ACER

OPERATION MANUAL

Bed Type Milling Machine with
Model: ATM 1054+ & ATM 1050+
Bed Mill 1054II & Bed Mill 1050II

Taiwan: Ya-Gin Machine Tool Manufacturing Inc.
No. 101, 506 Lane, Seng-Tso Road
Seng Karng District, Taichung City, Taiwan
Tel: 886-4-2520-4120 Fax: 886-4-2520-4123

CA: Springwood Industrial, Inc.
2320 E. Valencia Drive
Fullerton, CA 92831
Tel: 714-871-5558 Fax: 714-871-5554

NJ: Klim Industrial, Inc.
244 N. Randolphville Rd.
Piscataway, NJ 08854
Tel: 732-752-9100 Fax: 732-752-9101

Revised 3/30/15

CONTENT

DESCRIPTION **PAGE NO.**

1. BASIC MACHINE INFORMATION

Bed type mill is very high precision and CNC controlled machine. Therefore, before operating this type of the machine, please read this manual carefully, and make sure you have the knowledge to operate this machine properly. If you have any question, please contact our local distributor. We will answer your question promptly.

1-1. Machine Specification

Specification			
	Model	Bed Mill 1050II/ATM 1050+	Bed Mill 1054II/ATM 1054+
Table	Table Size	10"x50" (254x1270mm)	10"x54" (254x1372mm)
	T-Slots	3 x 5/8" (16mm)	
	Table Load	1320 lbs (600kgs)	
Travel	X Axis Max./Rapid Feed	27.5"(700mm)/200ipm	31.5"(800mm)/200ipm
	Y Axis Max./Rapid Feed	20"(500mm)/200ipm	
	Z Axis Max./Rapid Feed	20.87"(530mm)/200ipm	
	Max Spindle Nose to Table	5.31"(135mm)~25.39" (645mm)	
	Spindle Center to Column Face	23.62" (600mm)	
Spindle	Quill Diameter	4.72" (120mm)	
	Spindle Taper	CAT #40 (BT #40 Opt.)	
	Spindle Speed RPM	0~6000RPM	
Motor	Spindle HP	7.5	
	X Axis Servo Motor	DC 31.3in-lb (AC 750 watts Opt.)	
	Y Axis Servo Motor	DC 31.3in-lb (AC 750 watts Opt.)	
	Z Axis Servo Motor	DC 31.3in-lb (AC 1 KW Opt.)	DC 31.3in-lb (AC 1 KW Opt.)
	Coolant Pump HP	1/8	
	Lubrication Pump	80 watts	
Tool Dimension	Tool Total Length x Number of Tools	12" (300mm) x 1 tool	
	Tool Maximum Width	2.95" (75mm)	
	Tool Total Weight	15 lbs (8kgs)	
Power	Control	110V/1P/20A (230V/3P/50A Option)	
	Machine Total	12.5KVA	
Air Req.	Cylinder Pressure	6kg/cm² min.	
Dimension	Max. Working Height	97.64" (2480mm)	
	Height from Table Top to Bottom of Bed	35.43" (900mm)	
	Width of Machine Including Table	72.64"(1845mm)	76.44"(1945mm)
	Overall Length with Electrical Door Closed	80.71" (2050mm)	
	Overall Length with Electrical Door Open	103.15" (2620mm)	
	Overall Width with Full Table Traverse	100" (2540mm)	108.27"(2750mm)
	Max Machine Operation Space	100"x104"x98" (254x262x248cm)	109"x104"x98" (275x262x248cm)
	Footprint of Machine inches	67.65"x80.71"x94.49"	76.44"x80.71"x94.49"
	Footprint of Machine metric	1719x2050x2400mm	1820x2050x2400mm
Weight	Net Approx.	4957 lbs (2253 kgs)	5001 lbs (2273 kgs)
	Gross Approx.	5210 lbs (2368 kgs)	5254 lbs (2388 kgs)
Packing Dimension Approx.	X x Y x Z inch (metric) w/balancing block	82.22"x86.22"x85.83" (2088x2190x2180mm)	86.22"x86.22"x85.83" (2190x2190x2180mm)
Maximum Working Capacity in Mild Steel			
Drilling Max Capacity		1 1/4" (32mm) Dia.	
Milling Max Capacity		5 inch³/min	
Boring Capacity		8" (200mm) Dia	
Tapping Max Capacity		1" (25mm)	
Handwheel Type		Electronic MPG	

1-2. Accessories of the Machine

1-2-1. Standard Accessories

a. **Three axes C5x2B ball screw**
b. **Timed lubrication pump**
c. **Leveling pads & screws**
d. **Tool box w/tools**
e. **Three axes CNC control or with 4th axis installed.**
f. **Coolant tank on machine base at 13.21 gallons or 50 liters.**

1-2-2. Optional Accessories

a. **Y axis metal type way cover**
b. **T slot cover**
c. **Clamping kit**
d. **Milling vise**
e. **Horizontal/vertical rotary table**
f. **Super indexing spacer**
g. **CAT/BT#40 collet holder set**
h. **Hydraulic machine vise**
i. **Tool maker's vise**
j. **CNC power vise**
k. **4th axis rotary table**
l. **Pull stud**

1-3. Floor Space of the Machine

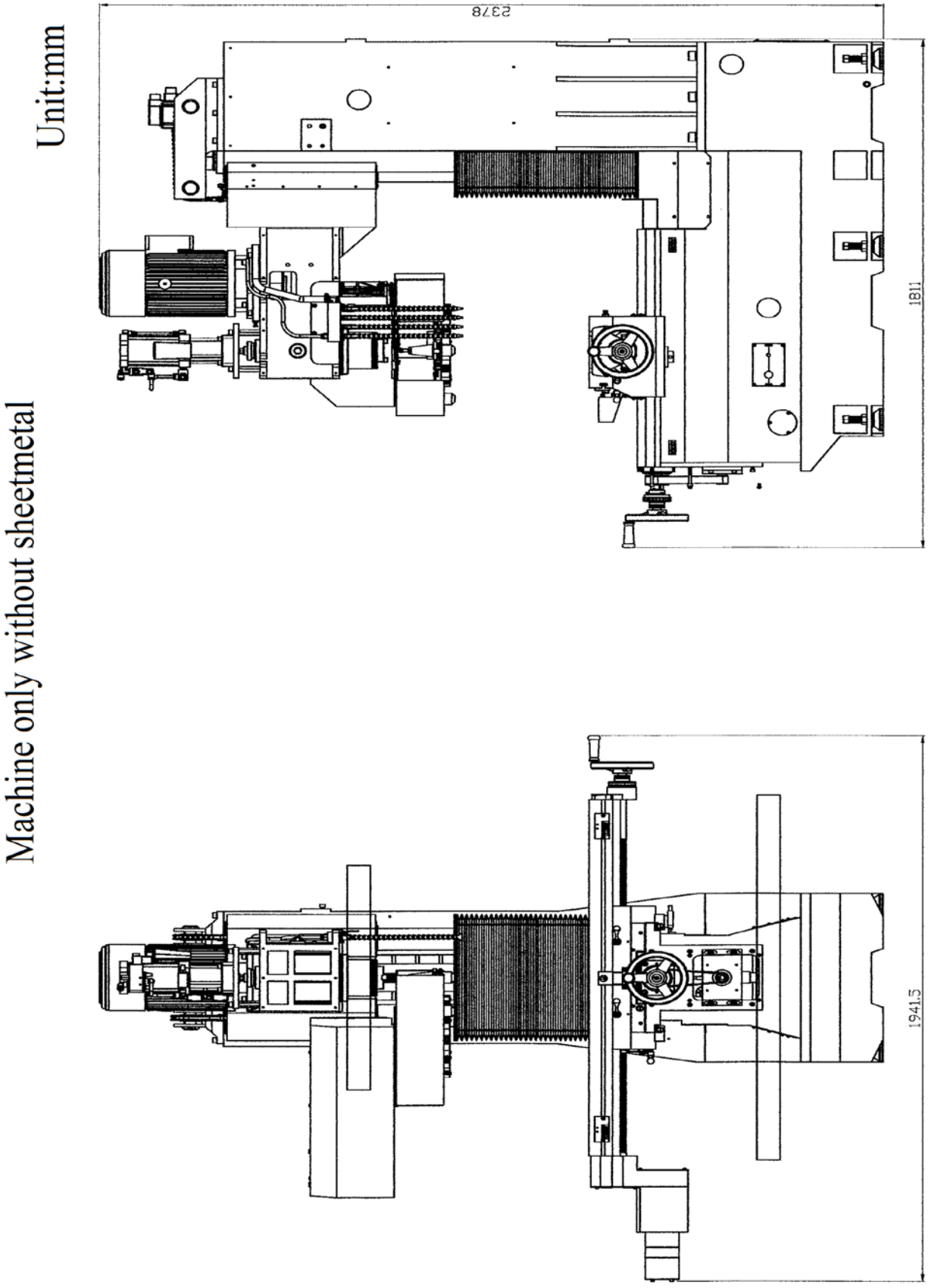


Figure 1

Note: Figure machine shown with ATC system.

2. INSTALLATION

2-1. Machine Foundation Requirement

Incorrect foundation will affect machine's accuracy. Only correctly done foundation will avoid machine vibration, reduce machine malfunction, and loosening level of the machine. All these factors will contribute to machine's machining accuracy.
Every machine has a different control and is weighed differently. They are also designed different. Therefore they also need a different foundation. We strongly suggest customers to build the foundation according to the requirement (shown on fig. 2 & 3).
All new machines, we have supply with leveling pads and screws. They are used to level the machine, and reduce the vibration. All accessories are shipped with the machine. Please check for any missing items and contact your distributor for replacement.

2-2. Installation & Its Site

To prolong the life of the machine and its accuracy, please carefully select the proper installation site. The criteria are:

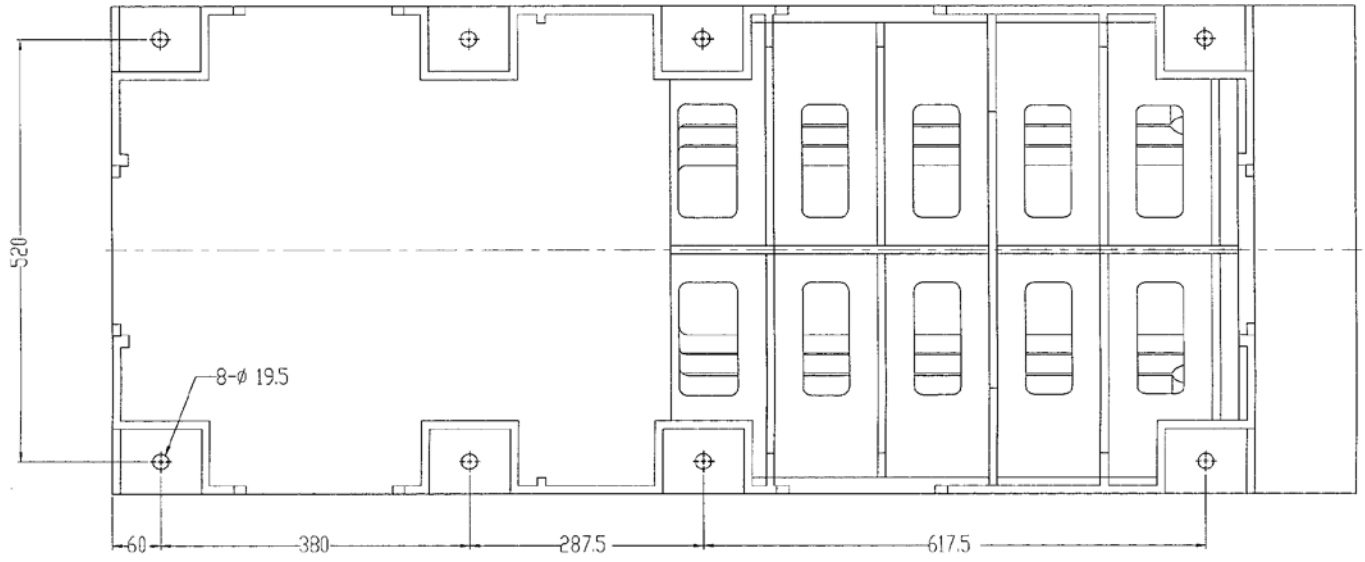
a. **Find the site where there is vibration-free and there is no power shortage. Please avoid install the machine around press, shaping machine etc. They will affect the accuracy of the machine.**
b. **Never install the machine under direct sunlight or where humidity is high.**
c. **Avoid the site where there is corrosive powder and mist.**

2-3. Level & Leveling Screws

The method of building the foundation is as figure 2. Please build the foundation 15 days before machine arrive. The procedure is as follow:

a. **Check the foundation map before digging.**
b. **Dig the foundation area to the proper depth, flatten it, fill it with rocks, and use rubbles to fill the gaps.**
c. **Make the screw molds for selected leveling screw area. Make sure they are not out of straight or penetrate out of shape.**
d. **Concrete mix ratio is 1:2:4 (concrete: sand: small rubbles) They need to be mixed thoroughly, and make sure the concrete mix has the right elasticity and color content.**
e. **Before pouring in the concrete mix, place the screw molds in place. They are prepared for J type locating screws.**
f. **After concrete solidified, you may remove the molds. In summer, the time required for concrete to solidify is 4~5 days, and in winter, it is 8~10 days.**
g. **When the machine is shipped to the location, install the J type locating screws through leveling screws and screw on the hex nuts, and then slowly settling down the machine on the foundation site. Be sure to match each J screw position before completely lowering down the machine.**
h. **After adjust each J screws' length to 6" above the ground, the concrete can be poured into the J screw positions.**

i. **After the concrete is solidified, you may then adjust the level of the machine.**
j. **Machine level in X and Y axis has to be within 0.0008/12" or better.**



Unit: mm

*****Above is the foundation map of bed mill. All newer models of the 1050 or 1054 style bed mill have 8 leveling screws at its base.**

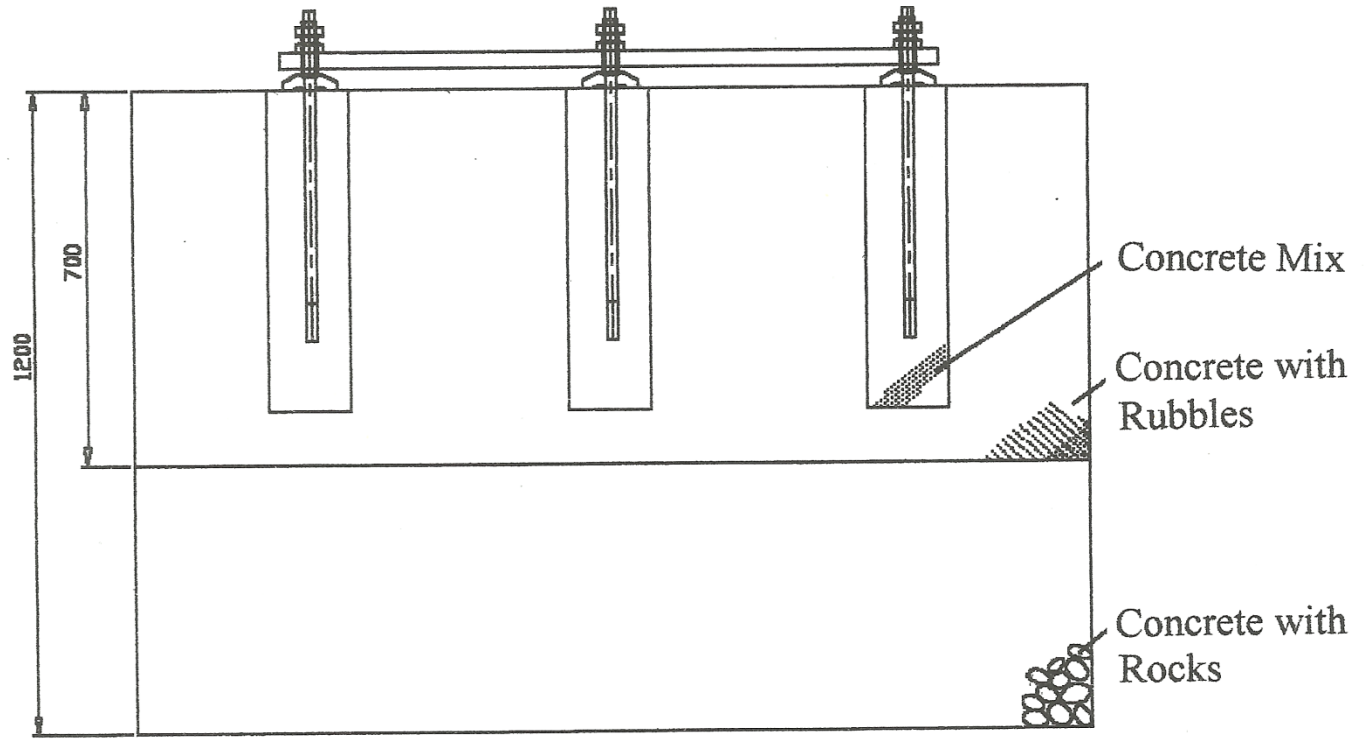


Figure 2

Note: Old model show here with six leveling bolts.

Foundation Bolt

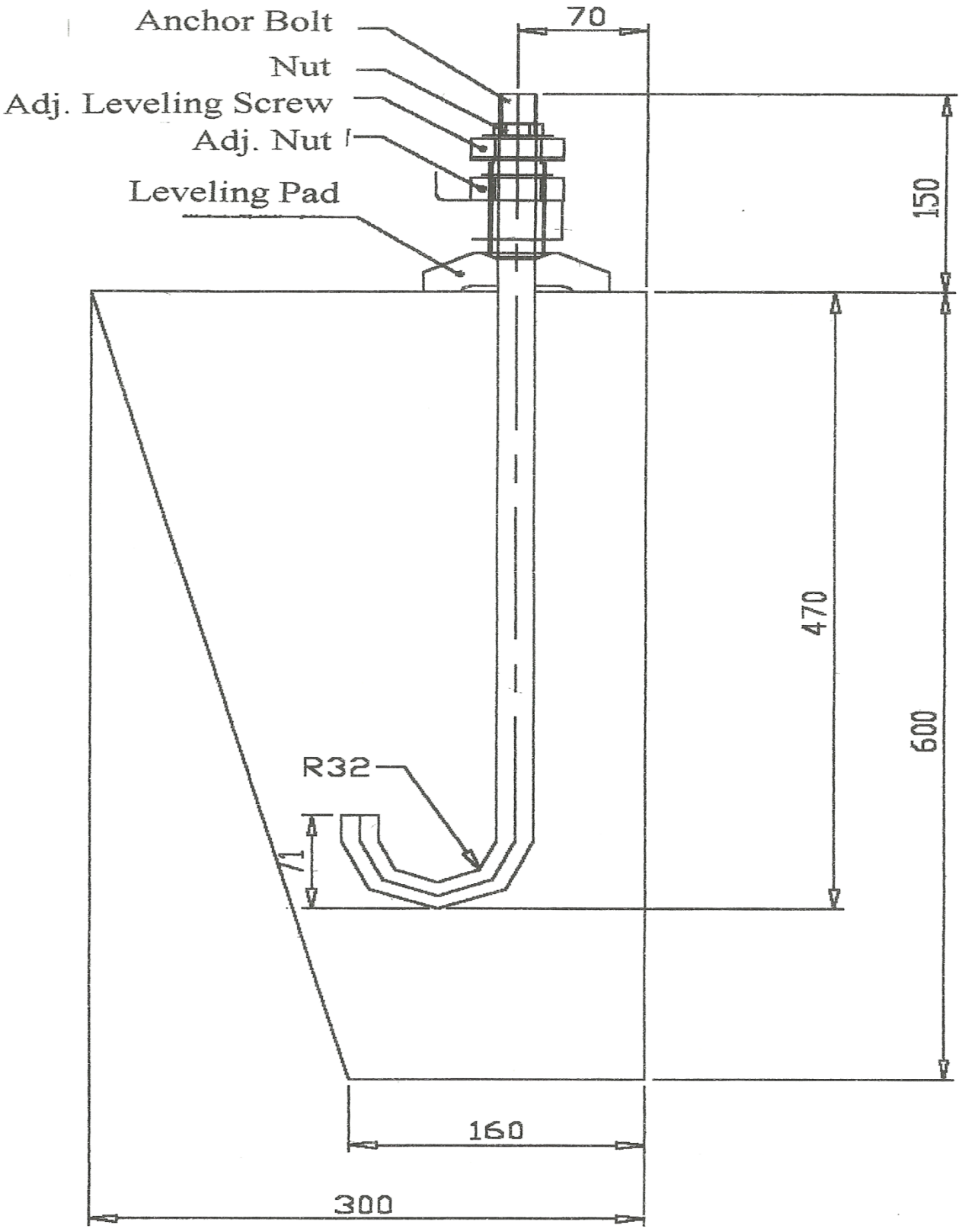


Figure 3

Unit: mm

3. MACHINE PACKAGE & ITS METHOD

To make sure quality and accuracy of the machine are maintained. Before machine is shipped out, we carefully inspect packaging procedure and check the final packaging pallet. Until they are done properly, we will not ship it out.

Package Method Before Shipping:

On the pallet, a PE plastic bag is set on top of it. Then the machine is lowered on the pallet, and is screwed tight onto the pallet. Before the PE plastic bag is wrapped up, absorbent bags are placed and machine is sprayed with cosmoline. Please see the following picture for sample (Figure 4). (Crated if individually shipped!)

To reduce the vibration when shipping, all movable items are fixed and screwed at a particular position. The positions are as follow:

a. X axis ball screw is fixed by tighten the table clamp lever to the saddle. (Fig 5)
b. Y axis ball screw is fixed by tighten the saddle locking lever to the saddle. (Fig 5)
c. Z axis ball screw is fixed by the wooden block under the spindle nose. (Fig 5-1)
d. Balancing block is tightened at column. (Fig 5-1)
e. Control box is support on top of the table with wooden block. (Option)

*****To make sure all levers and locating items are loosen, please double-check and make sure all of them in doubt are "surely" loosen before operating the machine.**

Packing for Shipment

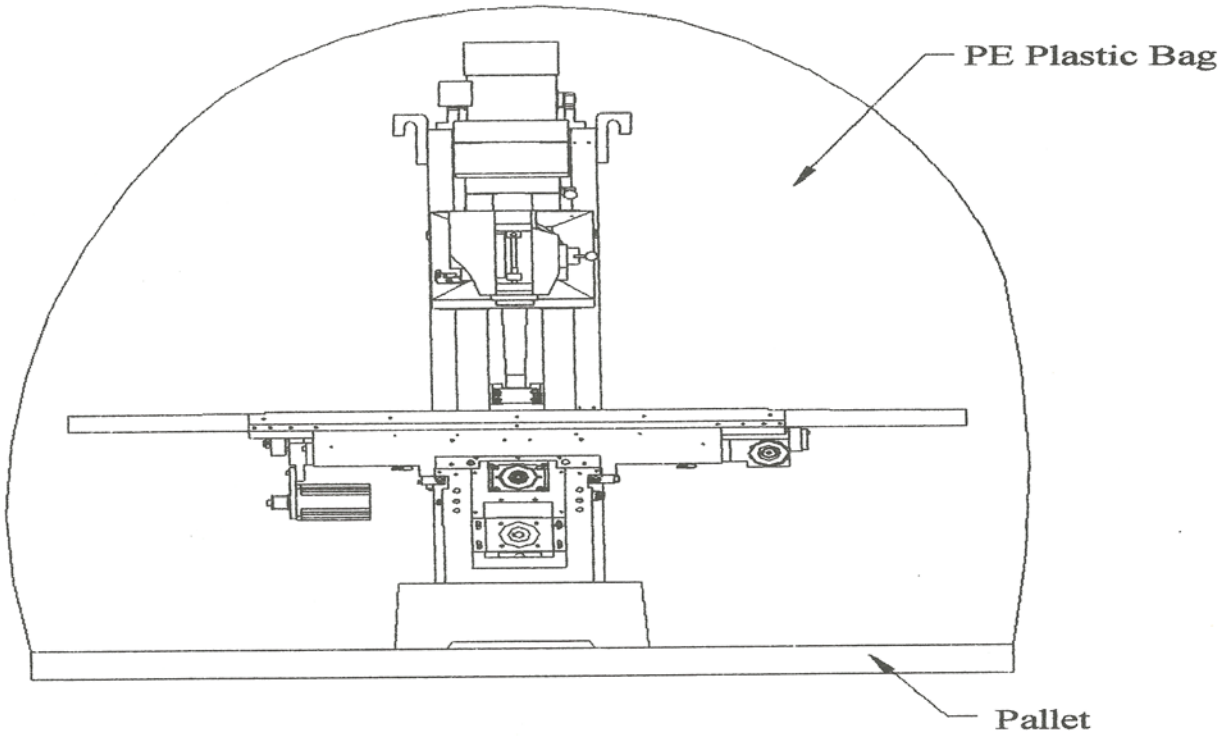


Figure 4

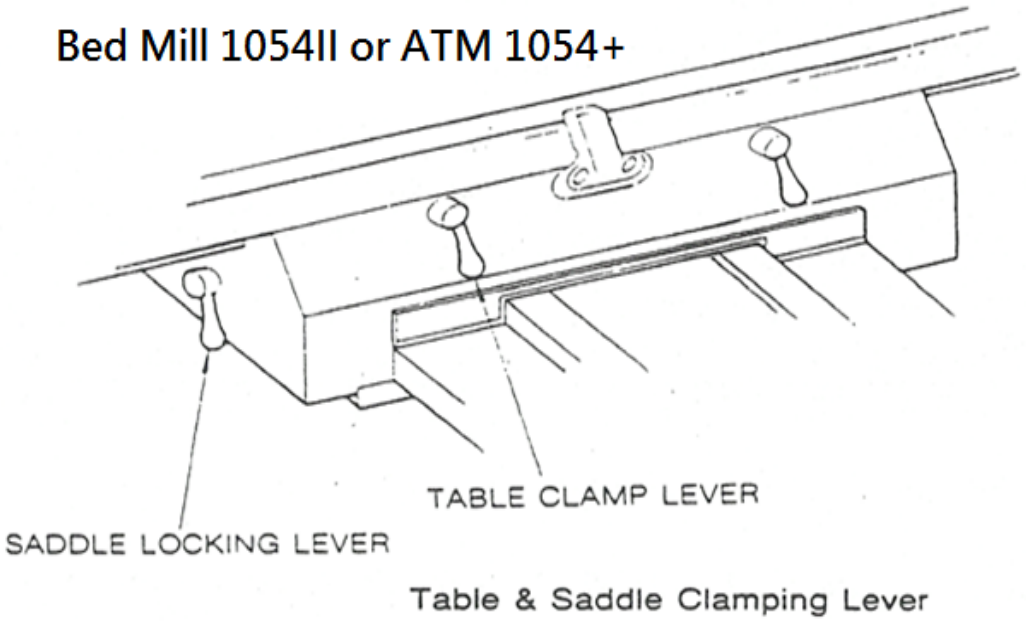


Figure 5

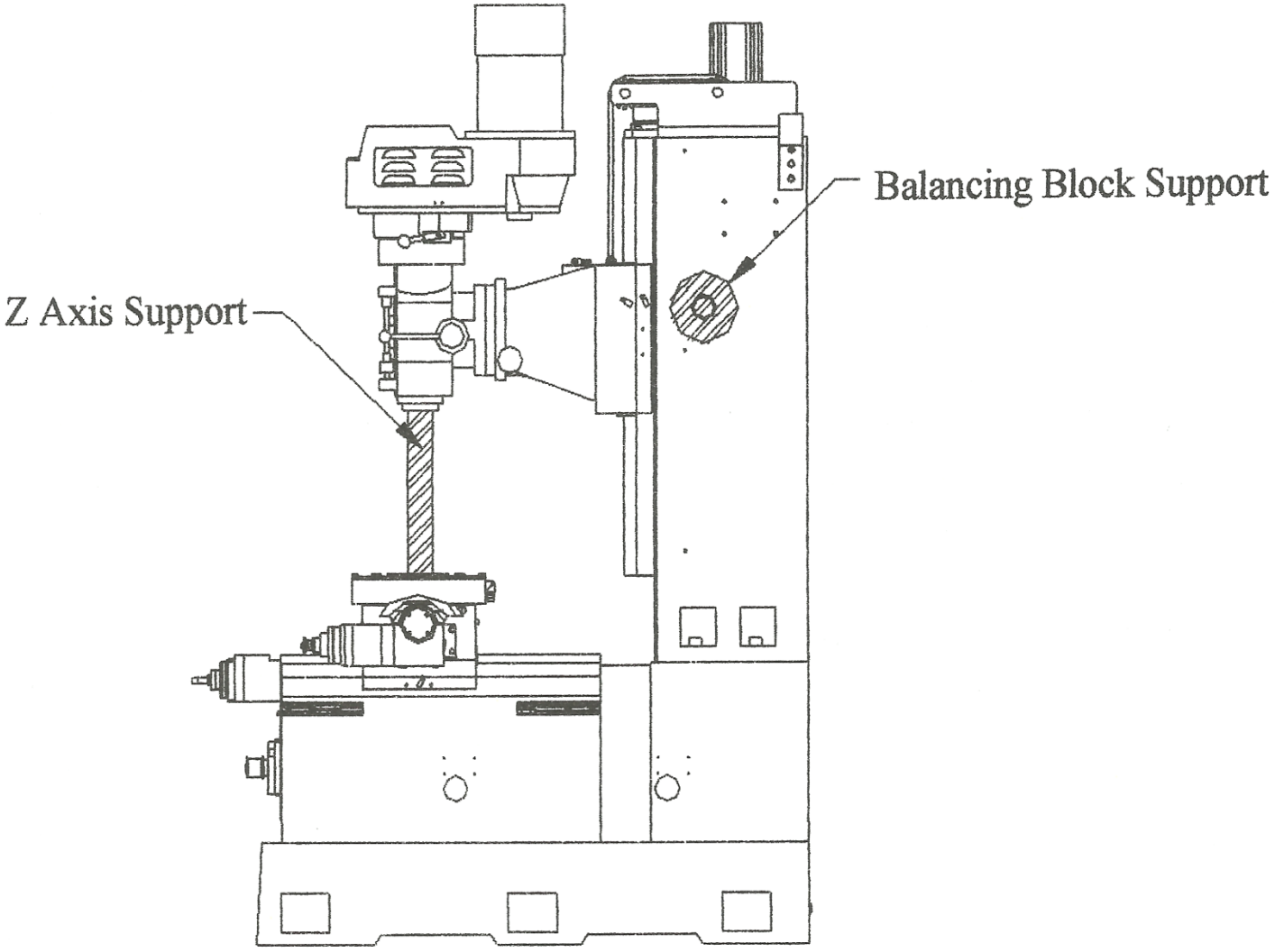


Figure 5-1

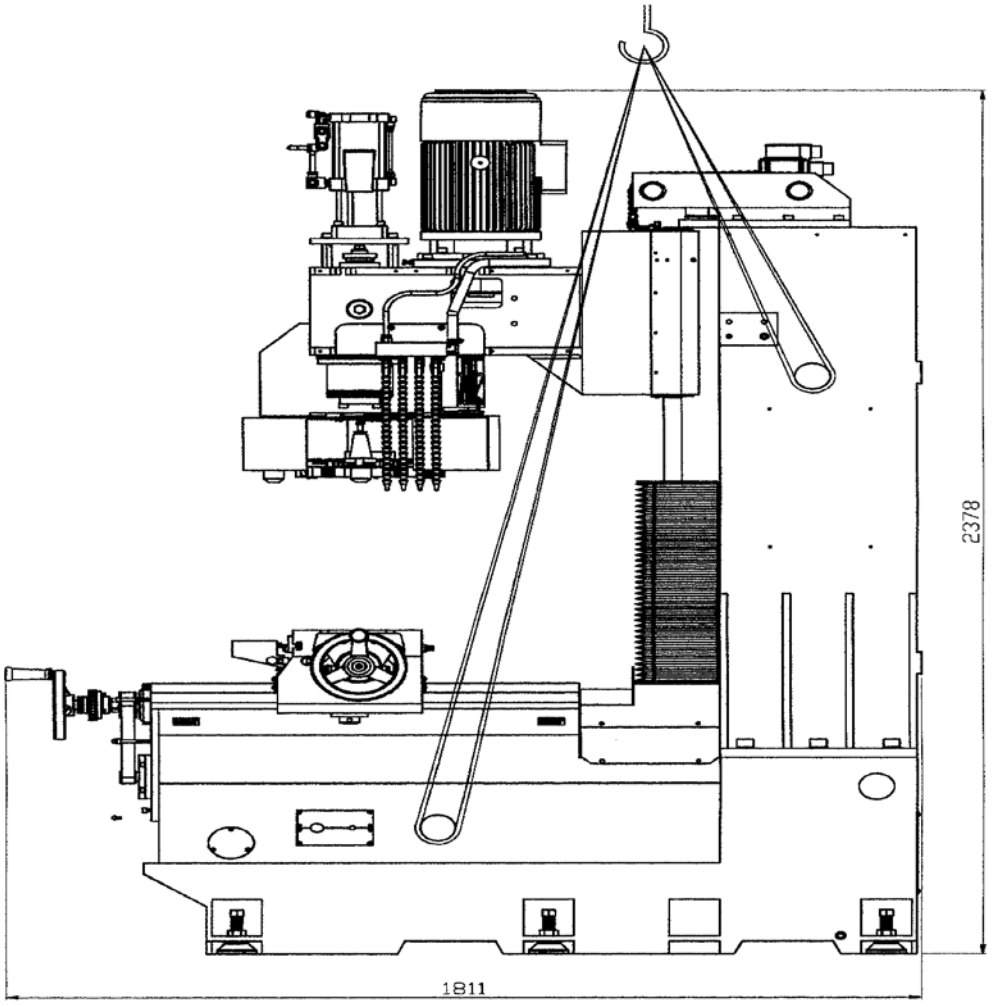
4. UN-PACKAGING & INSTALLATION ON SITE

When the machine arrives to the site, unscrew the locating bolts and nuts before lifting the machine. Transporting the machine onto the site is very dangerous. So please follow the instructions below carefully:

a. **Before settling the machine, make sure the locking items have not been loosen.**
b. **On the way to transport the machine to the site, make sure there is no obstacle or make sure all personnel are out of the way.**
c. **After removing from the pallet, the transporting equipment (example such as forklift) must have a capacity over 6,000 lbs (3 tons) to move or lift the machine.**
d. **When lifting, the machine must stay balanced. It might tip over and damage the machine if it is not balanced.**
e. **When transporting, please do not vibrate the machine too much. Vibration will cause the machine to lose its accuracy.**

Installation of machine:
Depending on the term, customer can request assistance from the factory or distributor. They can assist to do the installation and train the customer.

Machine Transporting with Overhead Crane



Note: Figure machine is shown with an ATC system, which is an optional accessory for the machine models.

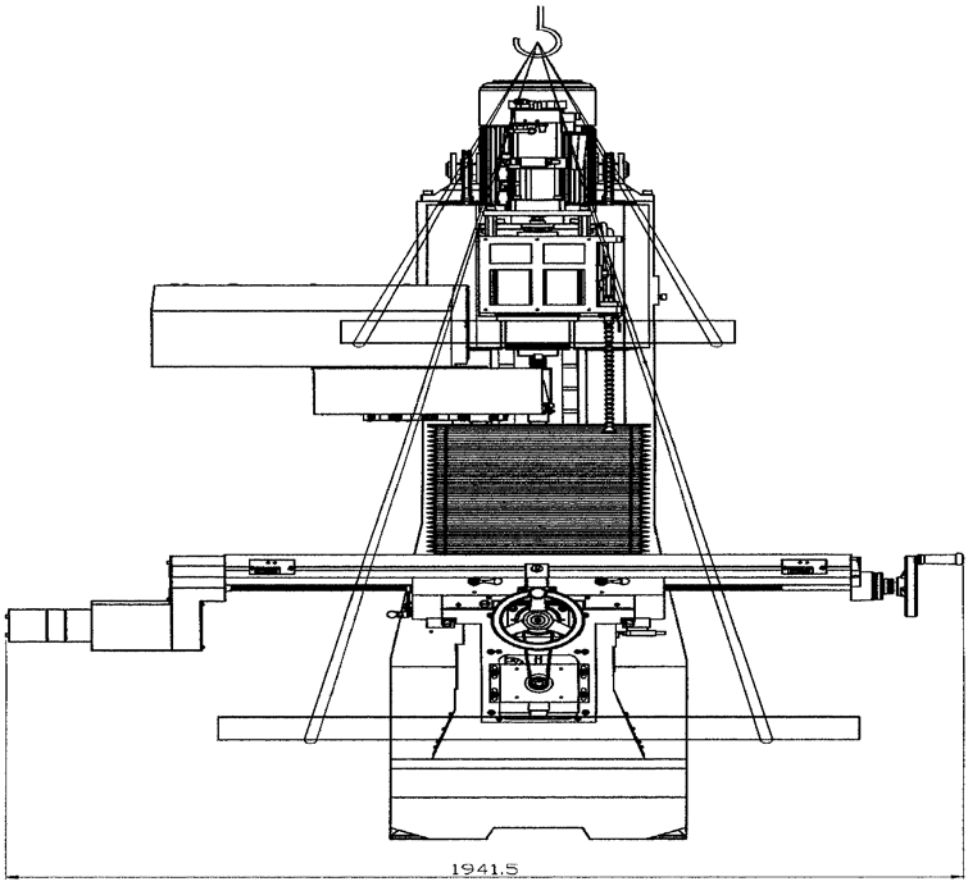


Figure 6

Below figure shown Machine Shipment on Pallet

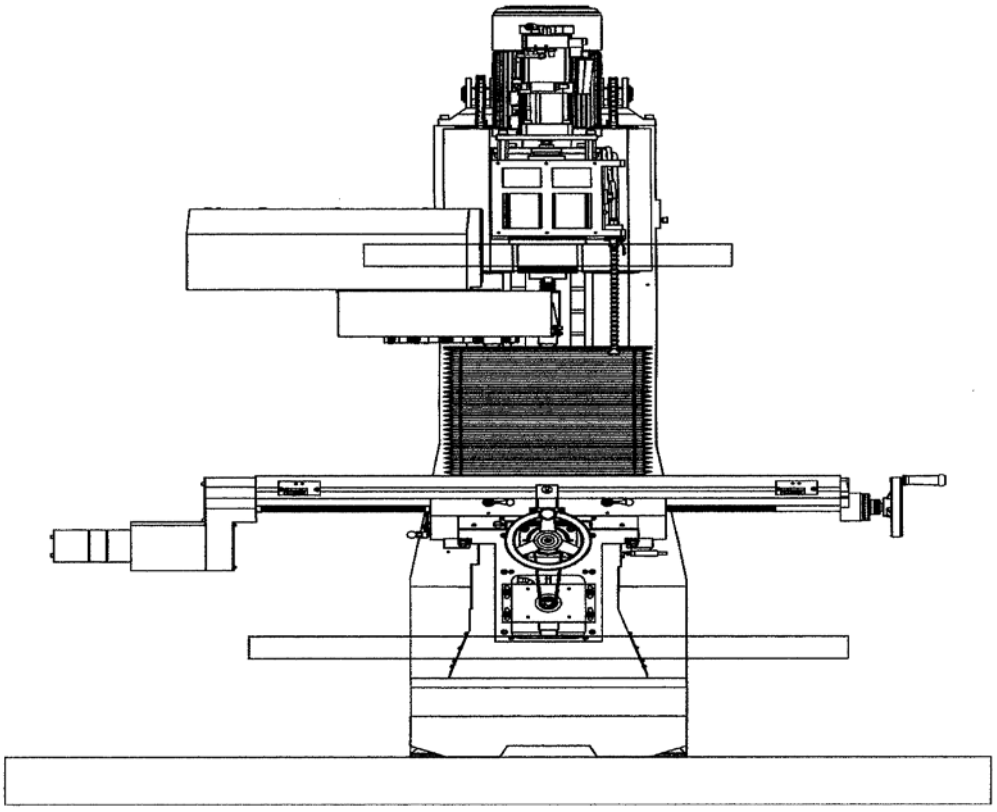


Figure 7

5. PROCEDURE BEFORE INTIAL OPERATION

To increase operation efficiency and maintain machine accuracy, please check the following points:

a. **Is power source within 10 % of 230V or 460V or 10% of local voltage?**
b. **Is compressor pressure within specification?**
c. **All locating items are removed and loosen?**
d. **Are all cosmoline cleaned?**
e. **Are all movable items removed from the table top, X, Y, Z traveling mechanism?**

The above instructions must follow each time before operation. This is done to reduce the chance of damaging the machine, and also might otherwise hurt the operator or bystanders accidentally.

6. PREVENTIVE MAINTENANCE

6-1. Everyday maintenance:

1. **Check the oil level of lubrication pump. Add more if it is below low level.**
2. **Check all lubrication points to see if oil is present.**
3. **Check compressor pressure to be 6 kg/cm ^2.**
4. **Check all air hoses for leaking. Must fix the air leak if it is found!**
5. **Check oil level of air filter gauge. Add if not to the level.**
6. **Remove all movable items from the machine to reduce the chance of damaging the machine and operator.**
7. **Check coolant system to see if it is full and is operational?**
8. **After each day's work, clean the machine and lubricate all moving parts.**
9. **Spindle taper must be clean and lubricated each day.**
10. **Add a few drops of #10 spindle oil into oil cups around the milling head.**
11. **If any false signal is present, please stop the machine and repair the machine immediately.**

6-2. Weekly maintenance:

1. **Please use clean rugs or paper towels to clean halogen light and control panel to keep them readable.**
2. **Use water based solvent to clean air filter. This is to keep air pressure normal and machine operational.**
3. **Make sure spindle taper is smooth and chip-less.**
4. **Check all lubrication points and lubrication pump to see if they are function normally.**
5. **Check coolant mixture is still usable? Color changed, etc.**

6-3. Six month maintenance:

1. **Check taper run-out of spindle to see if it is still within accuracy.**
2. **Check all machine's screws and nuts to see if they are still tight?**
3. **Check the tightness of the gibs. Are they still within specification?**
4. **Inspect all electrical terminals and wires. Make sure they are normal and functional. Clean the dust within the electric cabinet.**
5. **Inspect the servo drive and its parameters. Make sure they are adjusted.**
6. **Level the machine with precision engineering levels again. Levelness should come within 0.00008/12" (0.02mm/300mm). If not, please re-level the machine.**
7. **Lower head gear housing must add grease thru the grease fitting.**
8. **Replace coolant mixture recommended.**

6-4. Yearly maintenance

1. **Check all electric components on the control panel to see if they are still sensitive.**
2. **Remove all carbon deposit on the magnetic contactors.**
3. **Check balance block mechanism. Are they functional?**

4. **Replace coolant liquid with new one to ensure machining accuracy.**
5. **Clean and replace lubrication pump's oil reservoir with new way lube oil.**
6. **Check leveling and adjust the machine to maintain machine accuracy.**
7. **Replace coolant mixture regardless of usage.**

6-5. Points to watch on doing maintenance

1. **All scheduled maintenance must be exercised and recorded.**
2. **During mechanical maintenance such as gibs adjustment, etc., all power must be shut-off to prevent accidental injury.**
3. **When inspecting servo drive boards outside of their sockets, do not supply power! It might cause servo motor to rotate in its high speed state and cause injury.**
4. **In any unable maintenance situation, please contact authorized distributor or corresponding manufacturer.**
5. **Before doing any maintenance work, maintenance personnel must concur with manual to disconnect power or not. This is to reduce accidental injury.**
6. **Any discoloration on the coolant mixture, coolant must be replaced immediately! This is done to prolong life-span of cutting tools.**

7. LUBRICATION SYSTEM

7-1. Lubrication of the Machine

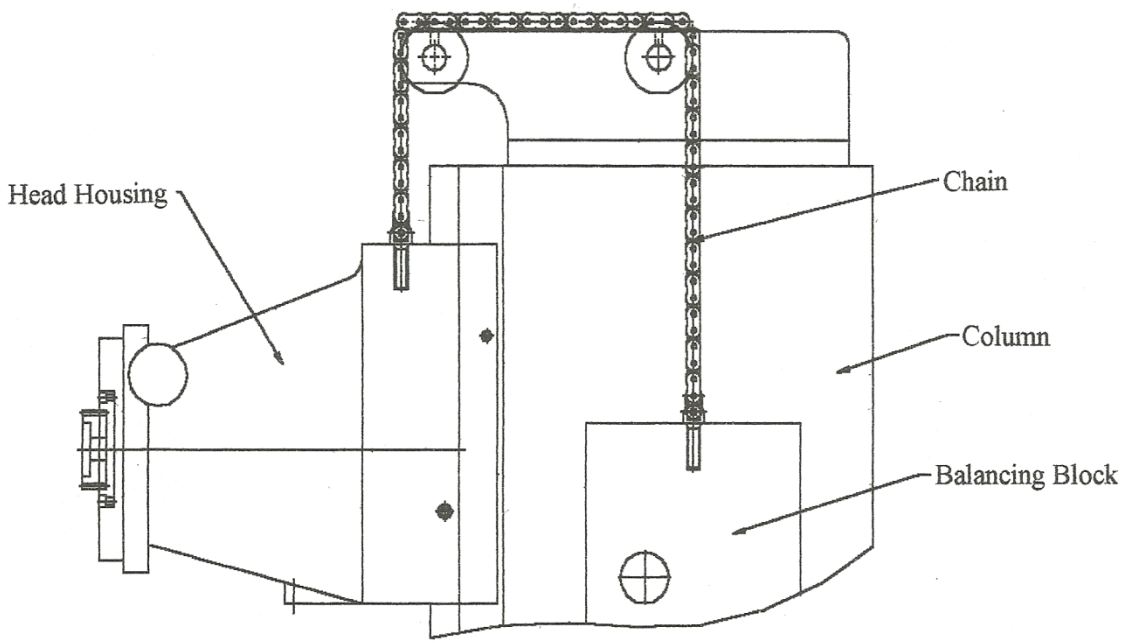
All machines have lubrication system. To maintain their accuracy, users must check and inspect lubrication system every so often. A properly lubricated machine will prolong its life-span and maintain its accuracy longer. All sections of a machine need to be lubricated, but there are few parts that particularly need more attention:

a. **Spindle bearing has seal packed high pressure & temperature grease. It needs to be inspected for its condition every 6 months. Recommended grease type: Kluber LDS 18 or equivalent.**
b. **Some section of slideways are coated with Turcite-B to reduce wear and vibration. The waylube oil for this type of material must have high viscosity, and it is tolerable to high pressure and very wear resistance. Recommended oil type: Mobil Vactra # 2 waylube, Chevron 68X waylube or equivalent.**
c. **All ball screws must be lubricated. They need oil present at all time. Recommended oil type: See item b.**
d. **Balance block's chain mechanism need to be greased when needed. Recommended grease type: Any lithium based grease is OK.**
e. **Air filter unit needs #10 spindle oil when oil level is below recommended level.**

7-2. Lubrication Chart

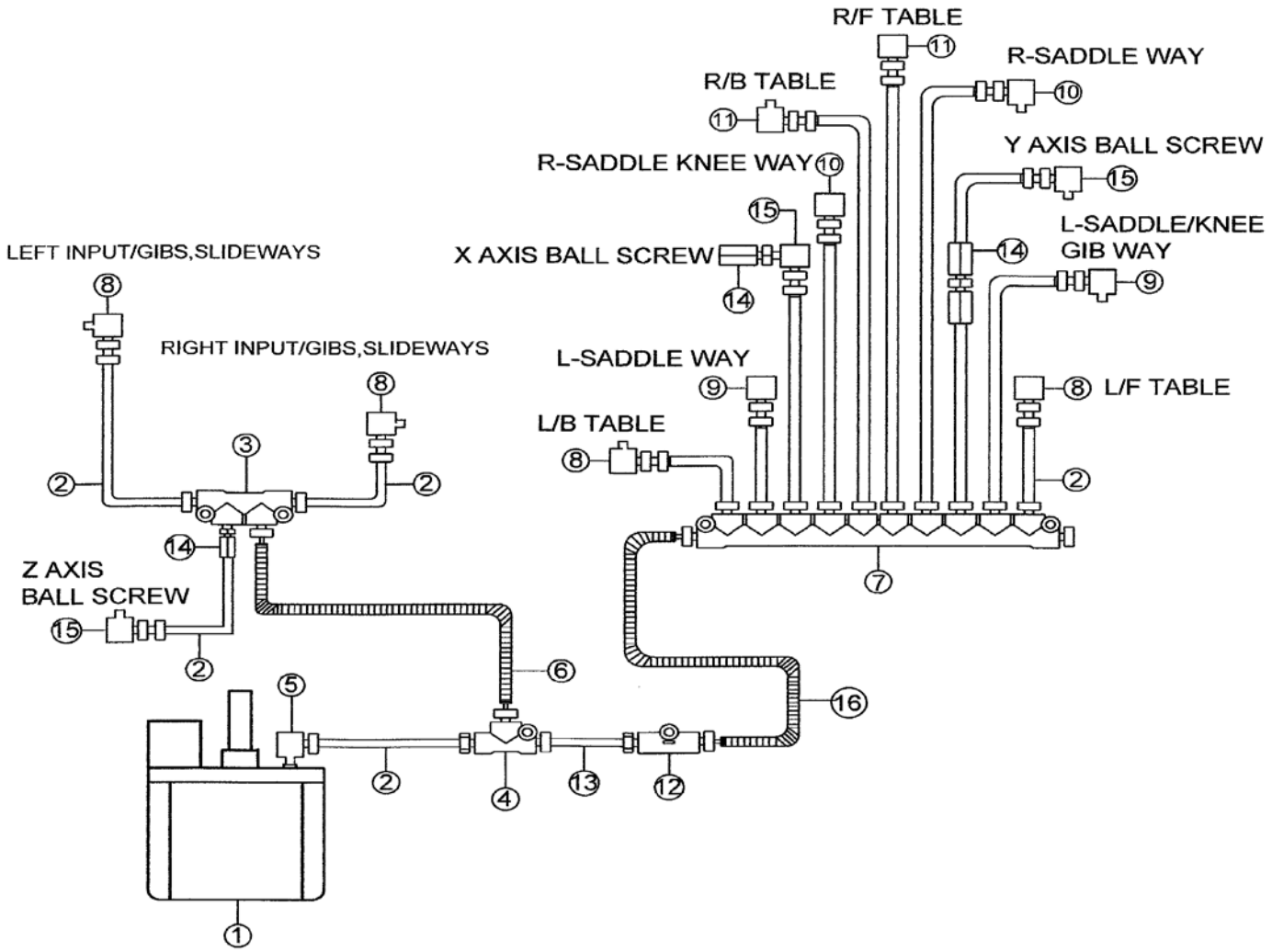
Lubrication Area	Table, Saddle, Slideways, X, Y, Z Ball Screws	Cutting Tool	Air Filter Unit	Chain, Chain Gear	Pressure Unit
Volume	3 Liters	Circulation	Mist Lub.	Hand Grease	Hand add Oil
Schedule Changing	Add if Below Level	Every Year	Add if Below Level	Every 6 Months	Every Year
Oil Type	*Viscosity ISOVG68 *Thickness > 100 *High Pressure, Friction Resist. *Anti-rust, Bubbleless, Oxidization Resistance	*High Heat Resistance *High Pressure Resistance	*Viscosity ISOVG32 *Thickness >95 *Anti-rust, Bubbleless, Oxidization & Colouri-zation Resist. *Stable, not Easy to Change	Lithium Based	*Viscosity ISOVG32 *Thickness >95 *Anti-rust, Bubbleless, Oxidization & Colouri-Zation Resist
Suggestion	*Mobil Vactra #2 *Esso Febisck 68 *Shell Tonna T68 *Chevron Way-NT68	*Esso Pennex #47 *Shell Dromus B	*Mobil DTE Oil #10 *Shell Tellus #10 *Esso Nuto H10	*Esso #2 *Shell Alvaia R-2	*Mobil DTE Oil #26 *Esso Nuto H32 *Shell Tellus #32
Lube Pump Position	Lower Column	Coolant Tank within Machine Base	Top side of Column	Top of Column	Lower Column

7-3. Manual Lubrication Area



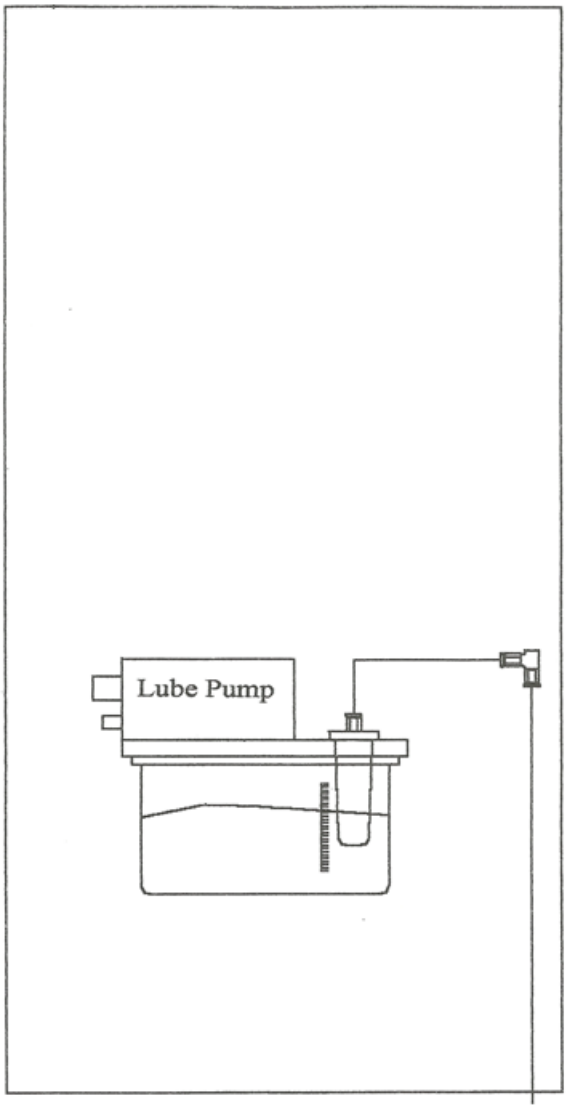
Please grease the chain roller at least every six months. Recommend grease type is shown within lubrication chart of section 7-2.

7-4. Distribution of Lubrication System



Drawing #: ACER-B1-G01			
Item #	Part #	Description	Quantity
1	ACER-B1-G001	Lubrication Pump	1
2	9002	4mm Aluminum Pipe (9002)	-
3	9021	A4 Distributing Joint	1
4	9004	A3 Distributing Joint	1
5	9022	Elbow Joint	1
6	9061	Flexible Oil Tube 1600mm	1
7	9009	A12 Distributing Joint	1
8	9005	Oil Check Valve-ST 1	4
9	9008	Oil Check Valve-ST 2	2
10	9007	Oil Check Valve-ST 4	2
11	9010	Oil Check Valve-ST 5	2
12	9062	A2 Distributing Joint	1
13	9063	6mm Aluminum Pipe	-
14	9064	Oil Check Valve-SS1	2
15	9065	Elbow Valve-PH 401	3
16	9066	Flexible Oil Tube 650mm	1

7-5. Position of Lubrication Pump



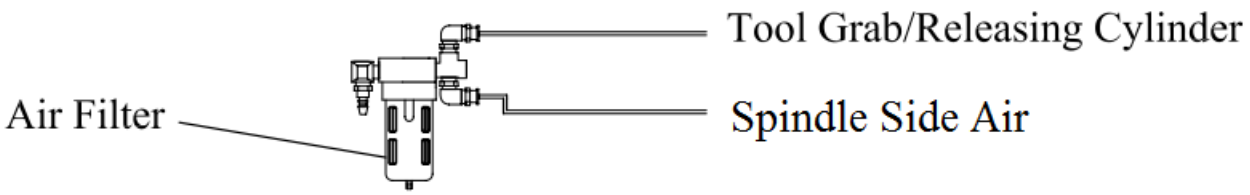
”shown left side of column”

Please add lube oil to the pump whenever it is eyed 1/4 tank full.
Recommended oil type is shown within lubrication chart of section 7-2.

7-6. Air Lubrication Assembly
Air Unit Lubrication & Filtration Assembly

Item #	Part #	Description	Item #	Part #	Description
1	20PM-I	Quick Release Fitting Male	5	BTF-003	Three Joint Connector
2	BLFM-0203	Elbow Connector	6	EPL10-03	Elbow Quick Release Fitting
3	FAF303N-03	Air Filter Unit-Top	7	FAF303N-03	Air Filter Unit-Lower Cup
4	P013	Double Male Connector			

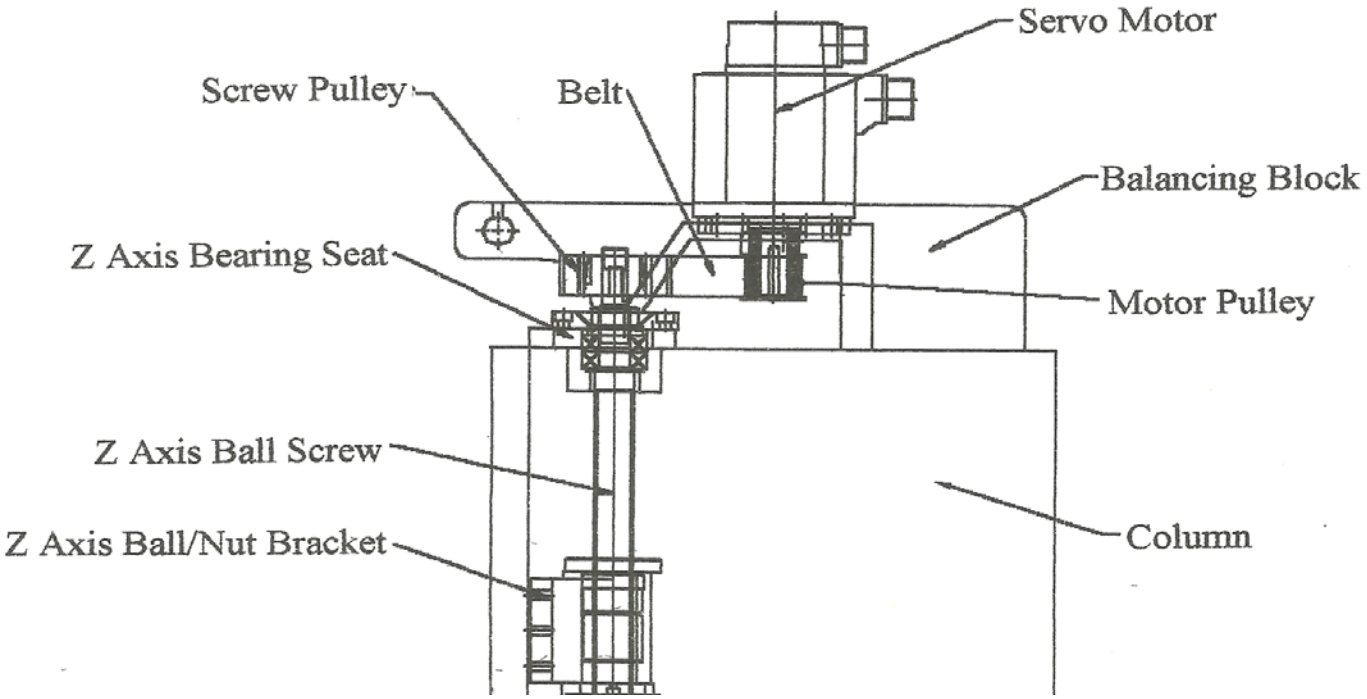
Air in-out flow chart



8. X, Y, & Z AXES TRANSMISSION METHOD

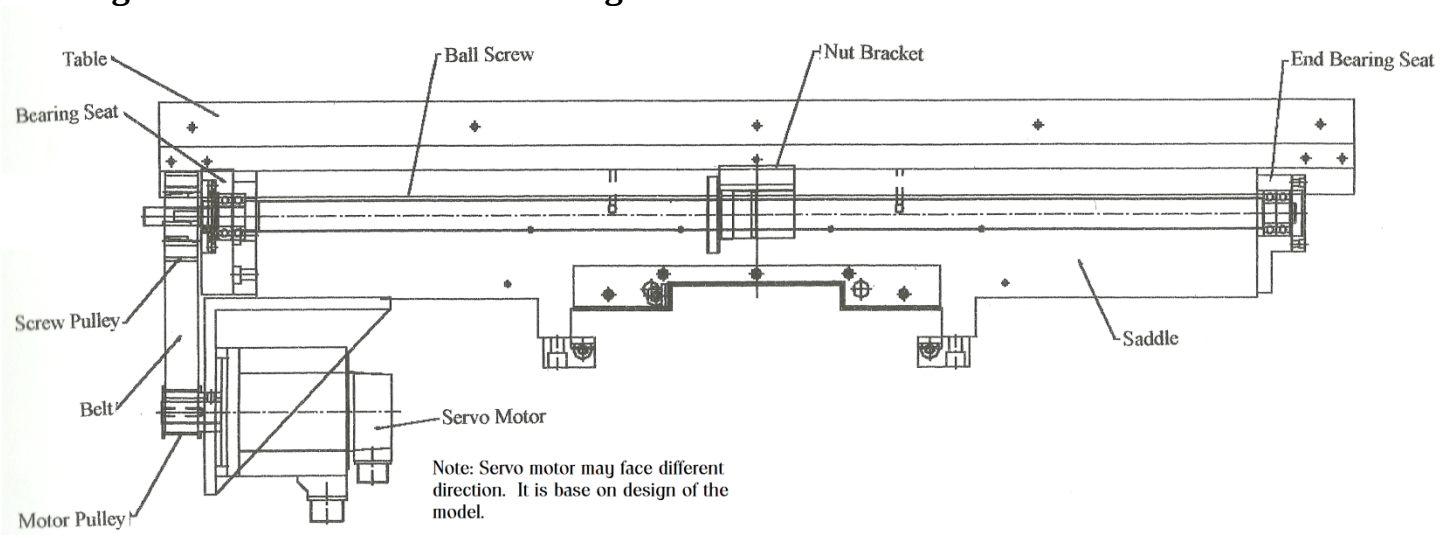
8-1. Z axis transmission method

Z axis is driven by AC servo motor. The brand name varies with control brand. Between the servo motor and the ball screw, there are two timing belt pulleys and a timing belt. The head housing moves up and down when servo motor rotates the ball screw in either direction. Please see drawing below:



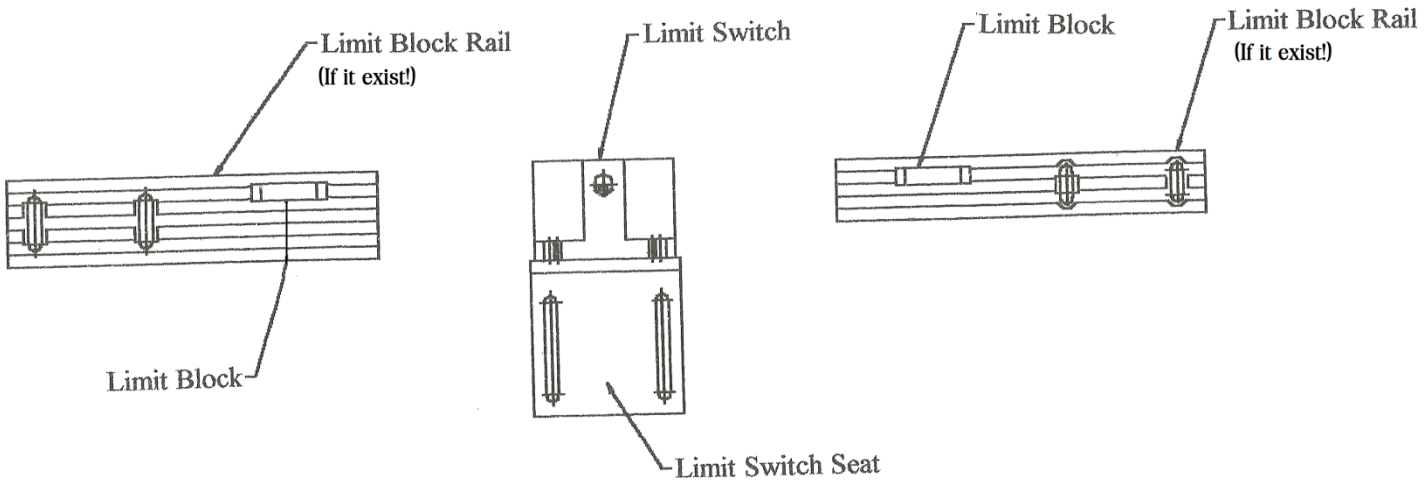
8-2. X & Y axes transmission method

X & Y axes' motion is control by AC servo motor. Name brand is also tagged with control. The servo motors drive the ball screws through two pulleys and a timing belt. Both axes will move when servo motor rotate. The items in motion are saddle and working table. Please see the drawing below:



8-3. Travel adjustment of X, Y, & Z axes

The control package usually comes with maximum travel setting design. This design is to avoid damage when user sets the travel over the travel limit. When machine over travels (on all axes), a limit block will bump a limit switch. The limit switch will send a signal to the control, which will then stop all motions on the machine. Please see drawing for the design below.



9. MAINTENANCE

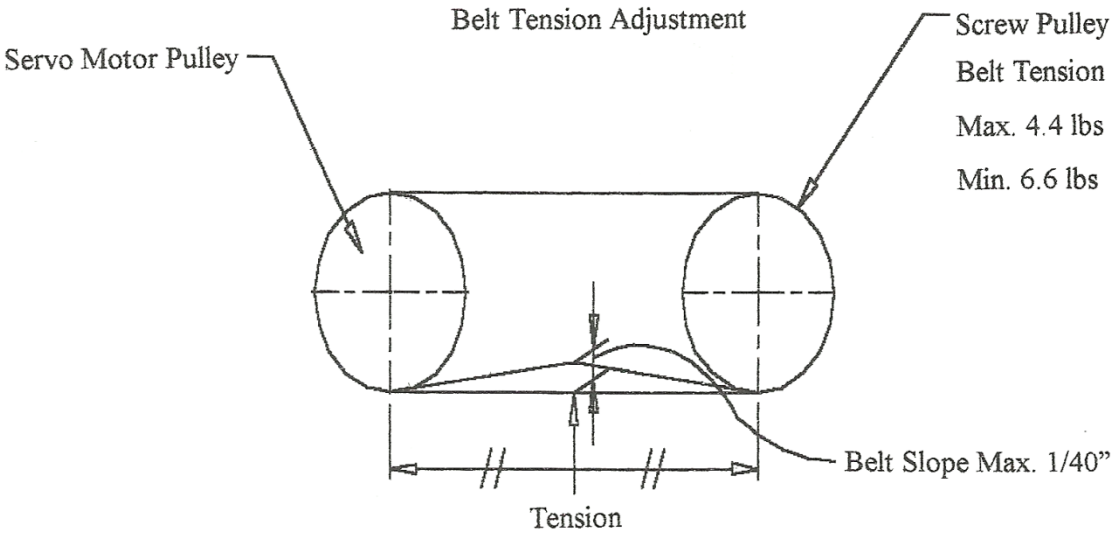
9-1. ADJUSTMENT OF THE TIMING BELT

Because all three axes are drive through using a timing belt, it is essential to keep the tension on the timing belt at constant. Please check the belts every six months and adjust them when needed. The method of adjustment is as following:

a. Release servo motor by unscrewing the locating bolts.

b. Re-adjust the motor distance from the ball screw by feeling the tension on the timing belt. The pressure on the timing belt should be between 4.4 to 6.6 lbs.

d. Screw tight on the motor locating bolts.



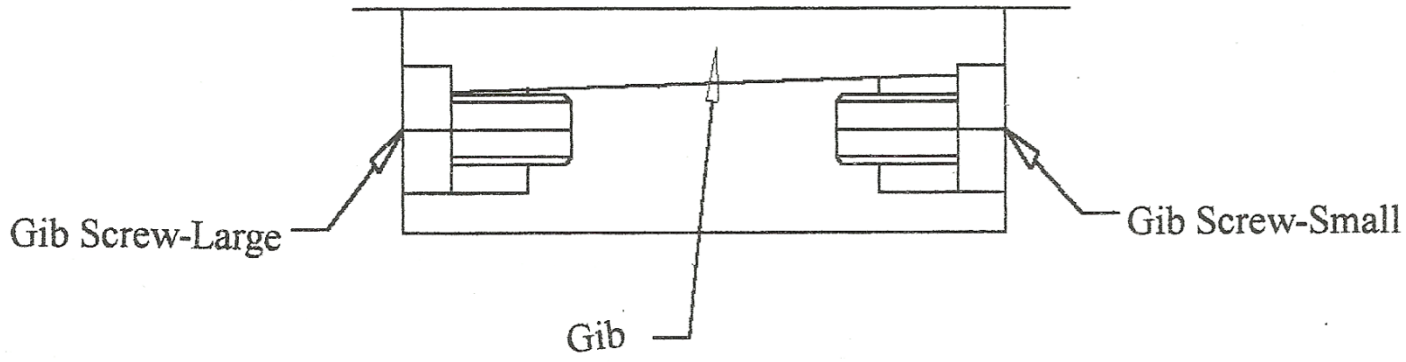
Belt Tension in Between Pulley center

9-2. ADJUSTMENT OF THE GIBS

During machine's motion, there will be wears on the moving items, and will create backlashes on all three axes. To compensate for this situation, user can adjust gibs to minimize effect.

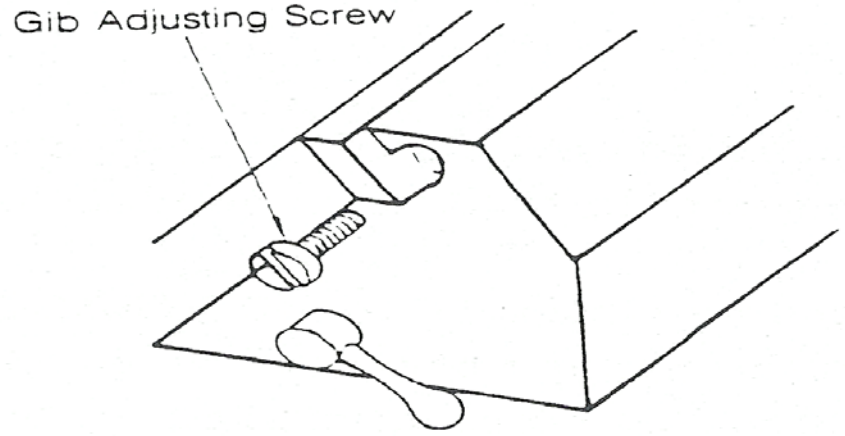
The procedure for adjusting gibs (for Z & Y axes):

a. **Release the smaller taper end gib by unscrewing the gib screw half turn.**
b. **Rotate the axis toward the smaller taper end to close the gap between the sliding surfaces.**
c. **Screw in the gib screw on the big taper end side.**
d. **Repeat the procedure until surface pressure on the gib is 3.5kg/cm2.**
e. **Check gibs pressure once every six months.**



For table gib adjustment:

a. **Unscrew the inner side hex nuts on the stud (show as A on the figure).**
b. **Use an open-end wrench to screw in the outer hex nut to proper tension (about 5kg/cm^2). Note: Turn the nut clockwise!**
c. **When the hex nut is turned about 1/4 turn, move the table left and right to test the tightness of the gib. Repeat this procedure until proper tension is achieved.**
d. **Check gib pressure once every six months.**



10. ELECTRICAL DIAGRAM & ITS PARTS LIST

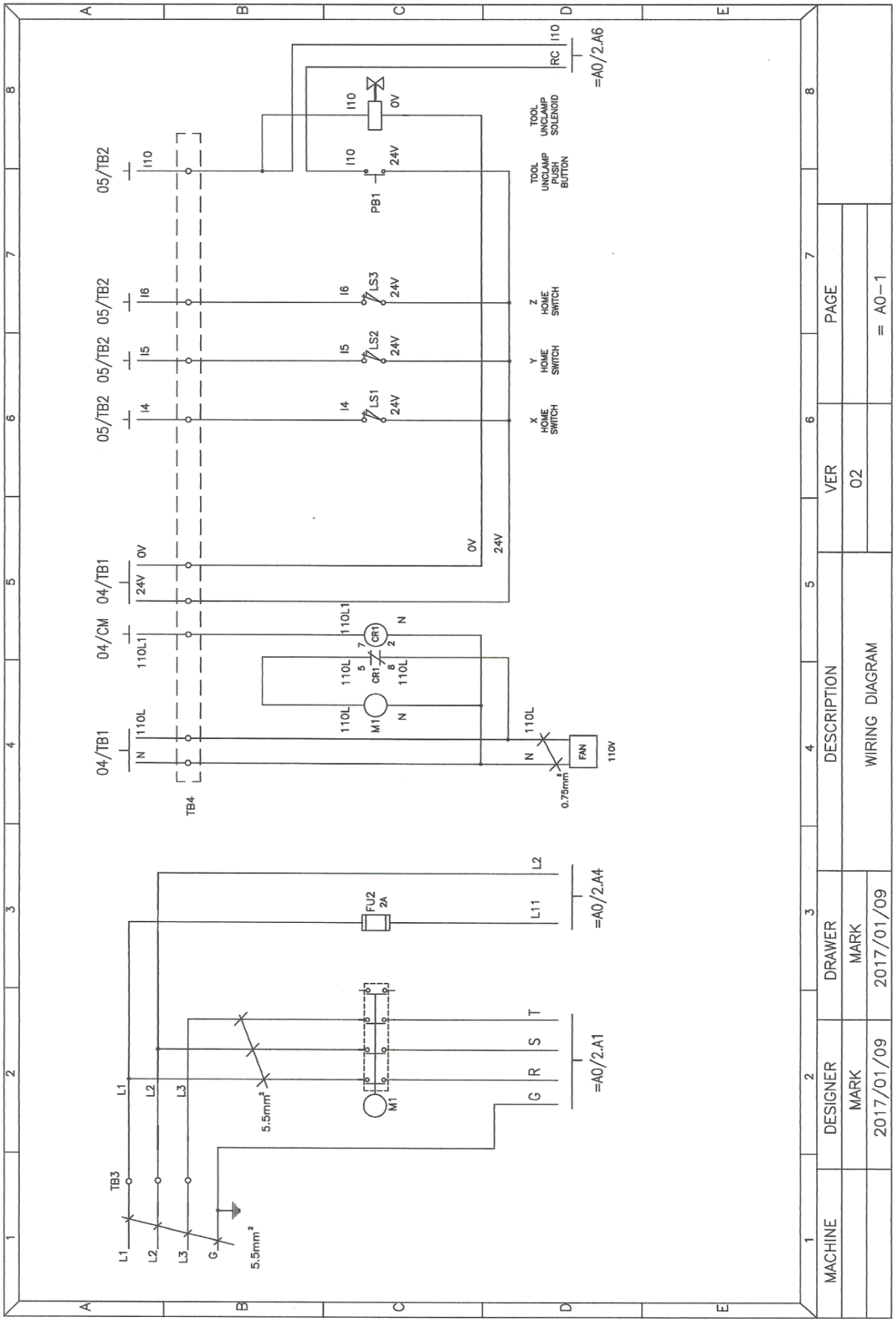
To order parts, please have the following information ready:

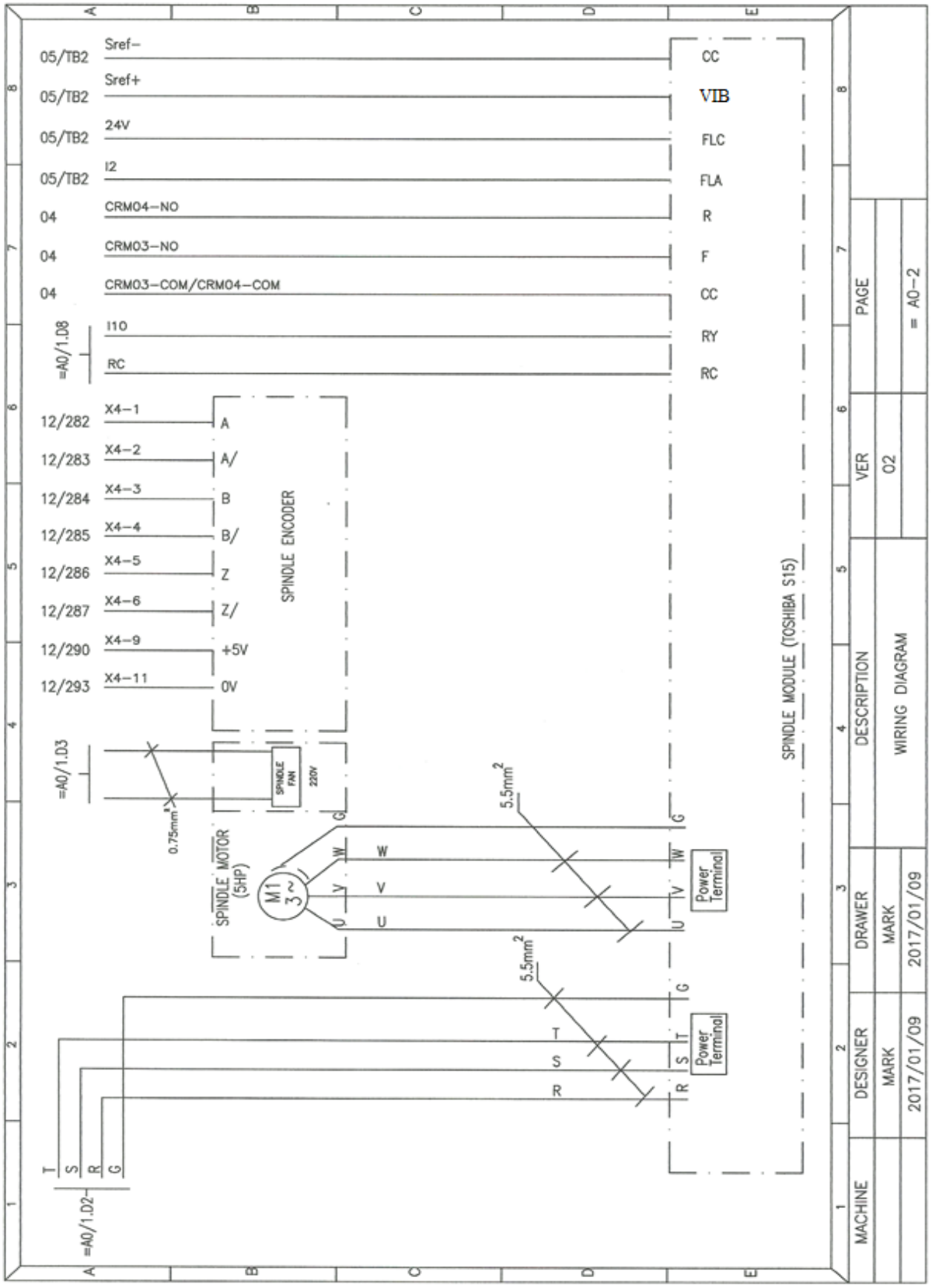
1. **Year of production**
2. **Model and serial number**
3. **Item number and description**
4. **Quantity**

Note: If the machine is shipped with CNC control, in order to get its parts information, please refer to its supplied control manuals to find the correct part number and specification. And please contact the original control manufacturer for the ordering instructions.

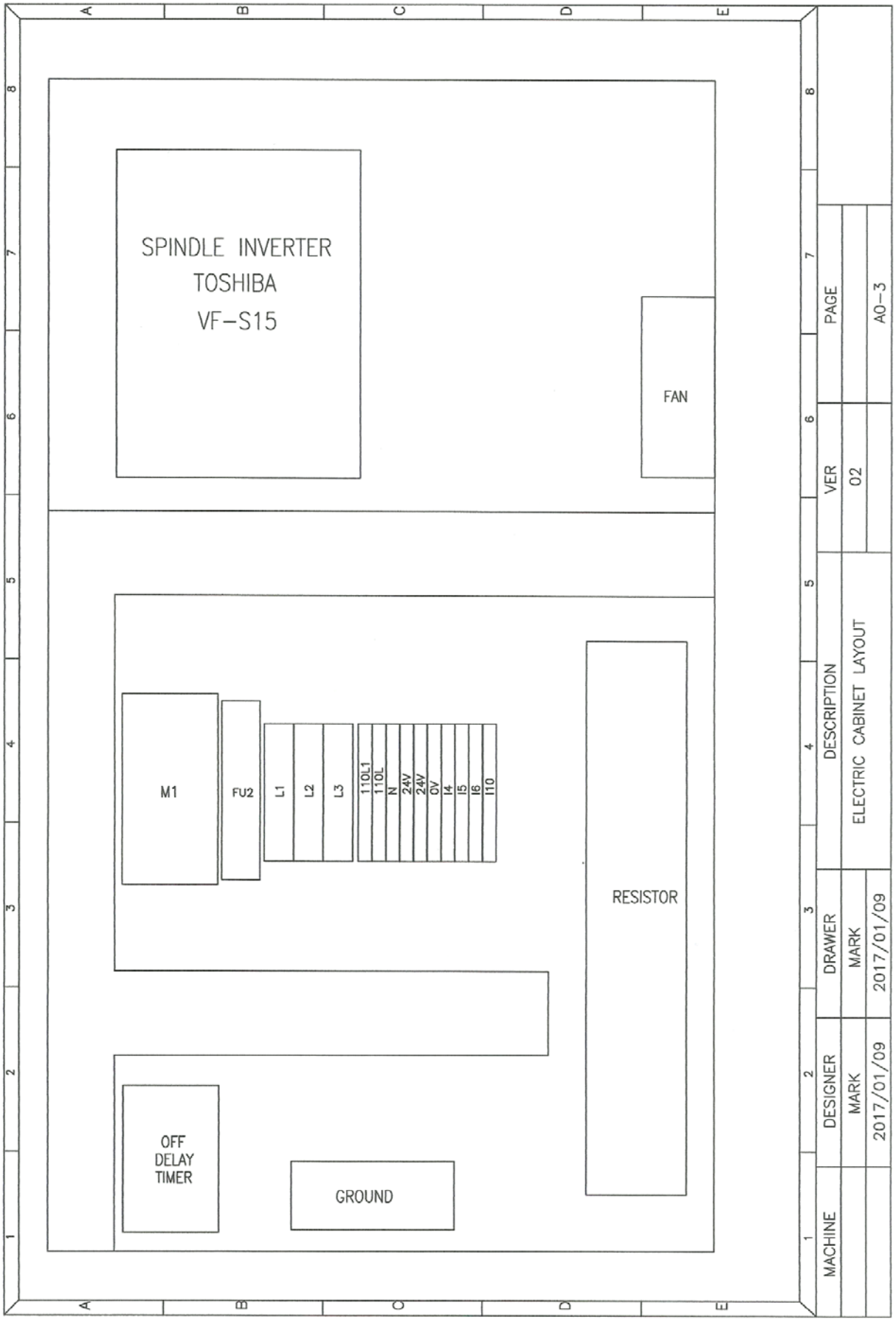
*****Trouble shooting on the control? Please contact control manufacturer's service department, they can get your question solved and get you going quickly. Any other question, please contact our service department. The phone numbers are listed at the front page of the manual. Or please visit our websites www.acerlinks.com, and www.aceronline.net, and leave us with your questions, we will response quickly. Thank you for your attention and have a great day!**

10-1. Electrical Diagram and Circuit—Version before 3/15/2017

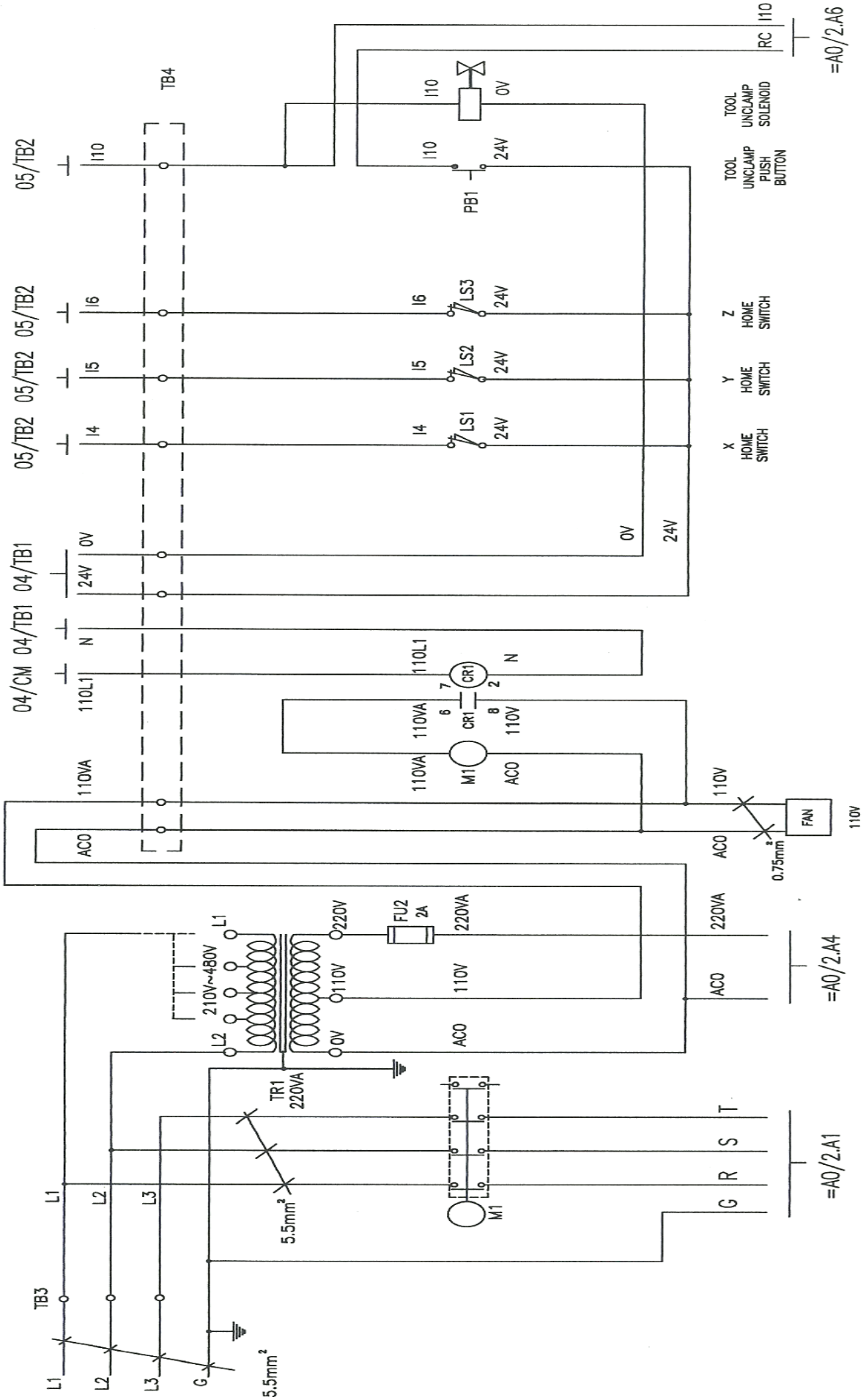


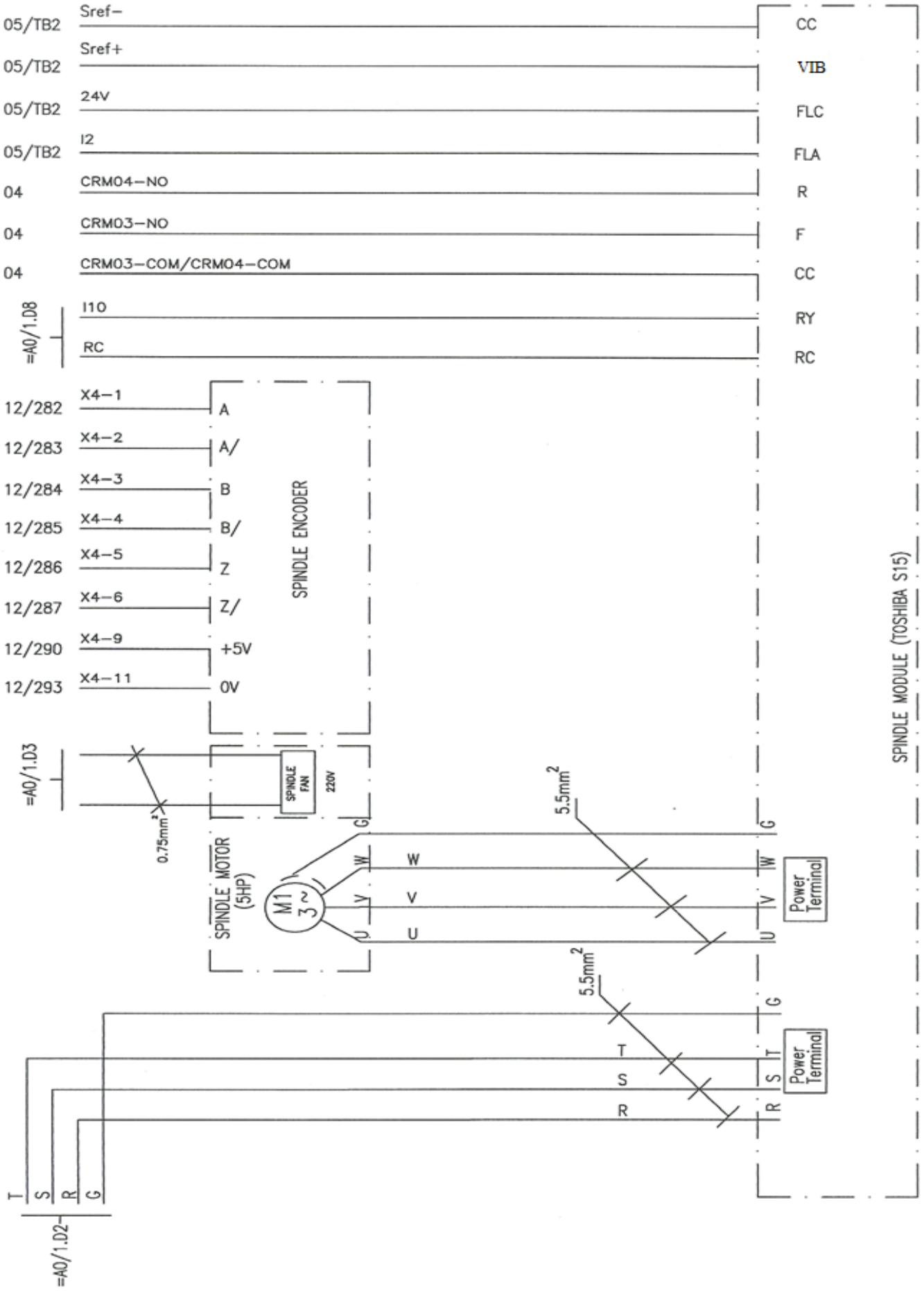

05/TB2 Sref−
05/TB2 Sref+
05/TB2 24V
05/TB2 I2
04 CRM04−NO
04 CRM03−NO
04 CRM03−COM/CRM04−COM
=A0/1.08 I10
RC
CC
VIB
FLC
FLA
R
F
CC
RY
RC
SPINDLE MODULE (TOSHIBA S15)
12/282 X4−1 A
12/283 X4−2 A/
12/284 X4−3 B
12/285 X4−4 B/
12/286 X4−5 Z
12/287 X4−6 Z/
12/290 X4−9 +5V
12/293 X4−11 0V
SPINDLE ENCODER
=A0/1.03
SPINDLE FAN
220V
0.75mm²
SPINDLE MOTOR (5HP)
M1 3~
W
V
U
G
5.5mm²
Power Terminal
T
S
R
=A0/1.02
MACHINE
DESIGNER
MARK
2017/01/09
DRAWER
MARK
2017/01/09
DESCRIPTION
WIRING DIAGRAM
VER
02
PAGE
= A0−2

10-2. Lay-out of Electric Components---Version before 3/15/2017

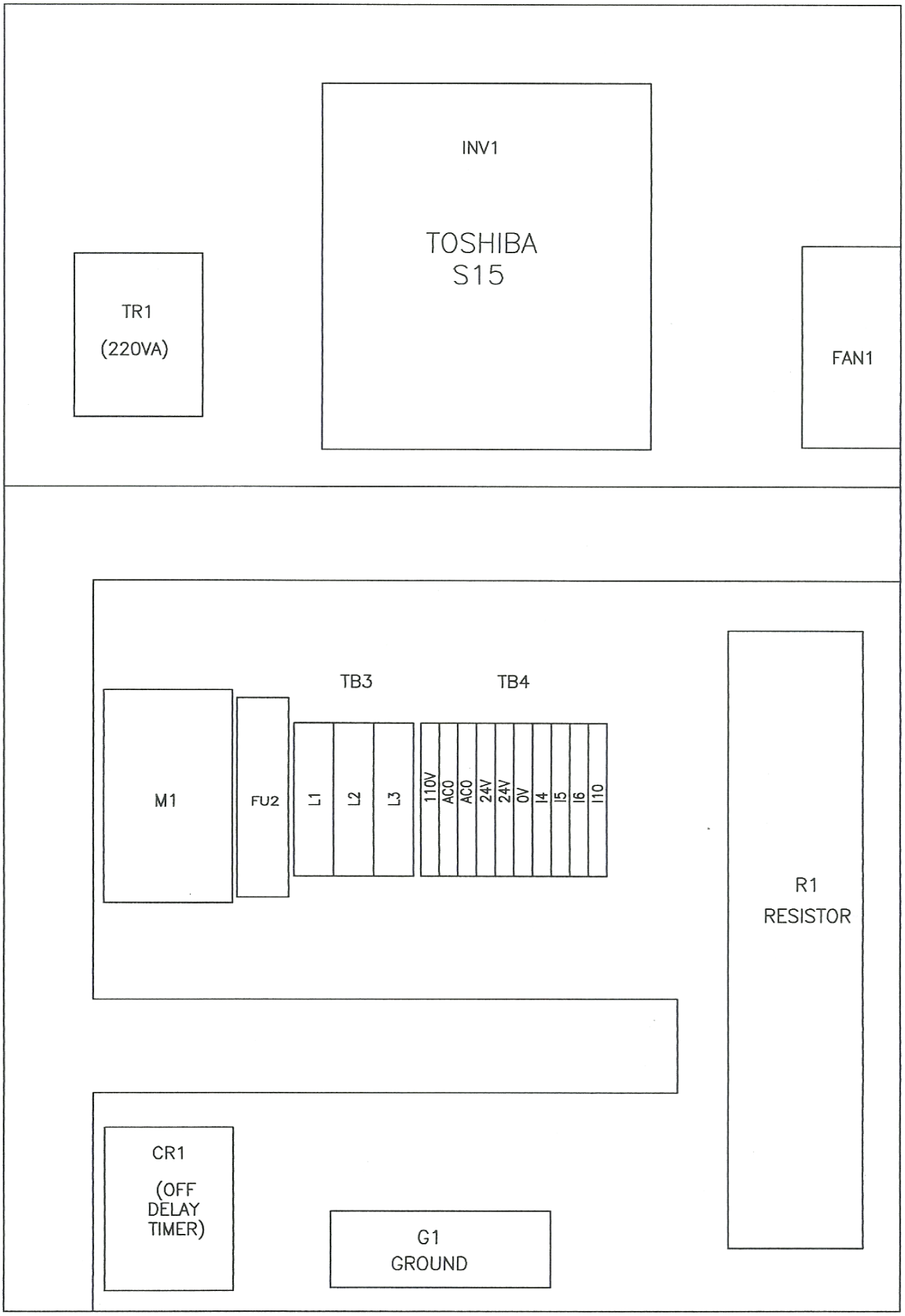


10-3. Electrical Diagram and Circuit




05/TB2 Sref−
05/TB2 Sref+
05/TB2 24V
05/TB2 I2
04 CRM04−NO
04 CRM03−NO
04 CRM03−COM/CRM04−COM
=A0/1.D8 I10
RC
CC
VIB
FLC
FLA
R
F
CC
RY
RC
SPINDLE MODULE (TOSHIBA S15)
12/282 X4−1 A
12/283 X4−2 A/
12/284 X4−3 B
12/285 X4−4 B/
12/286 X4−5 Z
12/287 X4−6 Z/
12/290 X4−9 +5V
12/293 X4−11 0V
SPINDLE ENCODER
=A0/1.D3
0.75mm²
SPINDLE FAN
220V
SPINDLE MOTOR (5HP)
M1 3~
G
W
V
U
5.5mm²
Power Terminal
T
S
R
=A0/1.D2

10-4. Lay-out of Electrical Components



10-5. List of Electrical Components

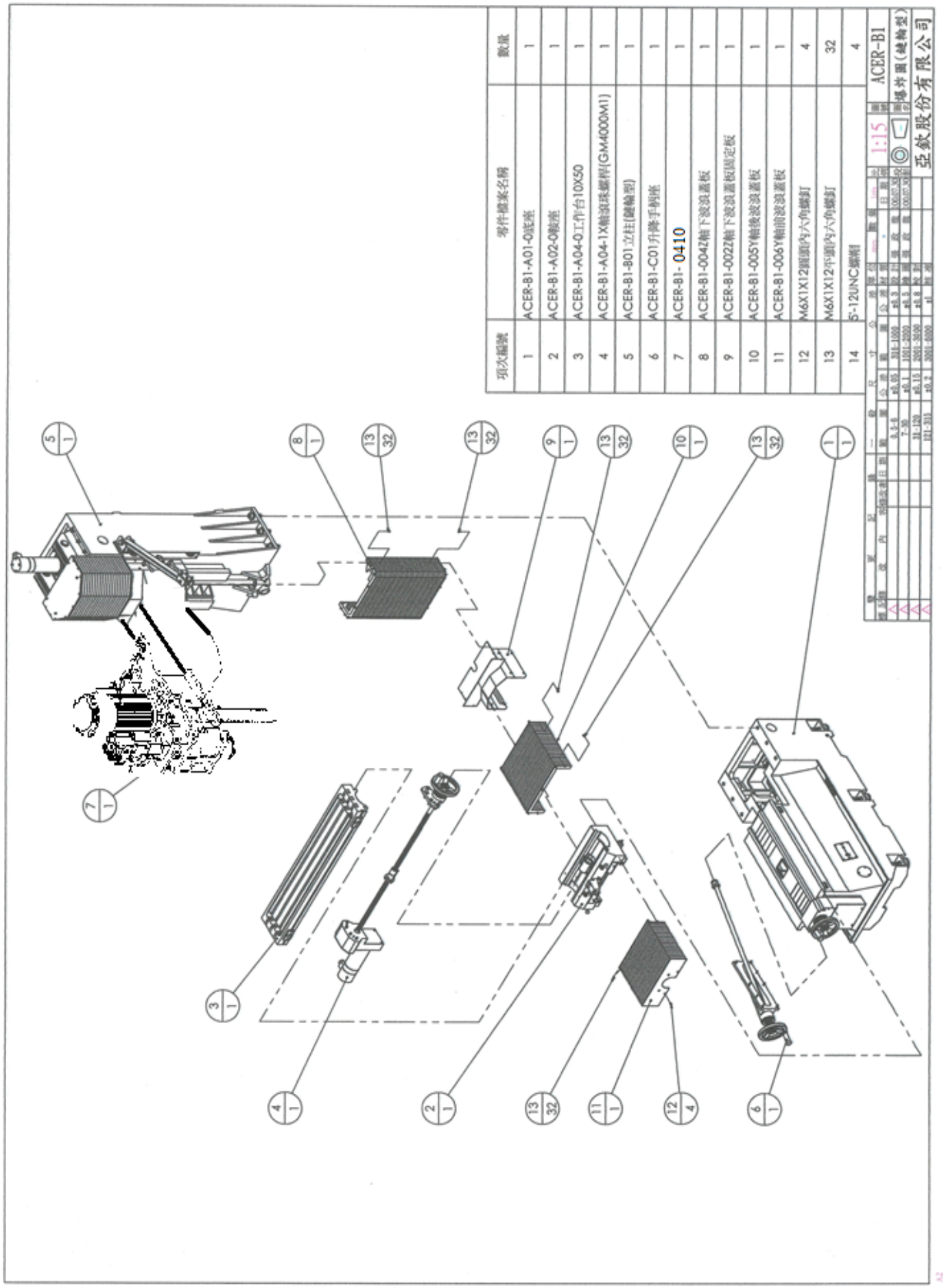
Item #	Item Mark	PARTS NAME	MAKER	PARTS CATALOG NUMBER	QTY	UL #	UL File
9507-12	INV1	Spindle Inverter	Toshiba	VF-S15/3PH-200/240V-7.5KW/10HP	1		
9507-13	INV1	Spindle Inverter	Toshiba	VF-S15/3PH-380/500V-7.5KW/10HP	1		
9506-11	R1	Resistor		ZQR-450W/20Ω	6		
9506-13	R1	Resistor		ZQR-450W/45Ω	6		
9510-2	FAN1	Fan	Gulf	GA1123XBL/AC110V/120V/18/19W	1		
9706-1	FU2	Circuit Breaker	Moeller	FAZ-S2/1	1	E177451	
9706-1	M1	Magnetic Contactor	Teco	CU-22/AC110V	1		
9733-2	TB3	Terminal Block	SHINING	TA-040	3		
9593	TB4	Terminal Block	Wago	2002-1301/3C 2.5mm	11	E45172	04CA08683
9596		Terminal End	Wago	2002-1392/3C 2.5mm	4	E45172	04CA08683
9599-1		Jumper Bar	Wago	2002-403	2	E45172	04CA08683
9732	G1	Ground Terminal		WJ9010(10P)	1		
9753	CR1	Off Delay Relay	STON	TRF-V2/3S/AC110V	1		
9733-1	TR1	Transformer	Shin Hsing	220VA	1	E363386	

11. Mechanical Drawings & Parts Breakdown List

Note: When ordering parts, please be prepared with,

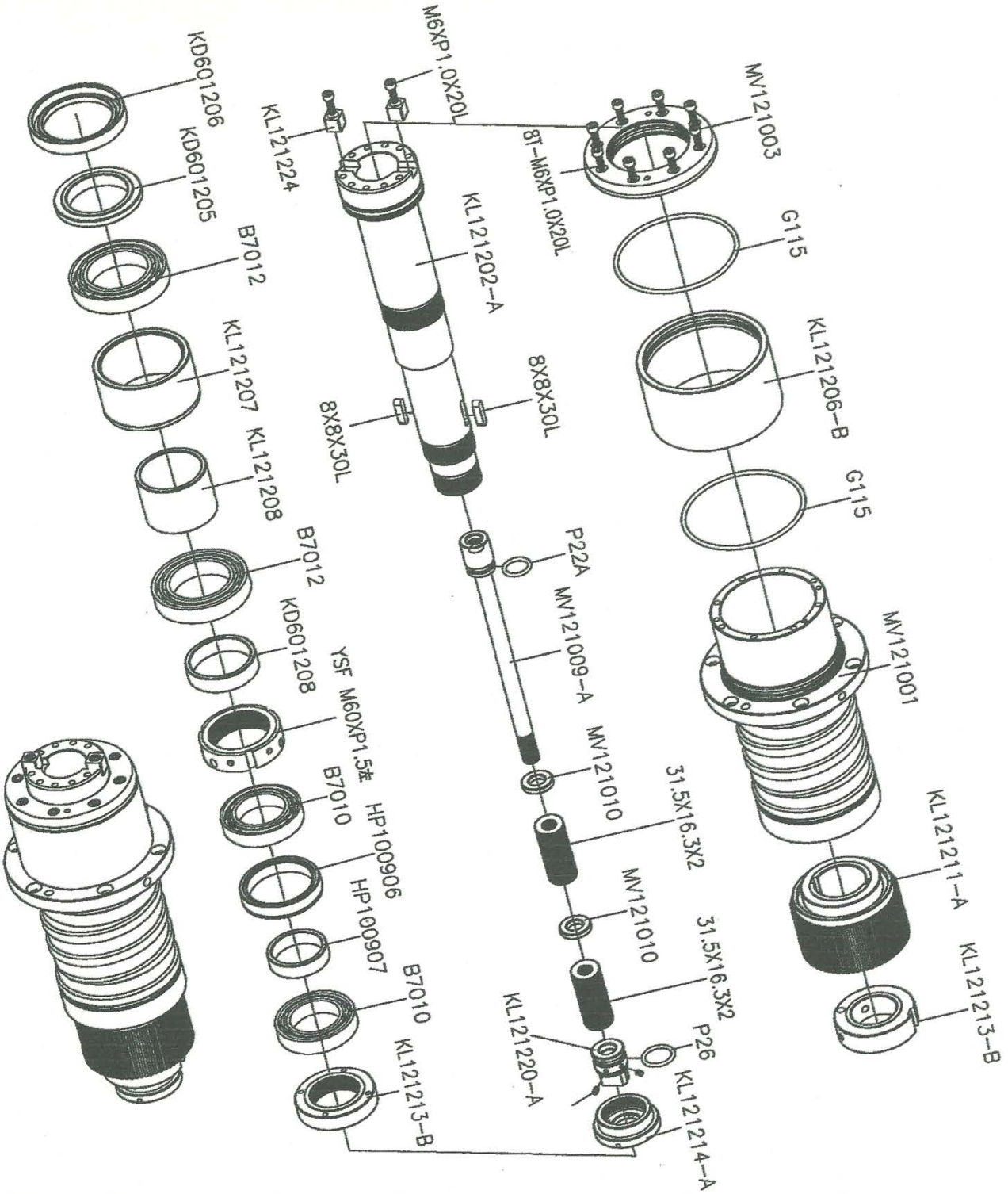
1. Machine model & serial number.
2. Item number.
3. Part number and description.
4. Year of Production.
5. Voltage & horsepower.
6. Quantity

11-1. ACER-B1 ASSEMBLY DRAWING



Drawing #: ACER-B1			
Item #	Assembly #	Assembly Description	Quantity
1	ACER-B1-A01-0	Machine Base Assembly	1
2	ACER-B1-A02-0	Saddle Assembly	1
3	ACER-B1-A04-0	Table Assembly	1
4	ACER-B1-A04-1	X Axis Travel Assembly	1
5	ACER-B1-B01	Column Assembly-Balancing Block Type	1
6	ACER-B1-C01	Elevation Crank Assembly	1
7	ACER-B1-0410	Spindle Housing Assembly	1
8	ACER-B1-004	Z Axis Accordion Way Cover-Lower One	1
9	ACER-B1-002	Z Axis Accordion Way Covers Locating Plate	1
10	ACER-B1-005	Y Axis Accordion Way Cover-Back	1
11	ACER-B1-006	Y Axis Accordion Way Cover-Front	1
12	M6x1x12R	Socket HD Round Top Cap Screw	4
13	M6x1x12F	Socket HD flat Top Cap Screw	32

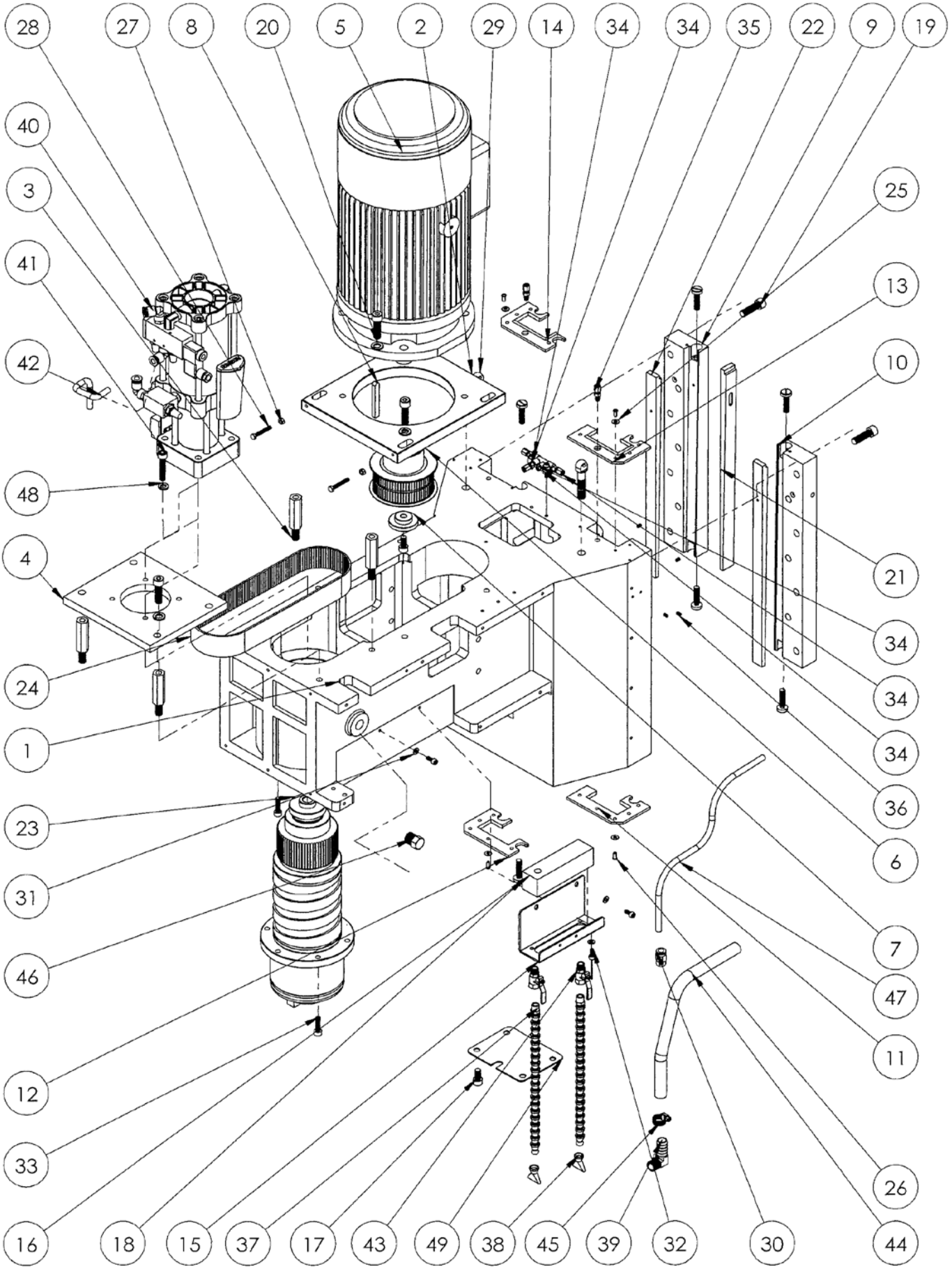
11-2. 7.5 HP SPINDLE ASSEMBLY



品名	圖號	數量
軸心	KL121202-A	1
外水套	KL121206-B	1
外隔環	KL121207	1
內隔環	KL121208	1
皮帶輪	KL121211-A	1
螺母	KL121212	1
磁性開關座	KL121213-B	1
後蓋	KL121214-A	1
拉桿螺母	KL121220-A	1
定位塊	KL121224	1
軸管	MV121001	1
前蓋	MV121003	1
拉桿	MV121009-A	1
墊片	MV121010	2
外隔環	HP100906	1
內隔環	HP100907	1
前防塵蓋	KD601205	1
前防塵蓋	KD601206	1
內隔環	KD601208	1
軸承	B7012	2
軸承	B7010	2
無頭螺絲	M5XP0.8X6L	6
內六角螺栓	M6XP1.0X20L	10
O型環	P22A	1
O型環	P26	1
O型環	G115	2
螺母	YSR M60XP1.5 左	1
雙頭圓鍵	8X8X30L	2
碟型墊片	31.5X16.3X2	90

Spindle Assembly			KL1212
Item#	Part #	Description	Quantity
1	KL121202-A	Spindle Shaft	1
2	KL121206-B	External Jacket	1
3	KL121207	Spacer	1
4	KL121208	Spacer	1
5	KL121211-A	Spindle Pulley	1
6	KL121212	Screw Nut	1
7	KL121213-B	Magnetic Switch Seat	1
8	KL121214-A	Screw Nut	1
9	KL121220-A	Nut of Drawbar	1
10	KL121224	Alignment Key	1
11	MV121001	Spindle Housing	1
12	MV121003	Front Cover	1
13	MV121009-A	Drawbar	1
14	MV121010	Washer	2
15	HP100906	Spacer	1
16	HP100907	Spacer	1
17	KD601205	Dust Proof Cap	1
18	KD601206	Dust Proof Cap	1
19	KD601208	Spacer	1
20	B7012	Ball Bearing	2
21	B7010	Ball Bearing	2
22	M5xP0.8x6L	Set Screw	6
23	M6xP1.0x20L	Socket HD Cap Screw	10
24	P22A	O Ring	1
25	P26	O Ring	1
26	G115	O Ring	2
27	YSR M60XP1.5	Precision Ground Lock Nut-Left Hand Thread	1
28	8x8x30L	Key	2
29	31.5x16.3x2	Disk Spring	90
30	BT40-45°	Clamping Jaw-same for CAT#40	1

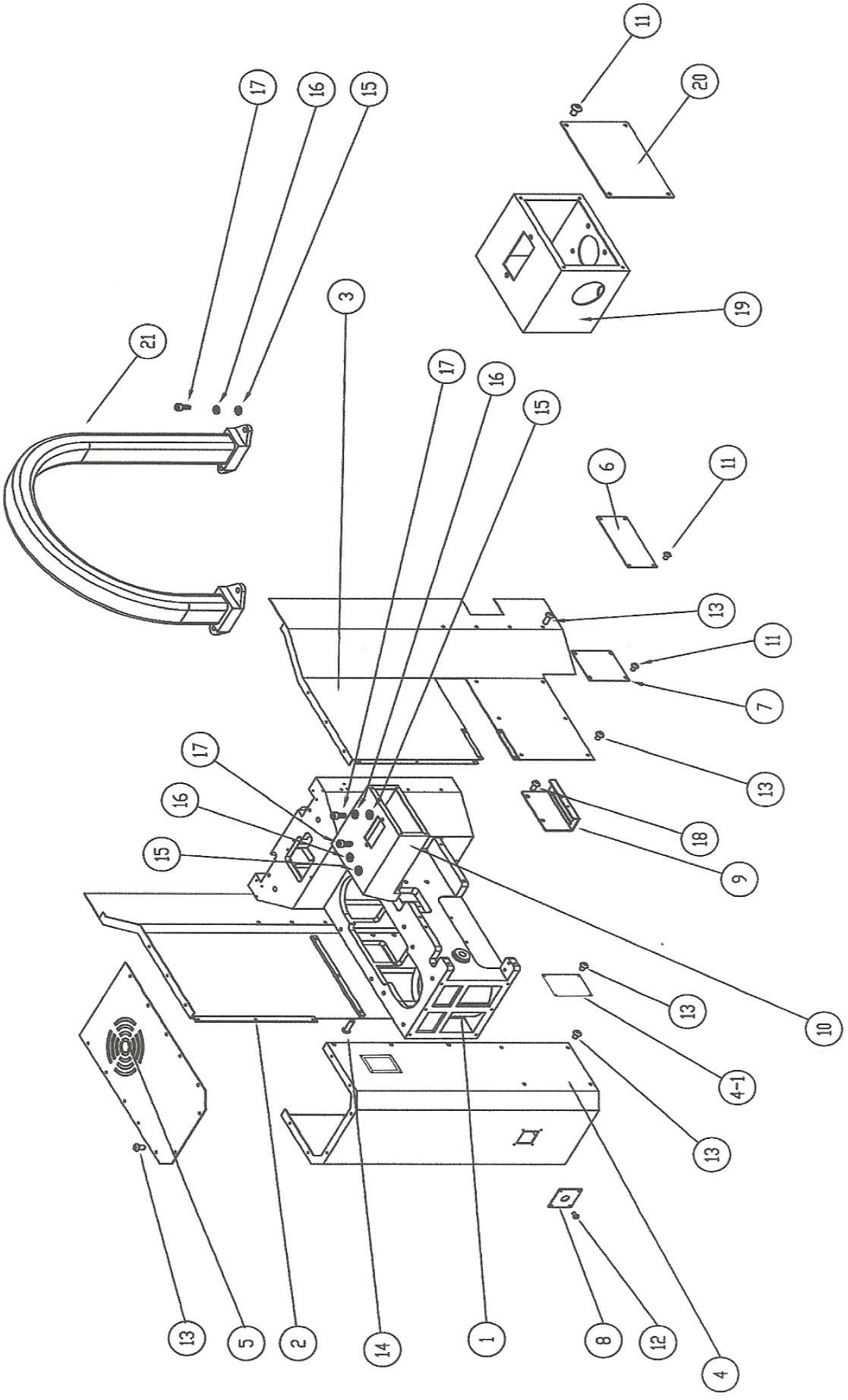
11-3. ACER-B1-0410 SPINDLE HOUSING ASSEMBLY



Item #	Part #	Description	Quantity
1	ACU-020	#40 Spindle Housing	1
2	ACU-021	Motor Locating Plate	1
3	1020L3Z3121	Extension Rod for Tool Grabbing Cylinder	4
4	1020L3Z3091	Locating Plate for Tool Grabbing Cylinder	1
5	ACU-034	7.5HP Spindle Motor	1
6	ACU-035	Spindle Motor Pulley	1
7	ACU-036	End Cover for Motor Pulley	1
8	ACU-037	Key for Spindle Pulley	1
9	ACER-B1-B003	Gib Pate-Left	1
10	ACER-B1-B004	Gib Pate-right	1
11	ACER-B1-B016	Way Wiper-Right Bottom	1
12	ACER-B1-B015	Way Wiper-Left Bottom	1
13	ACER-B1-B013	Way Wiper-Right Top	1
14	ACER-B1-B014	Way Wiper-Left Top	1
15	ACU-B12	Locating Bracket for Manifold	1
16	MCSMS-004	Coolant Distributor	1
17		M10x20L Socket Head Cap Screw	2
18	3-24UNF	3/8"x24UNF Gib Screw	6
19		M12x40L Socket Head Cap Screw	14
20		M12 Spring Washer	4
21	ACER-B1-B005	Gib- Center	1
22	ACER-B1-B006	Gib-Two Sides	2
23	KL1212	Spindle Assembly	1
24	ACU-023	Timing Belt HTD-5M-820	1
25		M5 Flat Washer	16
26		M5x12L + Round Head Cap Screw	16
27		M6 Hex Nut	2
28		M6x50L Socket Head Cap Screw	2
29		Chain Locating Screw	2
30	ACU-024	PT3' 10mm Air Hose Fitting	1
31		M6 Spring Washer	2
32		M6x1.0x15 Socket Head Cap Screw	2
33		M8x1.25x30 Socket Head Cap Screw	6
34	MP9021	A4 Distributing Joint	1
35	ACU-025	M8x1 Check Valve	5
36		M5x0.8x8 Set Screw	6
37	MCSMS-002-1	Nozzle Tubing	4
38	MCSMS-002-2	Coolant & Air Nozzle	4
39	ACU-029	1/2" 90˚ Elbow Joint	1
40	BC3T13S07	Floating Air Cylinder Assembly	1
41		M10x1.5x50 Socket Head Cap Screw	4
42	ACU-030	Air Hose 10mm	1
43	MCSMS-003	Valve	4

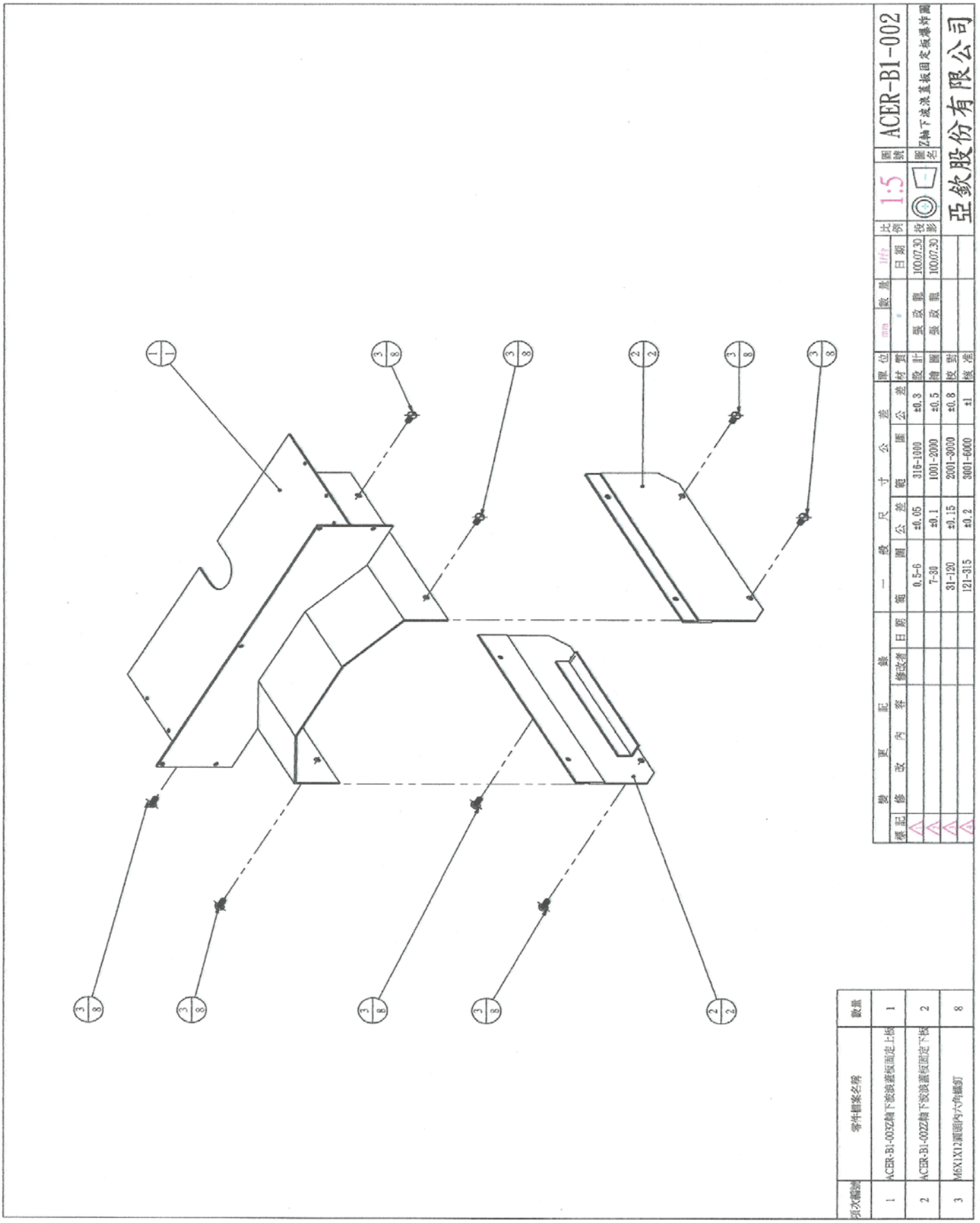
Item #	Part #	Description	Quantity
44	ACU-031	Coolant Hose 1/2"	1
45	ACU-032	1/2" Stainless Adjustable Strap	1
46	ACU-033	1/2" Plug	1
47	ACU-030	Air Hose 10mm	1
48		M10 Spring Washer	4
49	ACU-B11	Lower Housing Cover	1

11-4. SPINDLE HOUSING SHEETMETAL



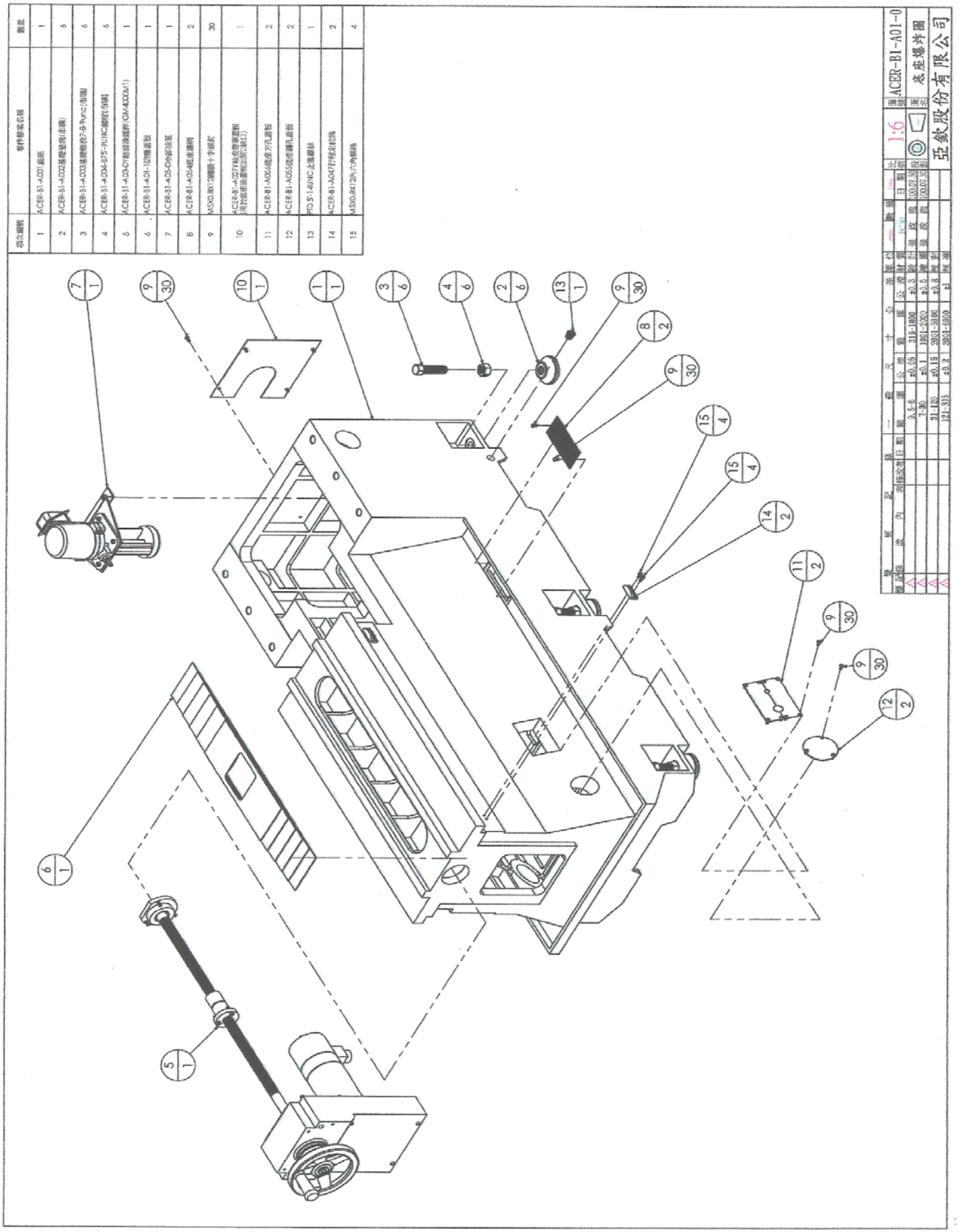
Item#	Part#	Description	Quantity
1	ACU-020	#40 Spindle Housing	1
2	ACU-B03	Spindle Housing Cover-Right	1
3	ACU-B02	Spindle Housing Cover-Left	1
4	ACU-B01	Spindle Housing Cover-Front	1
4-1	ACU-B01-1	Spindle Housing Cover-Front Side Cover	1
5	ACU-B04	Spindle Housing Cover-Top	1
6	ACU-B08A	Junction Box Cover	1
7	ACU-B05	Spindle Housing Cover-Small Right	1
8	ACU-B06	Tool Release Button Plate	1
9	ACU-B12	Bracket for Air/Coolant Manifold	1
10	ACU-B07S	Tubing Junction Box w/Square Cut-out Hole	1
11		M5*0.8*8 Round Head Socket Cap Screw	12
12		M4*0.7*8 +Round Head Cap Screw	4
13		M6*1.0*10 Round Head Socket Cap Screw	40
14		M6*1.0*25 Round Head Socket Cap Screw	10
15		M6 Flat Thin Washer	4
16		M6 Spring Washer	4
17		M6*1*15 Socket Head Cap Screw	4
18		M6*1.0*12 Round Head Socket Cap Screw	2
19	ACU-B09+	Tubing Junction Box w/Square Cut-out Hole	1
20	ACU-B10+	Junction Box Cover	1
21		Square Interlocking Protection Tube (Type B II)	1

11-5. ACER-B1-002 Z AXIS ACCORDION WAY COVERS LOCATING PLATE



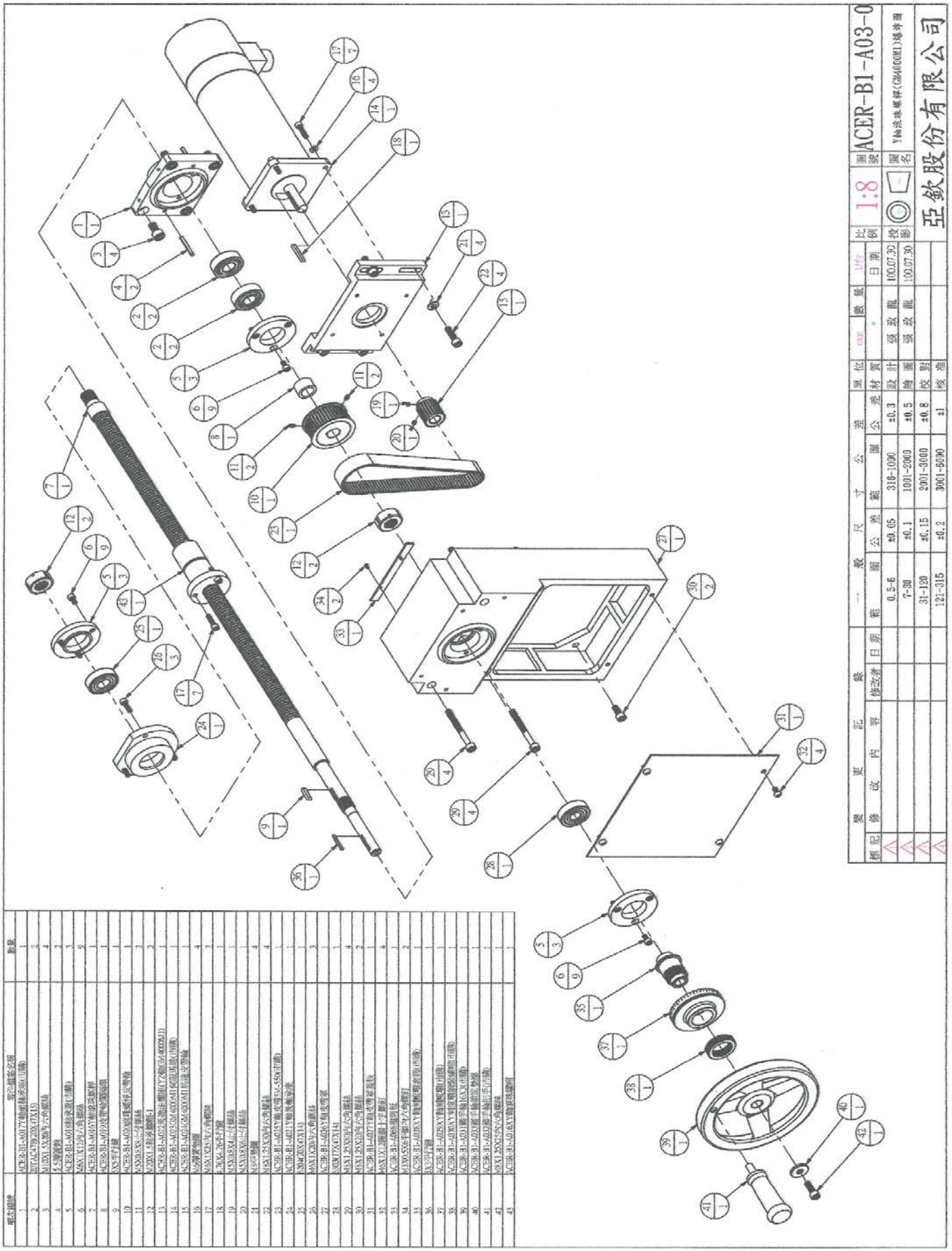
Drawing #: ACER-B1-002			
Item #	Part #	Description	Quantity
1	ACER-B1-003	Z Axis Accordion Way Cover Locating Bracket	1
2	ACER-B1-002	Z Axis Accordion Way Cover Locating Plate	2
3	M6x1x12R	Socket HD Round Cap Screw	8

11-6. ACER-B1-A01-0 MACHINE BASE ASSEMBLY



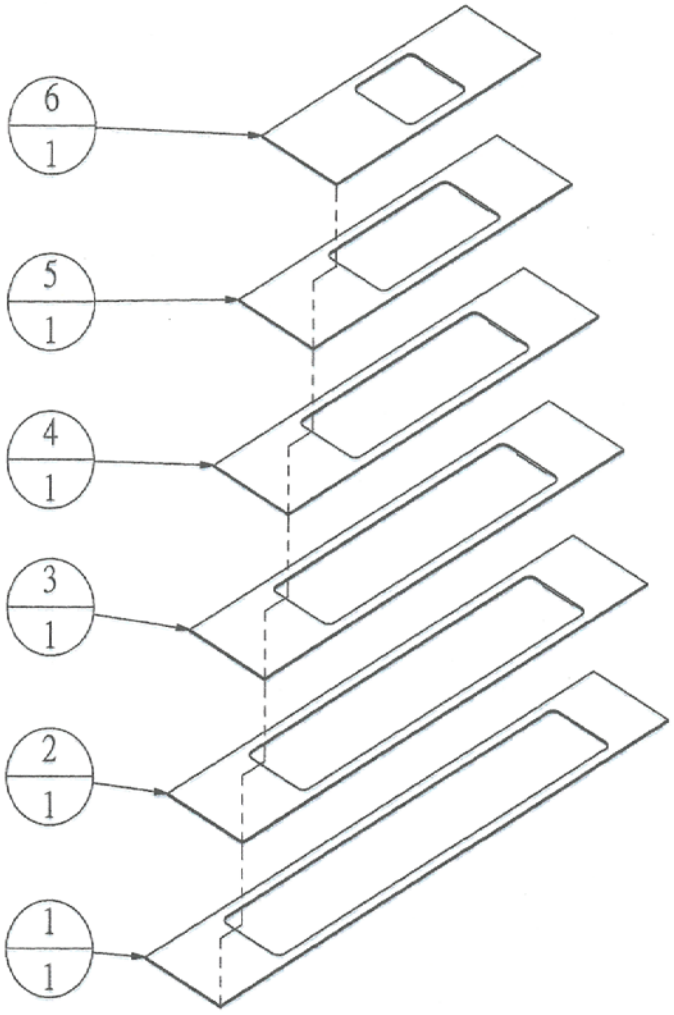
Drawing #: ACER-B1-A01-0			
Item #	Part #	Description	Quantity
1	ACER-B1-A001	Machine Base	1
2	ACER-B1-A002	Leveling Pad	8
3	ACER-B1-A003	Leveling Screw	8
4	ACER-B1-A004	Hex Nut	8
5	ACER-B1-A03-0	Y Axis Travel Assembly	1
6	ACER-B1-A01-1	Chip Cover Assembly	1
7	ACER-B1-A05-0	Coolant Pump Assembly	1
8	ACER-B1-A054	Wire Mesh	2
9	M5x0.8x12	Round Hd Cap + Screw	4
10	ACER-B1-A027-B1	Machine Base Cover	1
11	ACER-B1-A056	Cable Cover Plate	2
12	ACER-B1-A055	Round Cover Plate	4
13	Pt0.5"-14 UNC	Coolant Plug	1
14	ACER-B1-A047	Axis Positioning Block	2
15	M5x0.8x12	Socket HD Cap Screw	4

11-7. ACER-B1-A03-0 Y AXIS TRAVEL ASSEMBLY



Drawing #: ACER-B1-A03-0			
Item #	Part #	Description	Quantity
1	ACER-B1-A017	Cross Feed Bearing Bracket-Aluminum	1
	ACER-B1-A017C	Cross Feed Bearing Bracket-Cast Iron	1
2	20TAC47B	Ball Screw Support Ball Bearing	2
3	M10x1.5x20	Socket Hd Cap Screw	4
4	Φ5	Roll Pin	2
5	ACER-B1-A018	Bearing Cap	3
6	M6x1x12	Socket Hd Cap Screw	9
7	ACER-B1-A016	Y Axis Ball Screw	1
8	ACER-B1-A019	Spacer	1
9	M5x5x20	Key	1
10	ACER-B1-A020	Ball Screw Pulley for 750W	1
	ACER-B1-A020-1K	Ball Screw Pulley for 1KW	1
	ACER-B1-A020-F	Ball Screw Pulley for Fagor Servo Motor	1
11	M5x0.8x8	Set Screw	2
12	M20x1.5	Precision Lock Nut	2
13	ACER-B1-A022	Motor Plate for 750W Motor	1
	ACER-B1-A022-1K	Motor Plate for 1KW Motor	1
	ACER-B1-A022-F	Motor Plate for Fagor Servo Motor	1
14	ACER-B1-A023	Servo Motor 750W	1
	ACER-B1-A023-1K	Servo Motor 1KW	1
	ACER-B1-A023-F	Servo Motor Fagor	1
15	ACER-B1-A024	Motor Pulley for 750W	1
	ACER-B1-A024-1K	Motor Pulley for 1KW	1
	ACER-B1-A024-F	Motor Pulley for Fagor Servo Motor	1
16	M6	Spring Washer	4
17	M6x1x25	Socket Hd Cap Screw	4
18	M4.76x4.76	Key	1
19	M5x0.8x4	Set Screw	1
20	M5x0.8x6	Set Screw	1
21	M8	Flat Washer	4
22	M8x1.25x30	Socket Hd Cap Screw	4
23	ACER-B1-A025	Timing Belt for 750W (5Mx550)	1
	ACER-B1-A025-1K	Timing Belt for 1KW	1
	ACER-B1-A025-F	Timing Belt for Fagor Servo Motor	1
24	ACER-B1-A021	Ball Bearing Seat	1
	ACER-B1-A021L	Ball Bearing Seat with OD120mm	1
25	6204ZZ	Ball Bearing (20x47x14)	1
26	M6x1x20	Socket Hd Cap Screw	3
27	ACER-B1-A026	Y Axis Front Cover Assembly	1

Item #	Part #	Description	Quantity
28	6303ZZ	Ball Bearing (17x47x14)	1
29	M8x1.25x80	Socket Hd Cap Screw	4
30	M8x1.25x20	Socket Hd Cap Screw	2
31	ACER-B1-A027	Front Cover Plate	1
32	M6x1x12R	Round Hd Cap + Screw	4
33	ACER-B1-A068	Chip Plate	1
34	M3x0.5x6F	Socket Hd Flat Cap Screw	2
35	ACER-B1-A028	X, Y Axis Dial Holder	1
36	M3x3x25	Key	1
37	ACER-B1-A029	Dial (2012)	1
38	ACER-B1-A030	Dial Lock Nut (2016)	1
39	ACER-B1-A031	Handwheel (5/8"x3mm)	1
40	ACER-B1-A033	Handwheel Washer	1
41	ACER-B1-A032	Handle	1
42	M8x1.25x25	Socket Hd Cap Screw	1
43	ACER-B1-A016	X, Y Ball Screw Nut	1



項次編號	零件檔案名稱	數量
1	ACER-B1-A009防塵蓋板1	1
2	ACER-B1-A010防塵蓋板2	1
3	ACER-B1-A011防塵蓋板3	1
4	ACER-B1-A012防塵蓋板4	1
5	ACER-B1-A013防塵蓋板5	1
6	ACER-B1-A014防塵蓋板6	1

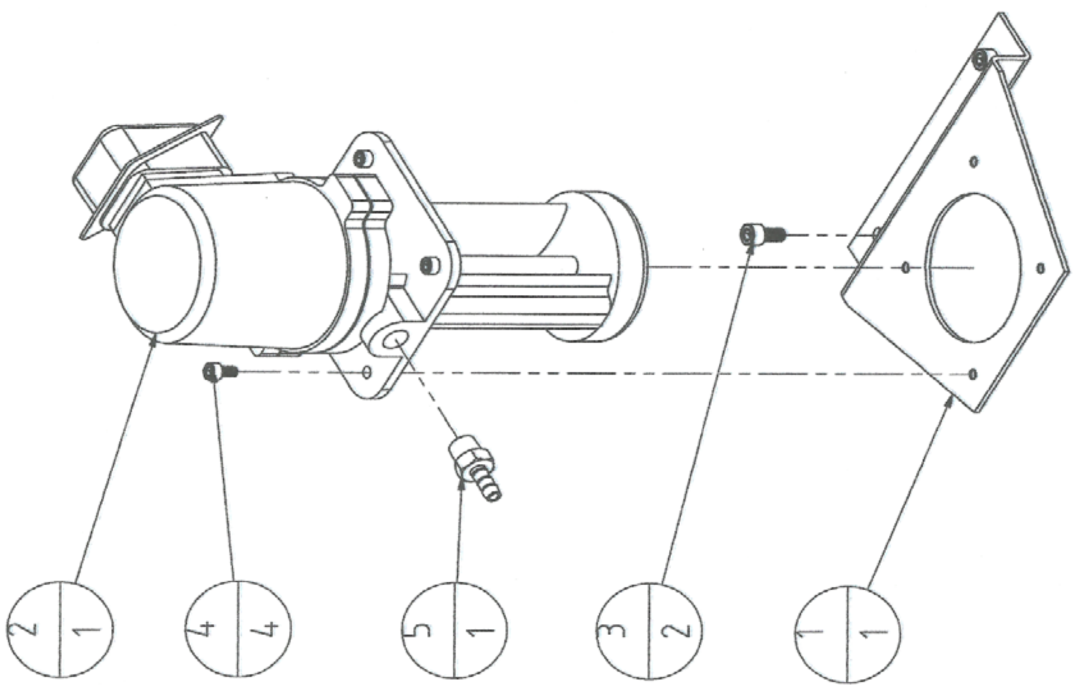
變更記錄				一般尺寸公差				單位	mm	數量	1/台	比例	1:8	圖號	ACER-B1-A01-1
標記	修改內容	修改者	日期	範圍	公差	範圍	公差	材質			日期				
1				0.5-6	±0.05	316-1000	±0.3	設計	張政龍		100.07.30	投影		圖名	防塵蓋板爆炸圖
2				7-30	±0.1	1001-2000	±0.5	繪圖	張政龍		100.07.30				
3				31-120	±0.15	2001-3000	±0.8	校對							
4				121-315	±0.2	3001-6000	±1	核准							

亞欽股份有限公司

Drawing #: ACER-B1-A01-1			
Item #	Part #	Description	Quantity
1	ACER-B1-A009	Chip Cover 1	1
2	ACER-B1-A010	Chip Cover 2	1
3	ACER-B1-A011	Chip Cover 3	1
4	ACER-B1-A012	Chip Cover 4	1
5	ACER-B1-A013	Chip Cover 5	1
6	ACER-B1-A014	Chip Cover 6	1

11-9. ACER-B1-A05-0 COOLANT PUMP ASSEMBLY

項次編號	零件檔案名稱	數量
1	ACER-B1-A052冷卻油泵固定板	1
2	ACER-B1-A053冷卻油泵(市購)	1
3	M8X1.25X16內六角螺絲	2
4	M6X1X12內六角螺絲	4
5	3'冷卻軟管接頭	1



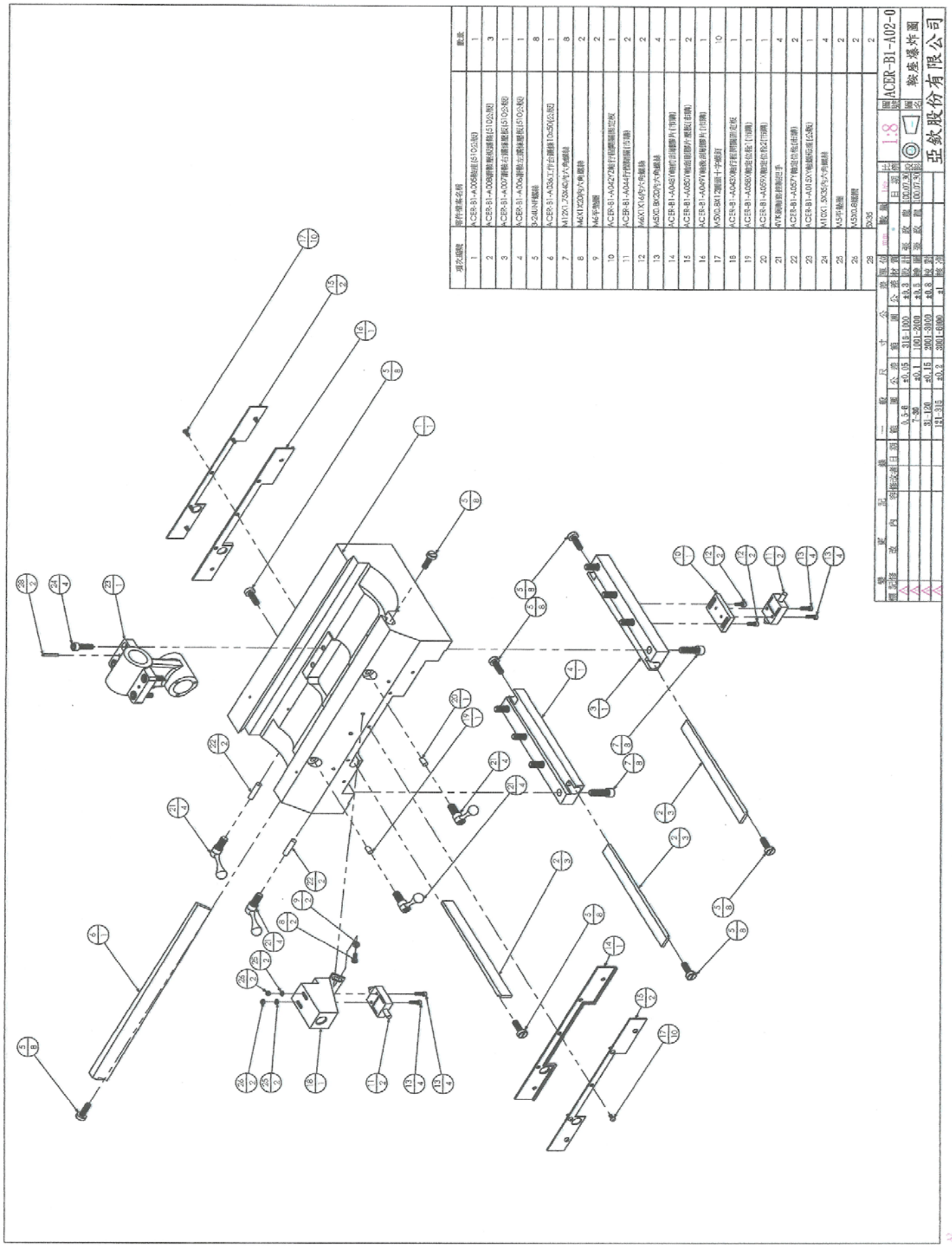
變更記錄			
標記	修改內容	修改者	日期
1			
2			
3			
4			

一般尺寸公差			
範圍	公差	範圍	公差
0.5-6	±0.05	316-1000	±0.3
7-30	±0.1	1001-2000	±0.5
31-120	±0.15	2001-3000	±0.8
121-315	±0.2	3001-6000	±1

單位	mm	數量	1/台	比例	1:4
材質	*	日期		圖號	ACER-B1-A05-0
設計	張政龍	100.07.30		圖名	冷卻油泵爆炸圖
繪圖	張政龍	100.07.30		投影	
校對					亞鈞股份有限公司
核准					

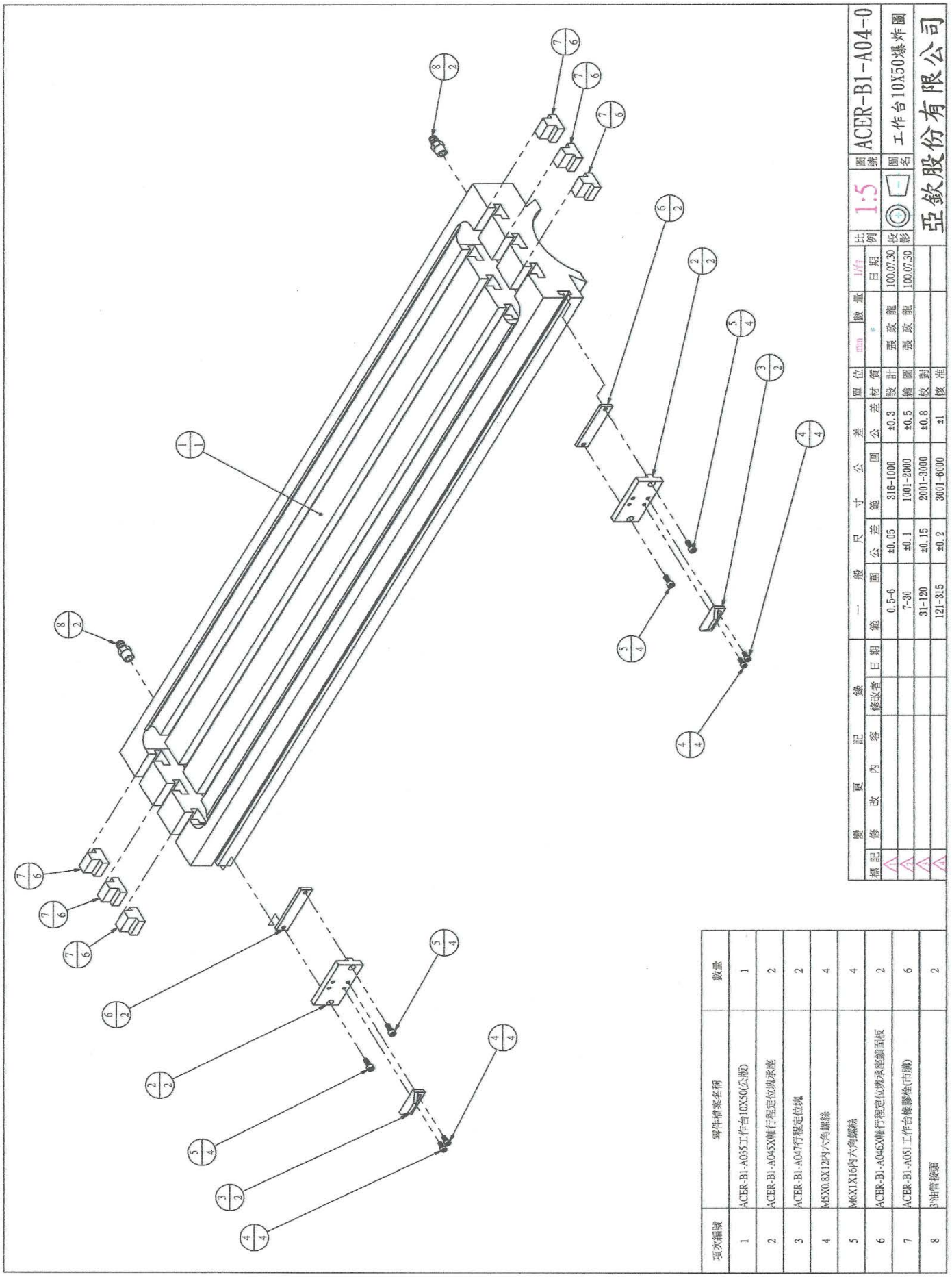
Drawing #: ACER-B1-A05-0			
Item #	Part #	Description	Quantity
1	ACER-B1-A052	Coolant Pump Locating Bracket	1
2	ACER-B1-A053	Coolant Pump 1/8HP	1
3	M8x1.25x16	Socket Hd Cap Screw	2
4	M6x1x12	Socket Hd Cap Screw	4
5	1/2"	Coolant Fitting	1

11-10. ACER-B1-A02-0 SADDLE ASSEMBLY



Drawing #: ACER-B1-A02-0			
Item #	Part #	Description	Quantity
1	ACER-B1-A005	Saddle	1
2	ACER-B1-A008	Gib	3
3	ACER-B1-A007	Gib Support Right (4H-3050)	1
4	ACER-B1-A006	Gib Support Left (4H-3050)	1
5	3-24UNF	Gib Screw	8
6	ACER-B1-A036	Saddle/Table Gib (3026)	1
7	M12x1.75x40	Socket HD Cap Screw	8
8	M6x1x20	Socket HD Cap Screw	2
9	M6	Washer	2
10	ACER-B1-A042	X, Y Limit Switch Locating Plate	1
11	ACER-B1-A044	Limit Switch	2
12	M6x1x16	Socket HD Cap Screw	2
13	M5x0.8x20	Socket HD Cap Screw	4
14	ACER-B1-A048	Felt Wiper (4H-3037)	1
15	ACER-B1-A050	Wiper Plate (4H-3037-1)	2
16	ACER-B1-A049	Felt Wiper (4H-3037)	1
17	M5x0.8x12	Round HD Cap + Screw	10
18	ACER-B1-A043	X Axis Limit Switch Bracket	1
	ACER-B1-A043S	X Axis Limit Switch Bracket-Small	1
19	ACER-B1-A058	Table Lock Plunger (H-3029)	1
20	ACER-B1-A059	Table Lock Plunger (H-3029)	1
21	3030+3031	Table Lock Assembly	4
22	ACER-B1-A057	Saddle Lock Plunger (4H-3032)	2
23	ACER-B1-A015	Yoke	1
24	3/8"x1"	Socket HD Cap Screw	4
25	M5	Washer	2
26	M5x0.8	Hex Nut	2
27	-		
28	M5x35	Roll Pin	2

11-11. ACER-B1-A04-0　TABLE ASSEMBLY



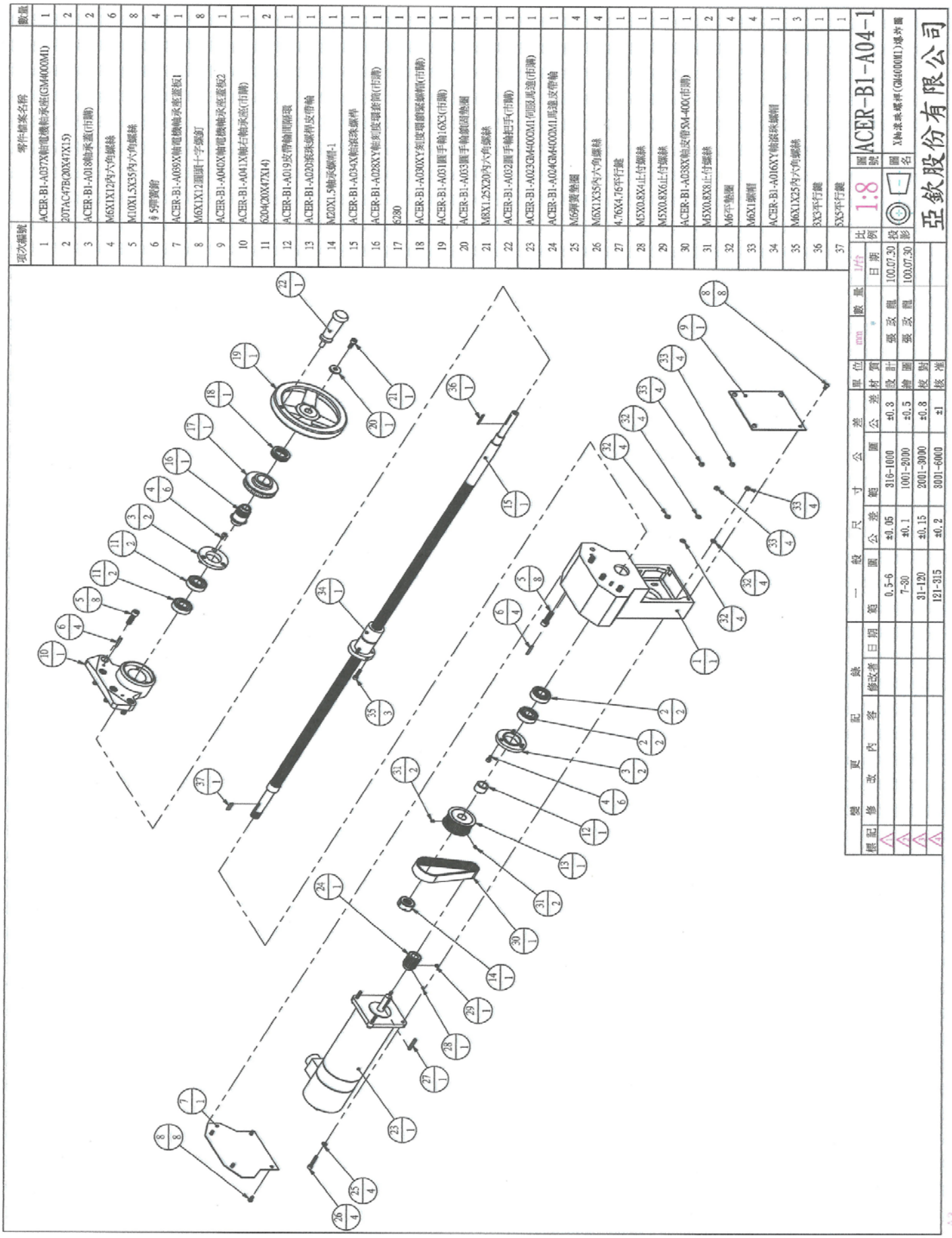
項次編號	零件檔案名稱	數量
1	ACER-B1-A035工作台10X50(公版)	1
2	ACER-B1-A045X軸行程定位塊承座	2
3	ACER-B1-A047行程定位塊	2
4	M5X0.8X12內六角螺絲	4
5	M6X1X16內六角螺絲	4
6	ACER-B1-A046X軸行程定位塊承座鎖面板	2
7	ACER-B1-A051工作台橡膠條(市購)	6
8	3油管接頭	2

變更記錄				一般尺寸公差					單位	mm	數量	比例	1:5	圖號	ACER-B1-A04-0
標記	修改內容	修改者	日期	範圍	公差	範圍	公差	材質	設計	張政龍		日期	100.07.30	投影	圖名	工作台10X50爆炸圖
				0.5-6	±0.05	316-1000	±0.3		繪圖	張政龍			100.07.30			
				7-30	±0.1	1001-2000	±0.5		校對							
				31-120	±0.15	2001-3000	±0.8		核准							
				121-315	±0.2	3001-6000	±1									

亞欽股份有限公司

Drawing #: ACER-B1-A04-0			
Item #	Part #	Description	Quantity
1	ACER-B1-A035	Table 10”x50”	1
	ACER-B1-A036	Table 10”x54”	1
2	ACER-B1-A045	X Axis Travel Locating Plate	2
3	ACER-B1-A047	Axis Positioning Block	2
4	M5x0.8x12	Socket HD Cap Screw	4
5	M6x1x16	Socket HD Cap Screw	4
6	ACER-B1-A046	Traveling Locating Back Plate	2
7	ACER-B1-A051	Table End Rubber Stopper	6
8	1/2"PT	Coolant Plug	2

11-12. ACER-B1-AO4-1　X AXIS TRAVEL ASSEMBLY



項次	編號	零件檢案名稱	數量
1	ACER-B1-A037X軸電機軸承座(GM4000M1)		1
2	20TAC47B(20X47X15)		2
3	ACER-B1-A018軸承蓋(市購)		2
4	M6X1X12內六角螺絲		6
5	M10X1.5X35內六角螺絲		8
6	φ5彈簧銷		4
7	ACER-B1-A039X軸電機軸承座蓋板1		1
8	M6X1X12圓頭十字螺釘		8
9	ACER-B1-A040X軸電機軸承座蓋板2		1
10	ACER-B1-A041X軸右軸承座(市購)		1
11	6204(20X47X14)		2
12	ACER-B1-A019皮帶軸間隔環		1
13	ACER-B1-A020接頭螺桿皮帶輪		1
14	M20X1.5軸承螺帽-1		1
15	ACER-B1-A034X軸滾珠螺桿		1
16	ACER-B1-A028XY軸刻度環套筒(市購)		1
17	6280		1
18	ACER-B1-A030XY刻度環調整螺帽(市購)		1
19	ACER-B1-A031圓手輪16X3(市購)		1
20	ACER-B1-A033圓手輪鎖固墊圈		1
21	M8X1.25X20內六角螺絲		1
22	ACER-B1-A032圓手輪把手(市購)		1
23	ACER-B1-A023GM4000M1伺服馬達(市購)		1
24	ACER-B1-A024GM4000M1馬達皮帶輪		1
25	M6彈簧墊圈		4
26	M6X1X35內六角螺絲		4
27	4.76X4.76平行鍵		1
28	M5X0.8X4止付螺絲		1
29	M5X0.8X6止付螺絲		1
30	ACER-B1-A038X軸皮帶SM-400(市購)		1
31	M5X0.8X8止付螺絲		2
32	M6平墊圈		4
33	M6X1螺帽		4
34	ACER-B1-A016XY軸滾珠螺帽		1
35	M6X1X25內六角螺絲		3
36	8X3平行鍵		1
37	5X5平行鍵		1

標記	修改內容	日期

一般尺寸公差					
範圍	公差	範圍	公差	材質	
0.5~6	±0.05	316~1000	±0.3	設計	張政龍 100.07.30
7~30	±0.1	1001~2000	±0.5	繪圖	張政龍 100.07.30
31~120	±0.15	2001~3000	±0.8	校對	
121~315	±0.2	3001~6000	±1	核准	

單位	mm	數量	Unit
比例	1:8		
圖號	ACER-B1-A04-1		
圖名	X軸滾珠螺桿(GM4000M1)爆炸圖		
投影			

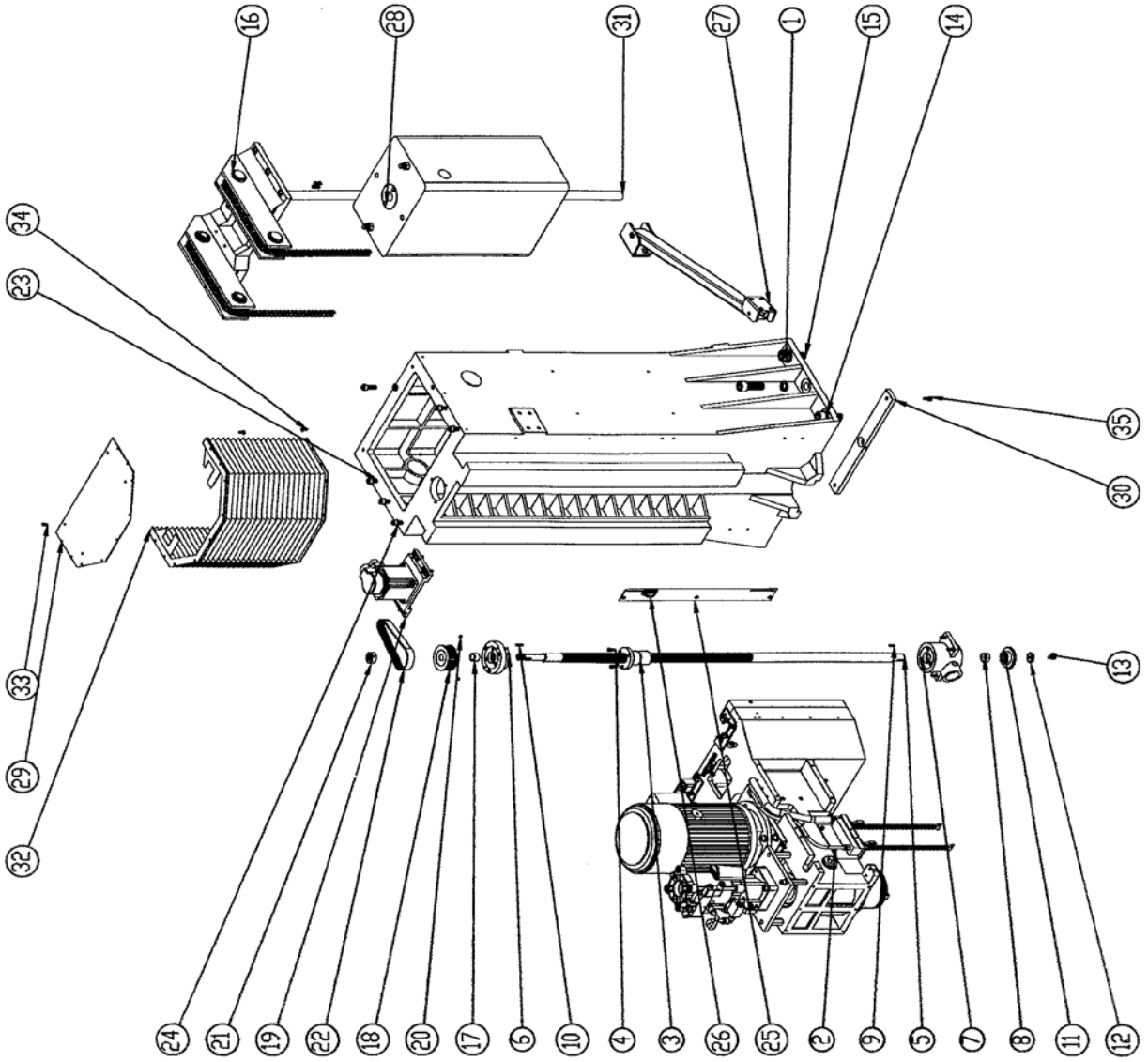
亞欽股份有限公司

Drawing #: ACER-B1-A04-1			
Item#	Part #	Description	Quantity
1	ACER-B1-A037	X Axis Servo Motor Bracket-750W	1
	ACER-B1-A037-M	X Axis Servo Motor Bracket for Mills	1
	ACER-B1-A037-1K	X Axis Servo Motor Bracket-1KW	1
	ACER-B1-A037-F	X Axis Servo Motor Bracket-Fagor Servo Motor	1
2	20TAC47B	Ball Screw Support Ball Bearing	2
3	ACER-B1-A018	Bearing Cap	2
4	M6x1x12	Socket Hd Cap Screw	6
5	M10x1.5x35	Socket Hd Cap Screw	8
6	Φ5	Roll Pin	4
7	ACER-B1-A039	X Axis Bracket Cover 1	1
	ACER-B1-A039C	X Axis Servo Motor Cover	1
8	M6x1x12RC	Round HD Cap + Screw	8
9	ACER-B1-A040	X Axis Bracket Cover 2	1
10	ACER-B1-A041	X Axis Bearing Bracket-Aluminum	1
	ACER-B1-A041C	X Axis Bearing Bracket-Cast Iron	1
11	6204ZZ	Ball Bearings (20x47x14)	2
12	ACER-B1-A019	Spacer	1
13	ACER-B1-A020	Ball Screw Pulley for 750W	1
	ACER-B1-A020-1K	Ball Screw Pulley for 1KW	1
	ACER-B1-A020-F	Ball Screw Pulley for Fagor Servo Motor	1
14	M20x1.5	Precision Lock Nut	1
15	ACER-B1-A034-54	X Axis Ball Screw Assembly for 54” Table	1
	ACER-B1-A034-50	X Axis Ball Screw Assembly for 50” Table	1
16	ACER-B1-A028	X, Y Axis Dial Holder (2014)	1
17	ACER-B1-A029	Dial (2012)	1
18	ACER-B1-A030	Dial Lock Nut (2016)	1
19	ACER-B1-A031	Handwheel (5/8"x3mm)	1
20	ACER-B1-A033	Handwheel Washer	1
21	M8x1.25x20	Socket Hd Cap Screw	1
22	ACER-B1-A032	Handle	1
23	ACER-B1-A023	Servo Motor 750W	1
	ACER-B1-A023-1K	Servo Motor 1KW	1
	ACER-B1-A023-F	Servo Motor Fagor	1
24	ACER-B1-A024	Motor Pulley for 750W	1
	ACER-B1-A024-1K	Motor Pulley for 1KW	1
	ACER-B1-A024-F	Motor Pulley for Fagor Servo Motor	1
25	M6	Spring Washer	4
26	M6x1x35	Socket Hd Cap Screw	4
27	4.76x4.76x40mm	Key	1
28	M5x0.8x4	Set Screw	1
29	M5x0.8x6	Set Screw	1

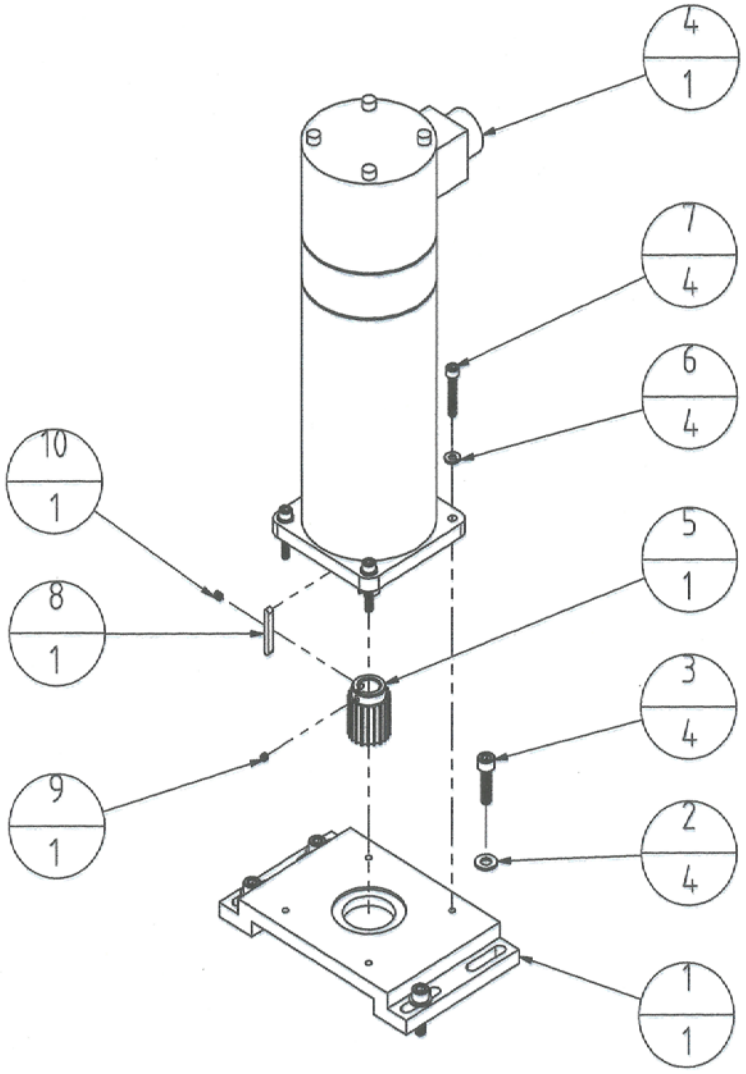
Item#	Part #	Description	Quantity
30	ACER-B1-A038	Timing Belt for 750W(5Mx400)	1
	ACER-B1-A038-1K	Timing Belt for 1KW	1
	ACER-B1-A038-F	Timing Belt for Fagor Servo Motor	1
31	M5x0.8x8	Set Screw	2
32	M6	Washer	4
33	M6x1	Hex Nut	4
34	ACER-B1-A016	X, Y Ball Screw Nut	1
35	M6x1x25	Socket Hd Cap Screw	3
36	M3x3x25	Key	1
37	M5x5x30	Key	1

11-13. ACER-B1-B01 COLUMN ASSEMBLY-BALANCING BLOCK TYPE

項次編號	零件名稱	數量
1	ACER-B1-B001立柱	1
2	ACER-B1(鏈輪型)(page6)0410	1
3	ACER-B1-B007Z軸滾珠螺帽	1
4	M6X1X20內六角螺絲	3
5	ACER-B1-B007Z軸滾珠螺桿	1
6	ACER-B1-B032Z軸上軸承座	1
7	ACER-B1-B047Z軸下軸承座	1
8	ACER-B1-B010大傘齒輪間隔環	1
9	5X5X20	1
10	5X5X25	1
11	ACER-B1-B011昇降傳動大傘齒輪(布膠)	1
12	ACER-B1-B012大傘齒輪鎖緊墊圈	1
13	M8X1.25X16內六角螺絲	1
14	M22彈簧墊圈	6
15	M22X2.5X75內六角螺絲	6
16	ACER-B1-E01鏈輪座	1
17	ACER-B1-A019皮帶輪間隔環	1
18	ACER-B1-E014滾珠螺桿皮帶輪	1
19	ACER-B1-E047馬達	1
20	M5X0.8X8止付螺絲	2
21	M20X1.5軸承螺帽-1	1
22	ACER-B1-E016Z軸皮帶5M-500(布膠)	1
23	M12X1.75X40內六角螺絲	6
24	M12彈簧墊圈	6
25	ACER-B1-B029Z軸行程定位塊固定板	1
26	ACER-B1-A047行程定位塊	1
27	吊臂	1
28	ACER-B1-E03配重塊	1
29	ACER-B1-E009Z軸上滾滾蓋板上固定板	1
30	ACER-B1-E012配重塊導桿下固定板	1
31	ACER-B1-E008配重塊導桿	1
32	ACER-B1-001Z軸上滾滾蓋板(鏈輪型)	1
33	M6X1X12內六角螺絲	1
34	M6X1X16平頭內六角螺釘	2
35	M8X1.25X20內六角螺絲	1



Drawing #: ACER-B1-B01			
Item #	Part #	Description	Quantity
1	ACER-B1-B001	Column	1
2	ACER-B1-0410	Spindle Housing Assembly	1
3	ACER-B1-B007	Ball Screw Nut	1
4	M6x1x20	Socket HD Cap Screw	4
5	ACER-B1-B007	Z Axis Ball Screw	1
6	ACER-B1-B03	Z Axis Upper Bearing Seat Assembly	1
7	ACER-B1-B04	Z Axis Lower Bearing Seat Assembly	1
8	ACER-B1-B010	Spacer-long	1
9	M5x5x20	Key	1
10	M5x5x25	Key	1
11	ACER-B1-B011	Bevel Gear (4019)	1
12	ACER-B1-B012	Washer	1
13	M8x1.25x16	Socket HD Cap Screw	1
14	M24	Spring Washer	6
15	M24x2.5x75	Socket HD Cap Screw	6
16	ACER-B1-E	Roller Chain Assembly	1
17	ACER-B1-A019	Pulley Spacer	1
18	ACER-B1-A020	Ball Screw Pulley	1
19	ACER-B1-B05	Servo Motor Assembly	1
20	M5x0.8x8	Set Screw	2
21	M20x1.5	Precision Lock Nut	1
22	ACER-B1-E016	Timing Belt 5mx500	1
	ACER-B1-E016F	Timing Belt for Fagor Servo Motor	1
23	M12X1.75X40	Socket HD Cap Screw	6
24	M12	Spring Washer	6
25	ACER-B1-B029	Z Axis Travel Locating Plate	1
26	ACER-B1-A047	Axis Positioning Block	2
27	ACER_B--F01	Control Arm Assembly	1
28	ACER-B1-E006	Balancing Block	1
29	ACER-B1-E009	Top Cover Locating Plate	1
30	ACER-B1-E012	Balancing Block Shaft Guiding Plate	1
31	ACER-B1-E008	Block Guiding Rod	1
32	ACER-B1-001	Z Axis Upper Accordion Cover	1
33	M6x1.0x12	Socket HD Cap Screw	4
34	M6x1.0x16	Round HD Cap Screw	18
35	M8x1.25x20	Socket HD Cap Screw	2



項次編號	零件檔案名稱	數量
1	ACER-B1-A022馬達法蘭座(YZ軸GM4000M1)	1
2	M8平墊圈	4
3	M8X1.25X30內六角螺絲	4
4	ACER-B1-A023GM4000M1伺服馬達(市購)	1
5	ACER-B1-A024GM4000M1馬達皮帶輪	1
6	M6彈簧墊圈	4
7	M6X1X35內六角螺絲	4
8	4.76X4.76平行鍵	1
9	M5X0.8X4止付螺絲	1
10	M5X0.8X6止付螺絲	1

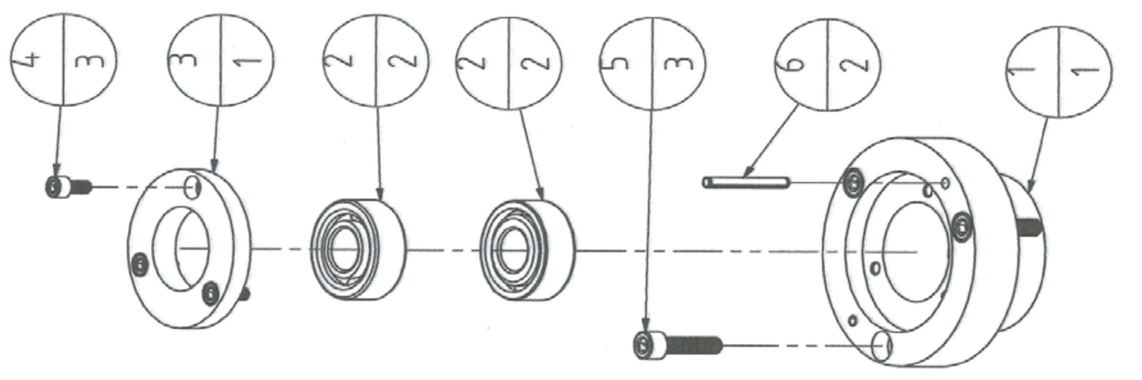
變更記錄				一般尺寸公差				單位	mm	數量	1/台	比例	1:5	圖號	ACER-B1-B05
標記	修改內容	修改者	日期	範圍	公差	範圍	公差	材質	*		日期	投影		圖名	Z軸電機爆炸圖
1				0.5-6	±0.05	316-1000	±0.3	設計	張政龍		100.07.30				
2				7-30	±0.1	1001-2000	±0.5	繪圖	張政龍		100.07.30				
3				31-120	±0.15	2001-3000	±0.8	校對							
4				121-315	±0.2	3001-6000	±1	核准							

亞欽股份有限公司

Drawing #: ACER-B1-B05			
Item #	Part #	Description	Quantity
1	ACER-B1-A022	Motor Plate	1
	ACER-B1-A022-F	Motor Plate for Fagor Servo Motor	1
2	M8	Washer	4
3	M8x1.25x30	Socket Hd Cap Screw	4
4	ACER-B1-A023	Z Axis Servo Motor	1
	ACER-B1-A023-F	Z Axis Fagor Servo Motor	1
5	ACER-B1-A024	Motor Pulley	1
	ACER-B1-A024-F	Motor Pulley for Fagor Servo Motor	1
6	M6	Spring Washer	4
7	M6x1x35	Socket Hd Cap Screw	4
8	M4.76x4.76x40	Key	1
9	M5x0.8x4	Set Screw	1
10	M5x0.8x6	Set Screw	1

11-15. ACER-B1-B03 Z AXIS UPPER BEARING SEAT ASSEMBLY

項次編號	零件檔案名稱	數量
1	ACER-B1-B008Z軸上軸承座	1
2	20TAC47B(20X47X15)	2
3	ACER-B1-A018軸承蓋(市購)	1
4	M6X1X12內六角螺絲	3
5	M8X1.25X30內六角螺絲	3
6	5X40	2



標記	修改內容	修改者	日期
1			
2			
3			
4			

一般尺寸範圍	公差	範圍	公差
0.5-6	±0.05	316-1000	±0.3
7-30	±0.1	1001-2000	±0.5
31-120	±0.15	2001-3000	±0.8
121-315	±0.2	3001-6000	±1

單位	mm	數量	1/台
材質		日期	
設計	張政龍		100.07.30
繪圖	張政龍		100.07.30
校對			
核准			
比例	1:2	圖號	ACER-B1-B03
投影		圖名	Z軸上軸承座爆炸圖

亞鈞股份有限公司

Drawing #: ACER-B1-B03			
Item #	Part #	Description	Quantity
1	ACER-B1-B008	Z Axis Upper Bearing Seat	1
2	20TAC47B	Ball Screw Support Bearing	2
3	ACER-B1-A018	Bearing Retaining Cover	1
4	M6x1x12	Socket HD Cap Screw	3
5	M8x1.25x30	Socket HD Cap Screw	3
6	M5x40	Roll Pin	2

11-16. ACER-B1-B04 Z AXIS LOWER BEARING SEAT ASSEMBLY

項次編號	零件檔案名稱	數量
1	ACER-B1-B009Z軸下軸承座	1
2	6005(25X47X12)	1
3	ACER-B1-A018軸承蓋(市購)	1
4	M6X1X12內六角螺絲	3
5	M8X1.25X25內六角螺絲	4

標記	修改內容	修改者	日期
1			
2			
3			
4			

變更記錄

一般尺寸公差			
範圍	公差	範圍	公差
0.5-6	±0.05	316-1000	±0.3
7-30	±0.1	1001-2000	±0.5
31-120	±0.15	2001-3000	±0.8
121-315	±0.2	3001-6000	±1

單位	mm	數量	1/台
材質			日期
設計	張政龍		100.07.30
繪圖	張政龍		100.07.30
校對			
核准			

比例 1:3 投影

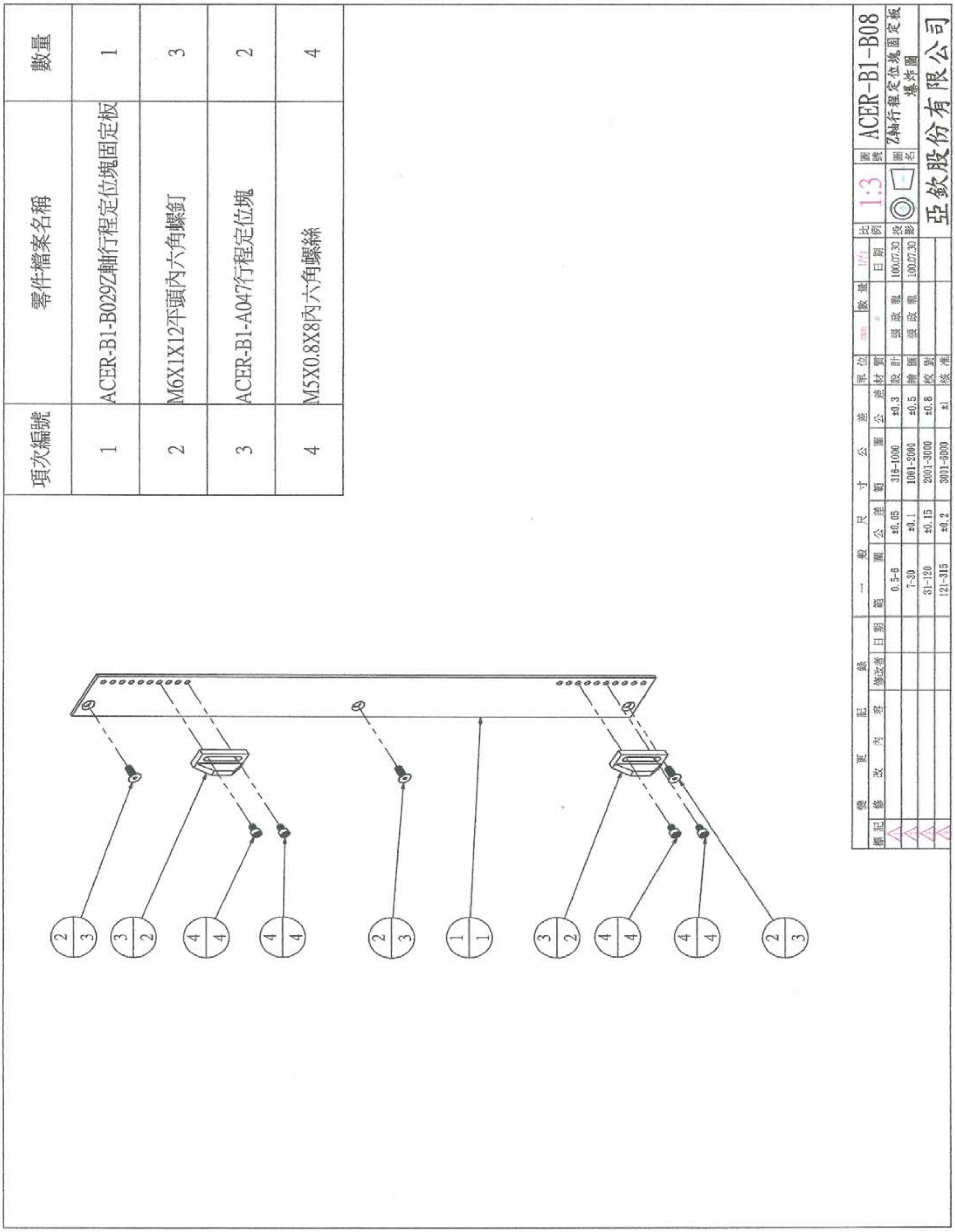
圖號 ACER-B1-B04

圖名 Z軸下軸承座爆炸圖

亞欽股份有限公司

Drawing #: ACER-B1-B04			
Item #	Part #	Description	Quantity
1	ACER-B1-B009	Z Axis Lower Bearing Seat	1
2	6005ZZ	Ball Bearing (25x47x12)	1
3	ACER-B1-A018	Bear Retaining Cap	1
4	M6x1x12	Socket HD Cap Screw	3
5	M8x1.25x25	Socket HD Cap Screw	4

11-17. ACER-B1-B08 Z AXIS TRAVEL LIMIT ASSEMBLY

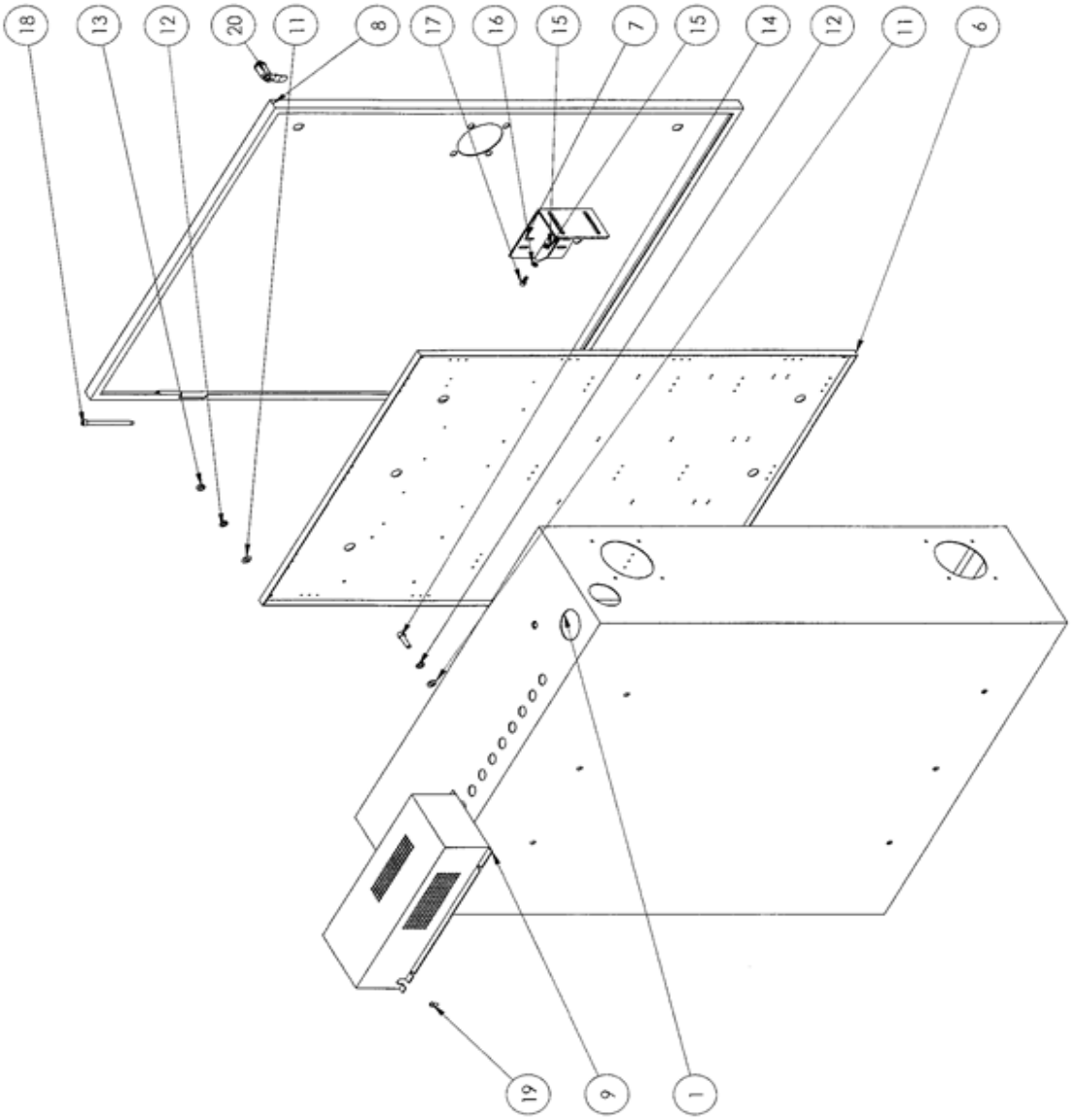


項次編號	零件檔案名稱	數量
1	ACER-B1-B029Z軸行程定位塊固定板	1
2	M6X1X12平頭內六角螺釘	3
3	ACER-B1-A047行程定位塊	2
4	M5X0.8X8內六角螺絲	4

Drawing #: ACER-B1-B08			
Item #	Part #	Description	Quantity
1	ACER-B1-B029	Z Axis Traveling Locating Plate	1
2	M6x1x12F	Flat Hd Socket Cap Screw	3
3	ACER-B1-A047	Axis Positioning Block	2
4	M5x0.8x8	Socket HD Cap Screw	4

11-18. ELECTRIC CABINET ASSEMBLY—Taiwan Version Only!

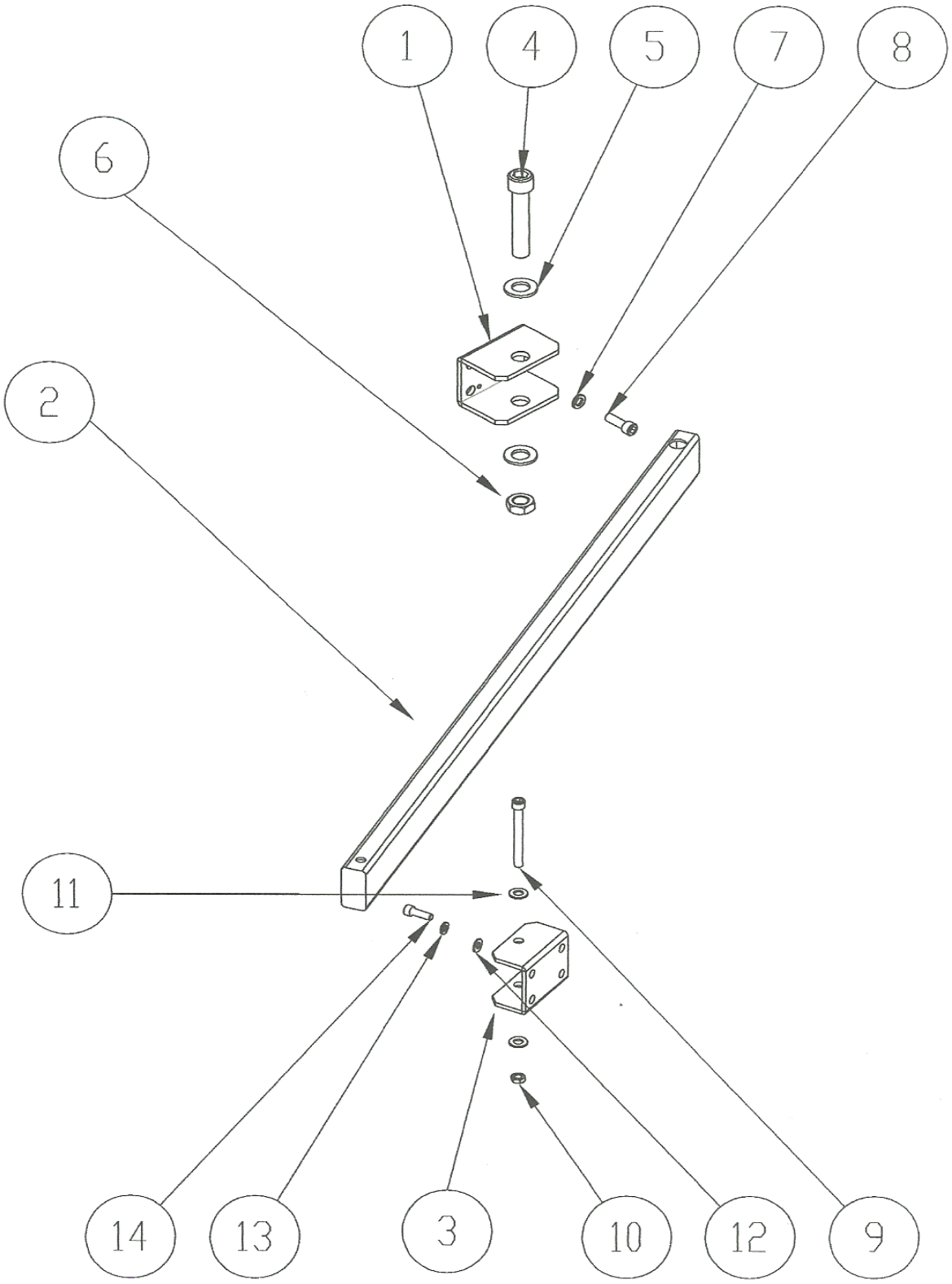
項次編號	零件名稱	數量
1	ACU-A01_電氣箱	1
2	ACU-B09_主軸變槽	1
3	固管-B	1
4	固管-A	1
5	ACU-B10_主軸變槽蓋板	1
6	ACU-A03-配電盤	1
7	ACU-A04-門閂固定座	1
8	ACU-A02_電氣箱門	1
9	ACU-A14_散熱風扇組	1
10	B18.3.4M - 5 x 0.8 x 8 SBHCS --C	1
11	M8平墊圈	2
12	M8彈簧墊圈	2
13	M8壓條	1
14	B18.3.1M - 8 x 1.25 x 30 Hex SHCS -- 30CHX	1
15	B18.22M - Plain washer, 6 mm, narrow	2
16	M6彈簧墊圈	2
17	M6X1X15內六角螺絲	2
18	100mm_底後蓋-B	1
19	B18.3.4M - 6 x 1.0 x 12 SBHCS --C	1
20	C-402	1



Item #	Part #	Description	Quantity
1	ACU-A01	Electric Cabinet-Main Body for Delta Servo Motor	1
	ACU-A01F	Electric Cabinet-Main Body for Fagor Servo Motor	1
2		NA	1
3		NA	2
4		NA	4
5		NA	1
6	ACU-A03	Electric Component Plate	1
	ACU-A03F	Electric Component Plate for Fagor Servo System	1
7	ACU-A04	Power Switch Locating Bracket	1
8	ACU-A02	Electric Cabinet-Cover	1
9	ACU-A14	Braking Resistor Cover	1
10		NA	4
11		M8 Flat Washer	10
12		M8 Spring Washer	10
13		M8 Hex Nut	4
14		M8x1.25x30 Socket Head Cap Screw	6
15		M6 Flat Thin Washer	4
16		M6 Spring Washer	4
17		M6x1x15 Socket Head Cap Screw	4
18	ACU-003	Hinge Roll Pin	2
19		M6x1.0x12 Round Head Socket Cap Screw	4
20	ACU-004	Door Lock Set	2

Note: For electric cabinet breakdown drawings on US installed machines, please refer to CNC controller's part list and operation manual.

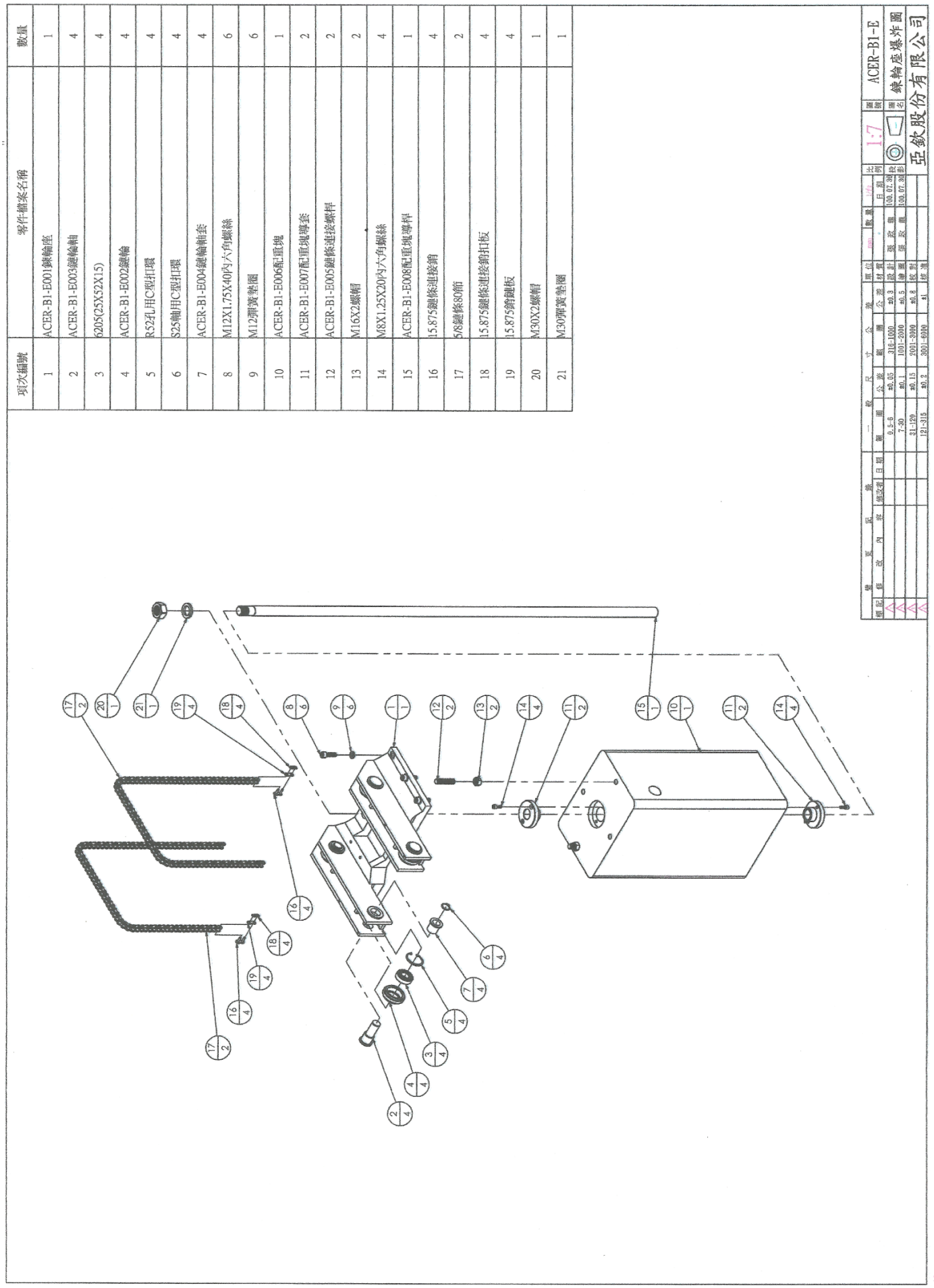
11-19. CONTROL BOX ASSEMBLY



Item #	Part #	Description	Quantity
1	ACER-B1-F001	Control Arm Locating Bracket-Column Side	1
2	ACER-B1-F002A	Control Arm for ATM 1054, 1050	1
3	ACER-B1-F003	Control Arm Locating Bracket-Panel Side	1
4		3/4"x 4" Socket Head Cap Screw	1
5		M20 Flat Washer	2
6		3/4" Hex Nut	
7		M10 Spring Washer	4
8		M10x1.5x30 Socket Head Cap Screw	4
9		3/8"x16UNCx88.9 Socket Head Cap Screw	1
10		3/8"x16UNC Hex Nut	1
11		M10 Flat Washer	4
12		M8 Spring Washer	4
13		M8 Flat Washer	4
14	ACER-B1-F004	M8x1.25x25 Socket Head Socket Cap Screw	1

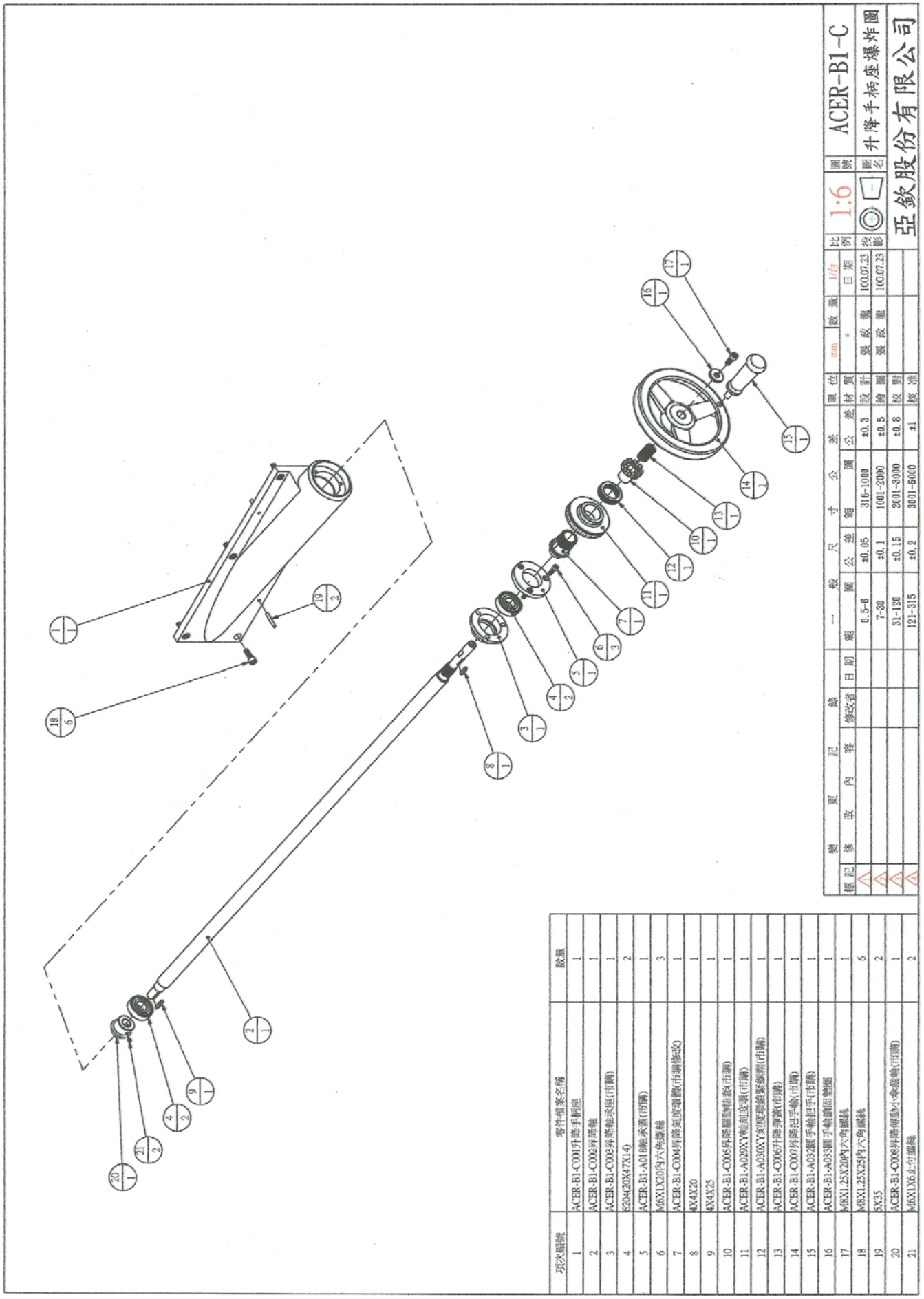
11-20. ACER-B1-E ROLLER CHAIN ASSEMBLY

項次編號	零件檔案名稱	數量
1	ACER-B1-E001鏈輪座	1
2	ACER-B1-E003鏈輪軸	4
3	6205(25X52X15)	4
4	ACER-B1-E002鏈輪	4
5	R52孔用C型扣環	4
6	S25軸用C型扣環	4
7	ACER-B1-E004鏈輪軸套	4
8	M12X1.75X40內六角螺絲	6
9	M12彈簧墊圈	6
10	ACER-B1-E006配重塊	1
11	ACER-B1-E007配重塊導套	2
12	ACER-B1-E005鏈條連接螺桿	2
13	M16X2螺帽	2
14	M8X1.25X20內六角螺絲	4
15	ACER-B1-E008配重塊導桿	1
16	15.875鏈條連接銷	4
17	5/8鏈條80節	2
18	15.875鏈條連接銷扣板	4
19	15.875銷鏈板	4
20	M30X2螺帽	1
21	M30彈簧墊圈	1



Drawing #: ACER-B1-E			
Item #	Part #	Description	Quantity
1	ACER-B1-E001	Chain Roller Seat	1
2	ACER-B1-E003	Roller Shaft	4
3	6205ZZ	Ball Bearings (25x52x15)	4
4	ACER-B1-E002	Roller Wheel	4
5	R52	C Type Snap Ring	4
6	S25	C Type Snap Ring	4
7	ACER-B1-E004	Roller Shaft Sleeve	4
8	M12x1.75x40	Socket Hd Cap Screw	6
9	M12	Spring Washer	6
10	ACER-B1-E006	Balancing Block	1
11	ACER-B1-E007	Shaft Sleeve	2
12	ACER-B1-E005	Chain Connecting Screw	2
13	M16x2	Hex Nut	2
14	M8x1.25x20	Socket Hd Cap Screw	4
15	ACER-B1-E008	Block Guiding Rod	1
16	15.875	Chain Dowel Pin	4
17	5/8"	Chain with 70 sections plus two halfs	2
18	15.875	Chain Connecting Plate	4
19	15.875	Chain Slip Plate	4
20	M30x2	Hex Nut	1
21	M30	Spring Washer	1

11-21. ACER-B1-C ELEVATION CRANK ASSEMBLY



項次編號	零件編案名稱	數量
1	ACER-B1-C001升降手柄座	1
2	ACER-B1-C002昇降軸	1
3	ACER-B1-C003昇降軸承座(市購)	1
4	S204(20X47X14)	2
5	ACER-B1-A018軸承蓋(市購)	1
6	M6X1.X20內六角螺絲	3
7	ACER-B1-C004昇降刻度環圈(市購修改)	1
8	4X4X20	1
9	4X4X25	1
10	ACER-B1-C005昇降圓動軸套(市購)	1
11	ACER-B1-A029XY軸刻度環(市購)	1
12	ACER-B1-A030XY刻度環固緊螺絲(市購)	1
13	ACER-B1-C006升降彈簧(市購)	1
14	ACER-B1-C007昇降把手軸(市購)	1
15	ACER-B1-A032圓手軸把手(市購)	1
16	ACER-B1-A033圓手軸鎖固螺圈	1
17	M8X1.25X20內六角螺絲	1
18	M8X1.25X25內六角螺絲	6
19	5X35	2
20	ACER-B1-C008昇降傳動小傘齒輪(市購)	1
21	M6X1X6止付螺絲	2

標記	變更內容	修改者	日期
1			
2			
3			
4			

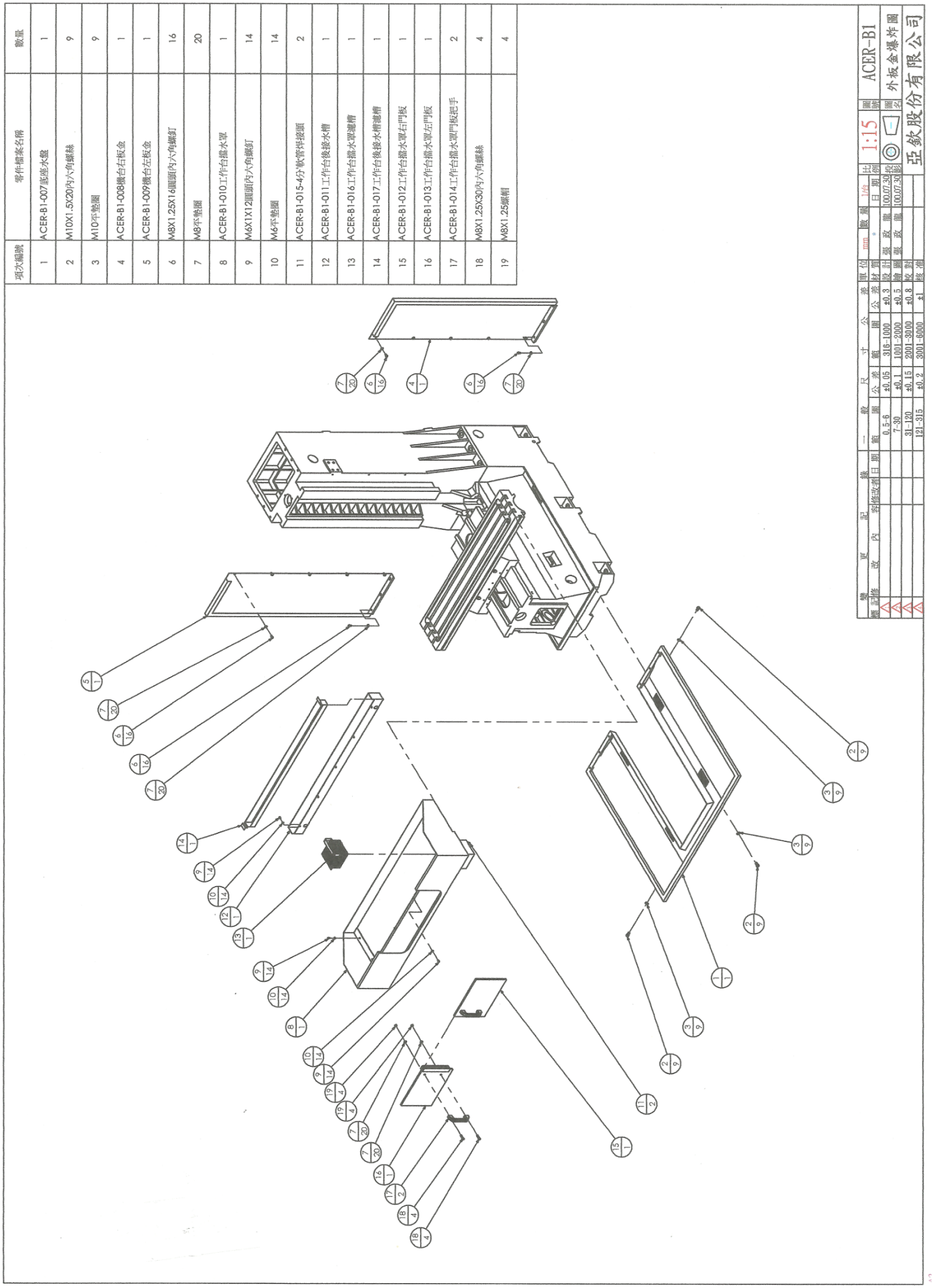
一般尺寸公差			
範圍	公差	範圍	公差
0.5-6	±0.05	316-1000	±0.3
7-30	±0.1	1001-2000	±0.5
31-120	±0.15	2001-3000	±0.8
121-315	±0.2	3001-6000	±1

單位	mm	數量	1/台	比例	1:6	圖號	ACER-B1-C
材質			日期	幾影		名稱	升降手柄座爆炸圖
設計	張政龍		100.07.23				
繪圖	張政龍		100.07.23				
校對							
核准							

亞欽股份有限公司

Drawing #: ACER-B1-C			
Item #	Part #	Description	Quantity
1	ACER-B1-C001	Elevation Handle Bracket	1
2	ACER-B1-C002	Elevation Shaft	1
3	ACER-B1-C003	Bearing Cap (4006)	1
4	6204ZZ	Ball Bearing (20x47x14)	2
5	ACER-B1-A018	Bearing Retaining Ring (2011)	1
6	M6x1x20	Socket HD Cap Screw	3
7	ACER-B1-C004	Dial Holder (4011)	1
8	M4x4x20	Key	1
9	M4x4x25	Key	1
10	ACER-B1-C005	Gear Shaft Clutch Insert (4013)	1
11	ACER-B1-A029	Dial (4010)	1
12	ACER-B1-A030	Dial Lock Nut (2016)	1
13	ACER-B1-C006	Spring	1
14	ACER-B1-C007	Handwheel	1
15	ACER-B1-A032	Handle	1
16	ACER-B1-A033	Washer	1
17	M8x1.25x20	Socket HD Cap Screw	1
18	M8x1.25x25	Socket HD Cap Screw	6
19	M5x35	Roll Pin	2
20	ACER-B1-C008	Bevel Gear (4014)	1
21	M6x1x6	Set Screw	2

11-22. ACER-B1 SHOWN WITH OPTIONAL ACCESSORIES



項次編號	零件檔案名稱	數量
1	ACER-B1-007底座水盤	1
2	M10X1.5X20內六角螺絲	9
3	M10平墊圈	9
4	ACER-B1-008機台右板金	1
5	ACER-B1-009機台左板金	1
6	M8X1.25X16圓頭內六角螺釘	16
7	M8平墊圈	20
8	ACER-B1-010工作台擋水罩	1
9	M6X1X12圓頭內六角螺釘	14
10	M6平墊圈	14
11	ACER-B1-015-4分軟管接頭	2
12	ACER-B1-011工作台後接水槽	1
13	ACER-B1-016工作台擋水彈簧槽	1
14	ACER-B1-017工作台後接水槽濾槽	1
15	ACER-B1-012工作台擋水罩右門板	1
16	ACER-B1-013工作台擋水罩左門板	1
17	ACER-B1-014工作台擋水彈門板把手	2
18	M8X1.25X30內六角螺絲	4
19	M8X1.25螺帽	4

變更記錄				一般公差				單位 mm	除氧	比例	1:15	圖號	ACER-B1
標記	修改內容	修改者	日期	範圍	公差	範圍	公差	材質	鍍鋅	日期		圖名	外板金爆炸圖
				0.5-6	±0.05	316-1000	±0.3	設計	羅政龍	100.07.29			
				7-30	±0.1	1001-2000	±0.5	繪圖	羅政龍	100.07.30			
				31-120	±0.15	2001-3000	±0.8	校對					
				121-315	±0.2	3001-6000	±1	核准					

亞欽股份有限公司

Drawing #: ACER-B1 with Optional Accessories			
Item #	Part #	Description	Quantity
1	ACER-B1-007	Chip & Coolant Pan	1
2	M10x1.5x20	Socket HD Cap Screw	9
3	M10	Washer	9
4	ACER-B1-008	Column Side Splash Guard-Right	1
5	ACER-B1-009	Column Side Splash Guard-Left	1
6	M8x1.25x16R	Socket HD Round Cap Screw	16
7	M8	Washer	20
8	ACER-B1-010-54	Table Splash Guard for 54” Table	1
	ACER-B1-010-50	Table Splash Guard for 50” Table	1
9	M6x1.25x16R	Socket HD Round Cap Screw	14
10	M6	Washer	14
11	ACER-B1-015	1/2" Nozzle Fitting	2
12	ACER-B1-011	Table Splash Guard Back Reservoir	1
13	ACER-B1-016	Chip Collecting Pan	1
14	ACER-B1-017	Table Splash Guard Collecting Pan	1
15	ACER-B1-012-54	Splash Guard Door-Right for 54” Table	1
	ACER-B1-012-50	Splash Guard Door-Right for 50” Table	1
16	ACER-B1-013-54	Splash Guard Door-Left for 54” Table	1
	ACER-B1-013-50	Splash Guard Door-Left for 50” Table	1
17	ACER-B1-014	Door Handle	2
18	M8x1.25x30	Socket HD Cap Screw	4
19	M8x1.25	Hex Nut	4