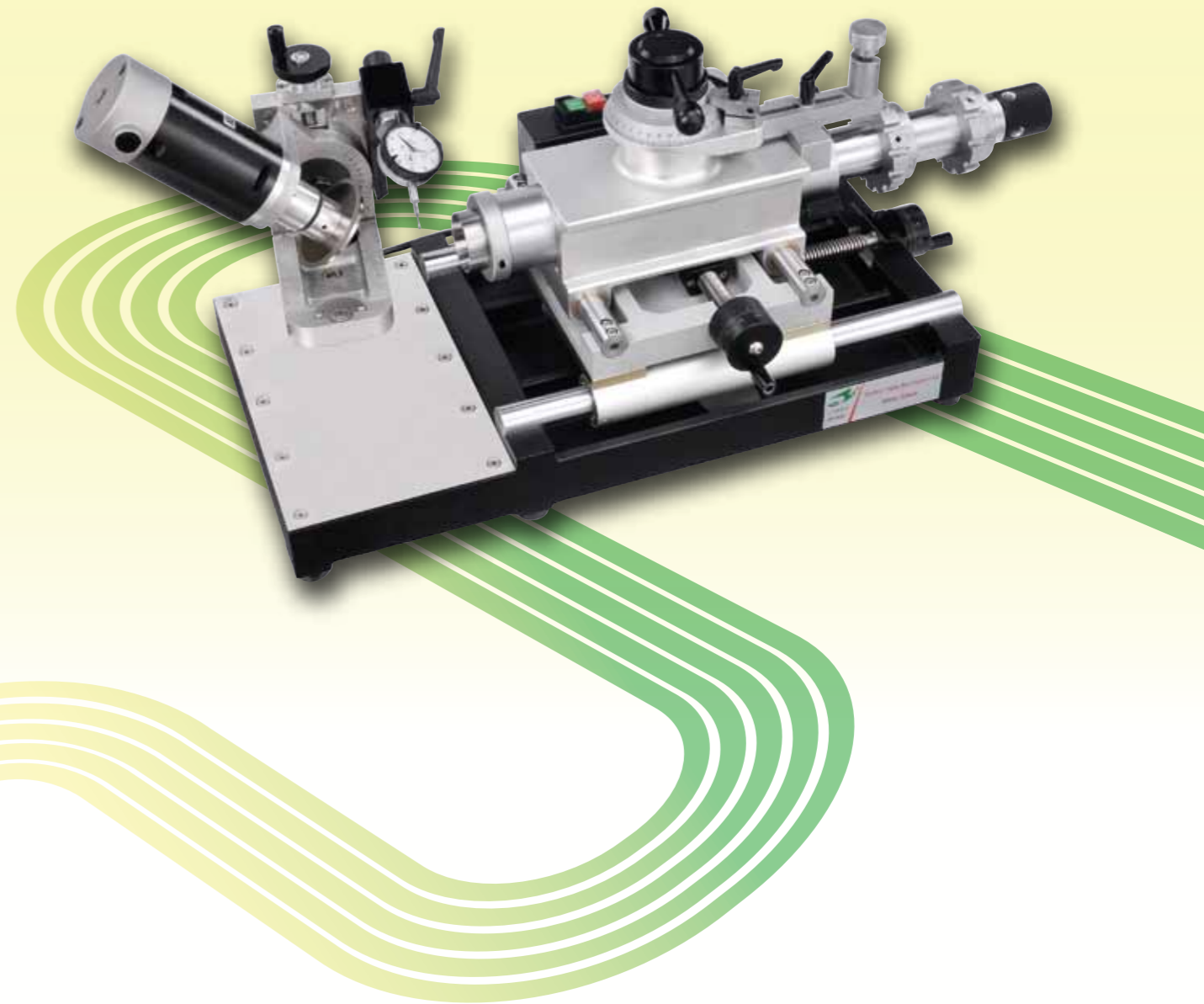




Endmaill Helix Re-sharpening



麗勳企業有限公司
LI-HSUN INDUSTRIAL CO., LTD.

40850 台中市南屯區工業22路33號
No.33, 22nd Road, Industrial Park, Taichung City 40850, Taiwan
TEL : 04-23507788 FAX : 04-23502120
E-mail : lihsun66@ms38.hinet.net
website : www.lihsun.com

EH-832 螺旋角修磨機

Endmill Helix Re-sharpening



專利在案 Patent pending

機械規格 SPECIFICATIONS

刀具直徑 Tool diameter	Ø8-Ø32mm
刀具的螺旋長度 Spiral length with workhead spindle	160mm
工作台的前後行程 Longitudinal travel of workhead	150mm
工作台的左右行程 Cross travel of workhead	130mm
砂輪頭的上下行程 vertical movement of wheel head	50mm
砂輪頭的傾斜角度 Tilting angle of wheel head	±90°
心軸的內孔斜度 Workhead spindle	C5
左螺旋及右螺旋的溝槽、前端角、二番角皆能研磨 Spiral flute & axial relief grinding Infinitely variable, left & right hand	
螺旋角 Helix angle	0° - 90°
砂輪孔徑 Grinding wheel Bore	19.06mm
砂輪最大直徑 Grinding wheel diameter	Max. 90mm
砂輪馬達 Grinding motor	0.25KW
砂輪迴轉方向 Grinding wheel direction	正轉 Clockwise
砂輪轉速 Grinding spindle spds	4800 R.P.M.(250w-300w)
機器淨重 Net weight	57KGS
機器外觀尺寸 Dimensions	860×430×500mm
電源 Power supply	AC110/AC220 50/60Hz

本公司隨時進行研究改善的工作，因此本型錄內所規定尺寸驗設計特性，得以變更，不另行通知。
Specifications and design characteristics are subject to change without prior notice.



標準配件 STANDARD ACCESSORIES

斜度研磨裝置 Taper grinding device	
10,12 等份分度盤 One indexing plate 10,12 divisions	
使用工具一套 One set of operating tools	
操作書 One operating instruction manual	
砂輪 Grinding	SDC (1.5 mm , Ø8-12 mm) SDC (2.0 mm , Ø12-32 mm) 鎢鋼專用 Carbide Only
C5 筒夾 Collet	Ø12 , Ø16 , Ø20 , Ø25 , Ø32 mm , 直徑 Diameter Ø50 mm
刀桿 Holder / 筒夾 Collet	C20-SSK10-80L , × 1 pcs (Ø6 , Ø8 , Ø10 mm)

特殊附件 OPTIONS

砂輪 Grinding	CBN(1.5 mm , Ø8-12 mm) CBN(2.0 mm , Ø12-32 mm) HSS 專用 HSS Only
-------------	--

機械特性 MACHINE FEATURES

- EH-832 精密刀具 & 溝槽磨床是一部多功能，而且容易操作的機器，所有側銑刀、面銑刀、殼形銑刀、粗銑刀、端銑刀、螺絲攻、倒角刀，2 刃、3 刃，銑刀螺旋角可研磨 (2,3,4,5,6 刃) …等皆能研磨。
The universal tool & cutter grinder Model EH-832 is versatile in operation without requiring special skills. All milling cutters, endmills , shell endmills , staggered tooth cutters, rough endmills , countersinks (2 flutes, 4 flutes)and the angle of endmill helix can sharpen 2flutes,3flutes,4 flutes, 5flutes, 6 flutes.
- 少量或中批量的高速鋼或碳化鎢刀具、刀具修磨皆很適合在 EH832 上完成。
The Model EH-832 is designed to sharpen HSS and carbide toolings in small and medium quantities.
- 刀具只要一次夾持，即可研磨端面、側面、溝槽。
In one chucking operation, the machine can perform the grinding of the rake angle of the flute, clearance angle on the periphery and the end of the tool.
- 螺旋角度的設定可以很快完成。
A few seconds set up time for helix angle.
- 研磨螺旋刀具時，因為主軸的螺旋運動不會產生間隙，所以特別適合研磨高精度的碳化鎢刀具。
Due to the backlash free operation, spiral toothed, solid carbide or carbide tipped milling cutters can be ground with high accuracy thus far only achieved by CNC grinders.
- 機器的底座和滑板是一體成型，所以穩定性高、堅固耐用。
The heavy duty compound slides and one piece cast-iron base provide extra rigidity and minimize vibration.

EH-832 螺旋角修磨機

Endmill Helix Re-sharpening

操作程序 OPERATIONS

A1



微調主軸的螺旋角度 FINE TUNE THE SCREW ANGLE OF THE MAIN AXIS

- 1-1 將百分錶針抵住銑刀槽溝。
 - 1-2 主軸做來回伸縮驗證，角度誤差要小於 0.02mm 以下。
- 1-1 Support the dial gauge against the Milling Cutter's slot.
 - 1-2 Inspect the Main Axis by extending back and forth. The angle deviation must be less than 0.02mm.

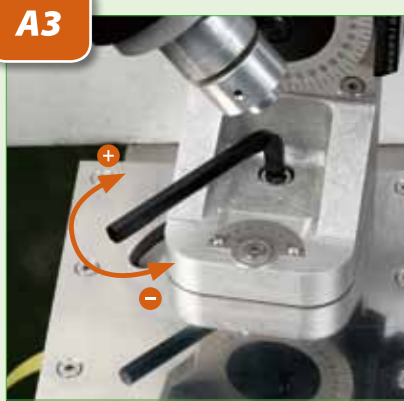
A2



調整分度盤使用方法 USAGE OF ADJUSTING THE DIAL INDICATOR

- 2-1 先將分度盤之固定把手往逆時針方向鬆開。
 - 2-2 分度盤與刻度表尺零度對齊為 0 點。
 - 2-3 調動分度盤角度配合百分錶檢測銑刀溝槽無誤後，再將固定把手往順時針方向旋緊固定。
- 2-1 First, counterclockwise loose the Dial Indicator's locking grip.
 - 2-2 Align the Dial Indicator and the Indicator point at 0.000.
 - 2-3 Adjust the Dial Indicator's angle to meet the dial gauge for approving the Mill's slot. Then clockwise screw the locking grip tightly.

A3



調整 Z 軸底座角度 ADJUST THE ANGLE OF THE Z-AXIS'S BASE

- 3-1 用 10mm 六角板手往逆時針方向，鬆開固定的螺絲。
 - 3-2 將 Z 軸底座往順時針方向轉動至 8° 位置 (依銑刀螺旋角度不同做加減角度)。
 - 3-3 再用 10mm 六角板手往順時針方向，將螺絲鎖緊。
- 3-1 Loose the locking screw counterclockwise with a 10mm Hex Wrench.
 - 3-2 Clockwise rotate the base of Z-axis to 8° (Add or subtract the angle per milling cutter's screw angle).
 - 3-3 Then clockwise lock the screw tightly with the 10mm Hex Wrench.

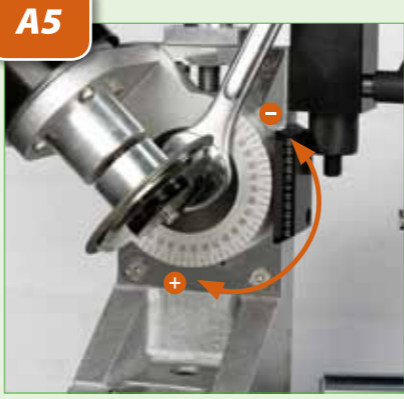
A4



調整 Z 軸砂輪高低 ADJUST THE HEIGHT OF Z-AXIS'S GRINDING WHEEL

- 4-1 用 21mm 開口板手套進 Z 軸固定螺帽內，在往逆時針方向鬆開。
 - 4-2 轉動 Z 軸手輪即可調動砂輪高低 (一般研磨砂輪要高於銑刀中心點 1-2m/m)。
 - 4-3 如調整定位後需用 21m/m 開口板手將 Z 軸固定螺帽以順時針方向旋緊固定。
- 4-1 Put the 21mm Adjustable Spanner onto the Z-axis's locking screw and then counterclockwise loose it.
 - 4-2 Rotate Z-axis's handwheel to adjust the height of the Grinding Wheel. (Grinding Wheel should be 1-2m higher than the milling cutter's center).
 - 4-3 After adjusting the position as mentioned above, it needs a 21m/m Adjustable Spanner to clockwise lock the Z-axis' locking screw tightly.

A5



調整砂輪角度 ADJUST THE ANGLE OF THE GRINDING WHEEL

- 5-1 用 21mm 開口板手卡進馬達固定座螺帽內，往逆時針方向鬆開螺帽，再轉動馬達固定座之錶尺至所需之角度 (如銑刀螺旋角為 45° 角時要調整到約 47-50 度左右)。
 - 5-2 再用 21mm 開口板手卡進馬達固定座螺帽內往順時針方向鎖緊即可。
- 5-1 Span the 21mm Adjustable Spanner into the Motor Base's locking screw nut. Counterclockwise loose the screw nut and then rotate the Motor Base's dial indicator to the required angle (ex: If the Milling Cutter's screw angle is 45°, and then it needs to adjust to 47° -50° or so).
 - 5-2 Then span the Adjustable Spanner to the Motor Base's locking screw nut and lock it clockwise.

A6



X 軸滑座之使用方法 USAGE OF X-AXIS'S SLIDE REST

- 6-1 將 X 軸手輪往逆時針方向轉動可使 X 軸滑座前進。
 - 6-2 將 X 軸手輪往順時針方向旋轉可使 X 軸滑座向後退。
- 6-1 Make the X-axis's Slide go forward by counterclockwise rotating the X-axis's handwheel
 - 6-2 Make the X-axis's Slide go backward by clockwise rotating the X-axis's handwheel.

A7



銑刀與砂輪研磨前距離設定 DISTANCE SETTING BETWEEN THE MILLING CUTTER AND THE GRINDING WHEEL BEFORE GRINDING

- 7-1 轉動 X 軸手輪堆進銑刀至砂輪前約 15mm 即可。(研磨前刀刀的基準定位點)。
- 7-1 Rotate X-axis's handwheel and push the Milling Cutter to only 15mm front of the Grinding Wheel. (The cutter edge's position basis before grinding)

A8



離合器之使用方法 USAGE OF THE CLUTCH

- 8-1 將離合器往逆時針方向轉動約 90° 可使離合器脫離主軸 (主軸此時可自由前進後退或轉動)。
 - 8-2 將離合器往順時針方向轉動約 90° 離合器之導輪與主軸結合進行角度導程。
- 8-1 Counterclockwise rotate the Clutch about 90° to enable the disengagement of the Clutch and the Main Axis (At the mean time, the Main Axis can go forward and backward or rotate freely).
 - 8-2 Clockwise rotate the Clutch about 90° to enable the engagement of the Clutch's lead wheel and the Main Axis and operate the angle lead process.

A9



銑刀與砂輪校正前準備 PREPARATION OF THE MILLING CUTTER AND THE GRINDING WHEEL BEFORE REGULATION

A10



Y 軸滑座之使用方法 USAGE OF Y-AXIS SLIDE

- 10-1 將 Y 軸手輪往逆時針方向轉進使銑刀得以靠近砂輪。
- 10-1 Rotate the Y-axis's handwheel counterclockwise and enable the Milling Cutter to get close to the Grinding Wheel.

A11



銑刀與砂輪校對設定 REGULATION SETTING OF THE MILLING CUTTER AND THE GRINDING WHEEL

- 11-1 將 Y 軸手輪往逆時針方向推進銑刀溝槽對入砂輪內 (注意砂輪上緣碰觸銑刀，砂輪下緣不得碰觸銑刀)。
- 11-1 Push the Y-axis's handwheel into the Milling Cutter's slot counterclockwise. (Mind that the upper edge of the Grinding Wheel should touch the Milling Cutter, but the bottom edge must not touch the Miller Cutter.)

A12



離合器與工作軸結合之方法 THE ENGAGEMENT OF THE CLUTCH AND THE WORKING AXIS

- 12-1 銑刀與砂輪對準後將離合器把手往順時鐘方向推轉約 90 度。
- 12-1 After setting well the Miller Cutter and the Grinding Wheel, clockwise turn the grip about 90°

A13



將 Y 軸手輪往順時鐘方向轉動作微退 ROTATE THE Y-AXIS'S HANDWHEEL CLOCKWISE TO GO SOME BACKWARD

- 進 Move forward
- 退 Backward

A14



研磨長度定位 POSITION THE GRINDING LENGTH

- 14-1 轉動工件軸上之銑刀溝槽底部，輕觸碰到砂輪為止。
- 14-1 Rotate the bottom of the Milling Cutter's slot on the Working Axis and stop till it slightly touches the Grinding Wheel.

操作程序 OPERATIONS

A15



調整分度盤 ADJUST THE INDEXING PLATE

- 15-1 用 6mm 六角板手將分度盤上的固定螺絲鬆開。(分度盤此時可前後自由移動或旋轉)。
15-1 Loose the locking screw on the Indexing Plate with a 6mm Hex Wrench. (At this time, the cutting plate can be moved or rotated freely.)

A16



研磨長度設定 GRINDING LENGTH SETTING

- 16-1 將分度盤移到主軸套管前約 5mm 處。
16-2 再取 6mm 六角板手將分度盤上之固定螺絲往順時針方向鎖緊固定。
16-3 再將行程螺帽往逆時針方向旋轉，至碰觸分度盤為止。
16-1 Move the Indexing Plate to the position in front of spindle sleeve about 5mm.
16-2 Use the 6mm Hex Wrench to clockwise lock the screw tightly on the Indexing Plate.
16-3 Lock the screw nut counterclockwise until it touches the Indexing Plate.

A17



調整插梢定位滑座 ADJUST BOLT POSITIONING SLIDE

- 17-1 主軸向後旋轉定位後。
17-2 再將插梢定位滑座之把手往逆時鐘方向旋開。
17-1 Rotate the Main Axis backward and make it positioned.
17-2 Unscrew the grip of Bolt Positioning Slide counterclockwise.

A18



定位梢滑座長度校對設定 REGULATION SETTING OF THE LOCATION PIN SLIDE'S LENGTH

- 18-1 將插梢滑座上之定位梢對準角度分度盤中央。
18-2 再將定位梢滑座上之把手以順時鐘方向旋緊固定。
18-3 再用 6mm 六角板手往逆時針方向鬆開分度盤上之螺絲。
18-1 Align the Location Pin Slide of the Bolt Slide in the center of the Angle Indexing Plate.
18-2 Lock tight the grip of the Location Pin Slide clockwise.
18-3 Use a 6mm Hex Wrench to loose the screw on the Indexing Plate counterclockwise.

A19



分度盤溝槽與定位梢對正設定 REGULATION SETTING OF INDEXING PLATE SLOT AND LOCATION PIN

- 19-1 將角度分度盤第 12 溝槽對準定位梢。
19-2 再將定位梢把手往逆時針方向轉進溝槽。
19-1 Align the 12th slot of the Angle Indexing Plate with the Location Pin.
19-2 Screw the grip of the Location Bolt into the slot counterclockwise.

A20



將分度盤上之螺絲鎖緊固定 LOCK TIGHT THE SCREW ON THE INDEXING PLATE

- 20-1 再取一支 6mm 六角板手將分度盤之固定螺絲往順時針方向鎖緊即可。
20-1 Take one 6mm hex wrench to lock tight the screw on the Indexing Plate clockwise.

A21



研磨前確認 CONFIRMATION BEFORE GRINDING

- 21-1 檢查工件軸與工件軸套管是否緊密。
21-2 確認定位梢與分度盤溝槽是否對正。
21-3 完成 (研磨前刀刀的基準定位點)。
21-1 Check if the Working Axis is close to the Working Sleeve
21-2 Check if the Location Pin is aligned with the Indexing Plate slot.
21-3 Finished (The basis position of the Cutter before grinding)

A22



啟動馬達 ACTIVATE THE MOTOR

- 22-1 將控制盒上之綠色按鈕往下壓，便會啟動砂輪軸馬達 (紅色按鈕往下壓馬達停止)
22-1 Press the green button on the control box, and it will activate the grinding wheel axis motor. (Press the red button to stop the motor)

A23



銑刀溝槽研磨 MILLING CUTTER SLOT GRINDING

- 23-1 將工件軸往順時針方向轉動，此時工件軸上之銑刀便往砂輪方向旋轉靠近研磨。
23-1 Turn the Working Axis clockwise, now the Milling Cutter on the Working Axis will turn the direction to the Grinding Wheel.

A24



銑刀溝槽研磨至溝槽底部 MILLING CUTTER SLOT GRINDING TO THE BOTTOM OF SLOT

- 24-1 將工件轉往順時針方向座旋進研磨，至銑刀溝槽進頭 (並可作順逆轉來回研磨)。
24-1 Grinding the Working Axis clockwise to the end of Milling Cutter Slot. (make it run clockwise and counterclockwise grinding)

A25



銑刀脫離砂輪往後旋轉定位 MILLING CUTTER DISENGAGE FROM THE GRINDING WHEEL AND TURNING BACKWARD TO BE POSITIONED

- 25-1 將工件軸往逆時針方向旋轉到底 (以回到研磨前銑刀基準定位點)。
25-2 再重覆 26.27.28.29 下一溝槽研磨前設定後，在進行 23.24.25 銑刀刃研磨動作。
25-1 Turn the Working Axis counterclockwise to the end. (In order to go back to the basis position of the Milling Cutter before grinding)
25-2 Repeat the processes 26, 27, 28, and 29. After making the setting before next grinding of the slot, go on the Milling Cutter Grinding processes of 23, 24, and 25.

A26



離合器與主軸脫離 DISENGAGEMENT OF CLUTCH AND MAIN AXIS

- 26-1 將分度盤上之離合器把手往逆時針方向旋轉約 90° 使離合器與工件軸脫離。
26-1 Turn the Clutch grip of the Partition Plate counterclockwise about 90 degrees in order to disengage the Clutch and Working Axis.

A27



研磨銑刀下一刀分度盤定位設定 POSITION SETTING OF THE GRINDING MILLING CUTTER'S NEXT CUTTER

- 27-1 (如刀刃是四刃) 將工件軸往逆時針方向旋進至分度盤的第三溝槽對準插梢。
27-2 再將定位梢上之把手往逆時針方向旋進分度盤第 3 溝槽內。
27-1 (If the Cutter has four bladed) Turn the Working Axis counterclockwise to the 3rd slot of the Indexing Plate to align the bolt.
27-2 Turn the grip of the Location Pin counterclockwise into the 3rd slot of the Indexing Plate.

A28



離合器與主軸結合 ENGAGEMENT OF THE CLUTCH AND MAIN AXIS

- 28-1 將分度盤上之離合器把手，往順時針方向推進約 90°，此時離合器與主軸已結合並可進行導程。
28-1 Push the grip of the Clutch on the Indexing Plate clockwise about 90 degrees. Now the Clutch and Main Axis is engaged and able to operate the lead process.

A29



定位梢脫離分度盤操作 OPERATION OF THE LOCATION PIN DISENGAGED FROM THE INDEXING PLATE

- 29-1 將定位梢上之把手往順時鐘方向旋轉約 200° 度。
29-2 此時定位插梢便脫離分度盤之溝槽。
29-3 可作 23.24.25 刀刀溝槽來回研磨動作。
29-1 Turn the grip of the Location Pin clockwise about 200 degrees.
29-2 Now the Position Bolt is about to disengage from the slot of the Indexing Plate.
29-3 Grinding operation on 23, 24, and 25 of the Cutter Slot is workable.