



# CASI Tool Head and Blade Change Manual

## CASi-IBOD

Rev. E



### 1.3 Tape Cut Tool: Blade Change Procedure



**Figure 45 - Tape Cut Tool Head**



**Figure 46 - Full Cutting Tool Blades**

#### Tools Needed:

- Protective cut-resistant gloves
- 1x Long Hex Key (SAE 3/32) and an optional spare object to hold the blade holder in place.
- 3x Spare IBOD Full Cutting Blades per Tool Head

### 1.3.1 Remove the Blades on the Tape Cut Tool

To remove the blades in the CASI-IBOD Tape Cut Tool, follow these steps:

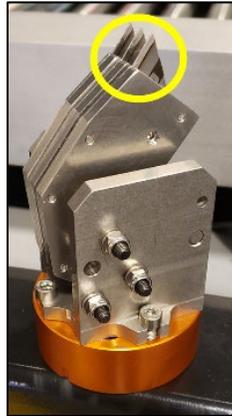


Figure 47 - Location of Three Blades



**The cutting blades are very sharp; always use extra care when moving around and handling sharp objects. Wear cut-resistant gloves.**

1. Find the set screw hole in the side of the first blade holder. Loosen but **do not remove** the set screw to free the blade from the holder.



Figure 48 – Tape Cut Tool

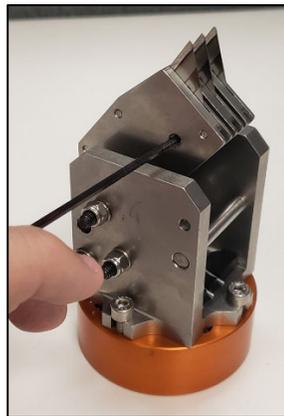


Figure 49 - Unscrew Set Screw in First Blade Holder



Figure 50 - Remove First Blade

- To remove the second blade from the tool head, the blade holders must be positioned so that the set screw is accessible. Use a tool, like a second hex key, and feed it through the blade change assist hole in the lower front of the tool head after forcing down the second and third blade holders.

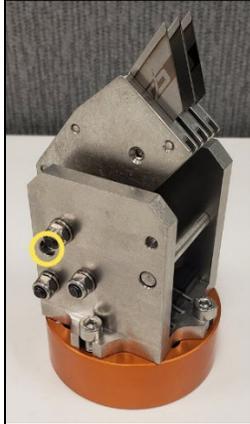


Figure 51 - Change Assist Hole

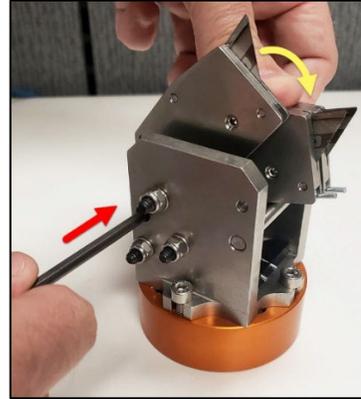


Figure 52 - Pin Down Blade Holders

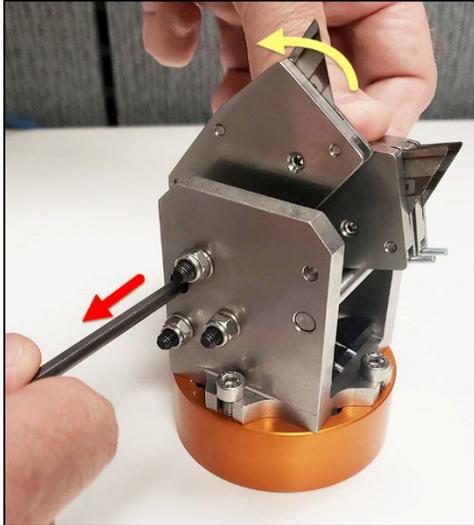
- Put the 3/32 hex key through the blade change pass-through hole in the tool head. Loosen but **do not remove** the set screw to free the blade from the second holder.



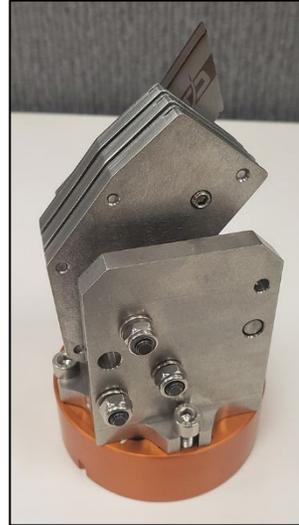
Figure 53 - Remove the Second Blade

- Carefully press down and hold the blade holders, and then pull free the second hex key from the assist hole. Slowly release the blade holders to the default position.

**Caution: the blade holders are spring-loaded.**



**Figure 54 - Release Blade Holders**



**Figure 55 - Blades Removed**

- To remove the third blade from the tool head, the blade holder needs to be positioned so that the set screw is accessible. Use a tool, like a second hex key, and feed it through the blade change assist hole in the lower front of the tool head after forcing down just the third blade holder.



**Figure 56 - Change Assist Hole**



**Figure 57 - Pin Third Blade Holder Down**

- Put the 3/32 hex key through the blade change pass-through hole in the tool head. Loosen but **do not remove** the set screw to free the blade from the third blade holder.



Figure 58 - Remove Third Blade

- Carefully press down, hold the third blade holder, and remove the second hex key from the assist hole. Slowly release the blade holder to the default position.  
**Caution: the blade holders are spring-loaded.**

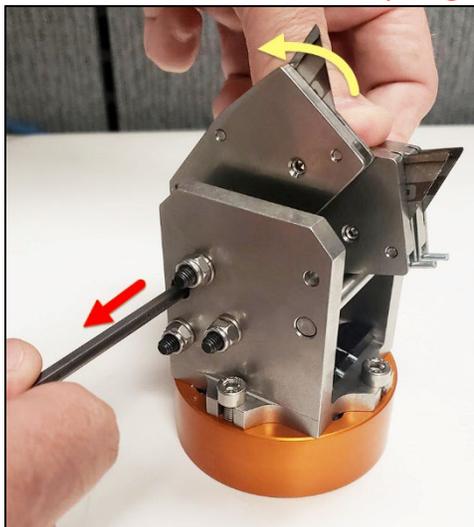


Figure 59 - Release Blade Holders

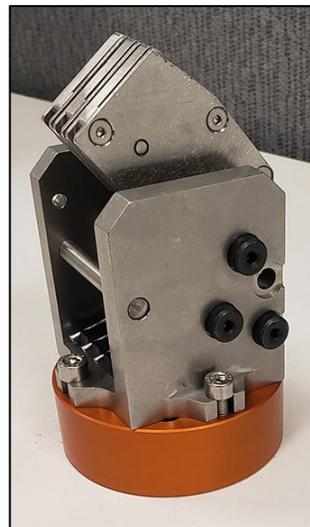


Figure 60 - Blades Removed

### 1.3.2 Replace the Blades on the Tape Cut Tool

To replace the blades on the tape-cut tool head:

1. Each blade slides into the tool head slots, blade up, and is held in place by a set screw that fits in the second lower notch of the blade. **Figure 62** below illustrates how the blade needs to sit correctly when slotted into the tool head (**Figure 63**.)



Figure 61 - Full Blade



Figure 62 - Illustrating Blade Position

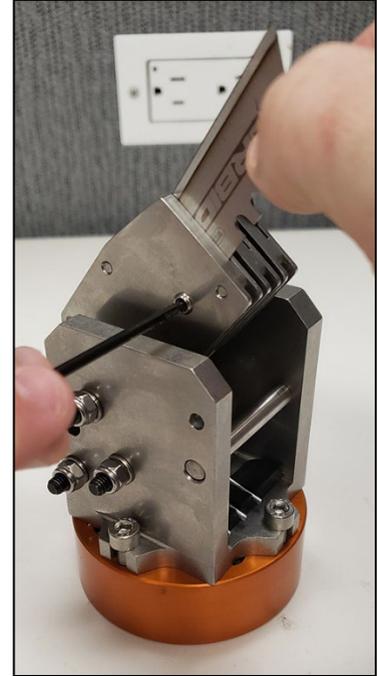


Figure 63 - Slotting Blade

2. After slotting the blade into the tool head, move and adjust the blade while tightening the set screw until the blade is secured properly. *The set screw **must** recess into the blade holder to be installed correctly.*

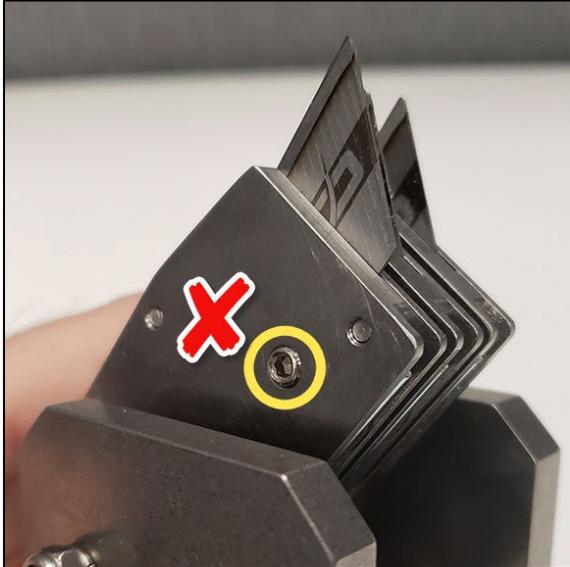


Figure 64 - Incorrect Set Screw Depth



Figure 65 - Correct Set Screw Depth

3. Repeat steps 1 and 2 for any blade that needs to be placed in the tool head.
4. The Window Tool Head blade change is complete. Place the tool blade side down in the tool changer rack in the CASi-IBOD.

## 2 TOOL HEAD CHANGE PROCEDURE

CASI systems that feature a cutting tool on the end of the robot arm often have the Automatic Tool Changer with a tool storage tray as standard equipment and functionality. Systems with the Automatic Tool Changer have UI software features that instruct the robot to change tools automatically based on calculated blade use and wear. The robot will place the used tool in an empty space on the tool storage tray and pick up a new tool. Authorized operators can also instruct the robot to change tools at any time using the HMI screen. The Automatic Tool Changer features are covered in this section of the companion guide and can be found in the main CASI-IBOD manual.

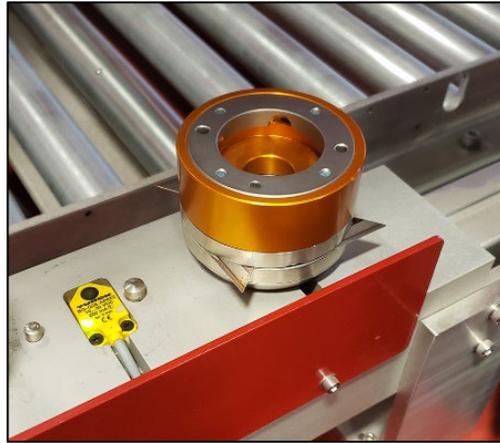
Some CASI systems may not have the Automatic Tool Changer, or operators may need to change the tool head manually. This information is also covered.

This manual also covers the CASI SmartBox, that has a specially designed robot and tool head that are unique to the function of the SmartBox. Changing of the tool head on the SmartBox can only be done manually.

## 2.1 Automatic Tool Change Procedure



**Figure 97 - Tool on Arm**



**Figure 98 - Example Tool on Rack**

The CASi-IBOD will cut to a predetermined "linear wear distance" before attempting to automatically change the worn blade tool head for a fresh-bladed tool. This automatic process requires operators to place usable, bladed tools in the tool rack for use, with one slot open for exchanges.

### 2.1.1 Force Tool Change

To force the robot arm to change tool heads, follow these steps:

1. Log in at the Maintenance or Supervisor user level.

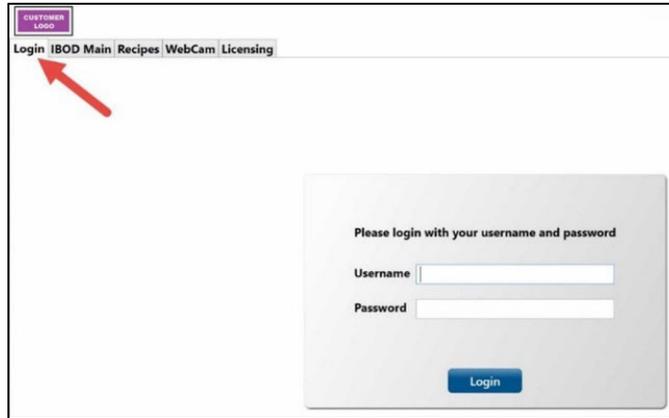


Figure 99 - Log in on CASi-IBOD HMI

2. Stop the system using either the **UI Stop button** or the **IBOD frame Stop button**.
3. Press the **Force Tool Change** button on the lower right corner of the *Main IBOD tab* HMI. The robot may take a minute to execute the command.



Figure 100 - Blade Wear Section

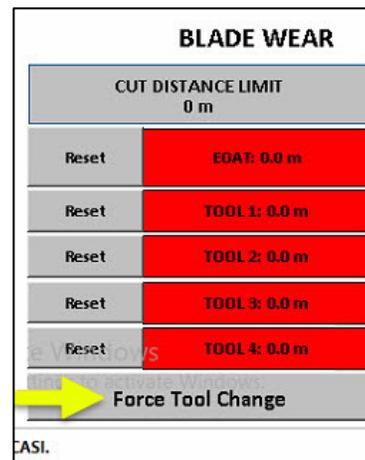


Figure 101 - Force Tool Change

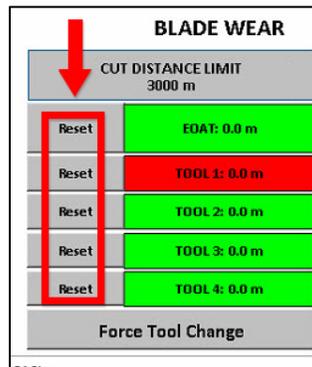
- The robot arm will automatically move to drop the current tool in an open slot in the tool changer rack. Then, the robot arm will choose the next valid, available tool and pick it up.



**Figure 102 - Tool Arm Changer Rack      Figure 103 - Default Position**

**\*NOTE:** After the robot arm picks up a new tool, the arm will hold the tool up to the tool sensor to make sure the tool is properly seated in the robot arm. The robot arm will return to the default cutting position after the system is started and the tool change procedure is finished.

- Push the Blade Wear **Reset** button for the current tool slot. (On the lower right, on the **Main IBOD** HMI screen, as seen in **Figure 104** below.) This will help keep track of fresh bladed tool heads vs. used or worn blades on tool heads.



**Figure 104 - Reset Blade Wear**

Green indicates an available usable tool with acceptable wear.

Red indicates an empty slot or a tool that has been used past the wear limit.

6. The CASi-IBOD is ready for operation. Start the system as normal. The robot will return to its home position before cutting recipes again.

### 2.1.2 Used Blade Tools

The tool heads with the used blades should be removed from the rack and fitted with fresh blades. See the previous sections for methods of changing the blades on the different varieties of CASI tool heads.



**The cutting blades are very sharp; always use extra care when moving around and handling sharp objects. Wear cut-resistant gloves. Dispose of used blades properly and safely according to facility guidelines for sharp objects.**

### 2.2 Manual IBOD Tool Head Change

Operators may need to manually remove the current tool head for various reasons. If you have the automatic tool head changer, do not use this method unless it is absolutely necessary. Use the "force tool change" method if possible.

The system must be stopped, and an operator with the supervisor or maintenance must be logged in.



**The cutting blades are very sharp; always use extra care when moving around and handling sharp objects. Wear cut-resistant gloves.**

1. Stop the system by pressing the **Stop button on the UI** or the **mechanical Stop button** on the frame.



**Figure 105 - UI Stop Button**



**Figure 106 - Mechanical Stop Button**

2. Press the **Move Robot to Maintenance Position** button. The robot will automatically position itself in a location near the front cabinet door #1.

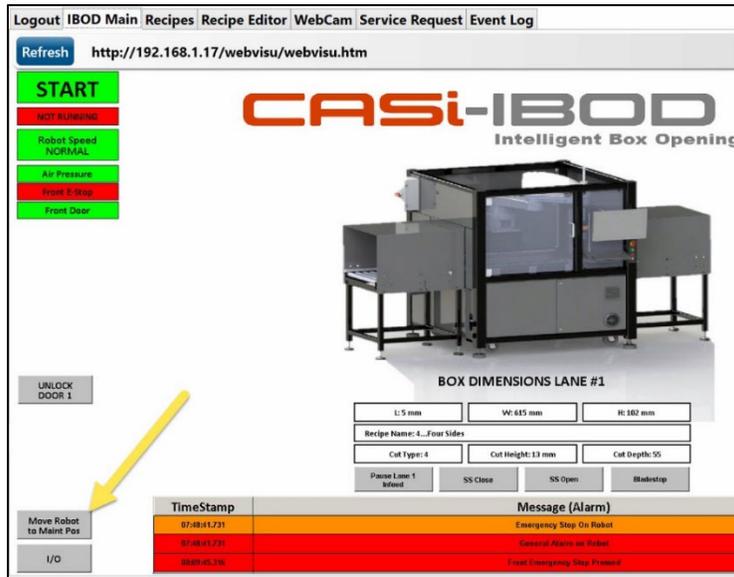


Figure 107 - Move to Maintenance Position Button on the CASI UI

3. Press the **Unlock Door 1** Button and open the door.



Figure 108 - Unlock Door Button

4. The **Release Tool Button** will appear once the door is open. Position your hand **securely, with minimal gap distance, and safely** under the tool head to receive the tool from the robot. Press the **Release Tool Button**. A large red verification

warning screen will appear; press the **Release Tool** button. **Be cautious; the tool head will immediately drop from the robot.**

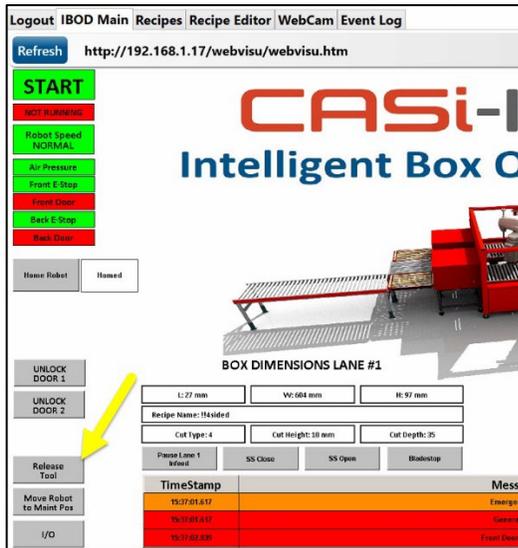


Figure 109 - Release Tool Button

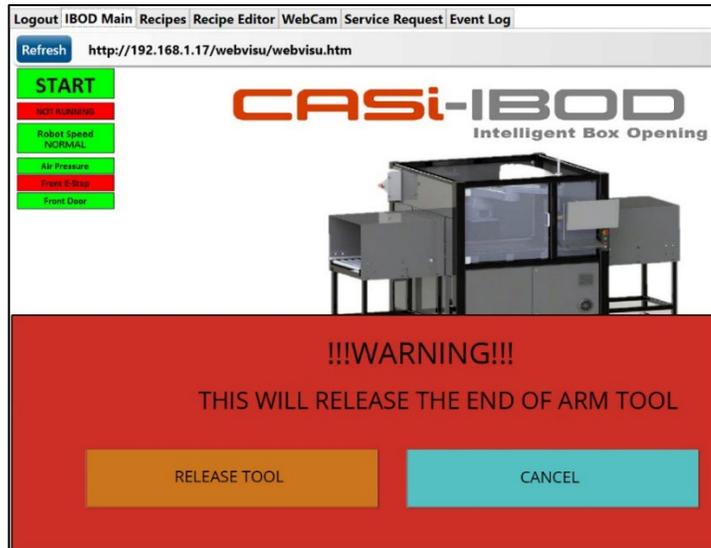


Figure 110 - Release Verify Button

- To reattach the tool head, hold the tool head securely and safely up to the robot's end of arm hardware. Align the two small posts on the end of arm with the holes in the tool head. Once the tool head is firmly in place and lined up, push the **Release Tool** button to engage the robot's pneumatic grip on the tool head. You may hear the air seal engaging.



The **Release button** is a toggle function; therefore, the button may need to be pressed more than once to prepare the robot end-of-arm tool for engaging the pneumatics.

- Close the door and **Start** the system. The robot will return to the home position and then begin to cut as normal.