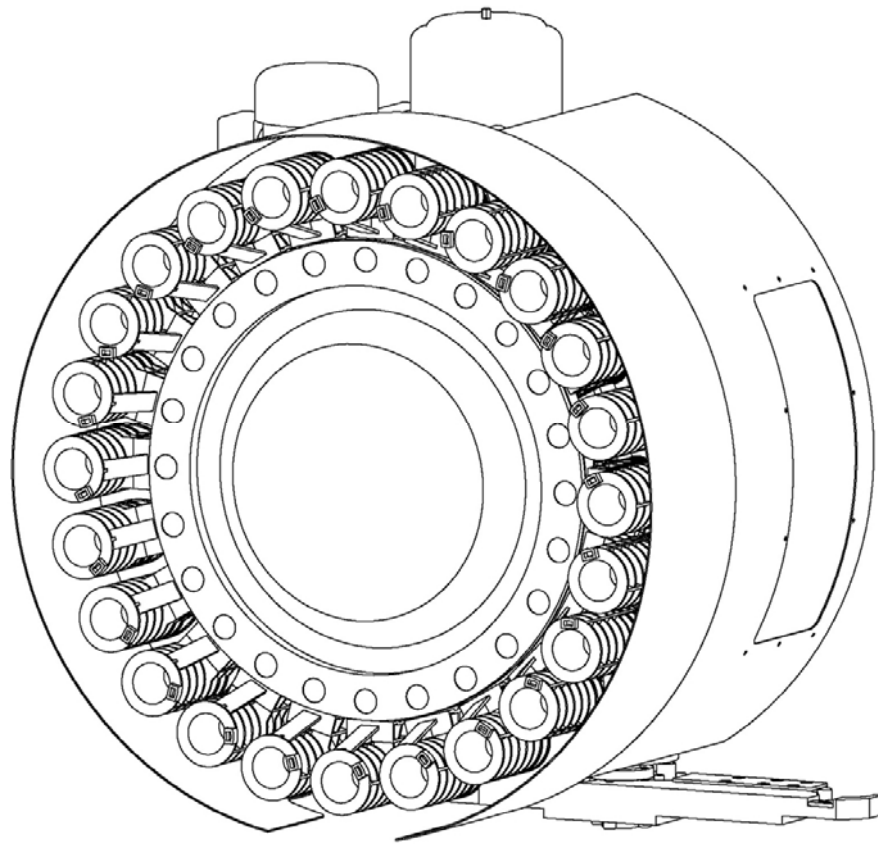


**DISK TYPE 40#-24T(20T)**  
**MAGAZINE**  
**AUTO TOOL CHANGE SYSTEM**  
**INSTRUCTION MANUAL**



# A. Machine Specification

## 1. Machine Reference :

This ATC has to compose by cam, magazine body and arm.

( Reference figure )

## 2. Machine Specification

### 2-1 Spindle Nose

Type of Tool : BT40 (CAT)

### 2-2 Quantity of Tool

24 Tools

### 2-3 Tool Sleeve Width Between Centers

80 mm

### 2-4 The Max. Tool Diameter

All Pocket Full :  $\text{Ø}80$  mm

Alternate Pocket Empty :  $\text{Ø}125$  mm (Full guard)

$\text{Ø}150$  mm (Half guard)

### 2-5 The Max. Tool Length

300 mm

### 2-6 Tool Weight

Max. Tool Weight: 7 Kg

Average Weight: 5 Kg

### 2-7 Max. Tool Partial Weight

84 kg

### 2-8 Magazine Drive Source

Forward Electric Tension : AC220V, 3  $\text{Ø}$ , 60HZ / 380V, 3  $\text{Ø}$ , 50HZ

Min. Air Pressure : 5-6 kg/cm<sup>2</sup>

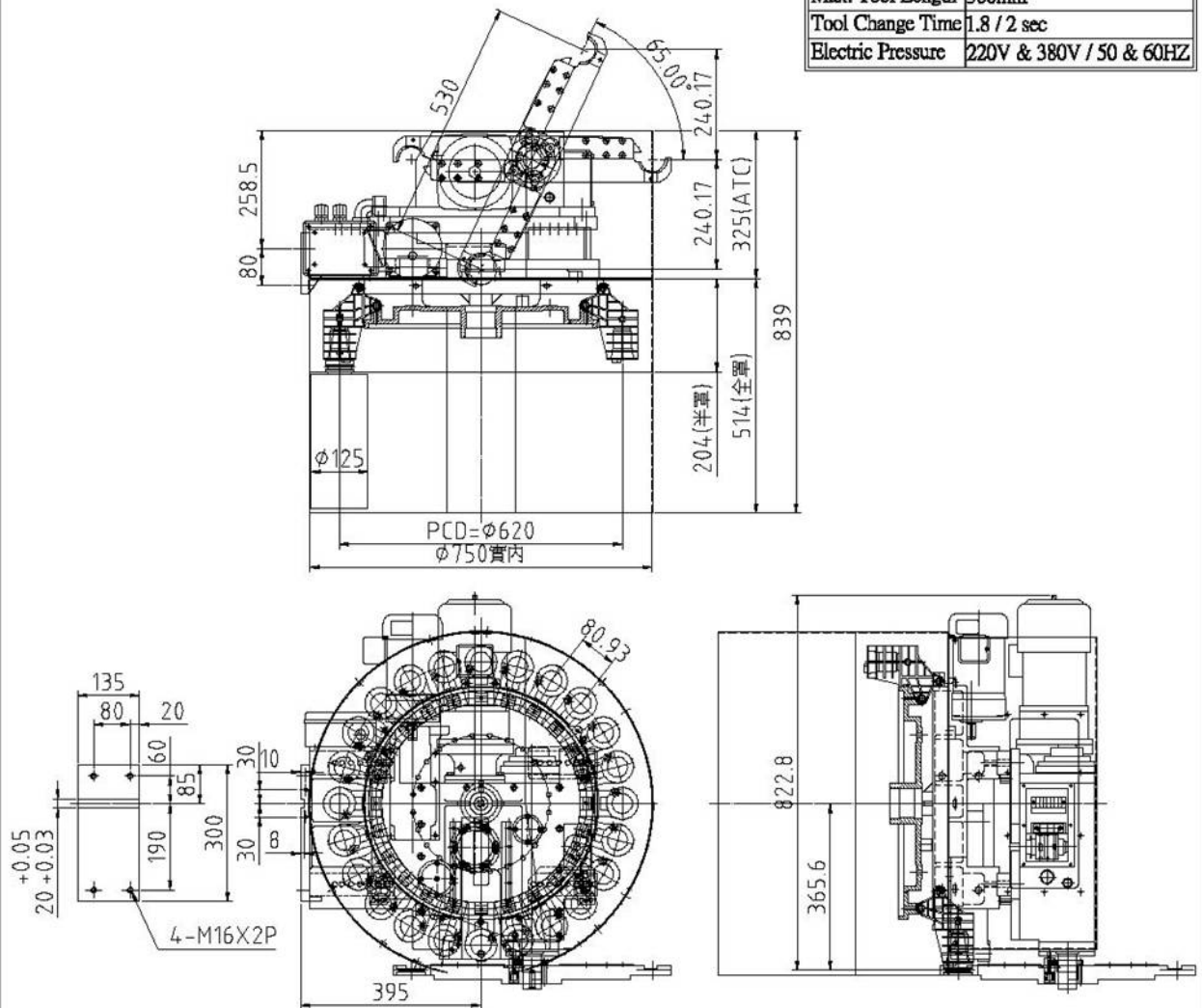
# ACER

## 客戶資料 Customer Data

客戶 Customer

機種 Machine Model

Quantity of Tool	24T
Max. Tool Dia.	Ø80
Max. Tool Weight	7kg
Max. Tool Length	300mm
Tool Change Time	1.8 / 2 sec
Electric Pressure	220V & 380V / 50 & 60HZ



刀庫型式 Magazine Spec.	40#-24T Disk	ATC型式 ATC Spec.	DEX(65°)
刀具規格 Type of tool	40#-BT/CAT/DIN	刀臂長度 Arm Length	530
刀套規格 Type of Tool Sleeve	40#-BT/CAT/DIN	換刀角度 Revolve Angle	65°
刀臂型式 Type of Arm	40#-BT/CAT/DIN	偏置角度 Partial of Angle	0

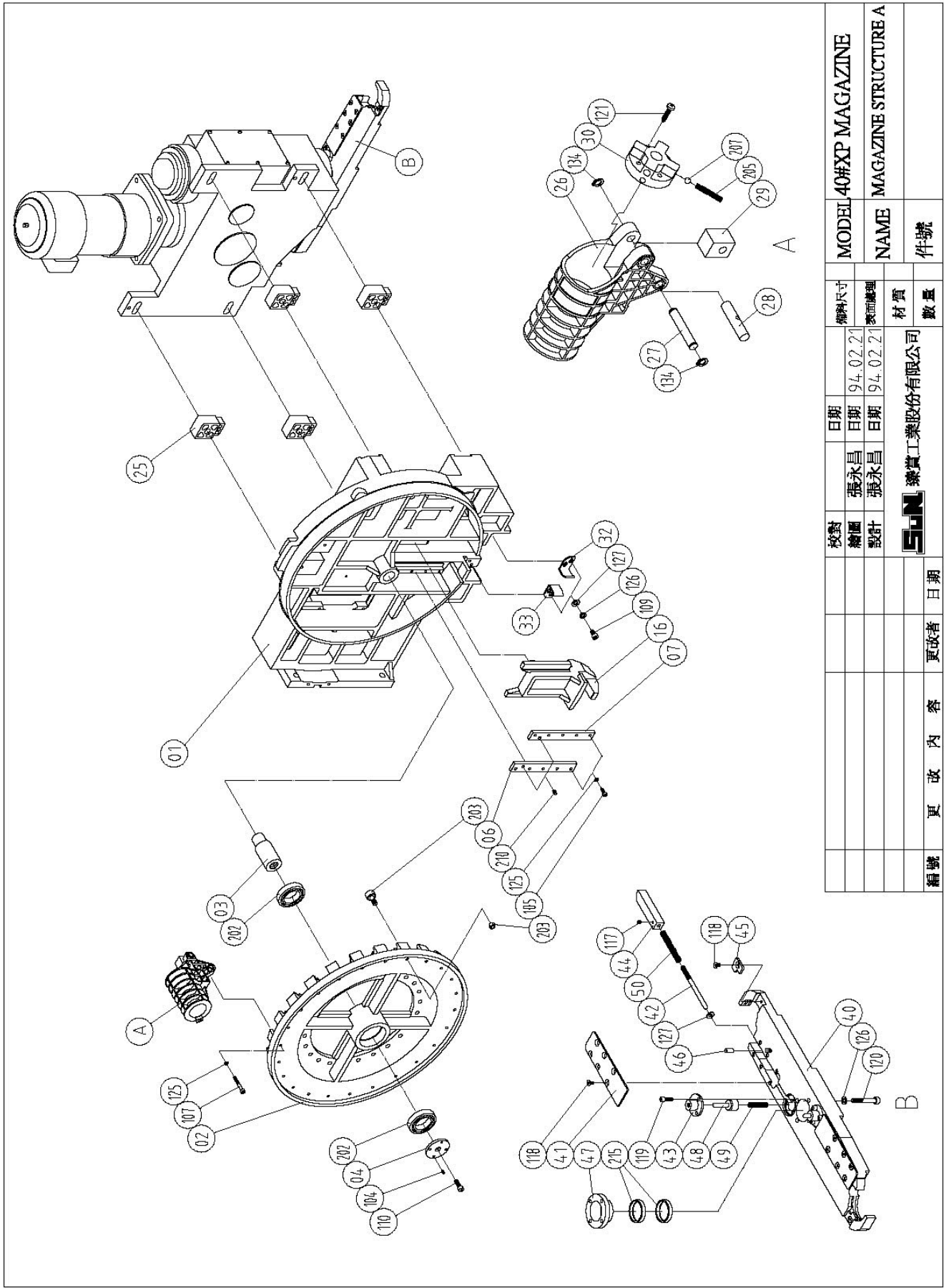
客戶確認 Customer Confirm: \_\_\_\_\_

繪製者 Designer: \_\_\_\_\_

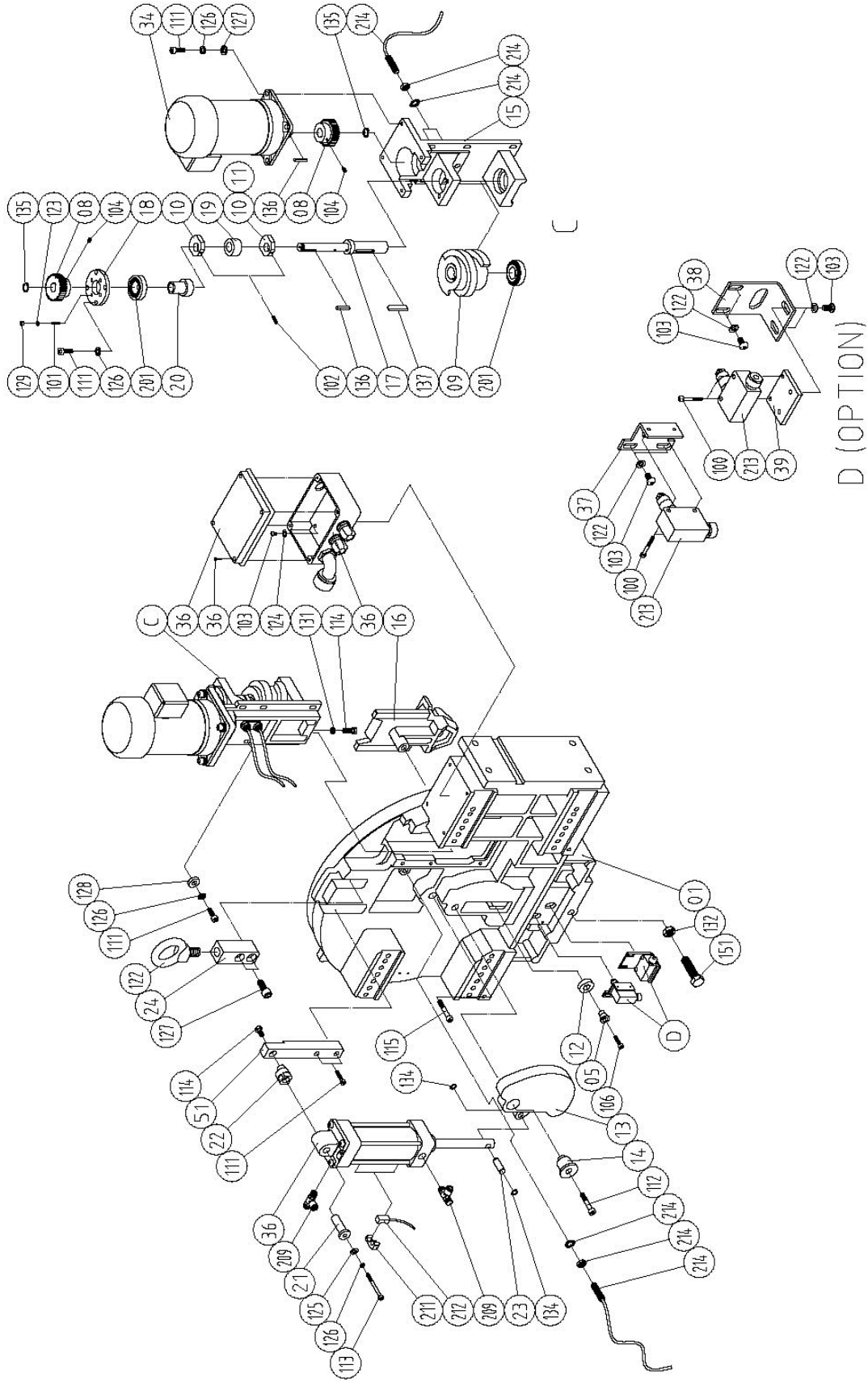
確認日期 Confirm Date: \_\_\_\_\_

繪圖日期 Draw Date: \_\_\_\_\_

TEL:04-25624338 FAX:04-25629520



校對	日期	繪圖	日期	設計	日期	材料尺寸	表面處理	校對	日期	繪圖	日期	設計	日期	材料	數量	件號
		張永昌	94.02.21	張永昌	94.02.21											
		張永昌	94.02.21	張永昌	94.02.21											
		SUN 練賞工業股份有限公司														
編號	更改內容	更改者	日期													



校對	張永昌	日期	94.02.21	材料尺寸		MODEL	40#XP MAGAZINE
繪圖	張永昌	日期	94.02.21	表面處理		NAME	MAGAZINE STRUCTURE B
設計	張永昌	日期	94.02.21	材質			
	SUN 鍊賞工業股份有限公司			數量			件號
編號	更改內容	更改者	日期				

## Magazine Structure Parts List

No.	Part No.	Part Name	Material / Spec.	Q' TY	Remark
01	MBX420200	New case	FC-25	1	24T
02	MBX420080	24T Disk plate	FC-25	1	
03	MBX410010	Disk rotate shaft	S45C	1	
04	MBX410030	Fixed cover of rotate shaft	S45C	1	
05	MBX410070	Sleeve of rocker arm	S45C	1	
06	MBX410090	Lock plate right slide seat	S45C	1	
07	MBX410100	Fixed plate of left slide	S45C	1	
08	MBX410150	Gear	S45C	2	
09	MBX410220	24 divide up turntable of cam	SCM435	1	
10	MBX410250	Single reaction block (On)	Powder metallurgy	1	
11	MBX411000	Single reaction block (Off)	Powder metallurgy	1	OPTION
12	MBX410290	Rotor of tool upside down	SC45	1	
13	MBX410740	A rocker arm of tool upside	FCD55	1	
14	MBX410750	A rocker arm' s arbor	S45C	1	
15	MBX410760	A cam seat	FCD50	1	
16	MBX410770	24T Tool upside down paw	FCD55	1	
17	MBX410780	An axle center of cam	S45C	1	
18	MBX410790	Bearing cover	S45C	1	
19	MBX410800	Collar	S45C	1	
20	MBX410810	Sleeve of bearing	S45C	1	
21	MBX410850	Fixed shaft of cylinder	S45C	1	
22	MBX410870	Eccentric shaft of cylinder	S45C	1	
23	MBX410880	Connect shaft of piston rod	S45C	1	
24	MBX411010	Fixed block of flying rings	S45C	1	
25	MBX450630	Interface board	AL-6061-T6	4	Ref (DEX65°× 530 L)
26	MBX460010	Tool pot (60°)	POM	24	
27	MBX460020	Rotate shaft of tool pot	S45C	24	
28	MBX460030	Lock shaft of tool pot	S45C	24	
29	MBX460040	Pull block of tool pot	Powder metallurgy	24	
30	MBX460240	Fixed block of pull stud	POM	24	
31	MBX460180	Spring	Piano wire	96	
32	MCX410230	Orientation seat of left pot	SPHC	1	
33	MCX410240	Orientation seat of right	SPHC	1	
34	MBX480140	Decelerator of gear motor	Hardware	1	
35	MBX480150	Cylinder of tool pot up &	Hardware	1	

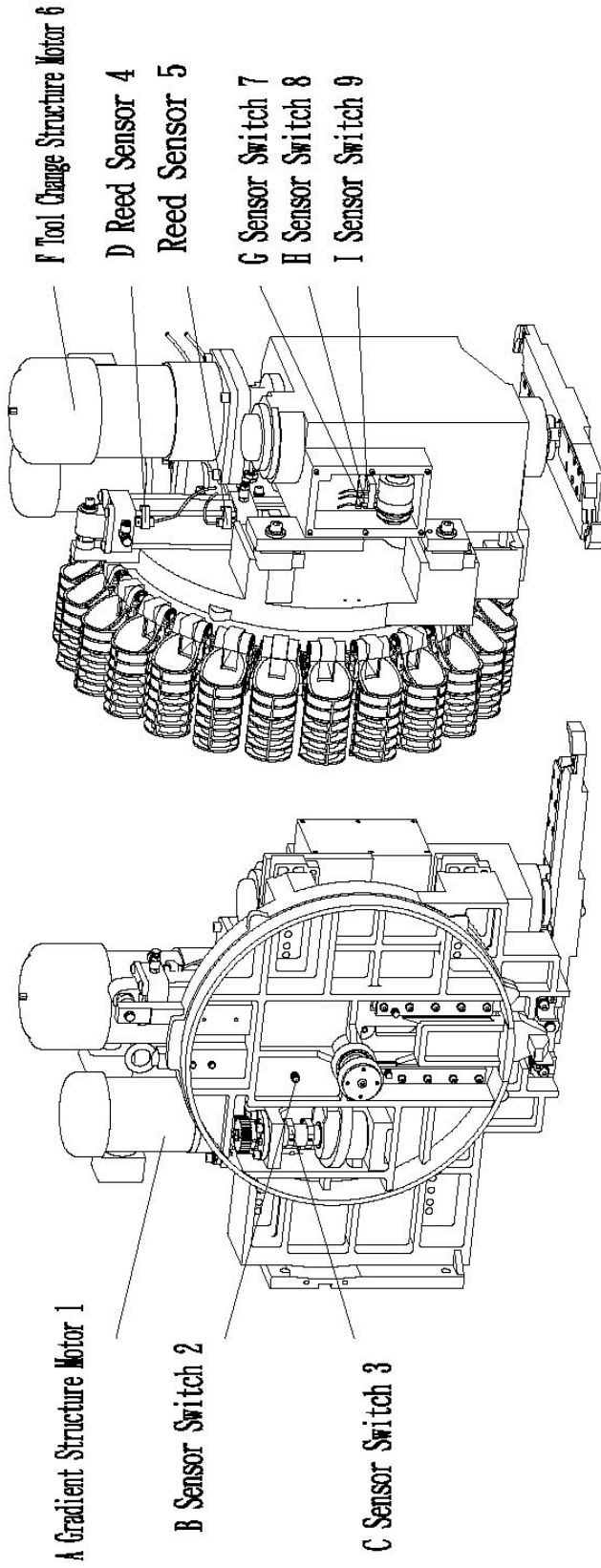
No.	Part No.	Part Name	Material / Spec.	Q' TY	Remark
36	MBX480190	Wiring connect box	Hardware	1	
37	MBX411200	Limit switch fixed seat 1	SPHC	1	
38	MBX411210	Limit switch fixed seat 2	SPHC	1	
39	MBX411220	Limit switch fixed seat 3	SPHC	1	
40	MBX470130	Arm-530L	FCD-50	1	
41	MBX470340	Fixed plate	SPHC	2	
42	MBX470420	Slide block of stop tip	S45C	2	
43	MBX470460	Sleeve of stop tip	S45C	2	
44	MBX470480	Slide & fixed block	S45C	2	
45	MBX470490	Lock key	SS41	2	
46	MBX410280	φ8 Stop tip	S45C	2	
47	MBX470690	Fixed collar	S45C	1	
48	MBX470720	Stop tip	SCM415	2	
49	MBX470740	Spring φ1.2×9od×14T×41L	Piano wire	2	For stop tip
50	MBX470750	Spring φ	Piano wire	2	For Slide block of
51	MBX410860	Cylinder fixed block	S45C	1	
100		Hexagonal bolt	M4×0.7P-25L	4	For limit switch
101		Stop bolt	M5×0.8P-20L	4	
102		Stop bolt	M5×0.8P-25L	2	
103		Hex. socket head screw	M5×0.8P-12L	4	Limit switch (OP)*10
104		Stop bolt	M6×1P-8L	6	
105		Hexagonal bolt	M6×1P-20L	10	
106		Hexagonal bolt	M6×1P-25L	1	
107		Hexagonal bolt	M6×1P-40L	24	Compose with 20T
108		External Hexagonal bolt	M6×1P-20L	1	Origin point
109		Hexagonal bolt	M8×1.25P-16L	4	
110		Hexagonal bolt	M8×1.25P-20L	1	
111		Hexagonal bolt	M8×1.25P-25L	14	
112		Hexagonal bolt	M8×1.25P-45L	1	
113		Hexagonal bolt	M8×1.25P-65L	1	
114		External Hexagonal bolt	M8×1.25P-30L	1	
115		Hexagonal bolt	M10×1.5P-65L	1	
116		Hexagonal bolt	M12×1.75P-20L	1	

117		Stop bolt	M6×1P-6L	2	For arm
118		Shallow head screw	M6X1P-10L	14	For arm
119		Hexagonal bolt	M6×1P-16L	6	For arm
No.	Part No.	Part Name	Material / Spec.	Q' TY	Remark
120		Hexagonal bolt	M8×1.25P-55L	4	For arm
121		Self-tap screw	3/16 × 1"	96	
122		An eye ring	M16	1	
123		Spring washer	M5	4	
124		Flat washer	M5	4	
125		Spring washer	M6	34	Compose with 20T Disk* 30 PCS
126		Spring washer	M8	20	
127		Flat washer	M8 × 2T	14	
128		Flat washer	M8 × 5T	6	
129		Nut	M5 × 0.8P	4	
130		Nut	M6 × 1P	2	
131		Nut	M8 × 1.25P	1	
132		Nut	M16 × 1.5P	1	
133					
134		C Ring (External)	S-10	50	Compose with 20T Disk* 42 PCS
135		C Ring (External)	S-18	2	
136		Single side round key	5 × 5 × 28L	2	
137		Double side round key	8 × 7 × 40L	1	
201	GKW030205	Angular ball bearing	30205JR(HIC)	2	
202	GKW006008	Deep groove ball bearing	6008 ZZ	2	
203	GKWCF0010	Bearing for cam (With M10 nut)	CF-10	24	20T- 20 PCS
204					
205	MBX460180	Spring	$\phi$ 1.2×7.8od×10T×2 5L	96	20T- 80 PCS
206					
207		Steel ball	$\phi$ 8	96	
208					



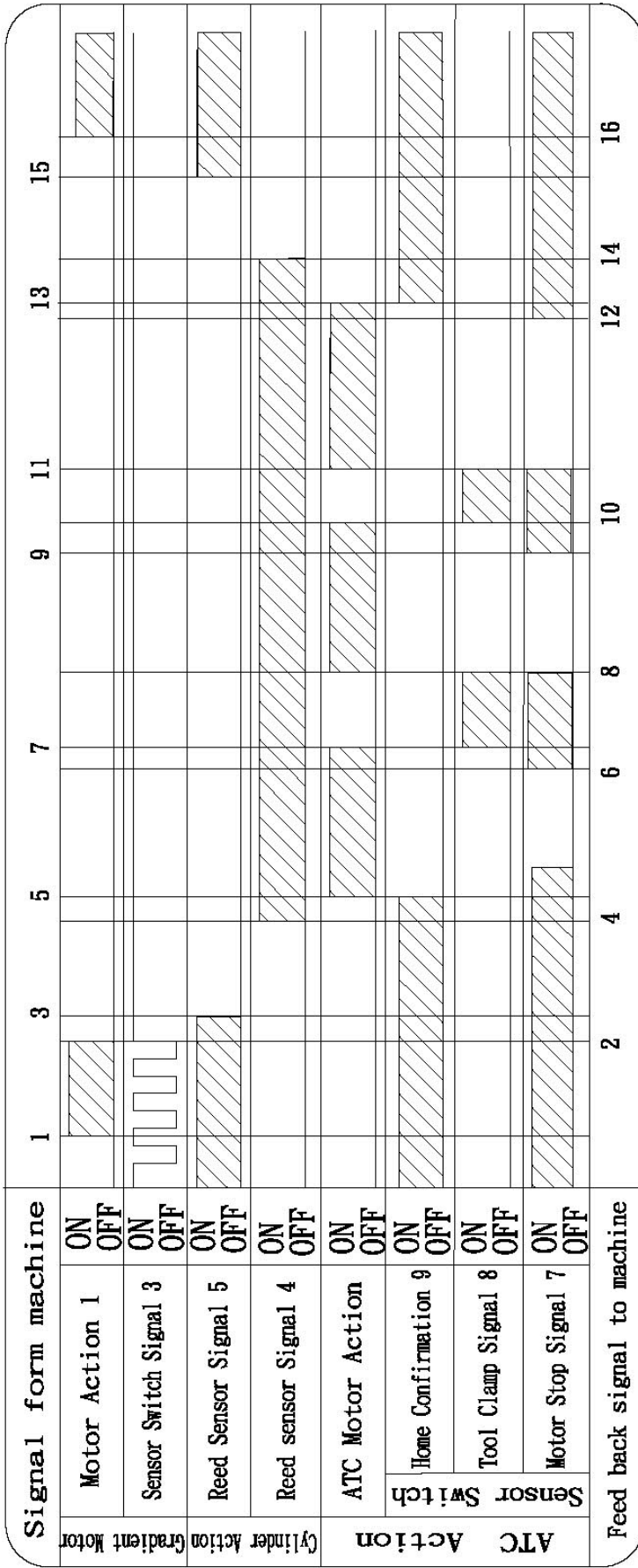
209	EDWN00001	Air throttle	1/4 × § 8	2	
210	FEWN10002	Oil filler joint	1/8 PT	2	
211	MBX480450	Sensor fixed jig	PM-10	2	
212	EAWC00001	Magnetism reed switch	LS-BD2	2	
213	EAWA00001	Micro limit switch	YAMATAKA SL1-A	2	
214	EAWB00001	Proximity switch	BALLUFF-PSC40B	3	Sensor+Nut+Washer
215	GLW040045	Taper cone Collar	40 × 45	2	

# Control Element Position Explanatory Drawing



NO.	Control Element	Function	Specification Affirmed	QUANTITY	REMARK
A	Gradient Structure Motor 1	Control tool disk position reverse turn.	DISK TYPE 40-24DY	1	3Ø220V 60HZ
B	Proximate Sensor 2	Tool change structure origin point under one tool signal.	1/4HP*4P BALLUFF PSC40F-BY00-002	1	Ø12 DC24V(PNP)
C	Sensor Switch 3	Stop Signal of Disk Gradient Motor	BALLUFF PSC40F-BY00-002	1	Ø12 DC24V(PNP)
D	Reed Sensor 4	Positioning signal of tool falling/contacting of cylinder)	LSD-B2	1	DC24V
E	Reed Sensor 5	Positioning signal of tool returning/returning of cylinder)	LSD-B2	1	DC24V
F	Tool Change Structure Motor 6	Tool change structure power source	3/4 HP*4P	1	3Ø220V 60HZ
G	Proximate Sensor 7	Stop signal of motor (tool change)	OMRON E2E-CR8B1	1	Ø4 DC24V(PNP NO)
H	Proximate Sensor 8	Tool clamp signal (tool change)	OMRON E2E-CR8B1	1	Ø4 DC24V(PNP NO)
I	Proximate Sensor 9	Origin point confirmation signal(tool change)	OMRON E2E-CR8B1	1	Ø4 DC24V(PNP NO)

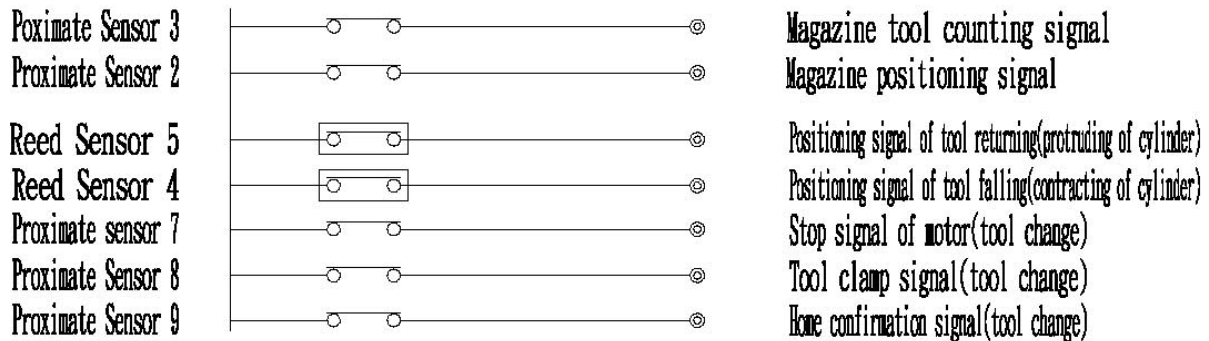
## Sequence diagram of electric action



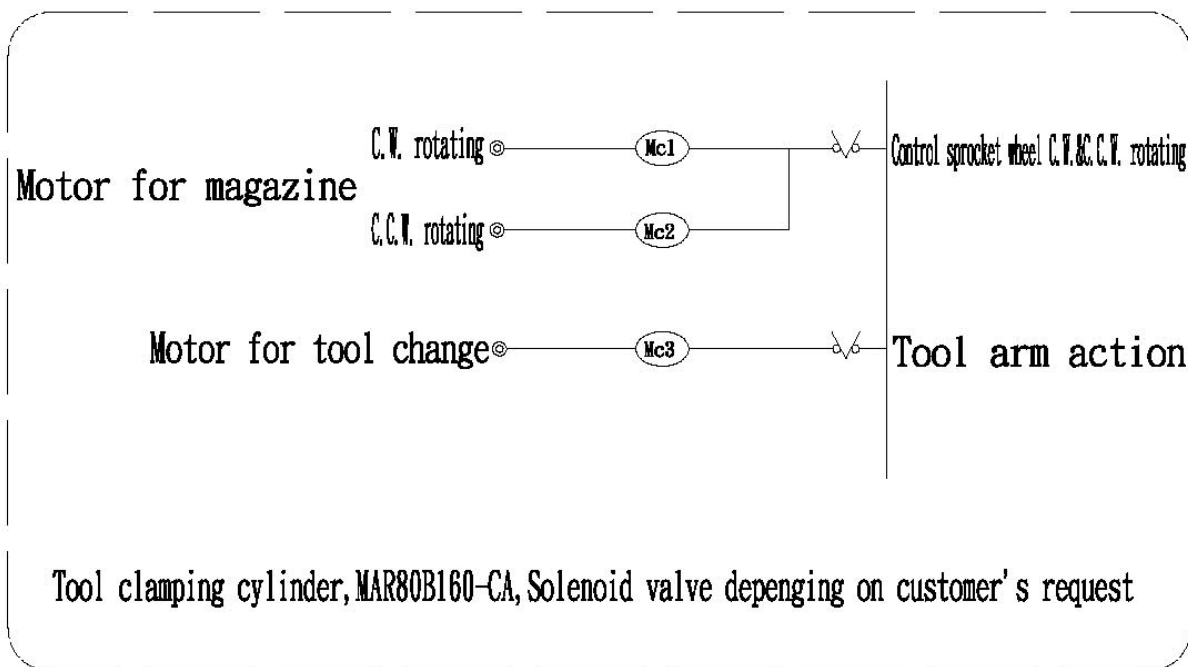
- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Tool selection (Tool selection power for C.W or C.C.W. - tool to tool)</li> <li>3. Power on for tool pot up-down cylinder</li> <li>5. Tool change motor start (from home)</li> <li>7. Tool clamping confirmation, tool release signal, motor stop</li> <li>9. Atc motor start to stop</li> <li>11. Motor power on &amp; arm to home position</li> <li>13. Motor stop &amp; home confirmation</li> <li>15. Protruding of cylinder positioning signal (Tool change finish)</li> </ol> | <ol style="list-style-type: none"> <li>2. Tool counter &amp; positioning signal (to stop indexing motor)</li> <li>4. Positioning signal of tool falling (contracting of cylinder)</li> <li>6. Atc motor start to stop</li> <li>8. Tool release finish, motor power on</li> <li>10. Tool change confirmation, tool clamping signal, motor stop</li> <li>12. Atc motor start to stop</li> <li>14. Protruding of cylinder starts to power on, tool pot home position</li> <li>16. Indexing motor rotating to next order-pot</li> </ol> |
|---|---|

# Control Circuit Reference Diagram

Voltage DC24V(Please choose positive or negative output voltage by PNP or NPN)

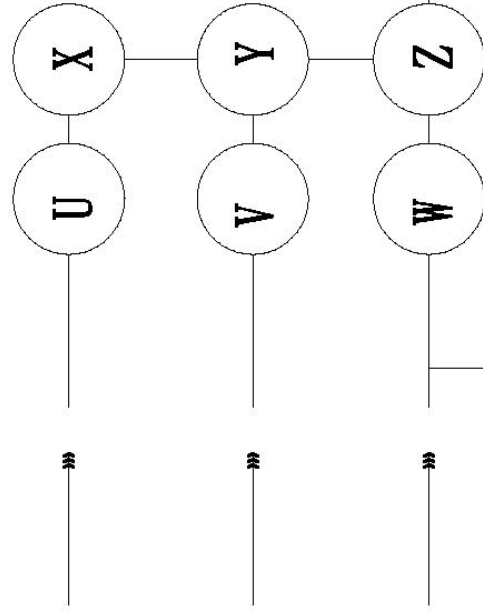


Voltage 220V 60HZ DC24V



# Motor & Limits Switch Wiring Diagram

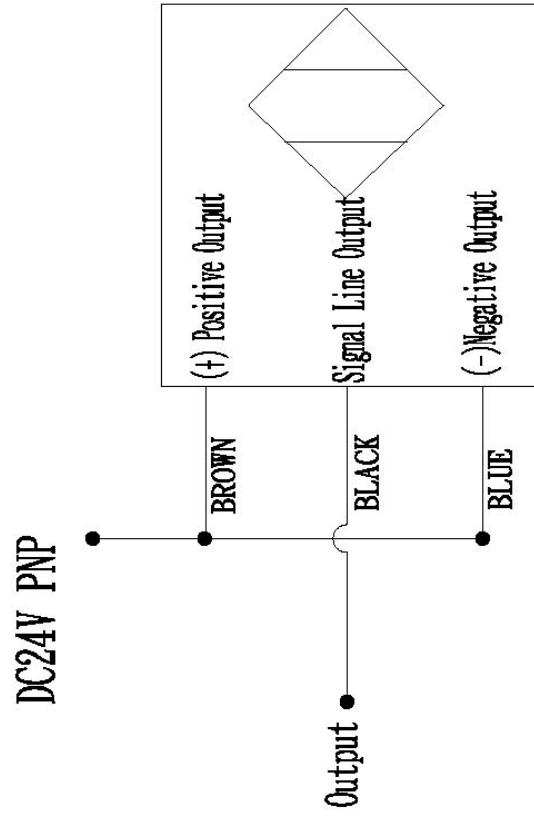
3Ø Motor Wiring Diagram



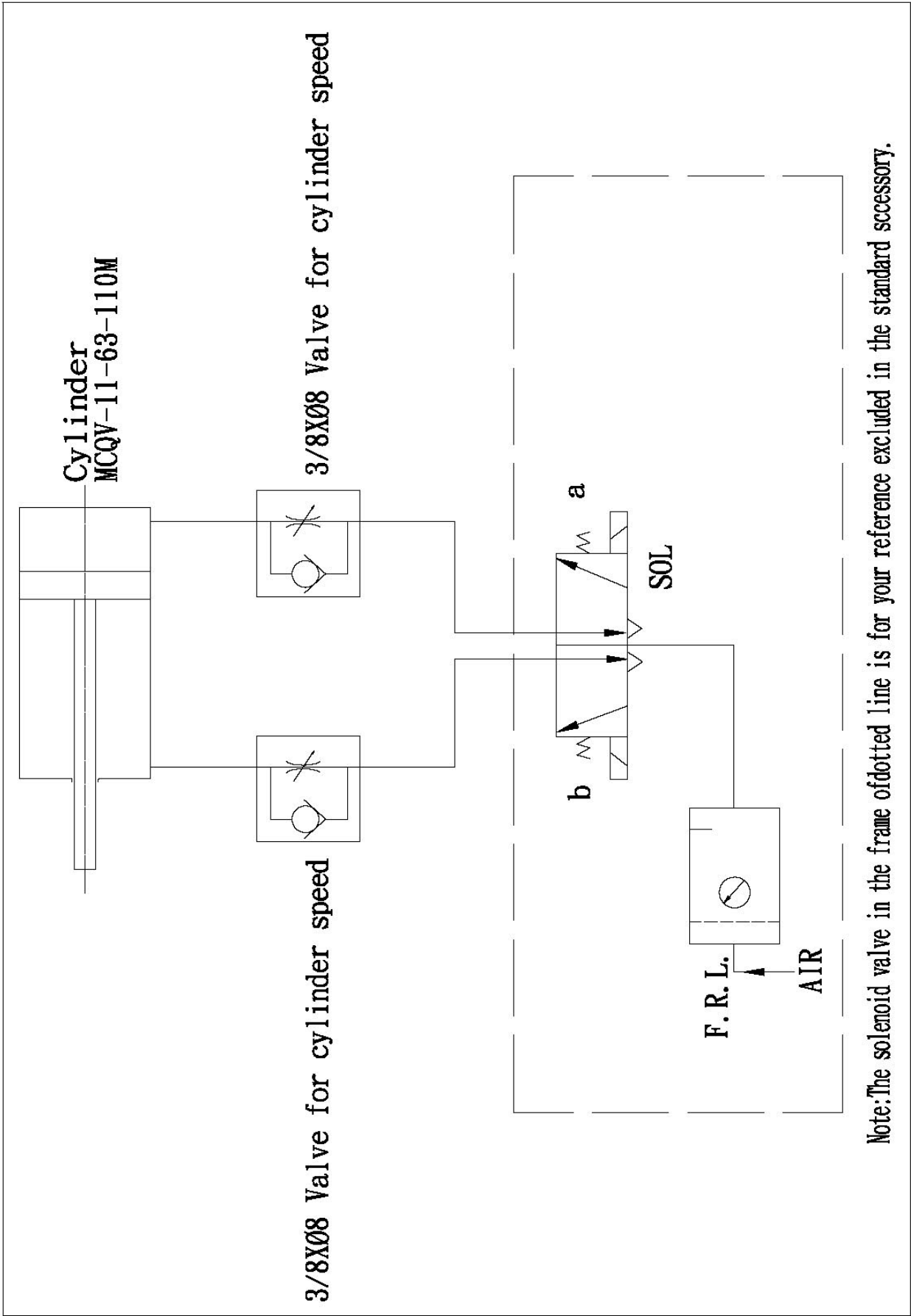
3Ø AC220V

DC90V

Sensor Switch

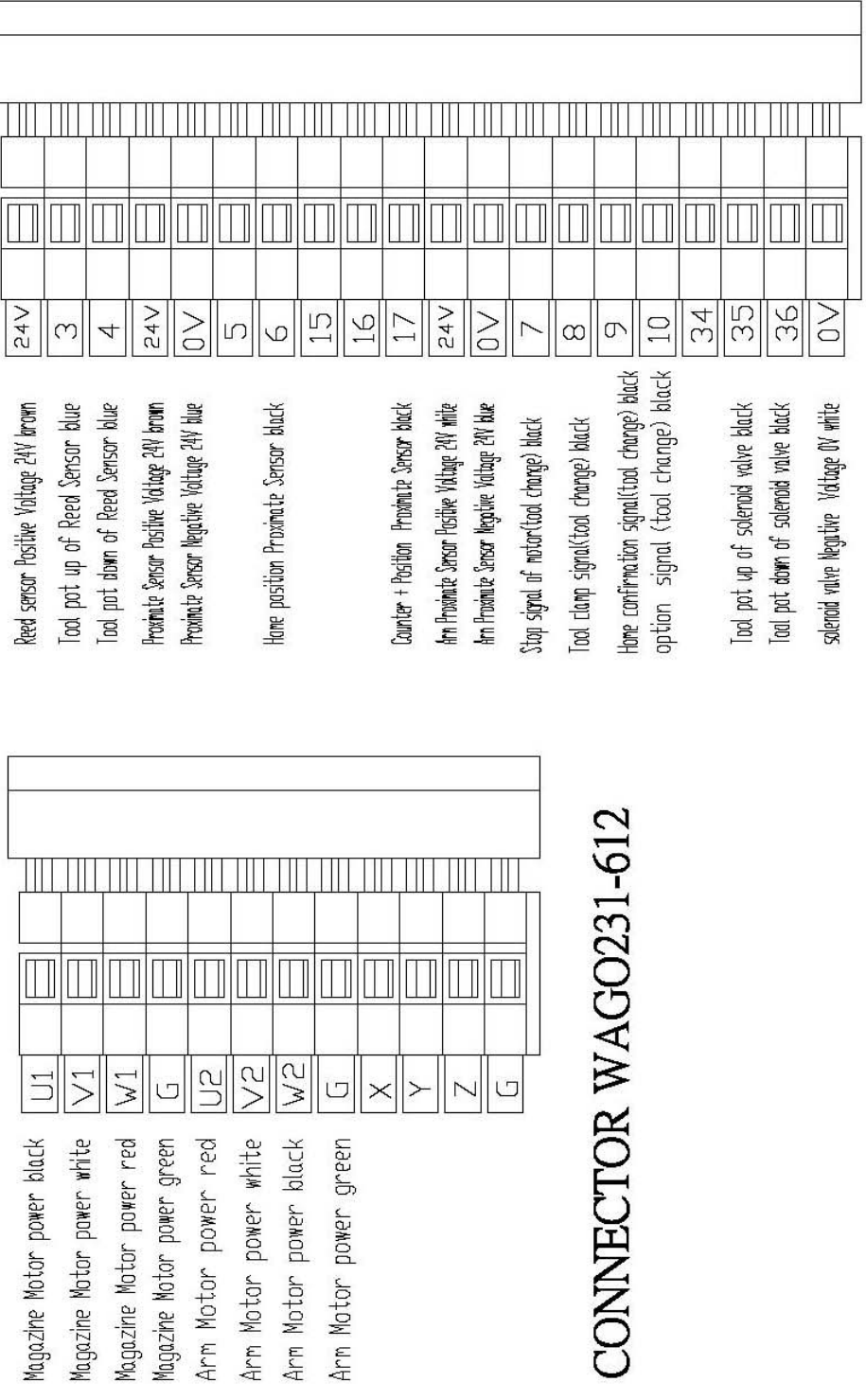


# Air Pressure Wiring Diagram



Note: The solenoid valve in the frame of dotted line is for your reference excluded in the standard accessory.

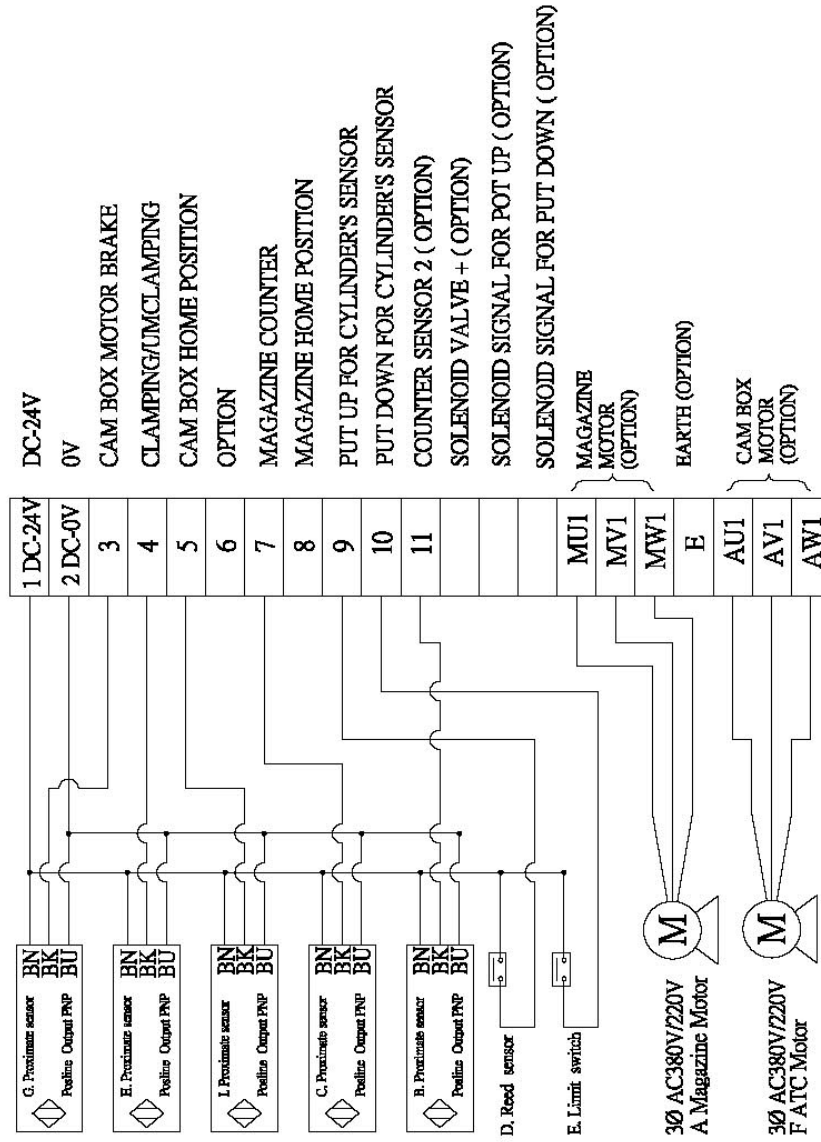
## Wire Junction Box Continue Drawing



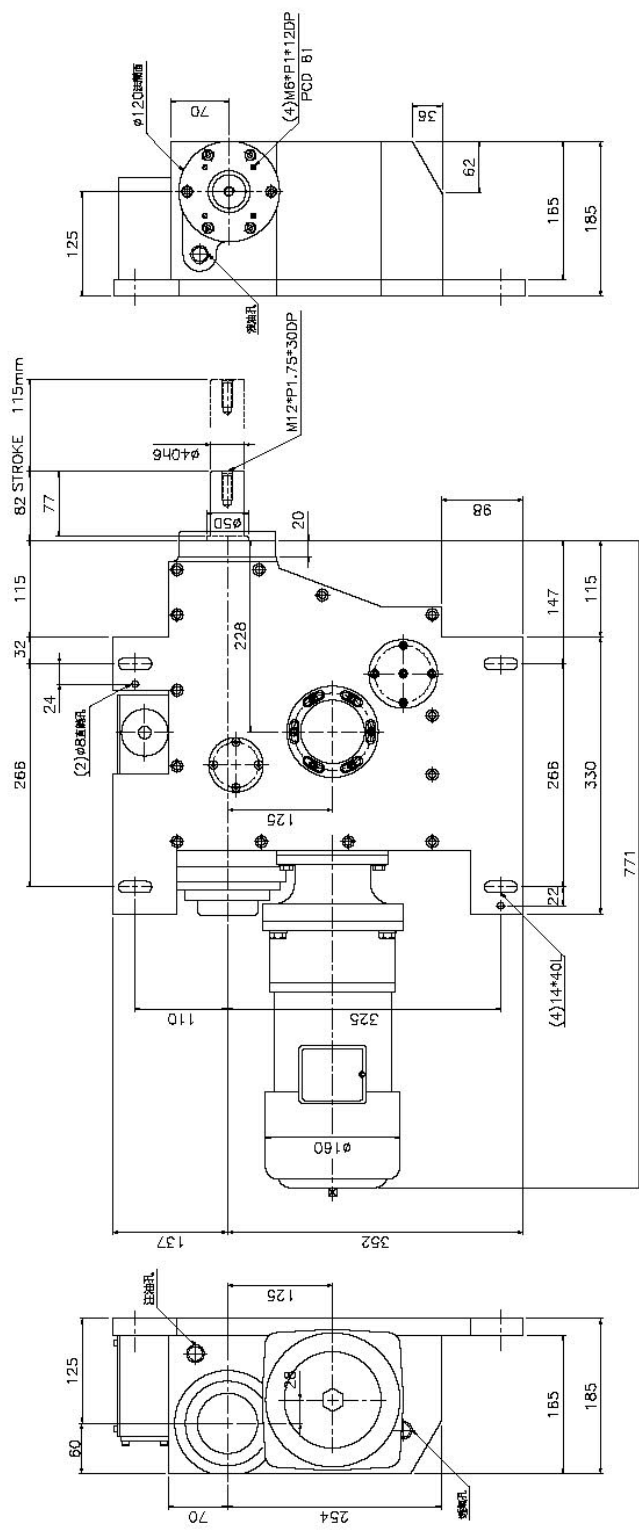
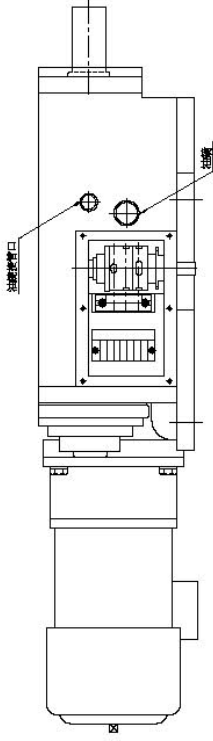
## CONNECTOR WAGO231-612

## Connector WAGO231-620

# WIRE BOX



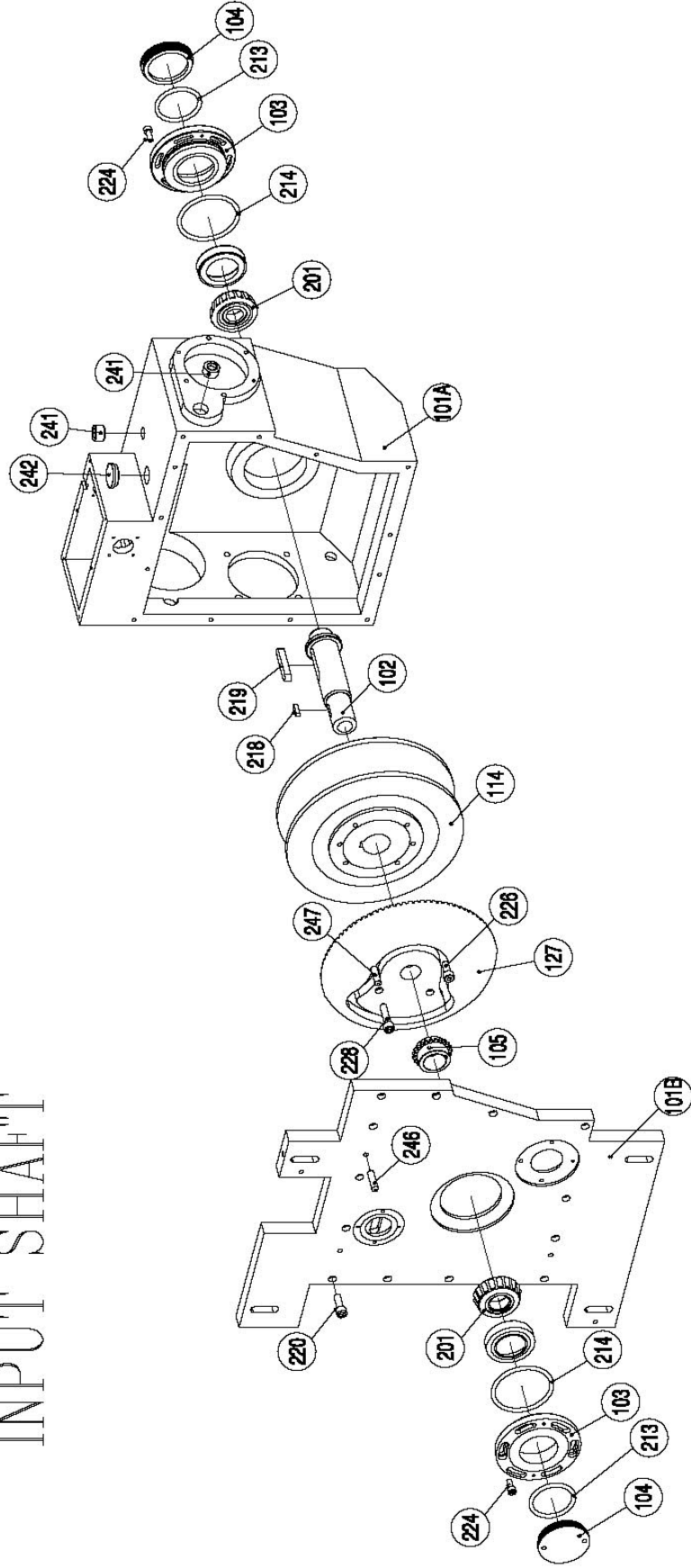




CAM DEGREE	65°
UP-DOWN STROKE	115mm
SIGNAL SPEC.	PNP*4-φ4
TOOL CHANGE TIME	50Hz=1.5sec
	60Hz=1.2sec
MOTOR SPEC.	1/2HP
	BREAKE DC-90V
	GEAR RATIO 1:8

No.	Parts NO.	Specification	Q'ty	No.	Parts NO.	Specification	Q'ty
101A	A4020SC000A1	Case	1	218	DFK5*5*20	Double circle keys 5*5*20	1
101B	A4020SC000B1	Case cap	1	219	DFK10*8*55	Double circle keys 10*8*55	1
102	A402A0100001	Cam shaft	1	224	HI-M6*16L	Inside hexagonal screw M6*16L	12
103	A402A0200001	Tuneup cap	2	226	HI-M6*20L	Inside hexagonal screw M6*20L	2
104	A402A0300001	Tuneup screw cap	2	227	HI-M6*25L	Inside hexagonal screw M6*25L	13
105	A402A0400001	Cam shaft sprocket	2	228	HI-M6*35L	Inside hexagonal screw M6*35L	2
114	A402C0100000	Cam	1	241	PT1/2"	Oil plugger PT1/2"	4
127	A402F0100001	Big umbrella gear	1	242	O1-28	Oil plugger(ø28mm)	1
201	HR30206	Tapered roller bearings 30206	2	246	PIN-T-8*32L	Taper pin ø8*32L(1.50)	3
213	O-55*2	O ring ø55*2	2	247	PIN-P-8*32L	Parallelism pin ø8*32L	2
214	G75	O ring G75	2				

# INPUT SHAFT

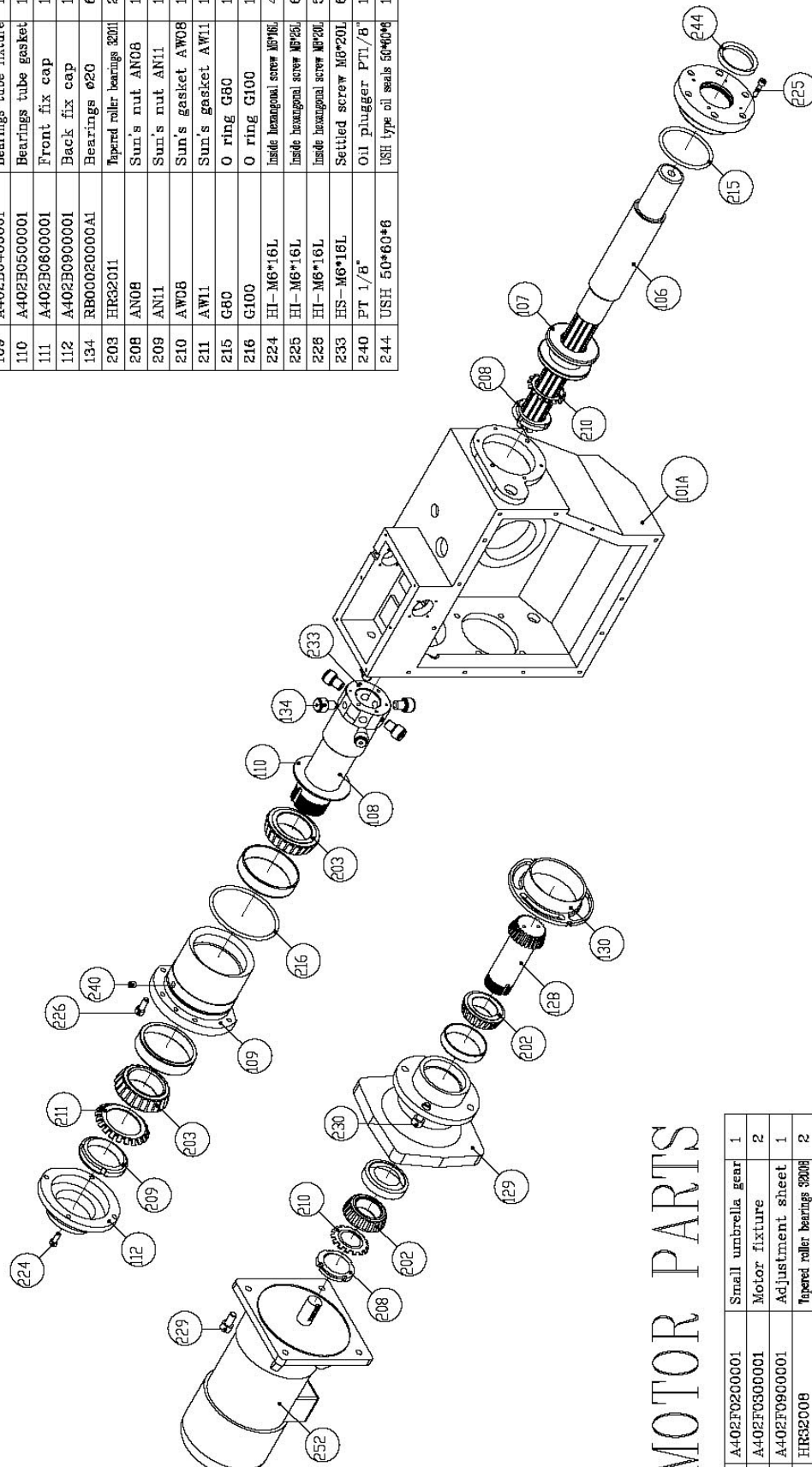


UNIT NO.	Quantity	MATERIAL	WEIGHT(kg)
PART NO.	SCALE	TITLE	TOLERANCE
			±0.1
			±0.05
			±0.03
			±0.02
			±0.01
			±0.005
			±0.002
			±0.001
			±0.0005
			±0.0001

NAME	DRAWING	DESIGN	CHECK	APPROVE

# OUTPUT PARTS

No.	Parts No.	Specification	Q'ty
101A	A4020SC000A1	Case	1
106	A402B0100001	Spine(output) shaft	1
107	A402B0200001	Transmitt wheel	1
108	A402B0300001	Bearings tube	1
109	A402B0400001	Bearings tube fixture	1
110	A402B0500001	Bearings tube gasket	1
111	A402B0600001	Front fix cap	1
112	A402B0800001	Back fix cap	1
134	RB00020000A1	Bearings e20	6
203	HR32011	Tapered roller bearings 32011	2
208	AN08	Sun's nut AN08	1
209	AN11	Sun's nut AN11	1
210	AW08	Sun's gasket AW08	1
211	AW11	Sun's gasket AW11	1
215	G80	O ring G80	1
216	G100	O ring G100	1
224	HI-M6*16L	Inside hexagonal screw M6*16L	4
225	HI-M6*16L	Inside hexagonal screw M6*16L	6
228	HI-M6*16L	Inside hexagonal screw M6*16L	5
233	HS-M6*16L	Settled screw M6*20L	6
240	PT 1/8"	Oil pluggger PTL/8"	1
244	USH 50*80*6	USH type oil seals 50*80*6	1

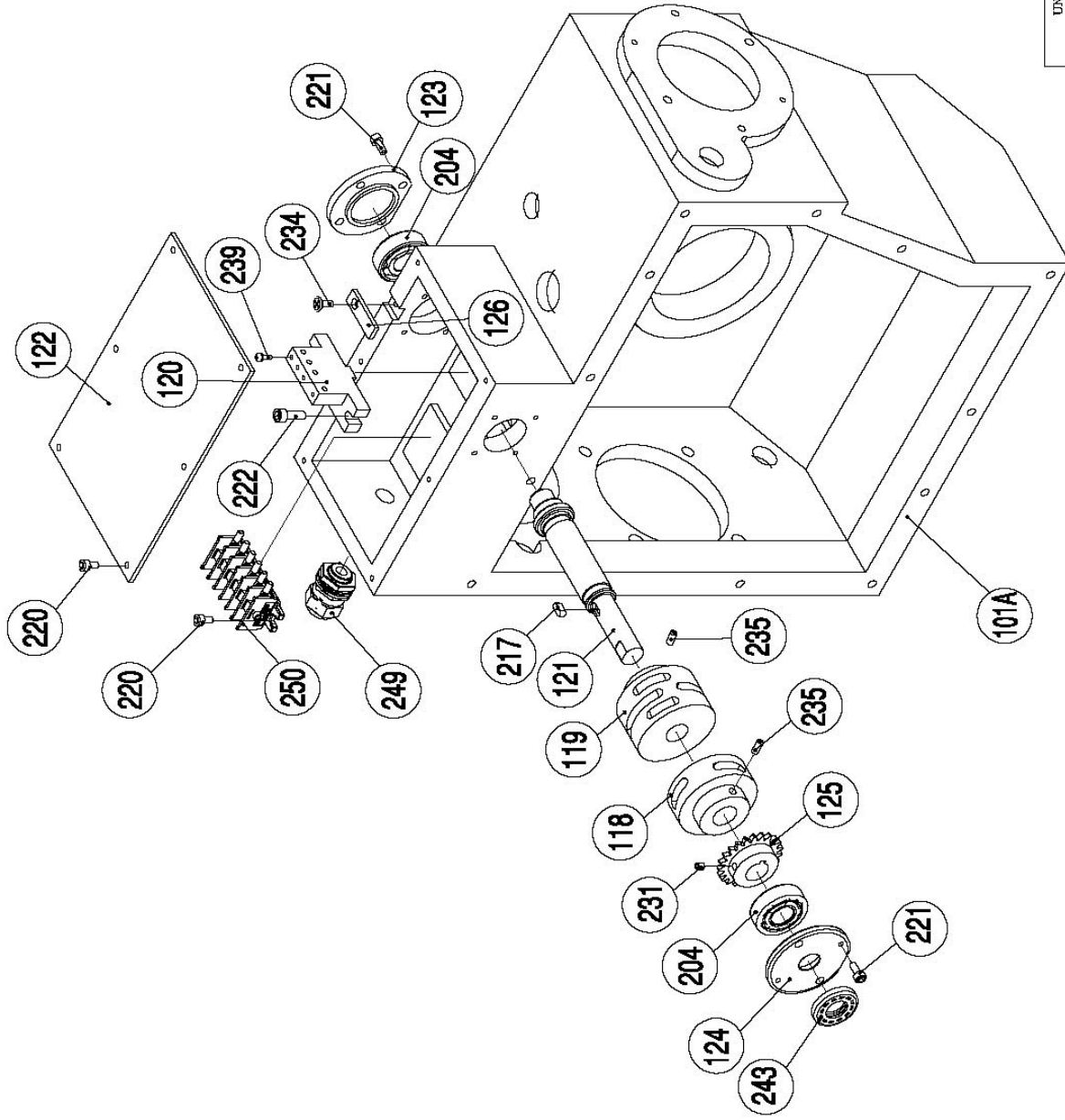


# MOTOR PARTS

No.	Parts No.	Specification	Q'ty
128	A402F0200001	Small umbrella gear	1
129	A402F0300001	Motor fixture	2
130	A402F0800001	Adjustment sheet	1
202	HR32008	Tapered roller bearings 32008	2
208	AN08	Sun's nut AN08	1
210	AW08	Sun's gasket AN08	1
229	HI-M10*20L	Inside hexagonal screw M10*20L	4
230	HI-M10*30L	Inside hexagonal screw M10*30L	4
252	MR 1/2HP	Motor 1/2HP	1

UNIT NO.	Quantity	MATERIAL	WEIGHT(kg)
	SCALE	TITLE	TOLERANCE
	PART NO.		±0.1
			±0.05
			±0.02
			±0.01
			±0.005
			±0.002
			±0.001

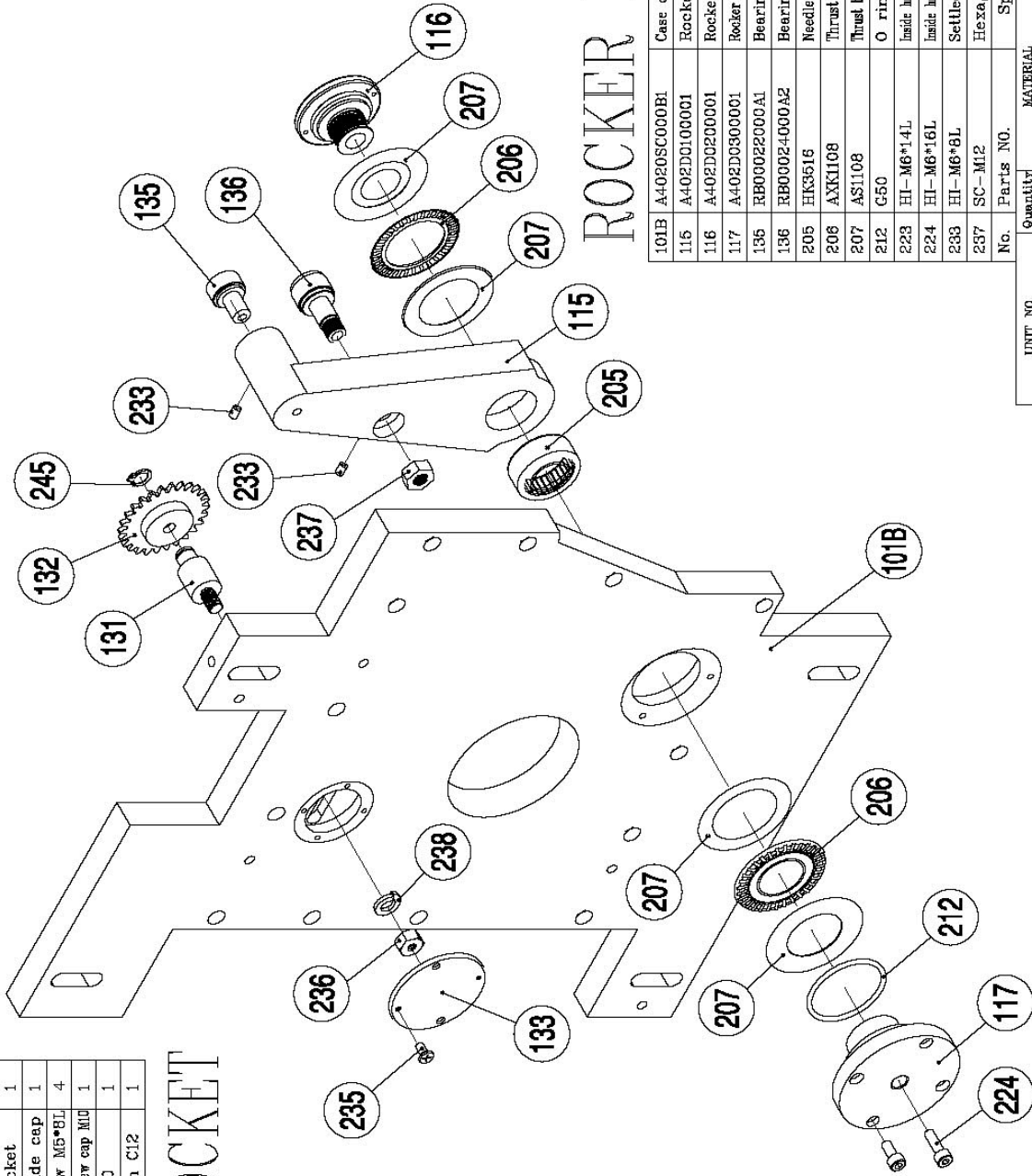
# SIGNAL PARTS



No.	Parts No.	Quantity	MATERIAL	WEIGHT(kg)	Specification.	Q'ty
101A	A4020SC000A1	1	Case			1
118	A402E01000A1	1	Brake signal wheel			1
119	A402E01000H1	1	Cam signal wheel			1
120	A402E0200001	1	Signal fixture			1
121	A402E0300001	1	Signal shaft			1
122	A402E0400001	1	Dustproof cap			1
123	A402E0500001	1	Signal cap			1
124	A402E0600001	1	Signal cap(have hole)			1
125	A402E0700001	1	Signal sprocket			1
126	A402E0800001	1	Signal try up parcel			1
204	BR6202	4	Deep groove ball bearings 6202			4
217	DFK4*4*10	4	Double circle keys 4*4*10			4
220	HI-M4*8L	8	Inside hexagonal screw M4*8L			8
221	HI-M4*10L	8	Inside hexagonal screw M4*10L			8
222	HI-M5*6L	2	Inside hexagonal screw M5*6L			2
231	HS-M5*6L	1	Settled screw M5*6L			1
232	HS-M5*10L	2	Settled screw M5*10L			2
239	PF-308	4	Plastics screw M3*6/(KSS)			4
243	TC15*24*5	1	TC type oil seals 15*24*5			1
249	AG-16	1	Wire studs(KSS)			1
250	TM-10A600V	1	Terminal fridket			1
No. Parts No.				Quantity	MATERIAL	WEIGHT(kg)
NAME				DRAWING	DESIGN	CHECK
APPROVE				SCALE	PART NO.	TITLE
					ATC UNIT	
						TOLERANCE
						3/1
						3/2
						3/3
						3/4
						3/5
						3/6
						3/7
						3/8
						3/9
						3/10
						3/11
						3/12

No.	Parts NO.	Specification	Q'ty
131	A402J0100001	Idler shaft	1
132	A402J0200001	Idler sprocket	1
133	A402J0300001	Idler outside cap	1
236	CO-M5*8L	Bury screw M5*8L	4
236	SC-M10	Hexagonal screw cap M10	1
238	WS-M10	Casket M10	1
245	C12S	Shaft ouch C12	1

## IDLER SPROCKET



## ROCKER PART

No.	Parts NO.	Specification	Q'ty
101B	A402SC0000B1	Case cap	1
115	A402D0100001	Rocker	1
116	A402D0200001	Rocker shaft	1
117	A402D0300001	Rocker stand packing cap	1
135	RB00022000A1	Bearings φ22	1
136	RB00024000A2	Bearings φ24	1
206	HK3618	Needle bearings HK3618	8
208	AXK1108	Thrust bearings AXK1108	2
207	AS1108	Thrust bearings parcel AS1108	1
212	G50	O ring G50	2
223	HI-M6*14L	Inside hexagonal screw M6*14L	4
224	HI-M6*16L	Inside hexagonal screw M6*16L	1
233	HI-M6*8L	Settled screw M6*8L	1
237	SC-M12	Hexagonal	1

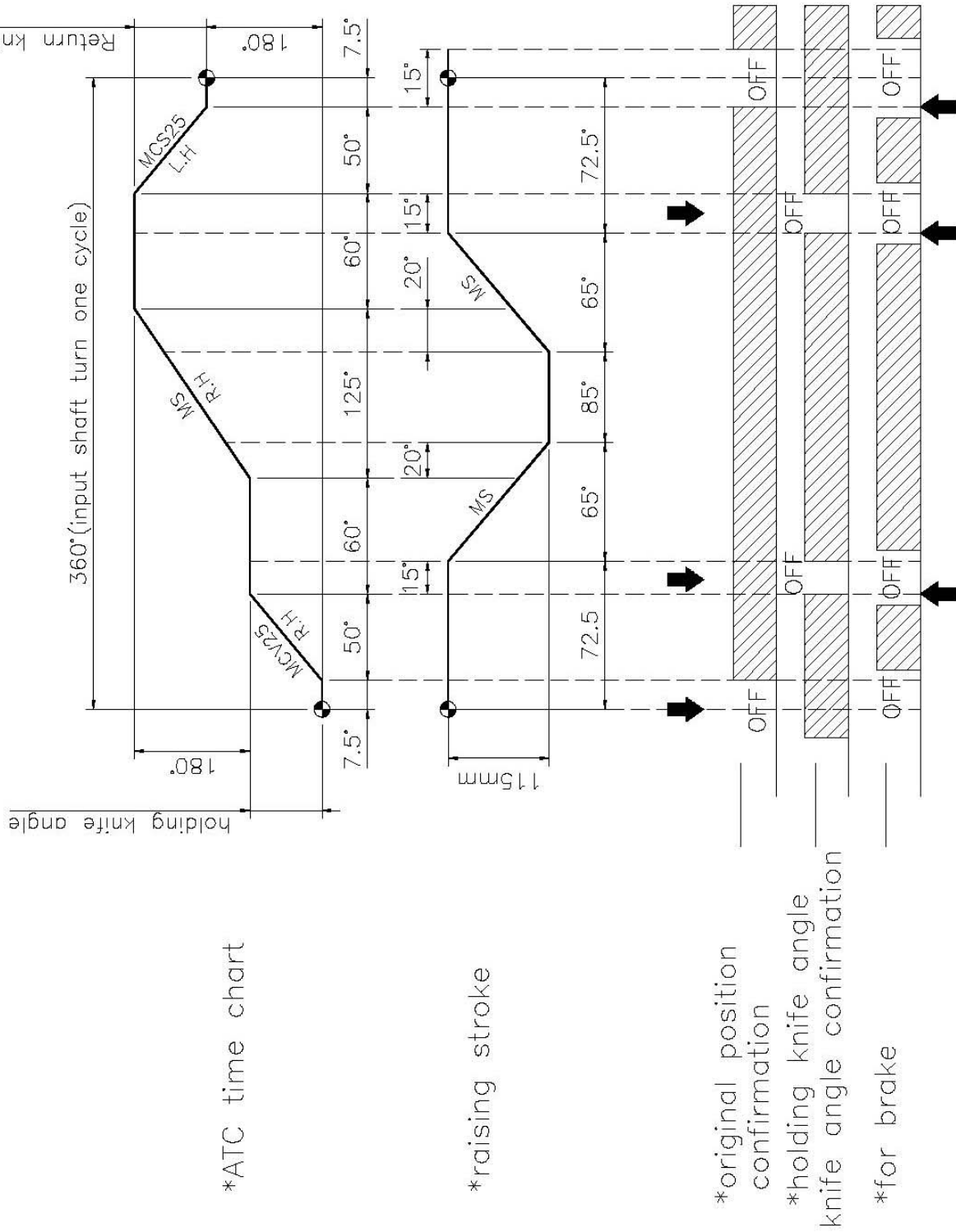
UNIT NO.	Quantity	MATERIAL	WEIGHT(kg)

NAME	DRAWING	DESIGN	CHECK	APPROVE

SCALE	TITLE

TOLERANCE
±0.1
±0.05
±0.02
±0.01
±0.005

# DEX-2 TIME CHART



\*ATC time chart

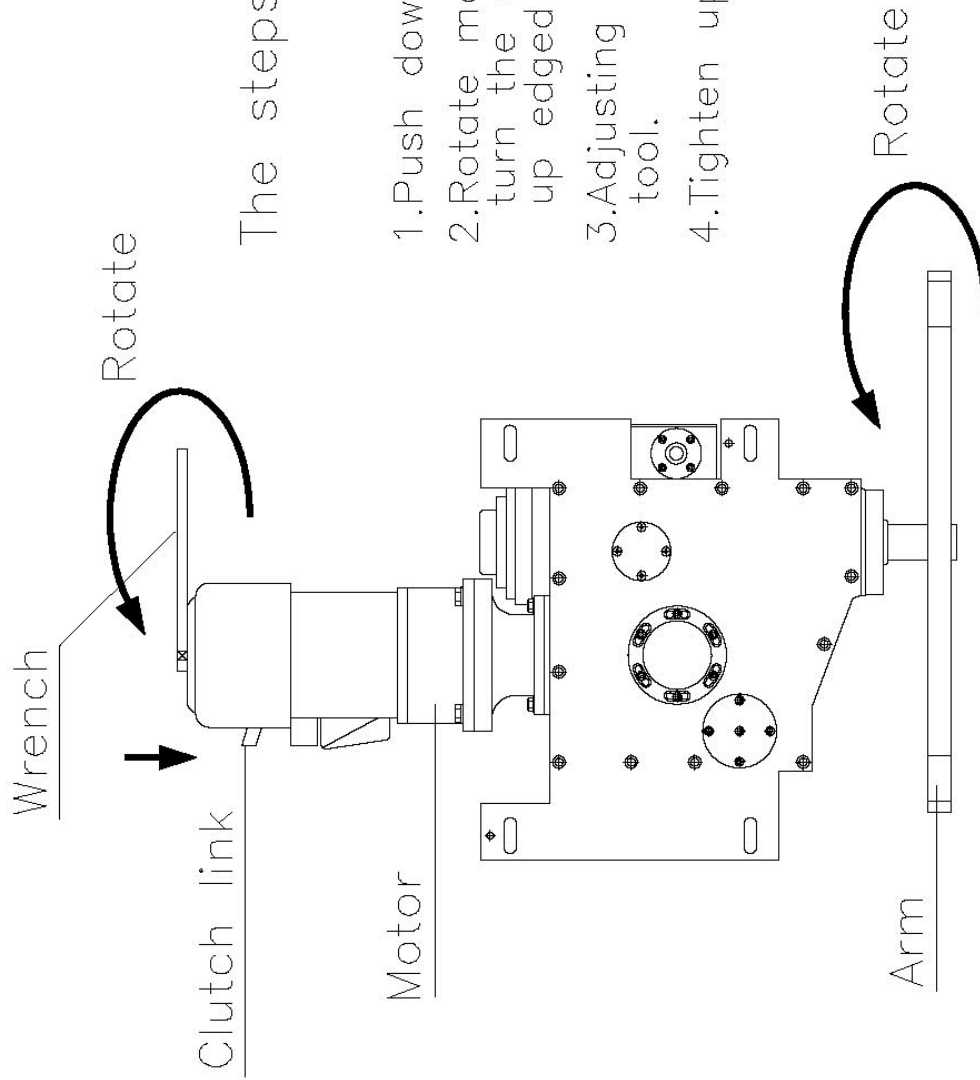
\*raising stroke

\*original position confirmation

\*holding knife angle confirmation

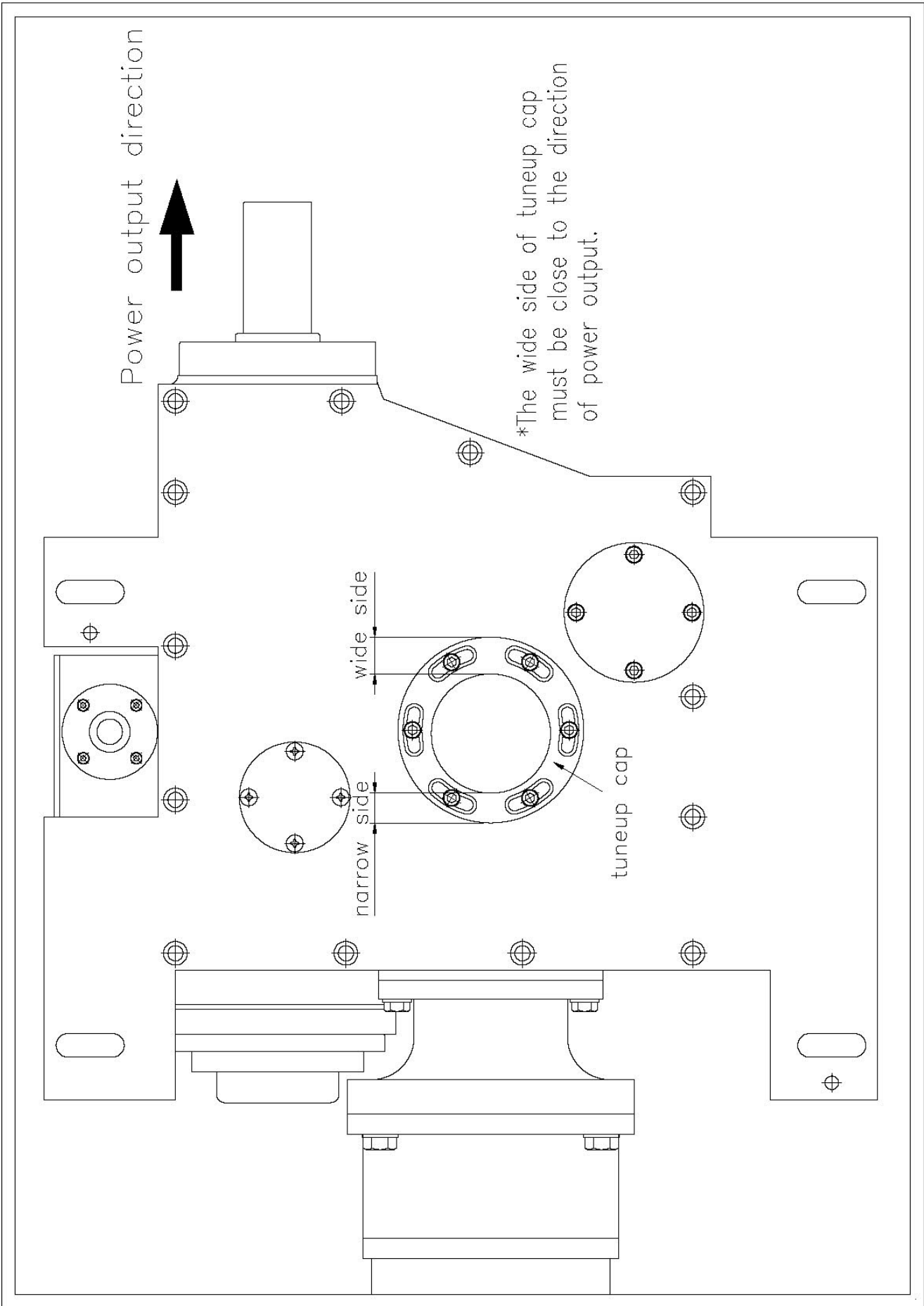
\*for brake

## \*Adjustment of Arm\*



The steps of arm adjustment

1. Push down clutch link.
2. Rotate motor by using the wrench and turn the arm to the angle of setting up edged tool.
3. Adjusting the arm to hold the edged tool.
4. Tighten up the setup screws.





# ATC GEAR OIL SPECIFICATION

BRAND NAME	SPEC( VISCOSITY GAGE ISO VG)
SHELL	Omala EP 150-220
TOTAL	Garter EP 150-220
MOBLE	Mobil gear 150-220
ESSO	Spartan EP 150-220
CASTROL	ALPHA SP(EP) 150-220
CPC	85W/90

## 1. INPUT OIL NOTE:

MUST BE USE NEW OIL TO POU THE MECHANICAL  
, AVOID TO USE THE RECYCLE OIL.

## 2. TURN LIFE HOUR:

MACHINE CONTINUE RUN 2400 HOURS MUST CHANGE NEW OIL.

## 3. MAINTAIN:

A. CHECK THE OIL ENOUGH BEFORE RUN MACHINE, IF NOT ENOUGH , MUST  
BE ADDED.

B. THE LUBRICANT OIL MUST BE USED CORRECT VISCOSITY.

C. MOTOR VOLTAGE MUST BE CORRECT TO JOINT INPUT POWER.

# Dismantled procedure :

A.How to dismantle and reinstall the splined (output) shafts :

- 1.Turn to original position ,remove the taper pin (246) and M8 bolt (227) on the case cap.
- 2.Remove the case cap (101B) .
- 3.Loose hexagonal screw (225) ,remove the front fix cap (111) .
- 4.Remove the spline (output) shaft (106) ,and transmitt wheel (107) , sun's nut (208) ,sun's gasket (210) ,and take the new shaft.
- 5.Assrmbly it, you can reverse in connection.

B.Change the bearings on bearings tube :

- 1.Turn to start position, remove the case cap of taper pin (246) and M8 bolt(227) .
- 2.Remove the case cap (101B) .
- 3.Rotate the bearings tube (108) to stand by position.
- 4.Remove the side settled screw (233) .
- 5.Use special tool to remove the bearings  $\phi 20$ (134),reinstall the new bearings, use the no air rubber to fastener the settled screw (233).
- 6.Assrmbly it, you can reverse in connection.

C.Take rocker apart in many steps :

- 1.Turn to start position, remove the case cap of taper pin (246) and M8 bolt (227).
- 2.Remove the case cap (101B) .
- 3.Then remove the rocker of settled screw down (224) .
- 4.Use the teardown tool, removed the rocker shaft (116) .
- 5.Remove the thrust bearings AXK1108 (206) ,thrust bearing pad AS1108 (227) and needle bearings HK3516 (205).
- 6.The needle bearings  $\phi 22$ (135) and needle bearings  $\phi 24$ (136) taken apart the rocker is now replaced new product.
- 7.Assrmbly it, you can reverse in connection.

# 1. Trouble Shooting

Condition	Reason	Trouble Shooting
Tool disk stops without positioning	1.Brake fail to work or overload 2.Sensor switch with far distance	1. Please check electronic brake wiring in correct connection or not? If part fail to work 2.Move sensor switch closer to sensor
Tool disk non-stop rotating	1.Sensor switch break down 2.Sensor switch with far distance	1.Replace sensor switch 2.Move sensor switch Closer to sensor
Pot break	Tool disk rotated while tool clamping	Replace new tool pot & adjust arm Clamping position again
Tool disk to get stuck in operating	Tool disk rotated while cylinder action	Check tool pot damaged or not and reinstall new pot
Shake during tool clamp & returning	1.Cam out lubrication 2.Cylinder speed out of balance	1.Fill lubricant oil 2.Adjust cylinder pressure & speed valve
Tool pot is not positioning(loosen)	Bolt of positioning bolt or pot bolt are loosen	Adjust it to normal & tighten
Tool disk dose not work during tool selection	1.Induction switch dose not work 2.Induction switch break down 3.Motor break down 4.Electronic break bread down	1. Adjust reed switch to normal position 2. Replace reed switch 3. Repair motor 4. Check wiring & replace 5. Check sensor switch
Cylinder does not work During tool change	1.Proximity switch for tool counter positioning is break down 2.Tool disk is not positioning 3.Cylinder has no pneumatic air 4.ATC arm does not home	1. Replace proximity switch 2. Tool disk positioning 3. Check cylinder air, solenoid valve works or not? 4. Rotating motor bolt manually to let ATC arm back to original position 5. Check reed induction switch
ATC fail to work during Tool change	1.Tool clamp positioning reed switch fail to work 2.Induction switch break down	1. Adjust reed switch to proper position 2. Replace new reed induction switch
ATC motor over-heat	1.Break is not released 2.Break is break down 3.Commutator is break down	1. Check commutator to electrify or not? 2. Replace the brakes. 3. Replace the commutator.
ATC fail to work after tool clamping; ATC fail to work after 180° degrees tool change; ATC home stop & home Sensor switch does not work	1.Sensor is in wrong position 2.Sensor switch is break down	1.Adjust sensor to proper position 2.Replace sensor switch
ATC stop position out of	1.Sensor is in wrong position 2.Positioning ring of sensor switch is in wrong angle	1.Adjust 3 sensor at the same time to proper angle 2.Rotate set ring, adjust 3 sensor switch to proper angle
ATC tool clamping position out of accuracy	Arm & ATC spindle are not aligned	Loosen taper ring key & align it again

## 2. Simple maintenance

### A. TOOL POT CHANGE PROCEDURE:

1. Take down the peripheral metal sheet and numeral acrylic cover.



2. Unlock the hexagonal screw bolt M8 and recede 10 mm on the shaft cover. (remark: do not move the 4 pieces fixing bolt)



3. Pull out the plate to the M10 screw bolt position.



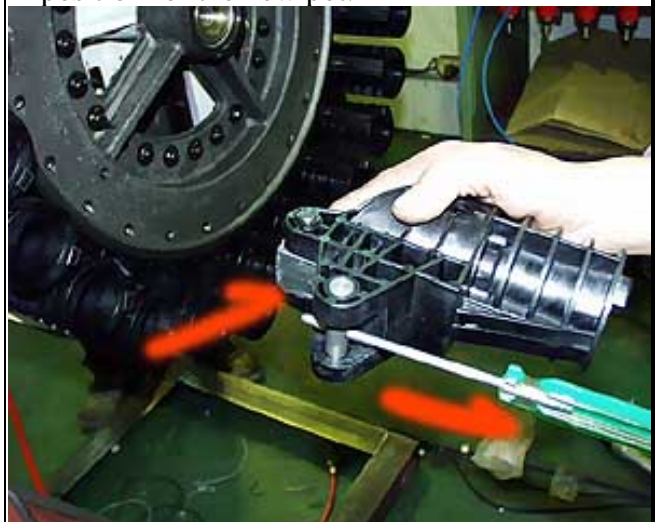
4. Strip down the hexagonal screw bolt M6 which be instead pot.



5. Take down the broken pot (push the pot forward inner side and take the pot upward, then extract it).



6 Confirm the fixing bolt and knob the correct position for the new pot.



## TOOL POT CHANGE PROCEDURE

7. Stow down the new pot(the surface of knob recline the pot body and push forward into the plate.



8. Lock the hexangular screw bolt M6 which the new pot.



9. Push the plate to the original position and lock it.



10. Check the fixed clearance of the plate. ( can not have clearance).



11 Check the correct angled 90 degree which the replaced pot (test on the practically tool exchanged).



## B. Motor of magazine replacement

1. Power off.
2. To dismantle the wires of magazine motor in wiring connect box.
3. Take off M8 bolts (4pcs) on motor seat, and then disassembly the motor.
4. Disassembly the S18 ring & M6 bolt from damage motor & re-assembly those parts onto new motor.
5. Please make sure the motor specification is correct before you replace it.
6. Follow the steps to set up wires in wiring connect box.

## C. Motor of arm replacement

1. Power off.
2. To dismantle the wires of arm motor in wiring connect box.
3. Take off M10 bolts (4pcs) on motor seat, and then disassembly the motor.
4. Please make sure the motor specification correct before you replace it.
5. Follow the steps to set up wires in wiring connect box.

## D. Cylinder replacement

1. Turn off the power & cylinder air pressure source.
2. Take off Ø8 air pipe.
3. Take off induction switch & mark original position before remove it.
4. To dismantle M8 bolt on cylinder and S12 ring on joint "I".
5. Please make sure to the cylinder specification correct before you fit it on, and then get back the induction switch to original position.

## E. Induction switch replacement

1. Power off.
2. Disassembly the wire of induction switches in the electric box.
3. Please loosen the seat of reed switch & take it out.
4. Replace new part & take care of the sensor position, push it to upward & downward until to end of both sides.
5. Follow the steps to set up wires in electric box.

## F. Proximity switch of tool magazine replacement method

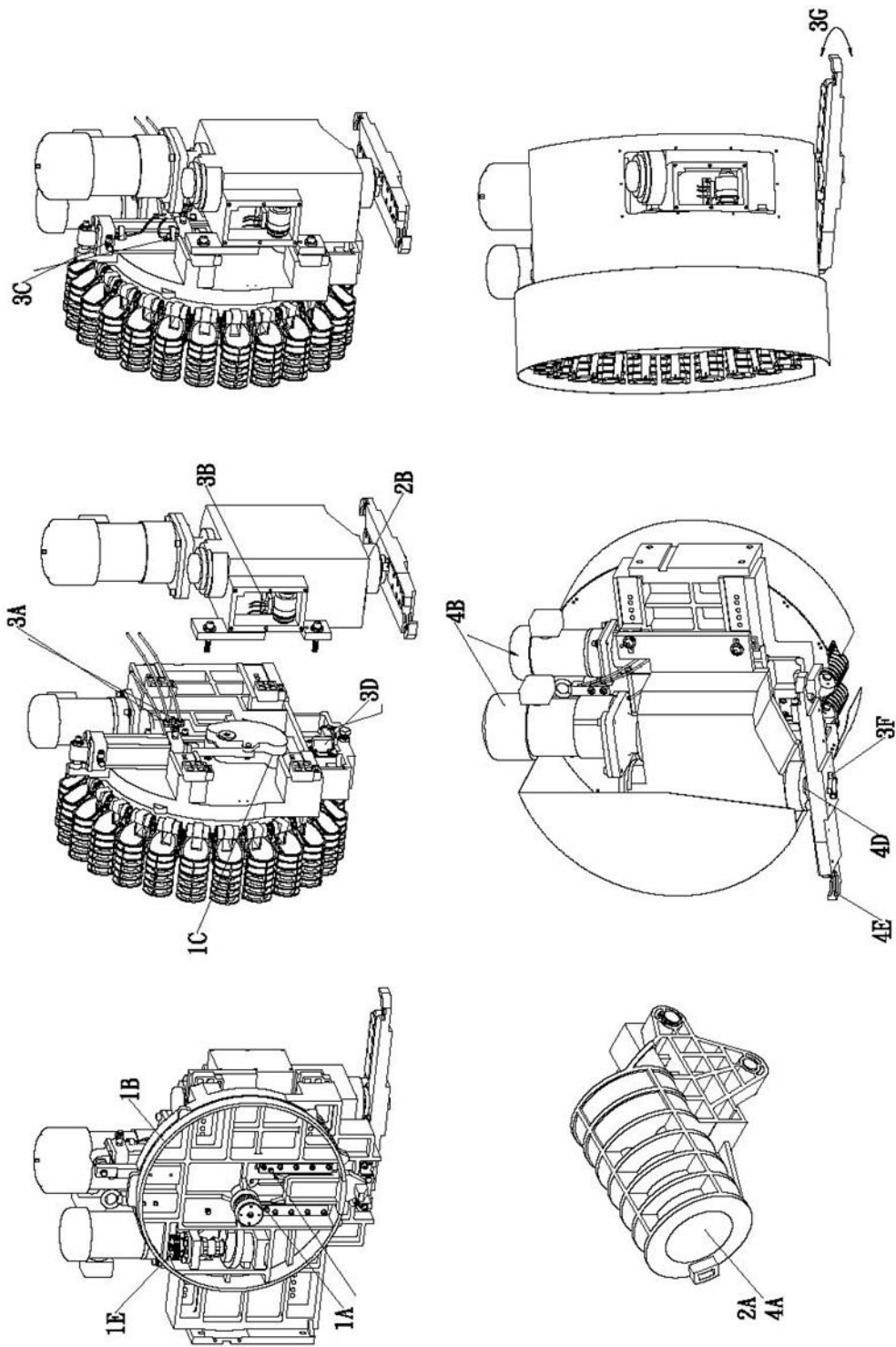
1. Power off.
2. Disassembly the wire of induction switches in the electric box.
3. Take off the front cover & outer metal sheet cover.
4. Take off the M12 bolt on proximity switch.
5. Replace new part & make sure the sensitive distance is 4 mm.
6. Follow the steps to set up wires in electric box.

## G. Proximity switch of arm replacement method

1. Power off.
2. Disassembly the wire of induction switches in the electric box.
3. Take off the acrylic of ATC metal sheet.

4. Replace new part & make sure the sensitive distance is 4 mm.
5. Follow the steps to set up wires in electric box.
3. Note

1. Please use standard tool during maintenance & repair.
2. We suggest you replace part which is bought from original supplier.
3. Please take care of the part specification before replacement. You can get the specification from the part list.
4. Please make sure the sensitive distance during replace proximity switch & reed switch.
5. Please make sure the wires numbers & location in case you have to replace the wire connecting.
6. In any case of abnormal or damage condition on the product, there should be someone checking the product. We strongly ask the service man has to be well trained & qualified engineer or expert come to check or repair the problem. This is to ensure safety of operator & engineer.
7. Before disassembly the product, please make sure there are enough human beings to support the load. If there are not enough human beings, please use lifter, crank or any other carrier to support the weight.



M.	Change content	Changer	Date	Check Draught Design	Date Date Date	Material Dtl: Wire thread Material	Material Dtl: Wire thread Material	Item	40# Magazine
								Description	Part no.



G. Magazine maintenance main points

Item	Description	Method	Tool	Routine	Remark
1	A Body fix board	Take off number cover, fill oil manually	Grease Gun	Half year	Grease
	B Pot slide	Take off sheet metal, fill Lubrication oil manually	Grease Gun		Grease
	C Arm slide block & position pin	Take off sheet metal cover, clean & fill oil manually			Grease
	D Cam Slide	Take off ATC cover, fill lubrication oil manually	Grease Gun		Grease
	E Motor Gear	Take off front cover & outer sheet metal	Grease Gun		Grease
2	A Inner taper face of pot	Clean pot		Once a month	SHELL TELLUS 32
	B Replace inner lubrication oil of ATC	Drain the old oil, and fill New lubrication oil			
3	A Sensor switch of magazine to loosen or not?	Check manually		Half year	
	B Sensor switch of ATC to loosen or not?	Check manually			
	C Sensor switch of cylinder to loosen or not?	Check manually			
	D Limit switch to loosen or not?	Check manually & optically			
	E Any bolt to loosen or not?	Check manually			
	F Bolt on arm to loosen or not?	Check manually			
	G Shake the arm to decide if backlashes too big	Check manually & inaccuracy can't bigger than 0.2 mm			
	H Check the disk body to shake or not?	Check manually			
	I Check tool magazine to loosen or not?	Check manually			
	A Pot ball is falling down or not?	Check manually			
	B Noise or heat on motor?	Check manually			
4	C Solenoid valve of cylinder is out of air?	Check manually		Before power on	
	D Oil leak from ATC output shaft	Check manually			
	E V shape flange of ATC arm to wear and tear	Check manually			
	F The oil level lower of ATC oil tank	Check manually			

