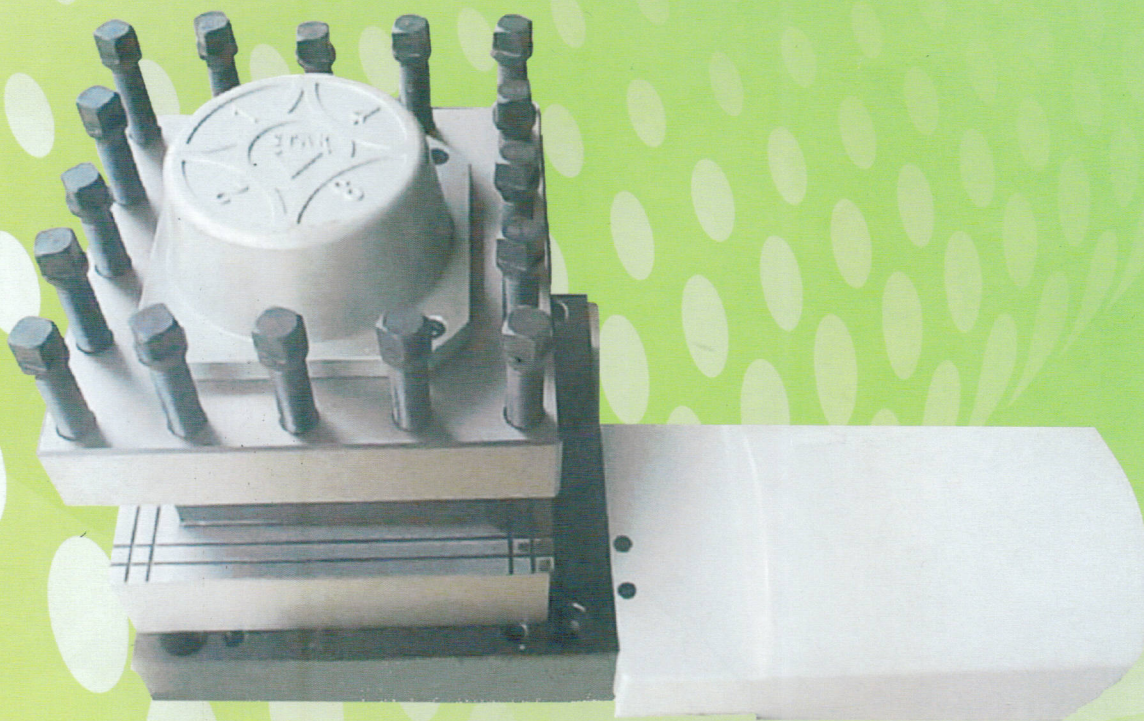


Automatic Tool Post

Model : LDB4

Installation Manual



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一.概述:

LDB4 係列電動刀架,其特點採用精密三片式齒型離合盤組成,三端齒定位機構所有齒盤皆經過精密研磨加工,定位精度高,換刀時刀體不會上升,可防止切削液及鐵屑進入。

二.工作原理.

控制器發出換刀信號,正轉電磁開動作,馬達正轉傳動蝸桿蝸輪和螺桿將上齒盤上升至一定高度時,由離合盤帶動定位銷,定位銷帶動上刀體旋轉到所需的刀位,霍爾元件 [SENSOR] 回授,發出定位信號,切斷正轉電磁開關,反轉電磁開關動作使馬達反轉,反靠銷粗定位,上端齒盤下降與下端齒盤咬合完成精定位,並使刀架鎖緊,馬達反轉電磁開關動作約 2 秒後切斷反轉電磁開關,馬達停止,向控制器回授,換刀定位信號,完成換刀動作。

三.刀架動作順序:

換刀訊號----馬達正轉----刀台轉位----刀位信號----馬達反轉----粗定位----精定位鎖緊
----反轉約 2 秒----馬達停止----換刀完成信號回授。

四.技術參數:

型號	電機功率	刀位數	馬達轉速	夾緊力
LDB4-C6125	180 瓦	4	1,400 轉/分	1.0 噸
LDB4-C616A	180 瓦	4	1,400 轉/分	1.0 噸
LDB4-C6140	180 瓦	4	1,400 轉/分	1.0 噸
LDB4-C 630D	250W [DC 伺服馬達]	4	1,100 轉/分	1.4 噸
LDB4-C 630AD	350W [DC 伺服馬達]	4	2,000 轉/分	1.4 噸
LDB4-C 210AD	1000W [DC 伺服馬達]	4	2,000 轉/分	1.4 噸

註*馬達轉數 60HZ(1,700 轉/分). 50HZ(1,400 轉/分)

五.技術指標:

型號	重複訂位精度	工作可靠性	換刀時間
LDB4-C 6125	0.005	60,000 次	1.5 秒
LDB4-C 616A	0.005	60,000 次	1.5 秒
LDB4-C 6140	0.005	60,000 次	2 秒
LDB4-C 630D	0.005	60,000 次	2.5 秒
LDB4-C 630AD	0.005	60,000 次	2.5 秒
LDB4-C 210AD	0.005	60,000 次	3 秒

六.安裝:

將刀架置於 X 軸滑座,拆下馬達防水罩,選擇與馬達電壓相同的電壓,使馬達寸動反轉旋轉,使刀架 45 度左右,清潔滑座及刀架底部,配上安裝螺絲固定架即可,安裝完畢再使馬達寸動

1. General Features

LDB4 Electrical tool Post is an outstanding tool post of its kind. Three pieces of ground gear couplings structure gives tool post accurate performance. Special designed post body prevents coolant and chips getting into post. Body will not move up and down during indexing.

2. Work Theory

- a. Controller sends a signal for a tool change.
- b. Magnetic switch is actuated to drive electrical motor which is linking to worm gear and shaft.
- c. Drives gear plate moving up, then allows coupling (tool plate) rotate to its required position.
- d. After reaching position, sensor will send out a signal to cut off forward rotating of electrical motor.
- e. Magnetic switch is actuated again to tell motor rotating reverse direction and lock post to the lock pin.
- f. Gear plate moving down and biting with lower gear, that completes locking step.
- g. After 2 seconds, a signal cuts off magnetic switch to stop electrical motor.
- h. Signal tells control that operation is completed.

3. Operation Sequence

- a. tool change signal is sent out.
- b. Electrical motor rotates clockwise.
- c. Tool post rotates and changes position.
- d. Positioning signal is sent out.
- e. Motor rotates reversely.
- f. Initial indexing.
- g. Lock indexing.
- h. Reverse rotation about 2 seconds.
- i. Motor stops
- j. Tool change completion.

4. Specification

Model	Power	No. of	R.P.M.	Clamping Force
LDB4-C6125	90W	4	1,710 R.P.M.	1.0 TON
LDB4-C616A	90W	4	1,710 R.P.M.	1.0 TON
LDB4-C6140	120W	4	1,710 R.P.M.	1.2 TON
LDB4-C630D	250W(DC Servo	4	1,100 R.P.M	2.1 TON
LDB4-C630AD	350W(DC Servo	4	1,100 R.P.M	2.1 TON
LDB4C-210AD	1000W(DC Servo	4	1,100 R.P.M	2.1 TON

R.P.M. of Electrical motor : 60 HZ (1,710/R.P.M.)

5. Accuracy

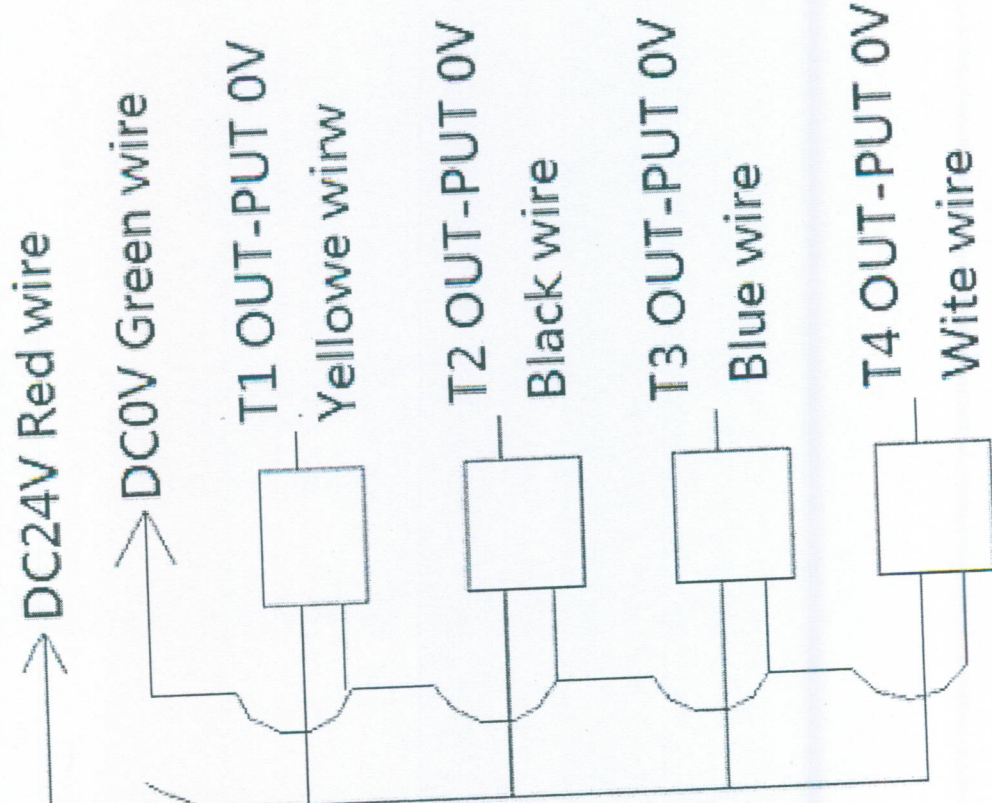
Model	Repeat accuracy	Reliability	Operation Time
LDB4-C6125	0.005	60,000 Times	1.8 Seconds
LDB4-C6132	0.005	60,000 Times	1.8 Seconds
LDB4-C6140	0.005	60,000 Times	1.8 Seconds
LDB4-C630D	0.005	60,000 Times	1.8 Seconds
LDB4-C630AD	0.005	60,000 Times	1.8 Seconds
LDB4C-210AD	0.005	60,000 Times	1.8 Seconds

6. Tool Post Installation

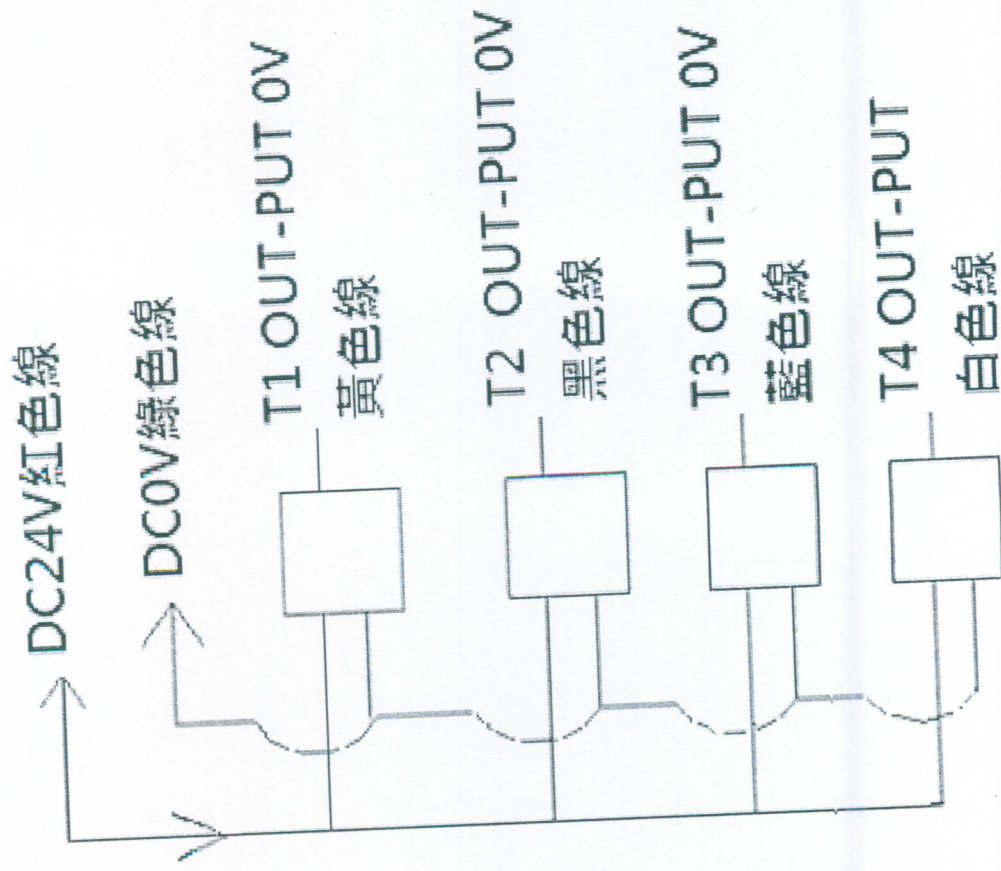
- a. Put tool post on the slide of X-axis.
- b. Remove motor splash guard.
- c. Connect to power lines with same voltage.
- d. Inching reverse rotate electrical motor.
- e. Rotate tool post to 45° position.
- f. Clean up slide and bottom of tool post.
- g. Tighten screws and tool post.
- h. Inching rotate tool post in clockwise direction.
- i. Lock tool post.

Proximity Wiring Diagram

NPN Specification

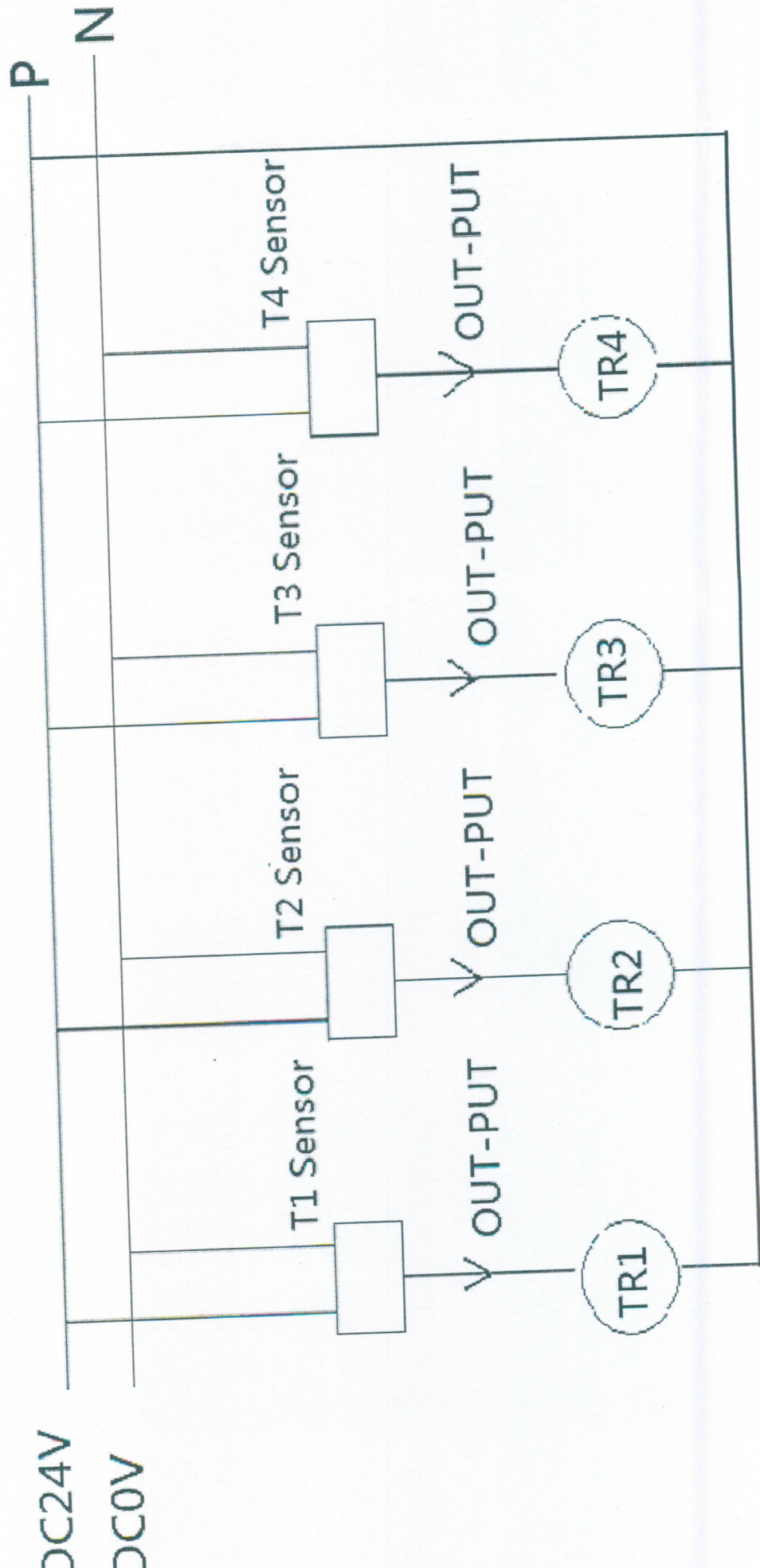


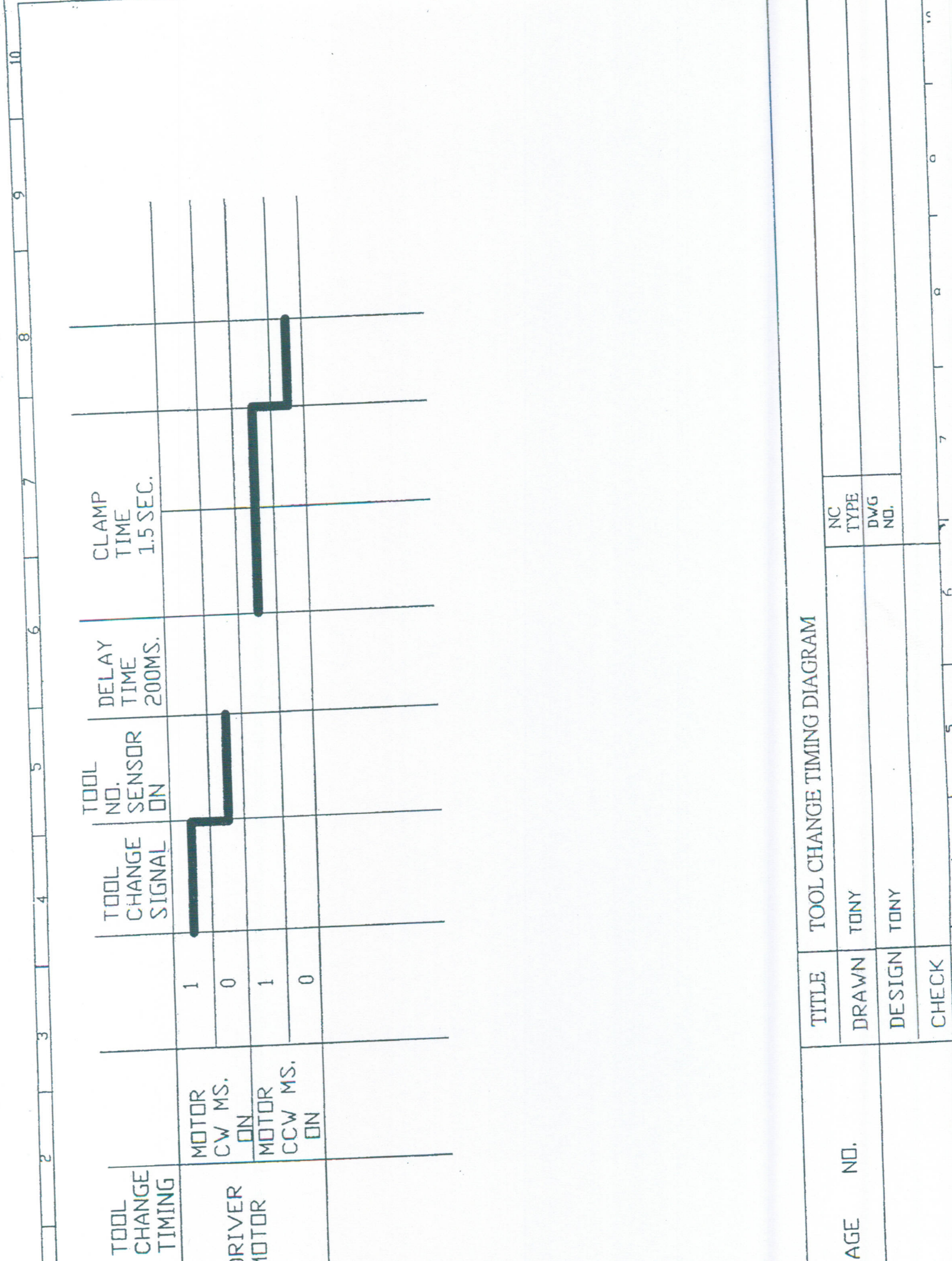
近接開關NPN規格



11. Proximity Wiring Diagram With NPN Specification

Remark: DC Power Should Connect to Power Supply





TOOL CHANGE TIMING

MOTOR CW MS. ON

MOTOR CCW MS. ON

TOOL CHANGE SIGNAL

TOOL NO. SENSOR ON

DELAY TIME 200MS.

CLAMP TIME 1.5 SEC.

1

0

1

0

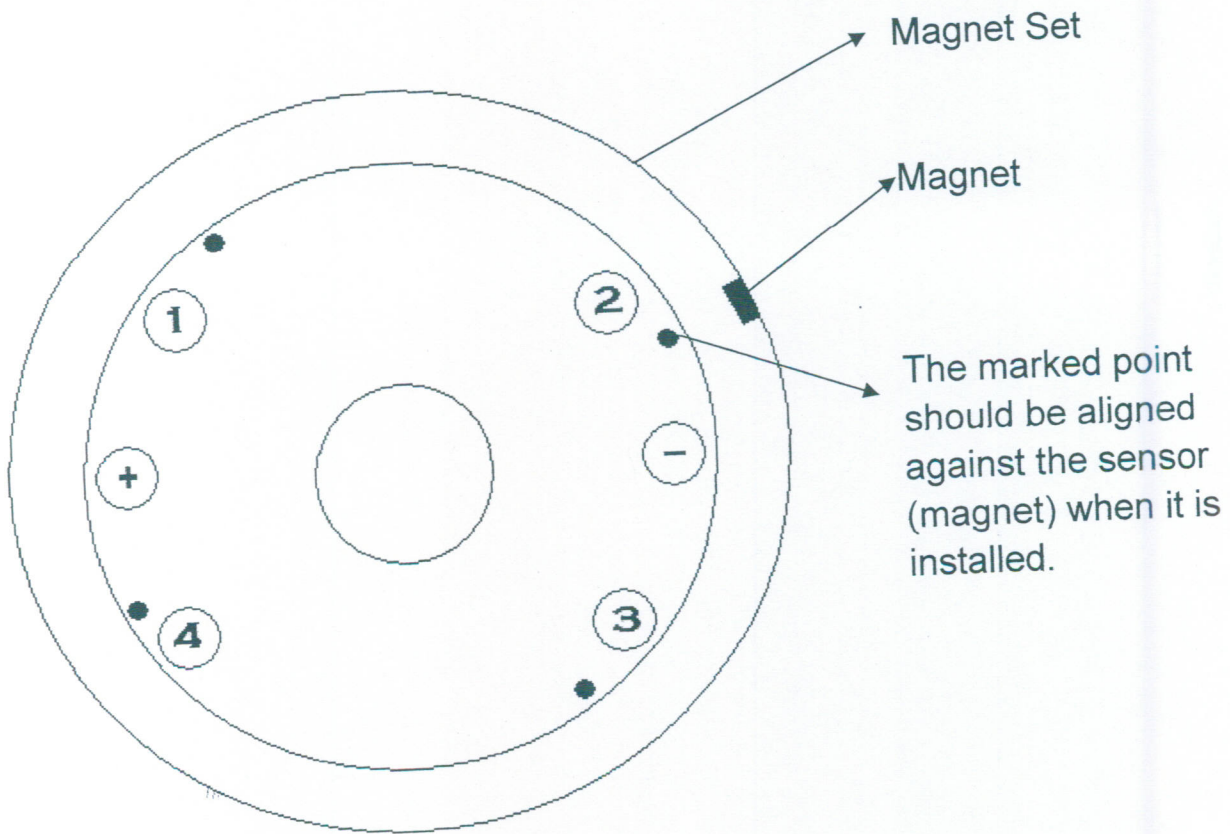
TOOL CHANGE TIMING DIAGRAM

TITLE	TOOL CHANGE TIMING DIAGRAM
DRAWN	TONY
DESIGN	TONY
CHECK	

NC TYPE DWG NO.

AGE NO.

Signal Plate install

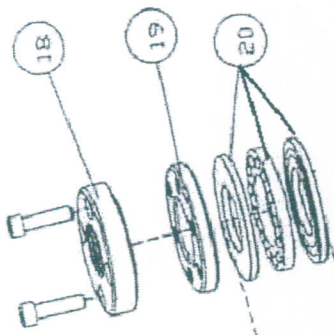


P.S.

" + " DC24V is red wire.

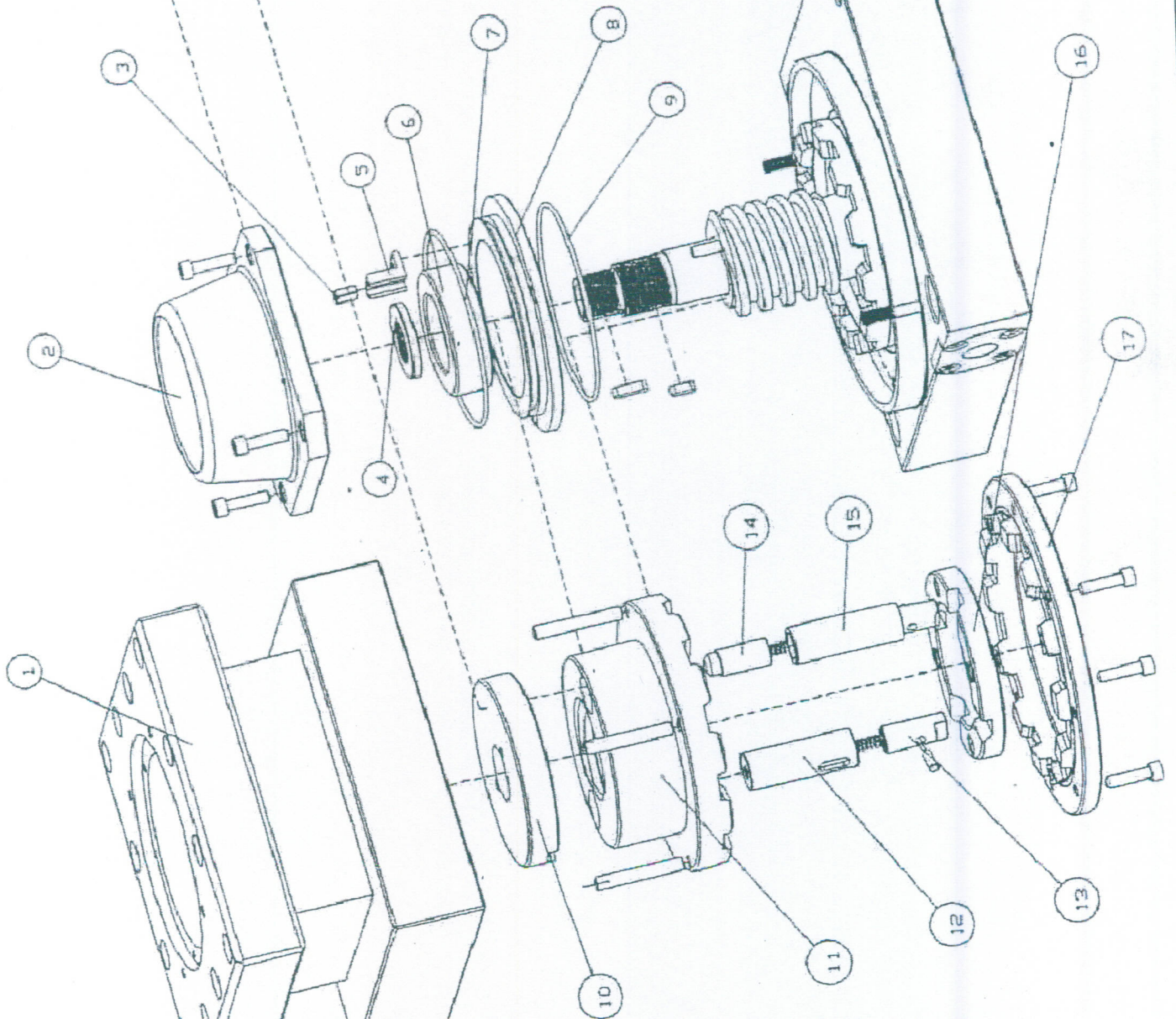
" - " DC0V is green wire.

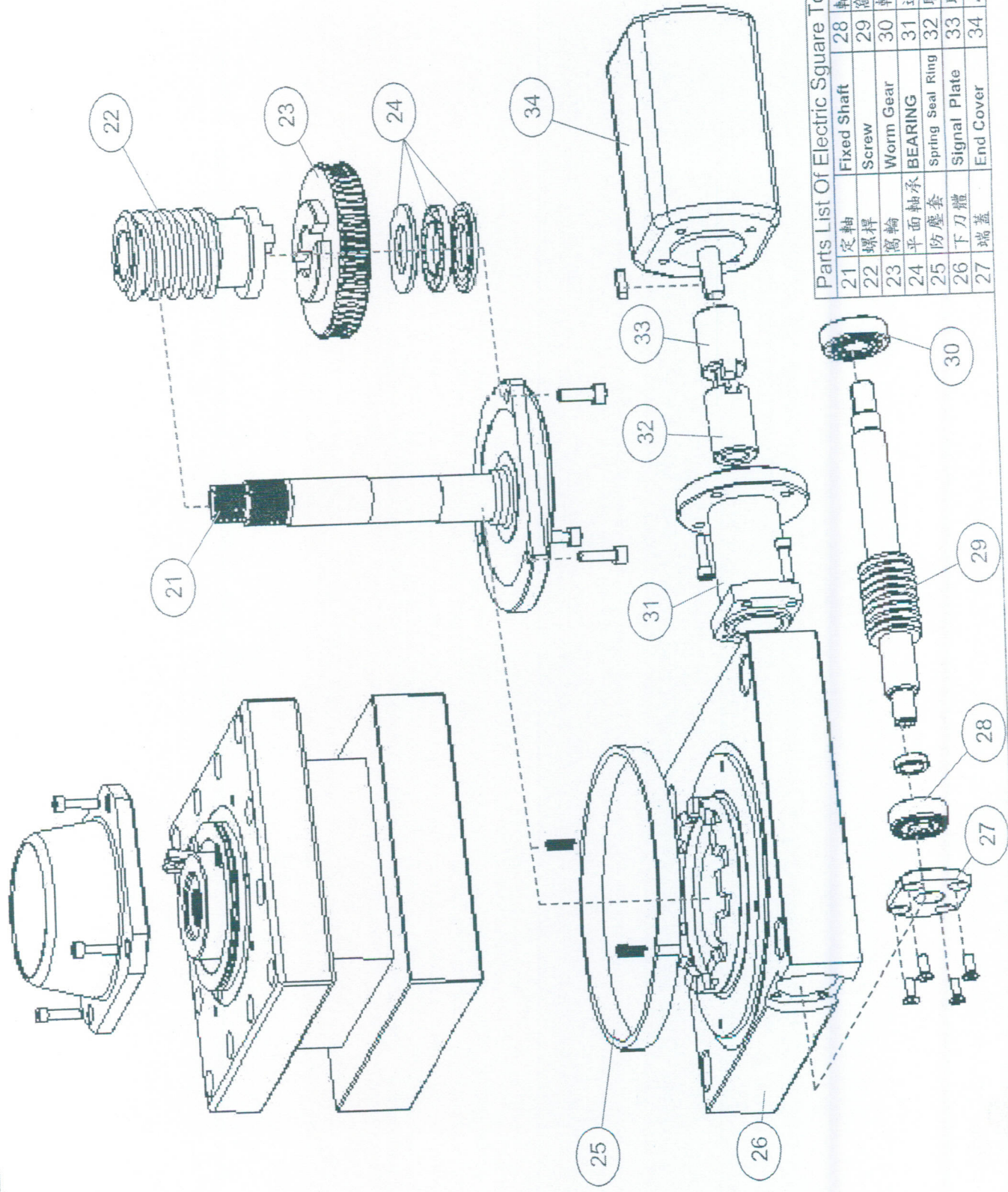
Most put " + " and " - " correctly, or it would cause the burnt-out.



Parts List Of Electric Square Tool Post

1	上刀體	11	螺母	Nut
2	上罩	12	副銷套	2nd Sleeve
3	磁鋼座	13	反靠銷	Reverse pin
4	小螺母	14	離合銷	Clutch plate
5	支架	15	銷套	Sleeve
6	訊號盤	16	反靠盤	Reverse Plate
7	密封圈	17	外端盤	Outside Gear
8	罩座	18	大螺母	Nut
9	密封墊	19	止退圈	Thrust Ring
10	離合盤	20	平面軸承	BEARING



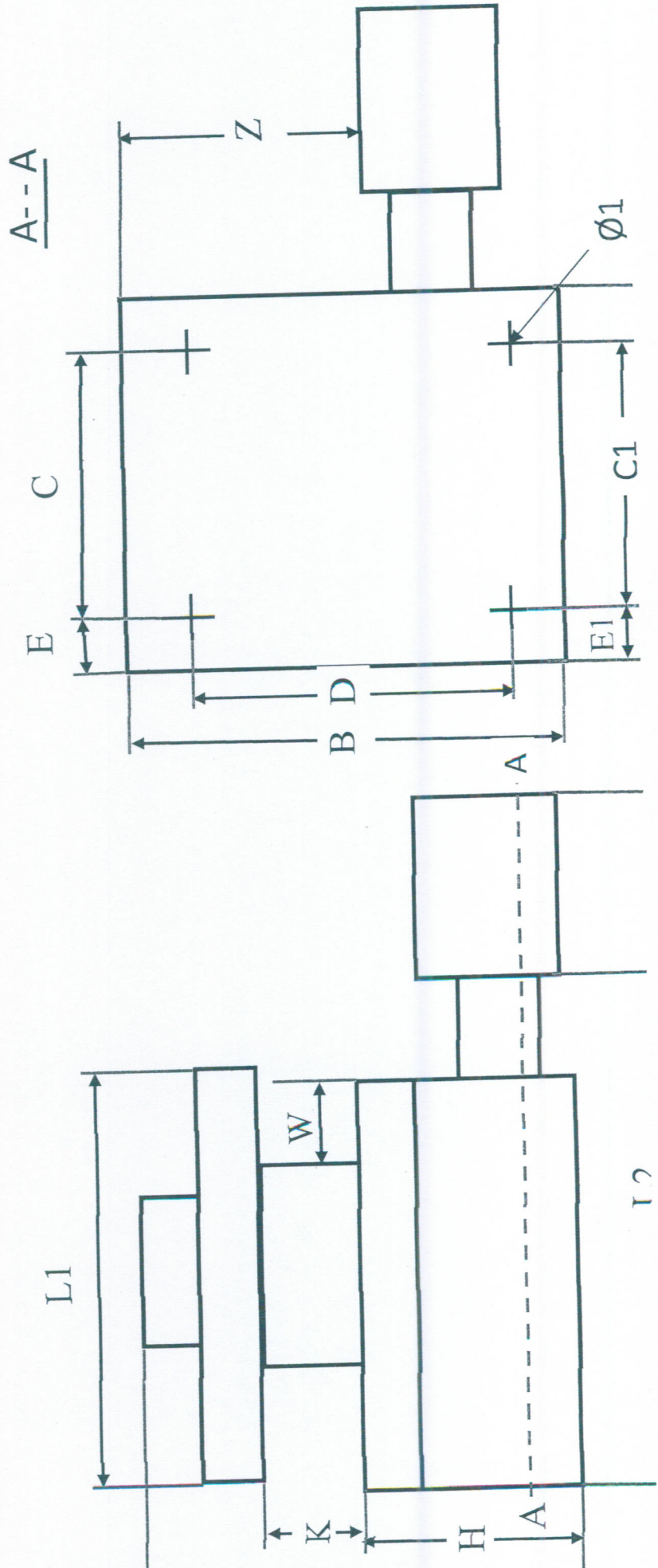


Parts List Of Electric Square Tool Post

21	定軸	Fixed Shaft	28	軸承	Bearing
22	螺桿	Screw	29	窩桿	Worm
23	窩輪	Worm Gear	30	軸承	Bearing
24	平面軸承	BEARING	31	連接座	Coupling Set
25	防塵套	Spring Seal Ring	32	聯軸器	Coupling
26	下刀體	Signal Plate	33	聯軸器	Coupling
27	端蓋	End Cover	34	馬達	MOTOR

Tool Post Dimension

MODEL	H	A	B	C	C1	D	E	E1	L	L1	L2	h1	Tool shank	Ø1	W	K	Z
B4-C6125	60	150	150	120	120	130	15	15	361	150	234	178	20	9	20	40	60
B4-C616A	70	161	171	126	126	146	12	12	340	152	193	192	25	13	25	50	50
B4-C6140	81	192	192	152	152	168	20	20	400	166	250	202	25	13	25	50	70
B4-C6140A	81	192	192	152	152	168	20	20	400	192	250	202	25	13	25	50	70



Serve Tool Post Dimension

MODEL	H	A	B	C	C1	D	E	E1	L	L1	L2	h1	Tool Shank	Ø1	W	K	Z
34-C630D	120	200	200	150	130	177	25	35	461	200	292	275	32	13	32	70	100
34-C630AD	120	240	240	210	210	210	15	15	501	240	332	280	40	13	40	70	120
34-210D	210	350	350	270	270	310	40	40	667	350	430	375	50	20	50	75	200

