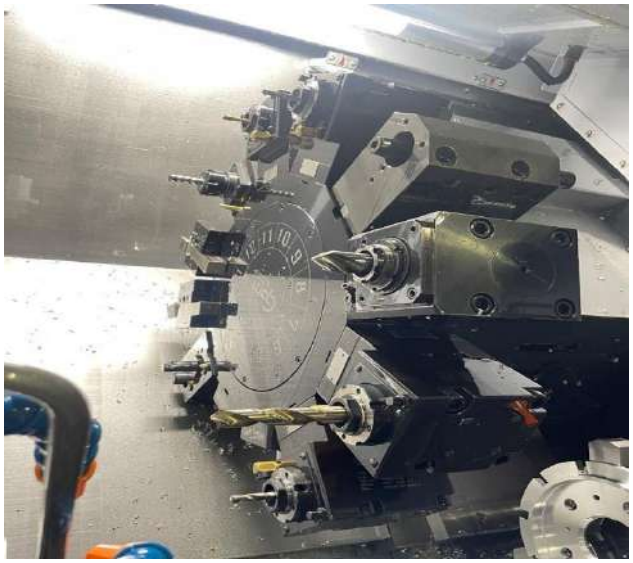
# 齒輪頭拆卸 Gearhead disassembly

拆卸前請確認刀塔油壓 50k, 並有 S8 夾緊訊號, 並移除所有動力刀座。

Before disassembly, please ensure hydraulic pressure is 50kg. S8 clamping signal is normal, and remove all driven tool holders.

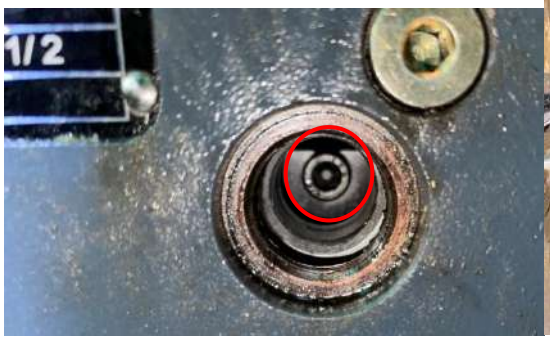
步驟 1.將刀盤前蓋、齒輪頭動力馬達卸除，接著將刀塔端聯軸器卸除。

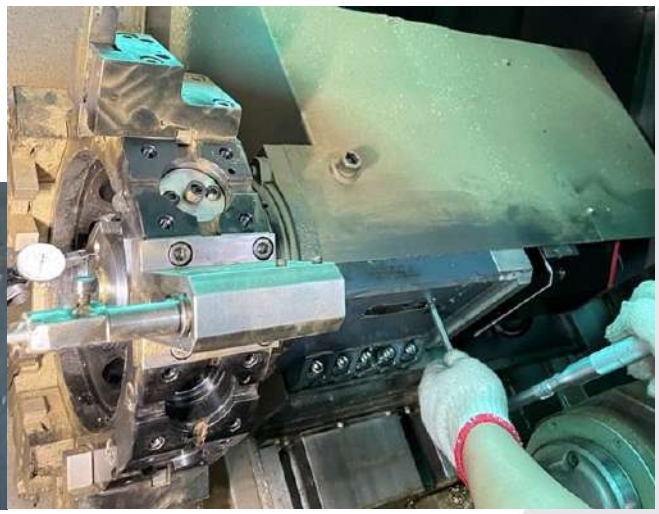
Step1. Remove tool disc front cover and tool drive motor, and then remove coupling at turret side.



步驟 2.移除本體側邊塞頭及放鬆齒輪頭固定座螺絲。

Step2. Remove the plug located on turret side, and loosen the screw of the gearhead fixing seat.

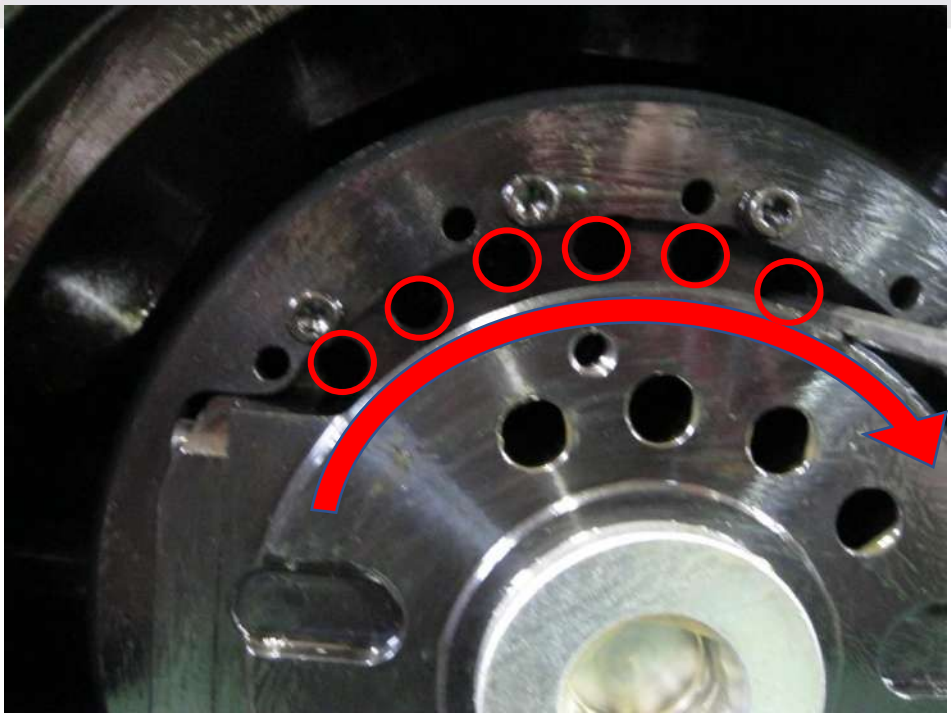




| 螺絲 screw | M6 | M10 |
|---|---|---|
| 扭力 torque | 16Nm | 77Nm |

步驟 3. 依齒輪頭型式有分 M4/M5/M6 的固定螺絲將其拆卸。若螺絲不足 16/10 根，請旋轉齒輪頭去找螺絲。

Step3. There are M4/M5/M6 fixing screws depending on different gearhead types. Remove all screws. If screws are less than 16/10 pcs, please rotate the gearhead to find the other screws.



步驟 4. 將固定螺絲拆卸完後,用一根塑膠棒頂住心軸後方, 用槌子敲即可將齒輪頭敲出。

因齒輪頭有點重量，故前方需有人接住，以免造成撞傷或難以敲擊。

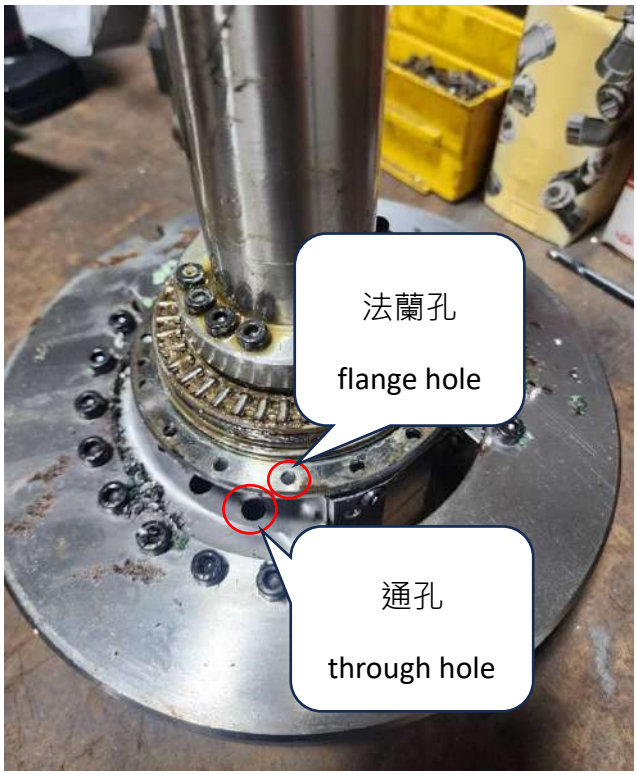
Step 4. After removing 16 screws, use a plastic rod to hold the back of the shaft and tap it with a plastic hammer, and then the gearhead may be knocked out. The gearhead is heavy, hence, it is important to have someone in the front to hold it to avoid any collision or injury.

步驟 5. 敲出齒輪頭前一定要確認齒輪頭後端固定座螺絲需放鬆，及前方固定刀盤上的螺絲已全部移除。

Step5. Before knocking out the gearhead, please ensure the screws on the rear end of the gearhead are loosened, and all the screws on the front cover of the tool disc have been removed completely.

步驟 6. 齒輪頭安裝前，注意齒輪頭通孔與法蘭孔必須對齊，如偏移可移動法蘭使其對齊。

Step 6. Before installing the gearhead, pay attention to the alignment of the through hole of the gearhead and the flange hole. If not aligned, you may adjust the flange to make it aligned.



步驟 7. 回裝齒輪頭時，請用一支 T 型板手穿入齒輪頭固定螺絲孔,並與刀盤的齒輪頭固定螺絲孔進行定位。需注意耦合齒是否跟加工刀位同心。(T 型板手功用: 對固定螺絲定位用，若偏掉又硬敲, 會造成 T 型板手斷裂，請注意)

Step 7. When reinstall the gearhead, use a T-shaped wrench to penetrate through the fixing screw hole (see below pic) on gearhead and tool disc. Be aware that the coupling pinion must be concentric with the working position. (Please note the function of the T-shaped wrench is to locate the fixing screw. If knocking too hard, it will cause the T-shaped wrench to break.)

(用 T 型板手去做齒輪頭固定螺絲的定位動作。

Use a T-shaped wrench to do the positioning of the gearhead fixing screw. )

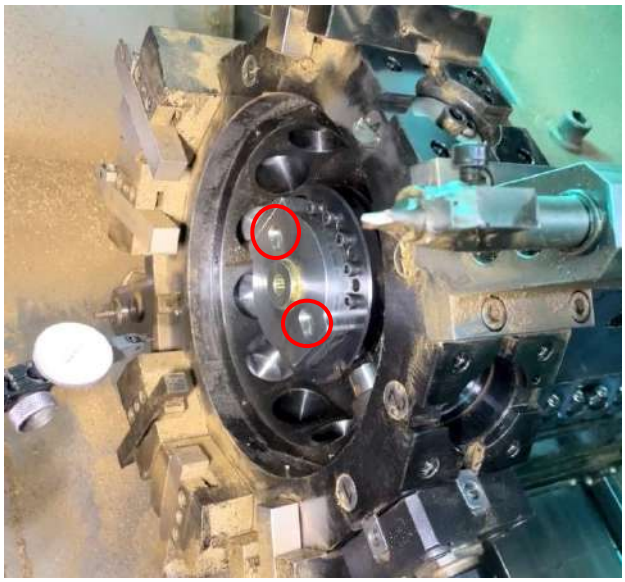
鎖回齒輪頭固定螺絲，注意請在一號刀上鎖回，避免日後維修需再換刀找固定螺絲。

Fasten all 16pcs of gearhead fixing screws. Please fasten all fixing screws on T1 for easy retrieve in the future.

| 螺絲 screw | M4 | M5 | M6 |
|---|---|---|---|
| 扭力 torque | X | 6Nm | 10Nm |
| 數量 quantity | 16 | 16 | 10 |

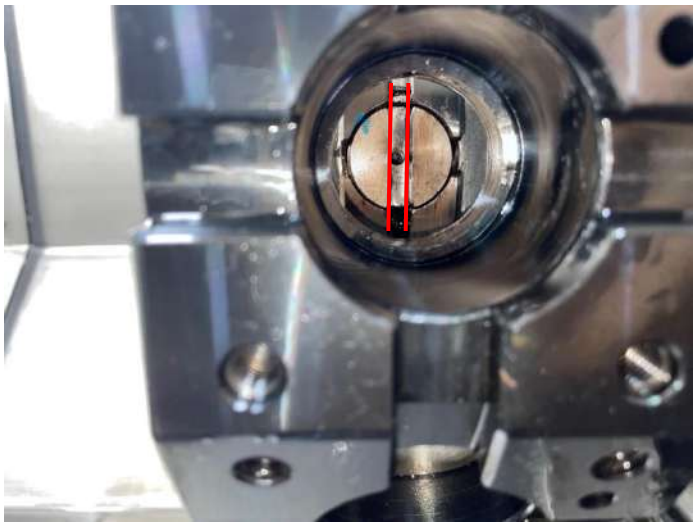
步驟 8. 齒輪頭回裝後，先確認耦合齒與加工刀位大約同心，再依照齒輪頭調整步驟做精度調整。

Step 8. After the gearhead is reinstalled, confirm the coupling pinion and working position are concentric, then follow the gearhead adjustment steps to make necessary accuracy adjustments.

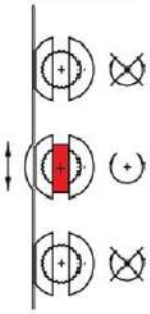


步驟 9. 動力馬達回裝後，必須重新設定動力刀原點位置。

Step 9. After the tool drive motor is reinstalled, the origin position of the turret must be reset.

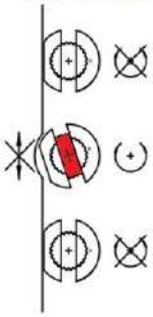


圖示(一):
齒輪頭耦合齒在原點狀態下才可作換刀及旋轉之動作



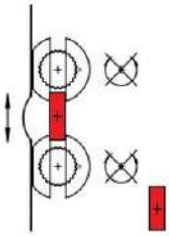
Tool drive in zero - position.
Rotating or indexing is possible.

圖示(二):
齒輪頭耦合齒沒在原點狀態下不可作換刀及旋轉之動作

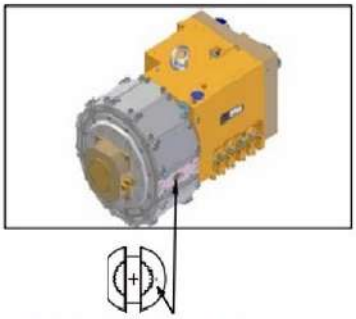


Tool drive not in zero-position.
Rotating or indexing is not possible.

圖示(三):
齒輪頭耦合齒在原點狀態下，但齒輪頭位移不可作換刀及旋轉之動作




Fault case.
Turret in inter position.



齒輪頭耦合齒必須與刀盤孔同心並和導軌成平行

Only do indexing and rotating when gear head coupling is at zero position.