(一) 接線圖 (Wiring plan)

- 推出入 —— 黑
- 棕
- 藍
- 數刀信號 —— 黑
- 奇偶數 —— 黑
- 棕
- 藍
- 原點—— 黑

BK —— UNCLAMP
BN
BU
BK —— INDEX
BK —— ODD,EVEN
BN
BU
BK —— ORIGIN

(二) 絕對式近接開關接線圖
(Wiring for absolute type sensor)

- 刀位檢出 信號線
- 數刀信號 —— 黑
- 鎖緊信號 —— 黑
- 24V —— 棕
- 0V —— 藍

BK
BK
BK
BK
BK
BK
BK
BK
BK —— SENSOR FOR CHECKING THE TOOL POSITION
BK —— INDEX
BK —— CLAMP
BN —— 24V
BU —— 0V
六鑫-油壓凸輪式車床刀塔
LIO SHING Hydraulic Cam Type Lathe Turret

偏心軸套之調整
Adjustment of bias housing

◆凸輪軸與連動輪軸之調整:
1. 凸輪軸之支撐軸承套，採內、外徑偏心之設計，可調整凸輪軸與連動輪軸之中心距及平行度，成最佳之傳動狀態，降低傳動聲音。
2. 旋轉調整螺栓 1~4，使共軸凸輪之靜止角與連動輪之滾子，成最佳之磨擦配合狀態，且滾子仍可順暢轉動後，再鎖緊 A、B之六角螺栓螺栓。

◆刀盤主軸定位與共軸凸輪軸靜止角位置之調整:
1. 校正刀盤與車床之中心高及平行度。
2. 放鬆錐形環緊迫緊環之螺栓。
3. 旋轉共軸凸輪軸，使靜止角之間位置與連動輪之滾子配合。
4. 調整馬達－迴轉與刀盤原點刀之近接開關感應塊，皆於中間位置。
5. 平均鎖緊錐形環緊迫緊環之螺栓，扭力為 6kg/cm² 以內。

◆Adjustment for cam shaft and follower shaft.
1. The supporting bushing of cam shaft is adopted eccentric designs which can be adjusted the center's range and parallel for cam shaft and follower shaft and this is a good transmitting noise.
2. The rotating adjusting screw bolt 1-4 for which the static angle of coaxial wheel and follower roller will be happened a good friction couple condition, after the roller is rotated smoothly, thus to lock the hex. counter sinks screw bolt A,B.

◆Adjustment for tool holder disc positioning and coaxial cam shaft static angle:
1. Align the center height and parallelism for tool holder disc and lathe.
2. Loosen the screw bolt for packing ring of taper pin.
3. Rotating the coaxial cam shaft for the middle site of static angle to couple with follower roller.
4. Adjusting the hyd. Motor turn once for the original tool proximity switch sensoring block stayed at the middle site.
5. Lock the screw bolt for packing ring of taper pin evenly and the locking force must maintained within 6kg/cm².
六鑫-油壓凸輪式車床刀塔

LIO SHING Hydraulic Cam Type Lathe Turret

Page 6-2

曲齒離合器安裝
Mounting the curvic coupling

![Diagrams](image.png)

1. **Fig1**: 
2. **Fig2**: 

**安裝曲齒離合器: 發生碰撞或其他原因, 須重新調整及校正曲齒離合器。**

1. 拆下螺絲(A), 取出外蓋(B).
2. 拆下螺栓(C), 可卸下刀盤.
3. 拔出推頂銷(E), 放鬆螺栓(D).
4. 插入基準定位銷(F), 重新鎖定螺栓(D).
5. 插入推頂銷(E).
6. 拔出基準定位銷(F), 此銷只做安裝之基準定位用.
7. 將刀盤依拆卸之相反順序重新裝回刀塔上即可.

**外側鎖定之曲齒離合器: 圖2.**

1. 拆下螺絲(A), 取出外蓋(B).
2. 拔出推頂銷(E), 放鬆螺栓(D).
3. 插入基準定位銷(F), 重新鎖定螺栓(D).
4. 插入推頂銷(E).
5. 拔出基準定位銷(F), 此銷只做安裝之基準定位用.
6. 將刀盤蓋依拆卸之相反順序重新裝回刀塔上即可.

**After the curvic coupling is installed. But when the turret is collided or other condition happens. Which must be re-installed and aligned the curvic coupling.**

**The disassembly procedures of inner locked curvic coupling as fig.(1).show:**

1. To loose the screw (A) and remove the outer cover (B)
2. To unlock the outer screw bolt (C) and then the tool holder can be removed.
3. To tack out taper pin (E) and release the screw bolt(D)
4. To insert the locking pin (F) and relock the screw bolts(D)
5. To insert the taper pin (E)
6. To remove the locking pin (F) for which just employ as the basic positioning.
7. Reinstall the tool holder disc on the turret as the reverse procedures of tool holder disc disassembled.

**The disassembly procedures of outer locked curvic coupling as fig.(2).show:**

1. To loose the screw (A) and remove the outer cover (B)
2. To tack out taper pin (E) and release the screw bolt (D)
3. To insert the locking pin (F) and relock the screw bolts(D)
4. To insert the taper pin (E)
5. To remove the locking pin (F) for which just employ as the basic positioning.
6. Reinstall the tool holder disc on the turret as the reverse procedures of tool holder disc disassembled.
Installing fig. Illustrating : To adjust the height (H) by gasket (h) and positioned with pin.

<table>
<thead>
<tr>
<th>Basic setting</th>
<th>Basic setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>To adjust the tool holder disc which must be positioned by hyd. power and align the center line after the positioned be sure.</td>
<td>To adjust the height (H) by gasket (h) and positioned with pin.</td>
</tr>
</tbody>
</table>

1. To connect the hyd. power with the turret and the hyd. pressure must be lower than the normal pressure which about 15kgf/cm².
2. To connect the electric power of proximity switches.
3. To operate hyd. circuiting for tool holder disc unclamp and measure and adjust the proximity switches being with sensoring.
4. Employ manual to turn the cam shaft for tool holder disc turn to zero point.
5. To measure the proximity switches of return zero point and make adjusting for sensitive condition.
7. To inspect the odd. And even etc. counting proximity switches.
8. To operate hyd. circuiting for tool holder disc clamped and measure and adjust the proximity switches being with no. sensoring.
9. Making tool change and testing of proximity switches.
10. To connect the cutting fluid piping and testing which is drained smoothly.
<table>
<thead>
<tr>
<th>故障現象 Fault</th>
<th>檢視原因 Reason</th>
<th>排除方法 Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>◆換刀後,刀盤連綿運轉,不停止. After making tool change and the tool holder disc will be rotated continuously not stopped.</td>
<td>1.分度感應器或計數感應器,或更換之. 2.馬達正反轉電磁閥.</td>
<td>1.調整分度感應器或計數感應器,或更換之. 2.電磁閥線圈或繼電器調整或更換之.</td>
</tr>
<tr>
<td></td>
<td>1.Perhaps the indexing sensor or counting sensor etc. no action. 2. The forward and reserve sol. valve of motor failed.</td>
<td>1.Making adjustment of indexing sensor or counting sensor and replace a new one. 2.Repair the sol. valve coil or making adjustment of relay or replace a new one.</td>
</tr>
<tr>
<td>◆換刀後,刀盤轉至選刀後,不鎖定. After making tool change and the tool holder disc will turned to selected unlocked.</td>
<td>1.分度感應器. 2.刀盤推出感應器. 3.刀盤推出及定位電磁閥 1. Perhaps the indexing sensor failed 2. The pushed sensor of tool holder disc failed. 3. The pushed sensor of tool holder disc and positioning sol. valve failed.</td>
<td>1.調整分度感應器或更換之. 2.調整刀盤推出感應器或更換之. 3.電磁閥線圈或繼電器調整或更換之.</td>
</tr>
<tr>
<td></td>
<td>1. Making adjustment of indexing sensor or replace a new one. 2. Making adjustment for pushed sensor of tool holder disc or replace a new one. 3. Repair the sol. valve coil or making adjustment of relay or replace a new one.</td>
<td></td>
</tr>
<tr>
<td>◆換刀時,刀盤轉動不順或中途停止. After making tool change and the tool holder disc will turned unsmoothly or middle stopped.</td>
<td>1.馬達正反轉電磁閥故障. 2. 感應器訊號不良. 3.油壓泵壓力,流量不足. 4.錐形環鍵鬆. 5.刀架或刀具外部干涉. 1. The forward and reverse sol. valve of motor failed 2. The signal of sensor illness. 3. The fluid pressure and volume of hyd. pump is shorted. 4. The taper key is loosened. 5. The tool rack or outer tool interrupted.</td>
<td>1.電磁閥線圈或繼電器調整或更換之. 2.調整分度感應器或更換之. 3.調整油壓泵壓力,流量. 4.重新定位後,鎖緊錐形環鍵扣環. 5.取出干涉之刀架或刀具.</td>
</tr>
<tr>
<td></td>
<td>1. Repair the sol. valve coil or making adjustment of relay and replace a new one. 2. Making adjustment of indexing sensor or replace a new one. 3. Readjust the fluid pressure and volume of hyd. pump. 4. Re-positioned and locked the taper key. 5. Remove the interrupted tool rack and outer tools.</td>
<td></td>
</tr>
<tr>
<td>故障排除</td>
<td>Trouble shooting</td>
<td></td>
</tr>
<tr>
<td>---</td>
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<td></td>
</tr>
<tr>
<td>故障現象</td>
<td>Fault</td>
<td></td>
</tr>
<tr>
<td>檢視原因</td>
<td>Reason</td>
<td></td>
</tr>
<tr>
<td>排除方法</td>
<td>Remedy</td>
<td></td>
</tr>
<tr>
<td>刀盤不鎖定.</td>
<td>刀盤推出及定位電磁閥線圈或繼電器調整或更換之.</td>
<td></td>
</tr>
<tr>
<td>The tool holder disc will not locked.</td>
<td>1. The tool holder disc be clamped and not replaced.</td>
<td></td>
</tr>
<tr>
<td>The tool holder disc will turned to the positioned. But not coincide</td>
<td>2. The tool holder disc has pushed and not rotated.</td>
<td></td>
</tr>
<tr>
<td>The tool selecting is not at nearly.</td>
<td>3. The inner structure be clogged.</td>
<td></td>
</tr>
<tr>
<td>刀盤轉至定位定</td>
<td>1. 由主軸後側之錐形環鍵迫緊環,重新調整主軸定位角度</td>
<td></td>
</tr>
<tr>
<td>位不對正.</td>
<td>1. The main spindle positioning angle is misaligned.</td>
<td></td>
</tr>
<tr>
<td>The tool holder disc will turned to the positioned. But not coincide</td>
<td>1. Repair the sol. valve coil or making adjustment of relay and replace a new one.</td>
<td></td>
</tr>
<tr>
<td>切削液異常.</td>
<td>更正馬達正反轉接線.</td>
<td></td>
</tr>
<tr>
<td>The cutting fluid happened abnormal condition.</td>
<td>1. 更正馬達正反轉接線.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. 調整計數感應器或更換之.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. The piping system is clogged.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. The cutting fluid is leakaged</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. The cutting fluid is not drained.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. To disassemble the piping system and clean.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Replace the leaked portion.</td>
<td></td>
</tr>
</tbody>
</table>
The adjustment way for deflection of the Tool Disks position angle

Reason for outage: Tool disk can not position.

Reason of judgment: Check whether (Diagram 1)⑤,⑥ on the correct position.

Settle way: Tool disk should clamp tight under the correct situation, then unfix off the parts of⑦ (Diagram 3), loose off the screw of⑧ (Diagram 4), and use force way to turn hydraulic valve to make the④ cam (Diagram1) turn to the correct position of upper diagram, check whether the parts of⑤,⑥(Diagram 1) is correct or not. Lock the screw of⑧ (Diagram 4), can not clamp tihgt by one time only, should lock screws slowly and screw them with average power, to pompart to 3 steps. Use hydraulic valve to force tool disk for push out and pull in, only needs to screw tight the⑧ screw (Diagram 4).

P.S: We suggest you to stop the disk on the position of NO.1 tool for doing upper actions.
Plan for B part (Diagram 1)

Plan for B part (Diagram 2)
A局部示意图 (图三)
Plan for A part (Diagram 3)

A局部示意图 (图四)
Plan for A part (Diagram 4)
The adjustment way for deflection of the Tool Disks position angle

Reason for outage: Tool disk can not position.

Reason of judgment: Check whether(Diagram 2)⑤, ⑥ on the correct position.

Settle way: Tool disk should clamp tight under the correct situation, then unfix off the parts of
⑦(Diagram 4), loose off the screw of ⑧(Diagram 5), and use force way to turn
⑪hydraulic valve (Diagram 1) to make the cam of ④(Diagram 3) turn to the
correct position of upper diagram, check whether the position for parts of ⑤, ⑥
(Diagram 2) is correct or not. Lock the screw of ⑧ (Diagram 5), can not clamp
tight by one time only, should lock screws slowly and screw them with average
power, to pompart to 3 steps. Use hydraulic valve to force tool disk for push out
and pull in, only needs to screw tight the ⑧ screw (Diagram 5).

P.S: We suggest you to stop the disk on the position of NO.1 tool for doing upper actions.
Plan for D part (Diagram 2)

Plan for A part (Diagram 3)
局部詳圖 (圖四)
Plan for B part (Diagram 4)

⑨ 近接開關架
⑨ BRACKET

⑩ 近接開關
⑩ SENSOR

7 感應塊
7 COLLAR

8 六角沉頭螺絲
8 SCREW

B局部示圖 (圖五)
Plan for B part (Diagram 5)
C局部詳圖(圖六)
Plan for C part (Diagram 6)
<table>
<thead>
<tr>
<th>安全注意事項</th>
<th>Safety precaution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.使用本刀塔前，必須熟讀本操作手冊．</td>
<td>1. Before use the tool turret, for which must studied the instruction manual detaily</td>
</tr>
<tr>
<td>2.於維修,調整,清理,拆卸,安裝本刀塔前,必須先關掉主電源．</td>
<td>2. Before making maintenance, adjustment, disassembly and install the tool turret for which must turned off master power.</td>
</tr>
<tr>
<td>3.試運轉前,須將活動護罩關上,不可靠近,並注意刀盤轉動範圍,才可啟動開關．</td>
<td>3. Before making test running for which closing the sliding cover and far from the tool holder disc rotating range. Thus, start on the power switch.</td>
</tr>
<tr>
<td>4.依操作手冊內,提供之時限,更換符合品質之零件與潤滑油．</td>
<td>4. According to the recommended duty running period of instruction manual to replace the qualified parts and lubricant.</td>
</tr>
<tr>
<td>5.請依照標準,選用電氣零件及電氣配線,零件清單,詳如電控系統．</td>
<td>5. According to the electrical standard to select the qualified electrical parts and electrical wiring etc. detail as electrical controlling system.</td>
</tr>
<tr>
<td>6.本刀塔沒有提供油,氣壓,油壓,切削液及電力等動力源．</td>
<td>6. The tool turret is not supplied the hyd. pneu. and electrical etc. driving power and so as to the cutting fluid system.</td>
</tr>
<tr>
<td>7.本刀塔安裝後與整機有關之CE等,技術文件與操作手冊,由購置廠商自行準備．</td>
<td>7. As for the technical literature's of tool turret and relative CE. paper, instruction manual etc. for which responsible by the purchaser.</td>
</tr>
<tr>
<td>8.油壓,電氣及切削液管線,請依手冊說明之相關位置,由購置廠商,自備連接管線配接固緊．</td>
<td>8. According to the supplied instruction manual described the hyd. electrical and cutting fluid piping diagram and the purchaser whom can be connected and preparing the installed material.</td>
</tr>
<tr>
<td>9.對本刀塔,若有特殊用途或使用上,有任何疑問與發生故障時,請依建興與合格之代理商或製造商連絡．</td>
<td>9. If you have any question to the tool turret or malfunction of tool turret. Please contact us or contact your local agent.</td>
</tr>
<tr>
<td>10.本產品不對下列情形,所造成之故障及傷害負保證責任：</td>
<td>10. If happened failed or injury under following condition for which our company will not responsible such as:</td>
</tr>
<tr>
<td>A.未依照操作手冊內之說明使用．</td>
<td>A. The operating procedures are not according as instruction manual mentioned.</td>
</tr>
<tr>
<td>B.不正常之操作與使用．</td>
<td>B. Abnormal operating and applications.</td>
</tr>
<tr>
<td>C.未經授權同意,而私自將功能作各種改變時．</td>
<td>C. To exchange the functions of tool turret selflessly and under not to permissible.</td>
</tr>
<tr>
<td>D.使用非原製造商提供之備品．</td>
<td>D. To employ for which is not the original company supplied spare parts.</td>
</tr>
</tbody>
</table>