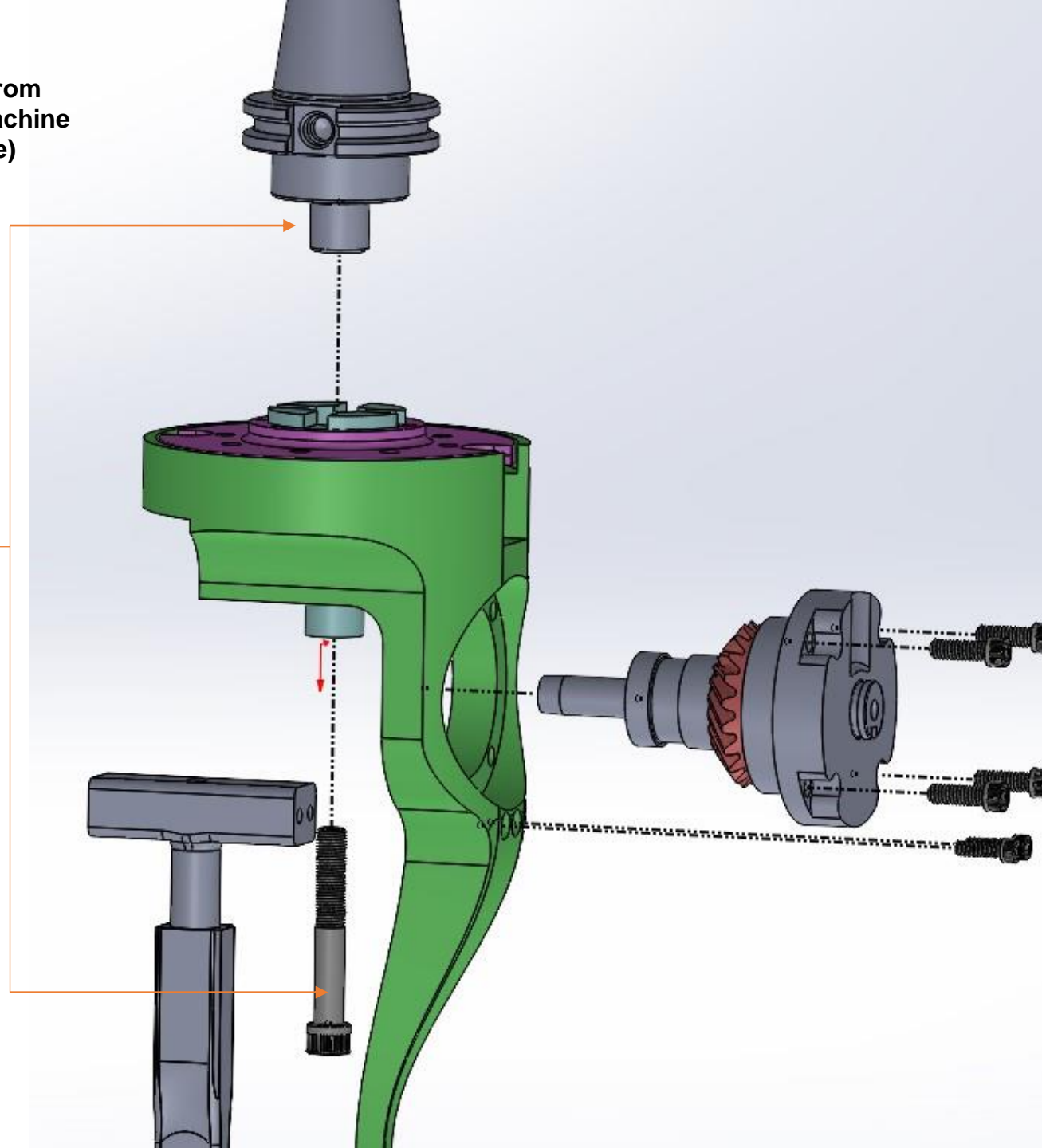
## OPERATION

**⚠ WARNING:**

(Remove tool from Spindle and Machine Prior to Change)

Fig. 6

### Spindle taper exchange



6) Remove shoulder bolt 3/8-24  
(McMaster part # 91251A434)  
(Bottom of image)

7) Slide shell mill holder from  
main body of sander. Exchange  
with desired taper for machine.  
(Top of image)

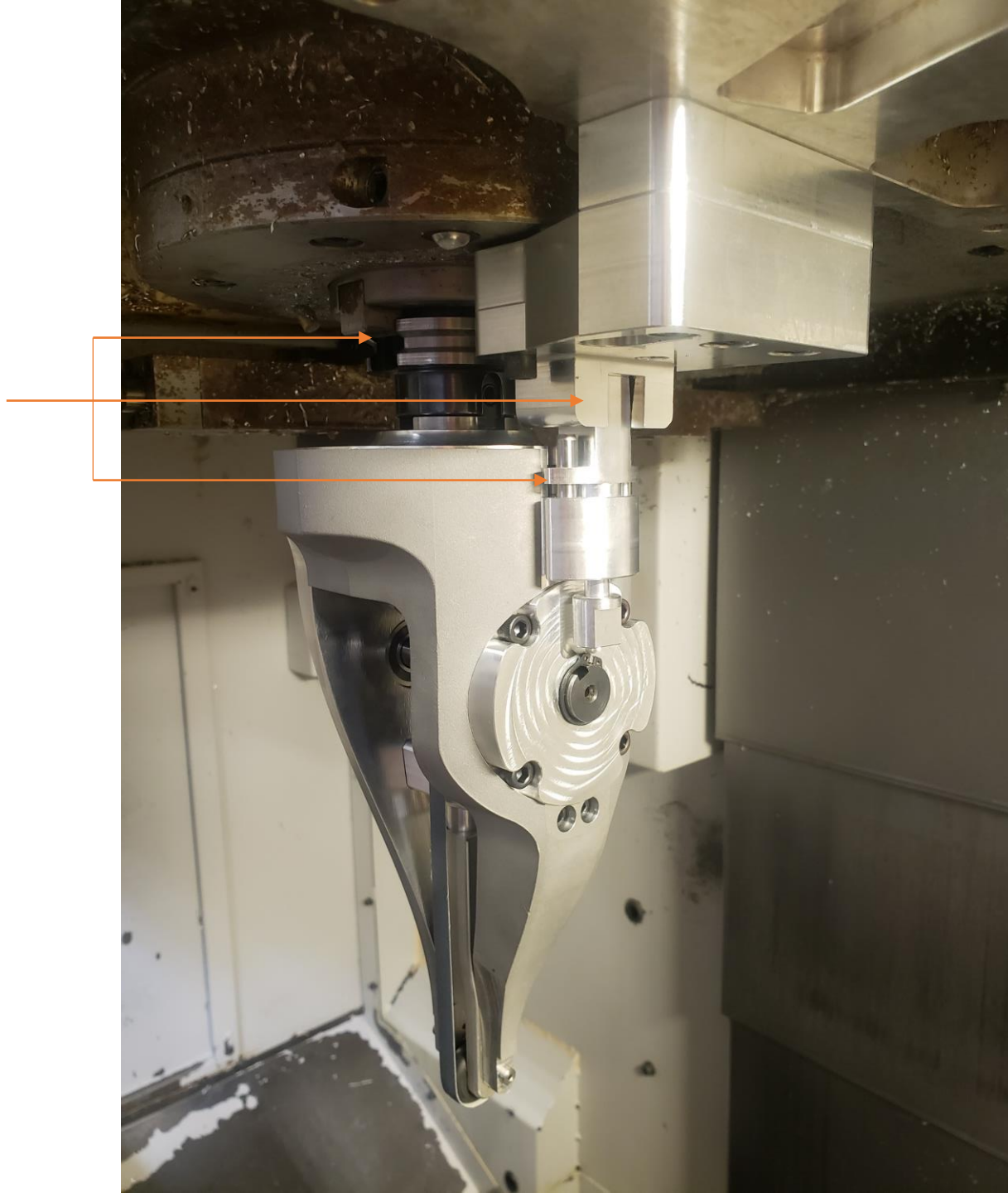
## OPERATION

### **⚠ WARNING:**

Fig 7.

Disengagement Pin in Machine

Disengagement pin must align with spindle orientation and disengagement tooling block. Tooling block must depress disengagement pin to allow for clearance for rotation of spindle.



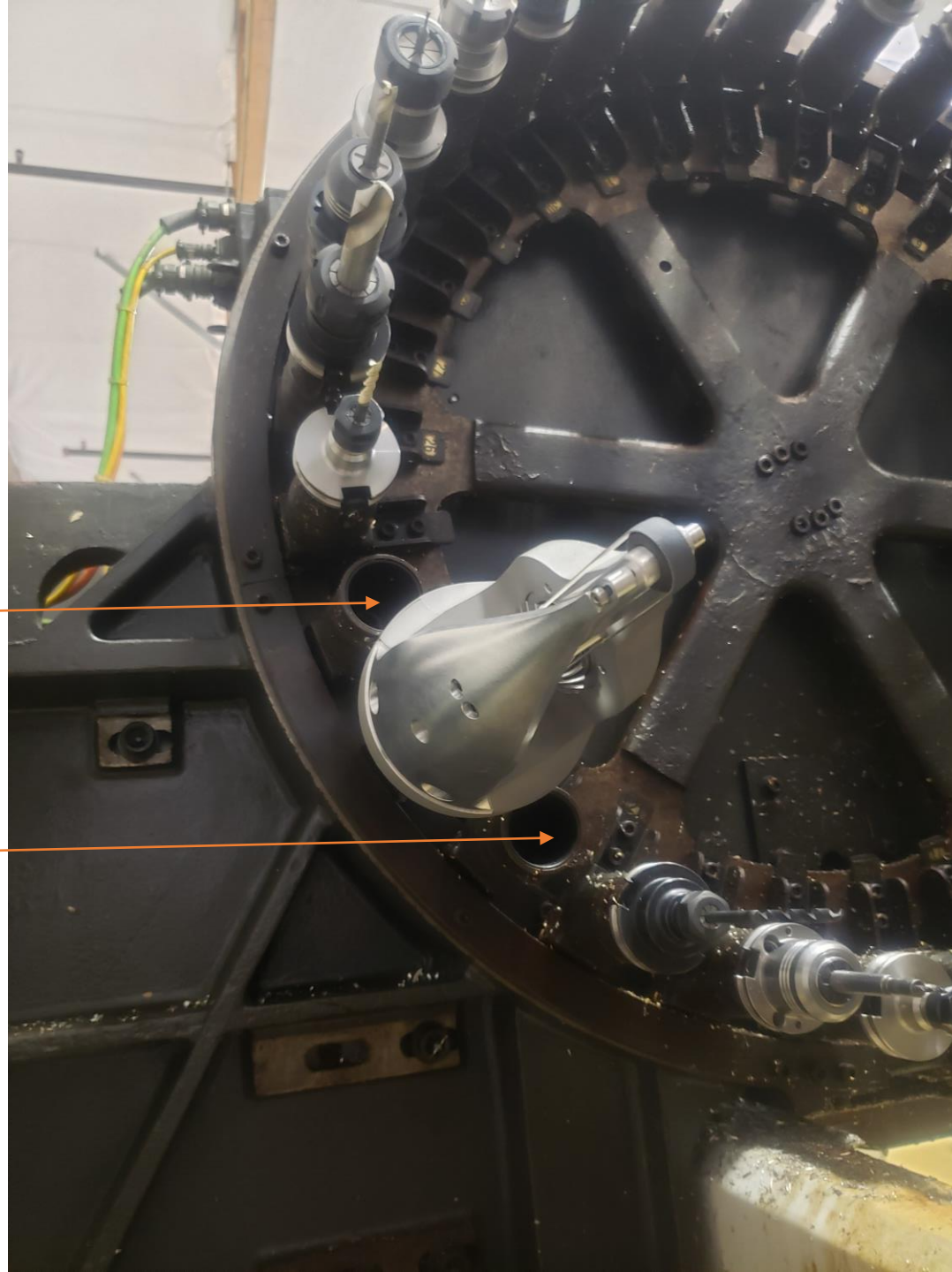
## OPERATION

**⚠ WARNING:**

Fig 8.

Pocket Clearance for Sander

When using sander make sure tool is assigned as heavy. Make sure adjacent tool pockets are empty to prevent interference.





## OPERATION

**⚠ WARNING:**

Fig 9.

Pocket Clearance for Sander

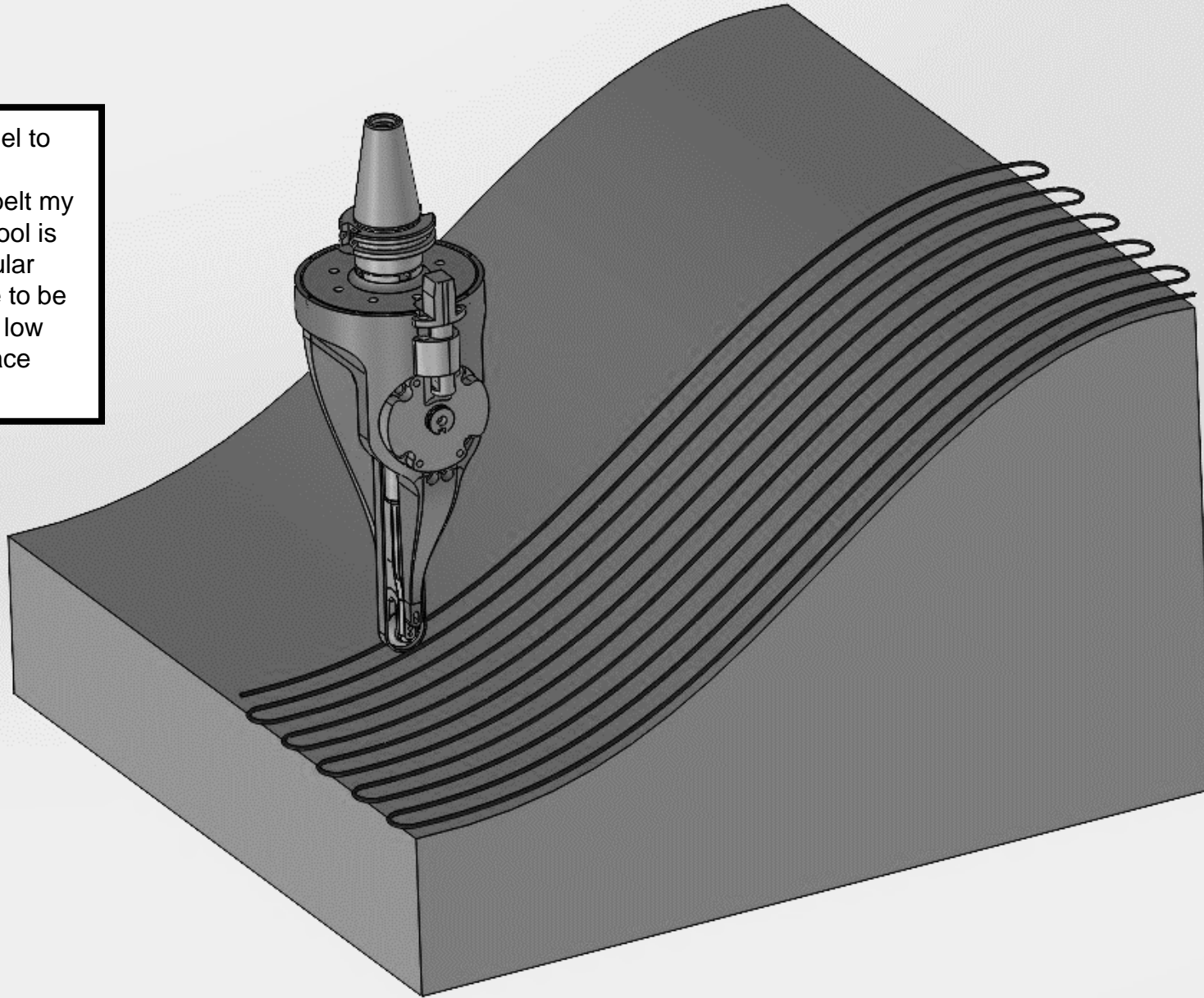
Make sure all dimensions clear all features on the machine tool allowing for clearance in all direction as tool changer rotates.



## OPERATION

FIG. 10

Toolpath should run parallel to surface. If tool is run perpendicular to surface belt may slip off contact wheel. If tool is allowed to dwell in a singular spot material will continue to be removed. This can create low spots and undesired surface dimensions.



## OPERATION

### Replacement Parts

Contact DC Precision Ceramics (DCPC) for replacement parts. Custom parts can be made by purchaser with CAD models available by DCPC.

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