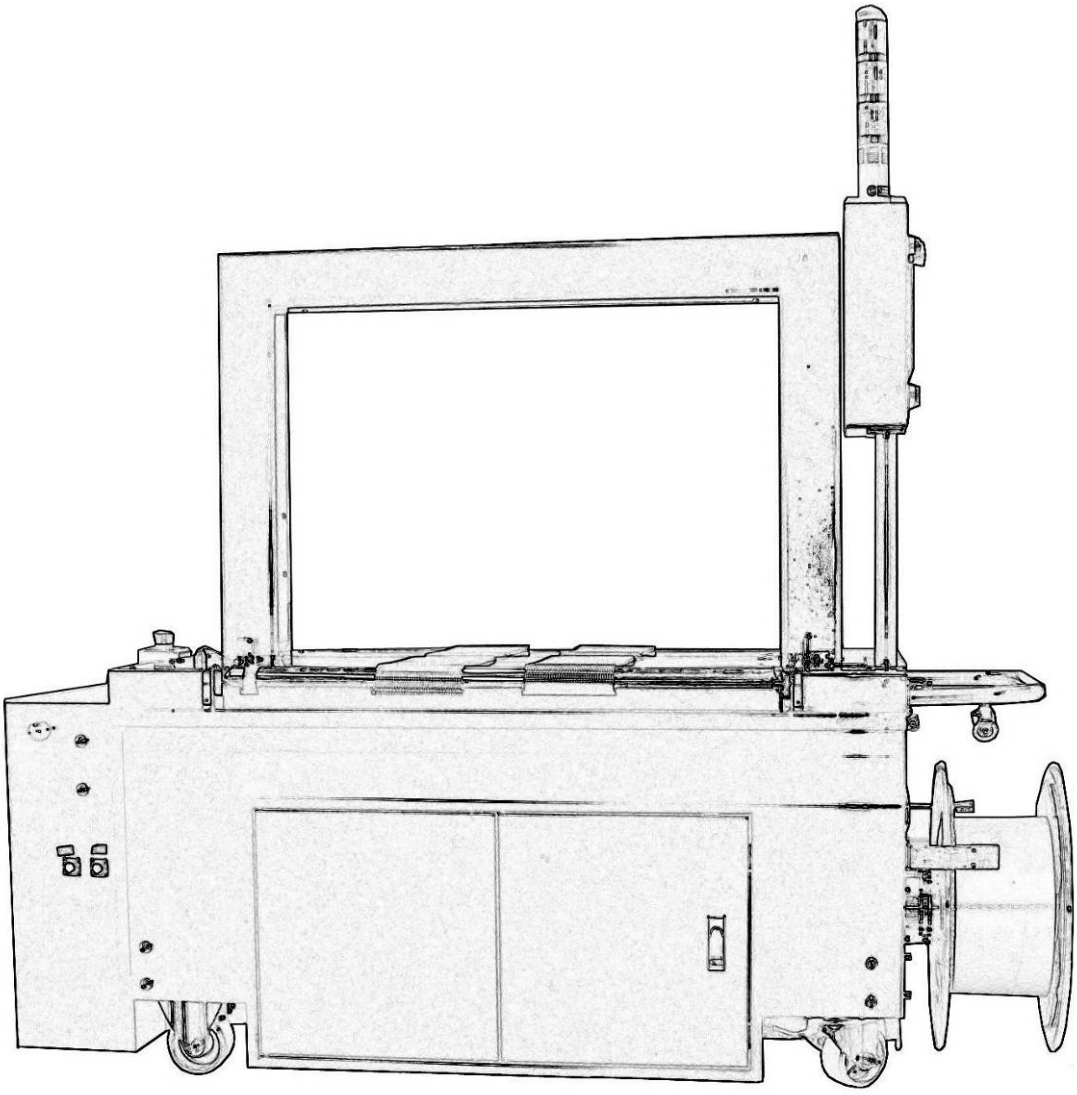
PC Pro

INSTRUCTION MANUAL
FOR
AUTOMATIC STRAPPING MACHINE



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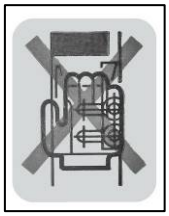
1 Safety Precautions

1.1 Safety Warnings

☞Warning labels can be found in this manual and PC Pro machine. Indicate situations that require extra attention during installation, operation and maintenance of PC Pro. Observe the associated precautions carefully of indicated potential hazard.

CAUTION **WARNING**: **DANGER**



1.2 Personal Safety Instructions

☞ The strapping machine has been designed to provide safe, efficient and trouble-free service for many years. However, as with any automatic machinery there is a risk of damage or injury if appropriate precautions are not taken.

You must read and understand the safety section and safety precautions in other sections of this manual before installation, operation, maintenance, or de-installation of the strapping machine. Section 1 Safety precautions, details inherent risks and general safety consideration associated with the operation and maintenance of this machine.

All operation and maintenance personnel must be trained by the manufacturer in the proper handling, operation, and maintenance of this machine. Failure to follow the precautions could result in equipment damage, personal injury, or loss of life.

<u>The following safety instruction must be observed when using or working on the PC Pro.</u>

- ✓ Read this operation manual before using the strapping machine.
- ✓ The operation manual should be attached to the machine all the time.
- ✓ Only trained personnel should operate the machine.
- ✓ Use protective equipment when machine running.
- ✓ Always disconnect the power supply when moving machine.
- ✓ Do not put any part of your body in bundle operating when machine is running.
- ✓ Do not put any part and tool onto the machine.
- ✓ Machine is only to be operated when it is in good condition.
- ✓ All safety and productive devices must be in place and fully functional.
- ✓ Check machine is fully safe before operation.

- ✓ All maintenance work and repairs have to through trained technician or engineer.
- ✓ Keep machine in dry condition.

1.3 Mechanical safety

☞ *The following safety precautions **must be observed** when using or working on the machine.*

1. Keep working area safety and clean before operating.
2. Work on or operate the machine only in good status and make sure that safety switch or emergency stop can be operated in normal.
3. If machine malfunction, please had the machine repaired by the trained and experienced engineers.
4. Before doing the maintenance or moving the machine, make sure to disconnect the power supply first.
5. Make sure to tighten all contact or connection after performing the maintenance.
6. Appropriate footwear is required when moving the strapping machine.

   When using a lift or forklift, make sure work with adequate capacity.
7. The using of suitable eye and ear protection is required while operating the machine or performing the maintenance.
8. Keep body and clothing out of the strapping position, arch and dispenser while running the machine.
9. Don’t put unnecessary parts, tools, food or drinks on the table top.
10. Don’t try to stand or sit on the table top.

- ➢ See Section 3, OPERATING INSTRUCTIONS, Section 4, ADJUSTMENTS, Section 5, PREVENTIVE MAINTENANCE, Section 7 SAFETY DURING INSTALLATION, and Section 8 SAFETY DURING DE-INSTALLATION for additional safety information..

1.4 Electrical safety

☞ *The following safety precautions **must be observed** when using or working on the machine.*

1. Strapping machine need to be grounded to avoid the risk of electric shock.
   Single phase machine is equipped with an electric plug including green earth (E).
   Three phase machine is equipped with a cord including green earth wire (with yellow wire for CE), make sure the electric plug or green earth wire all connect to the grounded socket or breaker to meet local electrical regulation
2. Before turning on the power, make sure the machine configured for the right phase and voltage.
3. If something wrong in the control system, please turn the power off first.
4. Only experienced and qualified electricians can perform works on the electric.
5. Regular inspect and make sure tighten all contacts and wires after doing the maintenance.
6. **DO NOT** attempt to remove the safety switches.

1.6 Pneumatic Safety

The following safety precautions must be observed when using or working on the PC Pro

1. Do not exceed the maximum operating pressure of the PC Pro.
2. Inspect all connections, horses, and fittings on a regular basis.
3. Periodically check the PC Pro pneumatic component operation.
4. Ensure all components are correctly assembled before applying air pressure.

1.7 Environment Safety

☞

1. Environmental temperature 0~50℃.
2. Environmental humidity 20%~85% RH.
3. Operation under high pollution environment, such as flying dust, salt and caustic gas, should be avoided.
4. Avoid working in a dim light. Providing sufficient light is necessary.
5. Working place should equip with fire extinguisher.
6. Don’t expose the machine in rain or damp environment.
7. The exhaust system shall be installed in order to prevent possible harmful gases, fumes or dust generated during heating.

2 Introduction

2.1 Purpose of the strapping machine

☞ The strapping machine has been designed to strap individual bundle with PP strapping. The strap is automatically applied around the bundle, securely heat sealed, and severed from the strap supply. See STRAPPING MACHINE TECHNICAL SPECIFICATIONS in section 2.3 for performance parameters and specifications for the strapping machine. Use of the strapping machine, for any purpose other than described in this publication or expressly approved by the manufacturer prior to implementation should be avoided. The strapping machine must be shut down for all maintenance procedures for which operation is not required.

2.2 Purpose Of This Manual

☞ The purpose of this manual is to:

1. Explain the operating principles.
2. Outline the maintenance and operating procedures.
3. Detail recommended adjustments of the strapping machine.
   Figures are included in the text illustrating the general arrangement and identifying major components. A more breakdown of the strapping machine will be found in drawings of each major assembly as well as a complete parts list.

2.3 Technical Specifications

☞ MACHINE WEIGHT:	440 lbs / 200 kg
CURRENT:	210/220/230/240/460/470/480/490V) 50/60HZ, three phase
STRAP WIDTH:	5mm, 6mm, 9mm.
STRAP THICKNESS:	0.40mm ~ 0.8mm
STRAP MATERIAL:	Polypropylene.
CYCLE SPEED:	up to 52 straps per minutes (Depending on arch size and package size).
Maximum bundle weight:	110 lbs (50 kg)
MINIMUM BUNDLE SIZE:	Height: 4mm / 1/8 inch. , Width: 250mm / 10 inch.
LENGTH:	100mm / 4 inch.
POWER CONSUMPTION:	0.7 kw

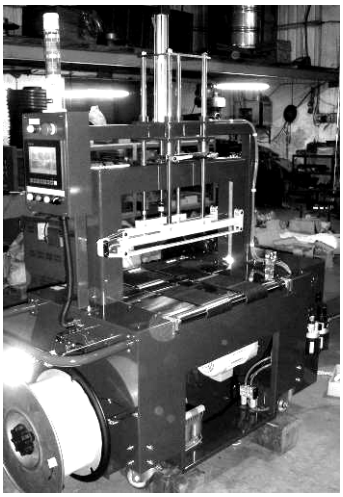
ATTN: 5,6,9mm strap width can be changed by optional accessory but 12mm cannot. If the desired strap width is 12mm, please specify when placing order.

The exhaust system shall be installed in order to prevent possible harmful gases, fumes or dust generated during heating. For the extraction of harmful substances, the exhaust system shall be positioned at the vent circulating location.

3 Operating Instructions

3.1 Introduction

☞ The strapping machine is designed for manual or automatic strapping operation. All the operation, adjustment, maintenance of strapping machine must be carried out by trained and authorized personnel.



Transportation

The equipment is delivered in transport units. Each transport unit is loaded onto a wooden pallet, secured by Polypropylene strapping, covered with a carton box for protection. Lift the unit using forklift truck or other lifting device. The machine can be removed from the pallet by using forklift truck or other lifting device.

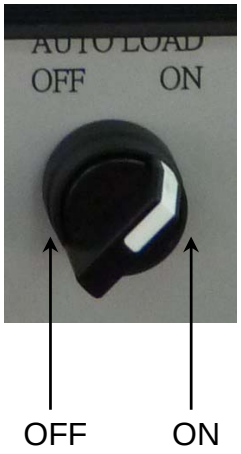
CAUTION:
Do not carry machine by having the forklift's fork under the arch, but only under the machine frame. Inappropriate mounting the load can cause serious injuries or death.

Installation

Remove the packing material and check that the machine is complete and without any shipping damage. DO NOT move the machine unless it is necessary. Before the movement, be sure to turn off the power.

3.2 Operator controls and indicators

☞ Auto Load ON/OFF Switch:



Turn the switch to "OFF"：

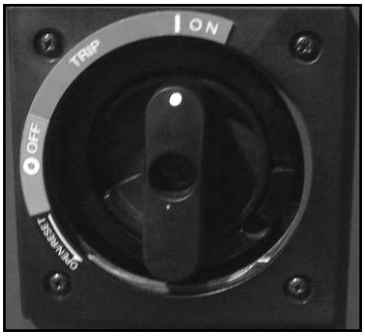
The brake of the dispenser is released. The dispenser can be turned freely so that strap can be fed manually through the accumulator's feeding rollers.

Turn the switch to "ON"：

Before switching to auto-feed mode, make sure that strap is properly inserted within the accumulator's feeding rollers.

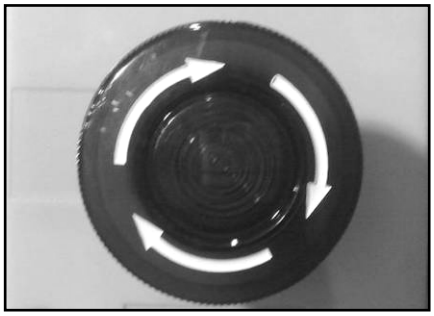
Select 'Off mode to manually feed the strap into the accumulator's feed rollers. Turn switch to "On" to perform auto loading, and the strap is fed into the accumulator and then filled through the arch.

☞ POWER ON-OFF Switch：

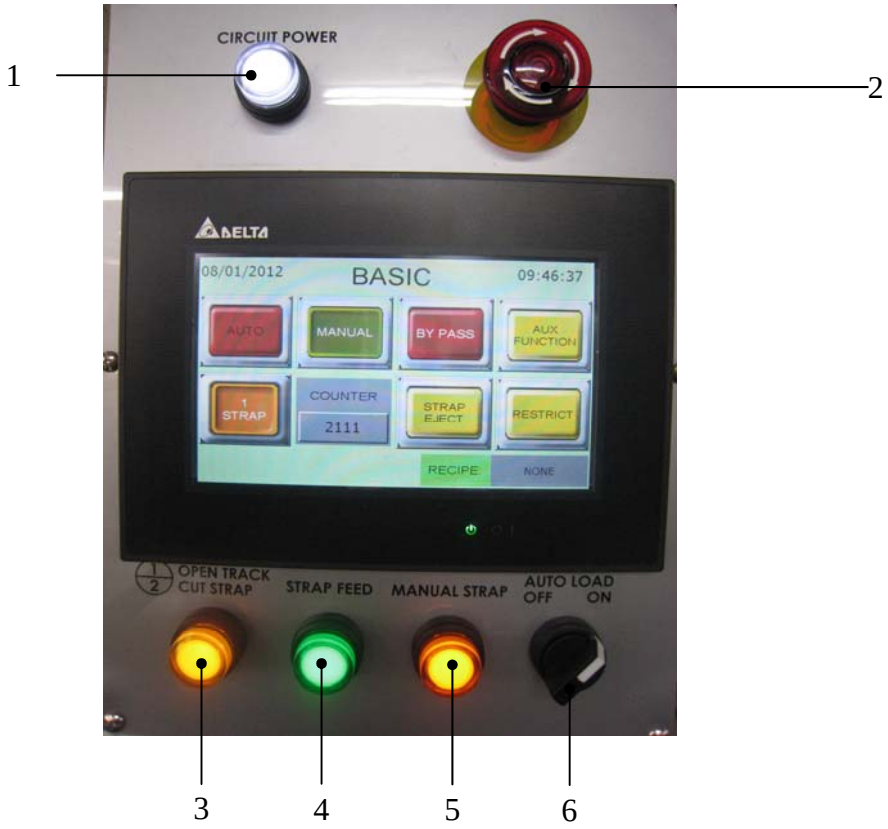


The main power ON-OFF switch, which controls the main electrical power to the strapping machine. The front door can only be opened when the switch is on OFF position.

☞ Emergency Stop Push Button：



This push button is to stop the machine immediately and interrupt main power. It is a push-pull twist to release the button. To restart the machine, pull or twist clockwise to release the emergency stop push button and press the circuit power button to retrieve the power.



1. **Circuit power:** to start the machine when the main power is switched on and emergency stop is released. Push the circuit power switch to start the equipment. Push button will illuminate, heater blade will heat up..

2. **Emergency stop (E-Stop):** push the E-Stop button to stop the operation of this machine. Motors and heater would be off and then red alarm light would illuminated. To restart, release E-stop button by turning the E-stop clockwise then push the circuit power button.

3. **Open track / cut strap:** in case of miss-feed, push the button to open the track. Push the button again to cut strap. Yellow light would be illuminated.

4. **Strap feed:** if strap is not fed to sealing position, push the button to feed strap, green light would illuminated if feeding succeed. If the strap is still not at the sealing position, green light would flash.

5. **Manual strap:** to operate under manual mode. Push “Manual” button on HMI. Manual mode – orange light flashing. Auto mode – orange light illuminates.

6. **Auto load On/Off:** OFF position- release dispenser brake. ON position– auto loading

- AUTO
  - 1 STRAP
  - 1 STRAP
  - 2 STRAP
  - 3 STRAP
  - MULTI STRAP
  - TIME SETTING
- MANUAL
  - COUNTER 12345678
- BY PASS
  - STRAP EJECT
- AUX FUNCTION
  - RESTRICTED
  - PASSWORD
    - PARAMETER SETTING-1
    - PARAMETER SETTING-2
    - MULTI STRAP OFF/ON
    - PRESS DISABLE/ ENABLE
    - EFFICIENCY
  - TENSION
  - TEMPERATURE
  - BASIC
  - STRAP PLACEMENT
  - ACYIVE ALARM
  - I/O MONITOR
  - PRESS OFF/ON

3.3 HMI system

1.Welcome page:

Welcome page will show after power is on, touch any place in the screen then enter to BASIC screen.

F-1

2.BASIC page:

2.1 AUTO

Automatically applying strapping, set by 2.3 STRAP NUMBER, 2.5 AUX FUNCTION, 2.6 RESTRICT

2.2 MANUAL

Apply the strap by pressing the start button.

2.3 STRAP NUMBER

In auto mode,

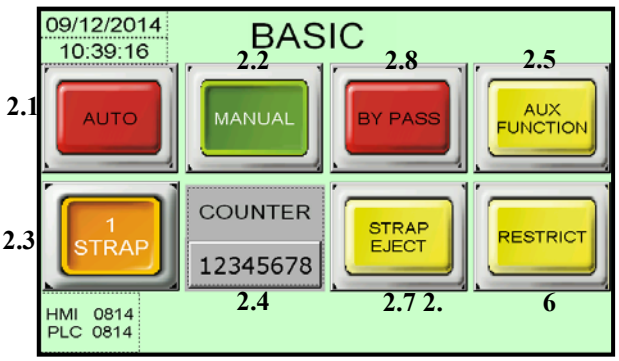
touch the buttun to select the number of straps

1 STRAP – apply one strap on one bundle

2 STRAP – apply two straps on one bundle

3 STRAP – apply three straps on one bundle

MULTI STRAP – to activate multi-strap mode (optional feature)

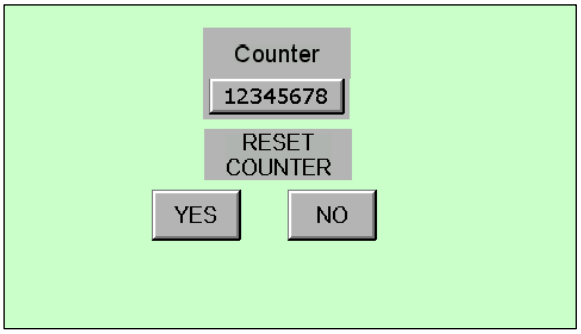


F-2

2.4 COUNTER

The button displays the number of straps that the strapping machine has applied.

To reset counter, touch the Counter button (F-2) and the screen (F-3) appears. Select YES to reset the number of the counter.



F-3

2.5 AUX FUNCTION

Press AUX FUNCTION button

and enter the adjustment page (F-4,F4-1).

Tension:

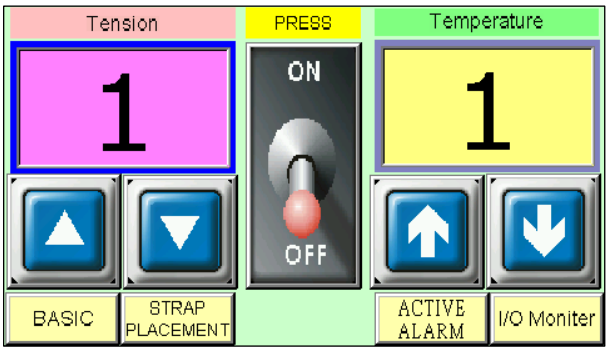
Touch  to incrase the strapping tension

Touch  to reduce the strapping tension

Temperature of heater:

Touch  to incrase the temperature of heater

Touch  to reduce the temperature of heater



F-4

Press:

Select 'ON' to activate the pneumatic unit

Select 'OFF to deactivate the pneumatic unit.

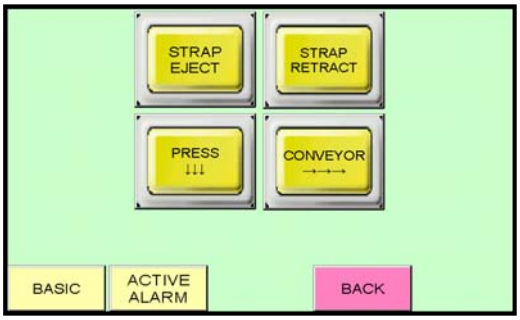
Function is disabled if "PRESS DISABLE" is set in F-9

STRAP EJECT:

strap ejected out from bandway and onto roller conveyor

STRAP RETRACT: strap retracted back to accumulator

CONVEYOR RUN: cause the conveyor to roll forwar under Manual mode.



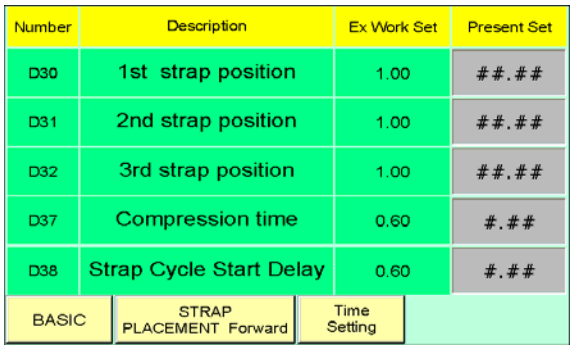
F4-1

PRESS DOWN: manually cylinder to press down

2.5.1 BASIC

Press this button to go back to Basic Page

2.5.2 STRAP PLACEMENT (F-5)



F-5

D30 - 1st strap position

D31 - 2nd strap position

D32 - 3rd strap position

D37 - Compression time – set duration time for the compactor unit, time after lowering of the compactor and before the rise of compactor after conveyor stops.

D38 Strap cycle start delay- when set to 0, machine straps immediately when conveyor stops; the higher the setting, the longer the delay.

Time Setting

configure HMI time setting

Strap placement forward (F-6)
After activating “MULTI STRAP” optional feature, strap posistion is determined by “Strap placement forward” setting.

Number	Description	Ex Work Set	Present Set
D600	PE1 strap position	1.00	##.##
D601	PE2 strap position	1.00	##.##
D602	PE3 strap position	1.00	##.##
D39	Conveyor Start Delay	0.60	#.##
D1340	Auto Feeding Time	1.00	##.##
BASIC	STRAP PLACEMENT Previous		

F-6

D600 PE1 strap position: (the first strap)
The delay strapping time after PH4 (entry photoeye) detects the bundle

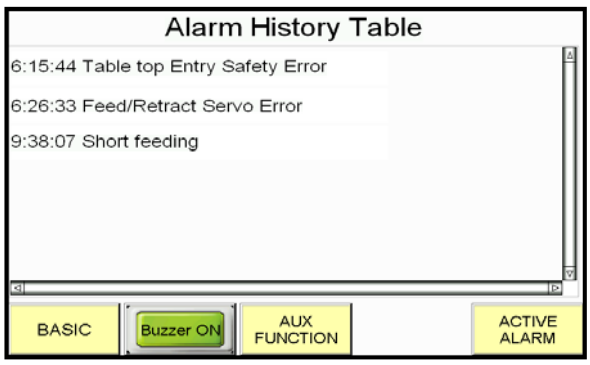
D601 PE2 strap position:
The delay strapping time after the first strap, defined until the second last strap.

D602 PE3 strap position: (the last strap)
The delay strapping time after the bundle exits the PH3 (exit photo eye).

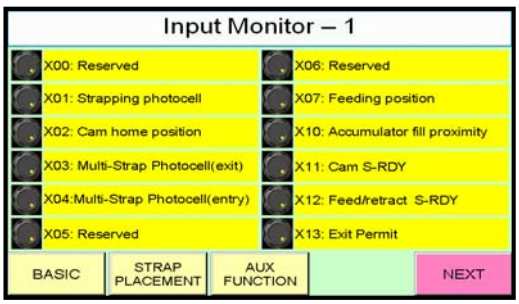
D39 Convor start Delay: whem set at 0, conveyor starts simultaneously when cam shaft is in home position.
Set value is the time delayed after the end of strapping cycle, before the conveyor starts; allowing the cylinder to raise if need be.
D1340-Auto Feeding Time –controls feed roller activation time. The larger the value, the longer the feeding time.

2.5.3 Active Alarm (F-7,F-7-1)

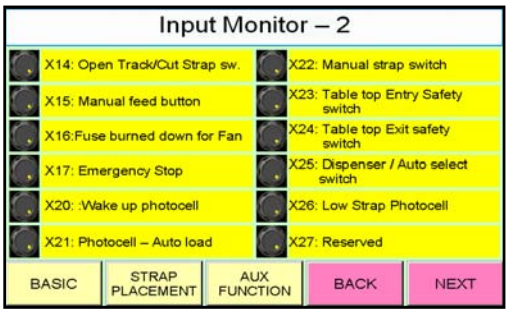
This page displays the error logs of the strapping machine.



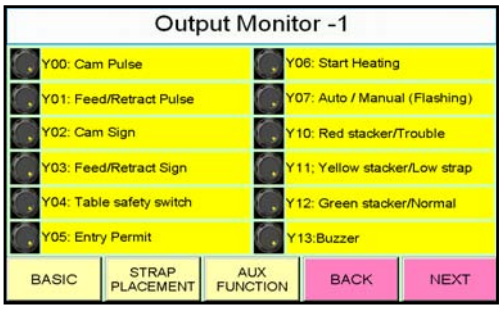
2.5.4 I/O Moniter (F-8)



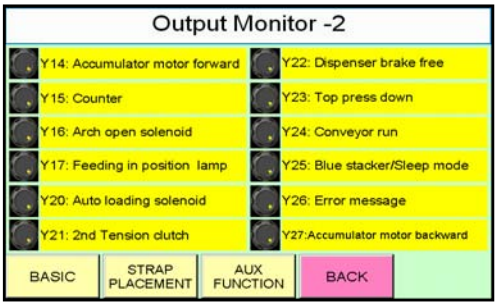
F-8



F-8-1



F-8-2

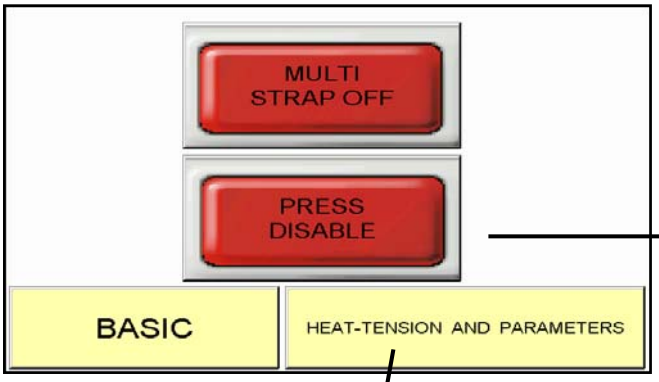


F-8-3

2.6 RESTRICTED button (FIG-2):

To adjust all parameter settings (FIG-9) from PLC for engineer or maintenance (password: 5566) such as Feeding, retracting, high tension time, sleep mode delay time, buzzer time, conveyor speed, complusion heating time, Buzz on/off, MULTI STRAP ON/OFF.

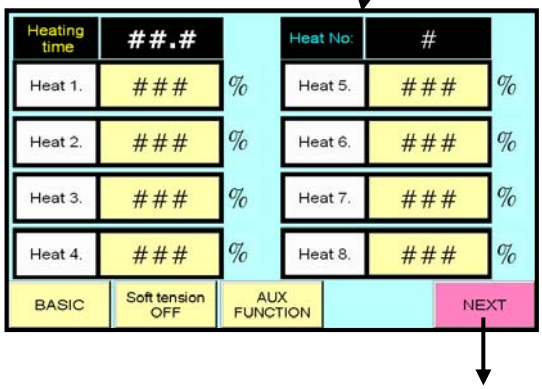
F-9

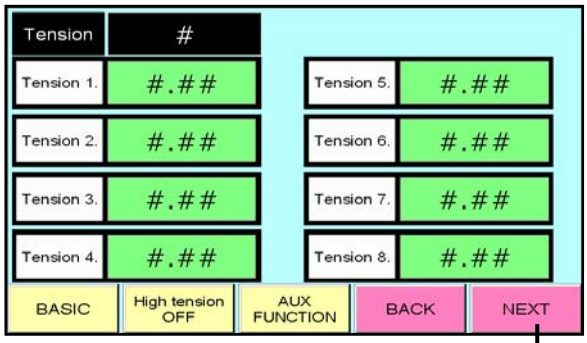


PRESS DISABLE/ENABLE

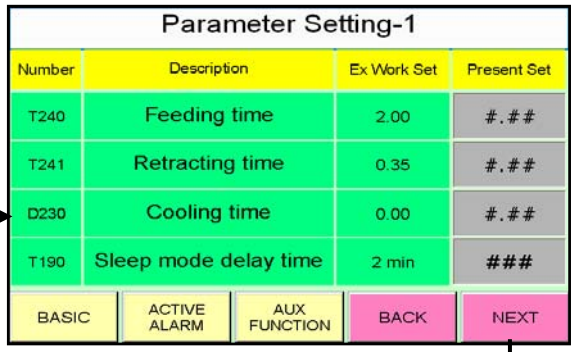
If machine is not equipped with press device, please set to PRESS DISABLE

F-9-1

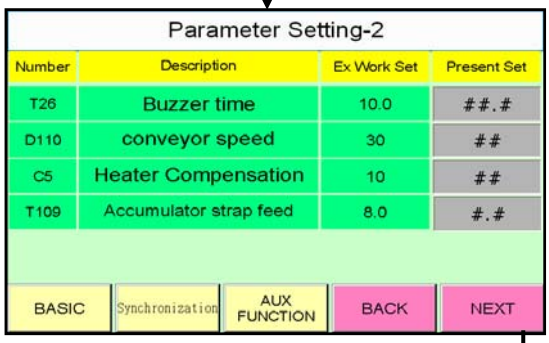




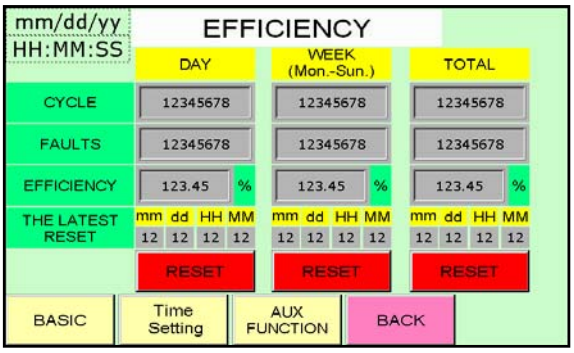
F-9-2



F-9-3



F-9-4



F-9-5

T190-Sleep mode delay time:

pre-set as 2 mins. After the certain amount of time without any new strapping signals (applying straps, reset…etc), the machine will stop its table belt transit and turn on sleep mode.

C5-Heater compensation:

after certain number of straps (set by this value), heater blade would be heated up again complusorily for maintaning the strapping performance.

2.7 Strap Eject button (F-2):

Press this button to remove all PP strap from accumulator and arch. The strap will be ejected from the strap inlet.

2.8 BYPASS (F-2)

press this button then the conveyor table top only conveys without strapping.

Emergency stop push button

HMI display the screen (see F-10) as the Following situation:

1) When the E-stop button is pushed,
2) the power is switched on, but circuit power button hasn't been pressed.

F-10

3.4 Starting the strapping machine

☞ 1. Ensure the electrical power supply and compressed air supply are properly connected to the strapping machine (see 2.3 Strapping Machine Technical Specifications)
2. Ensure all doors and top plates are closed and latched.
3. Ensure the Emergency Stop push button is pulled and released.
4. Rotate the ON-OFF switch clockwise so it is in the ON position with a “1” visible in the switch position indicator slot.
5. Press the Start/Strap push button once. It will illuminate to indicate the machine has been started.
6. Wait approximate 1 minute for the program to load and the temperature of the heater blade to rise.

3.5 Loading the strap

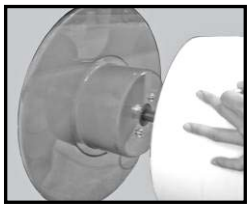
1. Turn on the strapping machine. Turn the select AUTO LOAD switch to ”OFF”.

2. Release the reel nut handle and remove the outer flange plate. Place a strap coil on the reel drum according to the arrow direction indicated on the reel out circular. Put back the flange plate and re-tighten the reel nut handle

3. Make sure the end of the strap is even.

4. Thread the strap under the strap exhaust switch, and through the accumulator’s feeding roller.

5. Turn AUTO LOAD to “ON” to start loading. PP Strap will be filled through the accumulator and the arch automatically. The start button illuminates when the strapping machine is ready for strapping.

1


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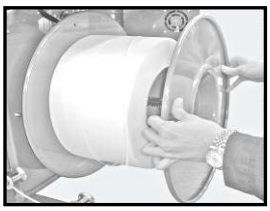

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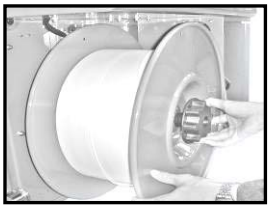

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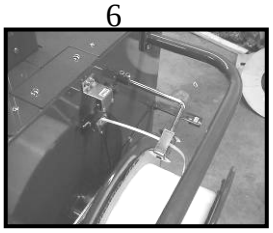

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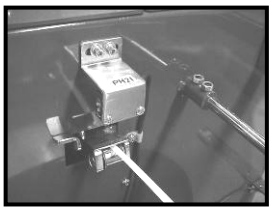


8


3.6 Manual operation

☞ 1. Turn on the strapping machine and ensure the E-stop released, all door and safety interlock are ready for operation.

2. Ensure the accumulator and track have been filled with strap.
3. Set the Manual/Auto under Manual mode. And the light of manual strap is flashed
4. Position a package under the arch, on the top plate. To strap the package, press the Start Strap push button. Machine will continue strapping if button is continuously pushed.

3.7 Automatic operation

☞ 1. Turn on the strapping machine and ensure door closed and table top latched.

2. Ensure the accumulator and track have filled with strap.
3. Set the Manual/Auto under Auto mode. Circuit power and strap feed illuminated.
4. Select single or double strapping or bypass.
5. Conveyors starts then the equipment perform the automatic strapping.

Attention! ***KEEPS HANDS AWAY FROM THE STRAPPING AREA***. *If hands are caught by PP strap accidentally or incident happens, push the E-stop button to stop all the operation, and then cut the strap.*

3.8 Unloading the strap

☞ 1. Turn on the machine and ensure that strap is loaded in the machine. Press the ‘strap eject’ button on HMI screen to eject all strap in the arch and accumulator.

2. Take outer flange out of coil dispenser.
3. Take strap coil from dispenser. Then put the flange back to the dispenser.

3.9 Shutdown

☞ 1. Eject the strap from machine.

2. Turn the ON/OFF power switch to the OFF position. An “O” should be visible in the indicator of panel.

4 Adjustments

4.1 General Safety Precautions

☞Carefully read Section 1, Safety precautions, before making any adjustments to the strapping machine. The safety section details inherent risks and general safety considerations associated with the operation of the strapping machine. Failure to follow these instructions could result in equipment damage, personal injury and/or death.

4.1.1 Safety Warnings

☞Warning labels that correspond with warning labels on the strapping machine are used throughout this manual. The signal situations that are required extra attention during machine installation, operation, or maintenance. Observe the associate precautions carefully as they indicate a potentially hazardous situation.

CAUTION

WARNING:

DANGER

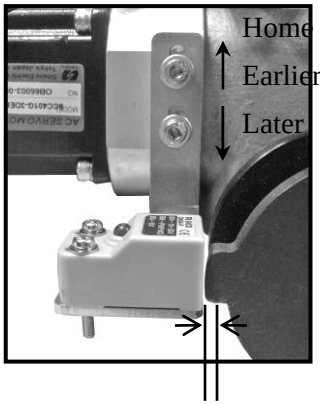
4.1.2 Personal Safety Provisions

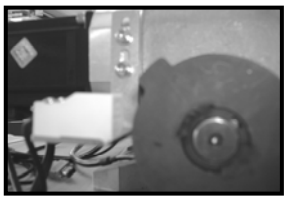
☞ The operation of strapping machine is fully automatic. Any inattention while close to the strapping machine could result in personal injury or equipment damage. Precautions must be taken to avoid material being automatically conveyed to the strapping machine when it is out of service. Shut down the strapping machine does not necessary prevent other equipment in the line from operating.

For all maintenance activities not requiring the strapping machine to be in operation, a lockout, tagout procedure applies, see Preventive maintenance. All personnel working on or around the strapping machine during installation must be qualified for their position.

4.2 Home Position Switch & Home Position Adjustment

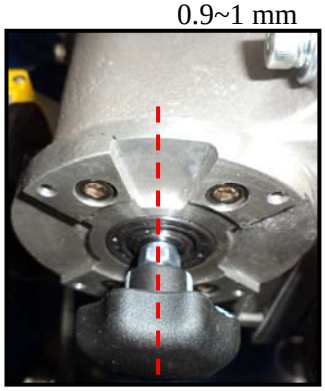
☞ Measure the gap from the switch to the face of cam. It should be 0.9mm. If the gap varies from this distance, adjust the switch by loosing the screw





0.9~1 mm

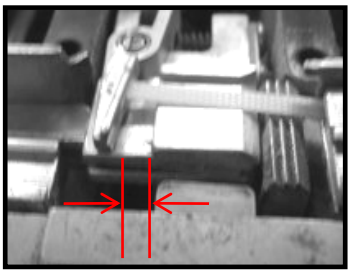
When setting the home position turn the handle of the gear reducer clockwise, when inner slide table just return, make a mark on the handle, this is origin point; Then turn the handle counter-clockwise, when front gripper is about to rise, make a mark, this is end point. Press reset to make sure every cycles ends right in the middle of the two points. If not, move the proximity switch upward or downward by loosening the fixed screw.
(When cam return to home position, prox. sensor will illuminate)



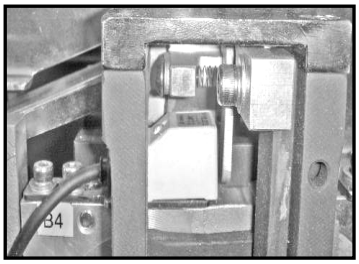
Make sure the two points are equidistant from imaginary central line when every cycle ends

4.3 Feed Stop Switch Adjustment

☞ 4.3.1 The ideal timing for prox. switch to illuminate is when the lever travels half or 1/3rd of its swing.



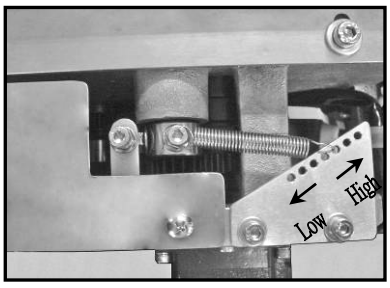
2~3mm



☞ 4.3.2 If the feed stop switch lever and feed stop switch do not line up, loosen switch lock-nut, move proximity switch, and re-tighten.

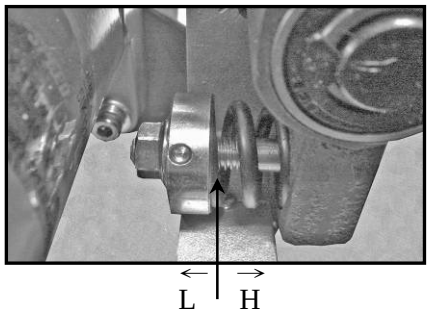
4.4 Feed / re-tracking pinch force Adjustment

☞ There are different positions for the spring hook to achieve a different pinch force. The further the hole and greater tension on the spring is for stronger pinch force and vice versa. Normal setting is hole # 2 or #4 from low position.



4.5 Second tension pinch wheel adjustment

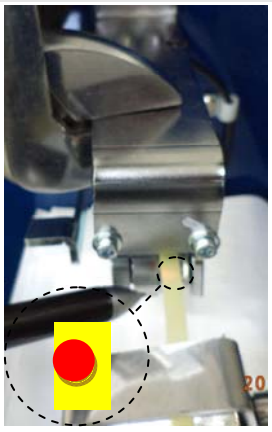
☞ The second tension roller pinch force is adjusted through the spring force as illustrated on the picture. To secure higher pinch force, please turn the stop nut clockwise then re-tighten locknut. The higher compression force is for higher pinch force on main roller.

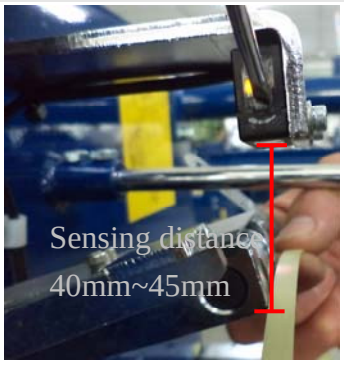


4.6 Strap empty sensor adjustment

☞ For optimum strap sensing, make sure the red spot is projected along the left edge of the strap, if not; make adjustments by changing the angle of the bracket with a wrench.

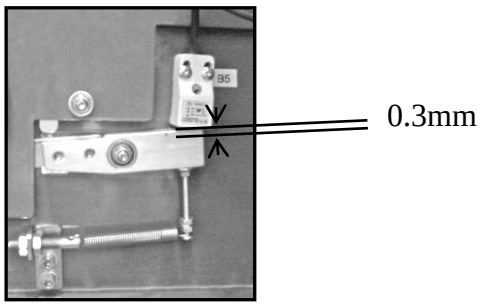
Make adjustments to the VR of photocell if the sensor is not activated when strap is place at the bottom edge of the lower strap guide or when strap is inserted into the roller. The sensing distance should be between 40mm~45mm.





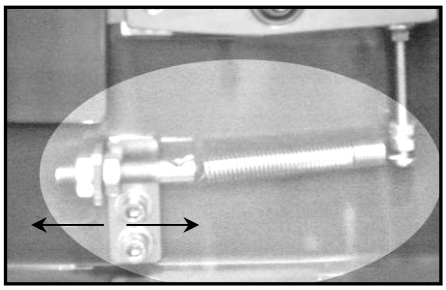
4.7 Accumulator fill proximity switch adjustment

☞ The accumulator wand goes down and activates the accumulator fill proximity switch when there is adequate strap supply in the accumulator. To adjust the proximity switch, loosen the two nuts, adjust the switch as shown for proper operation, and then re-tighten the nuts (Figure).



4.8 Accumulator fill volume adjustment

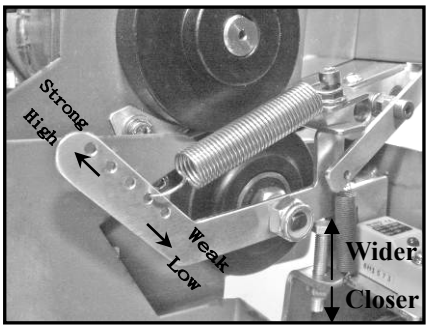
☞ To adjust the strap volume to the desired amount of strap, loosen or tighten the tension on the wand spring by adjusting the length of the spring mounting screw. To reduce the amount of strap in the accumulator, loosen the jam nuts on the mounting screw and spin the nuts counter-clockwise. To increase the amount of strap in the accumulator, spin the lock nuts in a clockwise direction until the desired amount of strap fills the accumulator.



High volume Low volume

4.9 Accumulator Fill Force Adjustment

☞ The different hook positions are designed for adjusting the pressure of the roller on the strap; the higher position for higher pressure and vice versa.
Initial setting of gap between iron rollers is 0.1mm; between rubber rollers is when the rollers just touch.

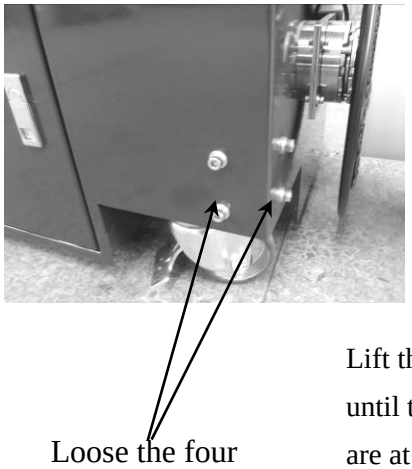


4.10 Strapping Height Adjustment

☞ WARNING: USE FORKLIFT IN A SAFE AND APPROPRIATE MANNER. ENSURE THAT ALL LIFTING OF THE STRAPPING MACHINE IS DONE IN A SAFE AND RESPONSIBLE MANNER. FALLING OBJECTS POSES A LIFE THREATENING HAZARD.

To adjust the height of the machine, first support the weight of the machine and loosen the two hex-head bolts on each leg of the machine. Lift the machine until the table top is at the desired working height. Then release the tension on the retaining bolts and slide the legs to the floor. Tighten the retaining bolts to retain position.

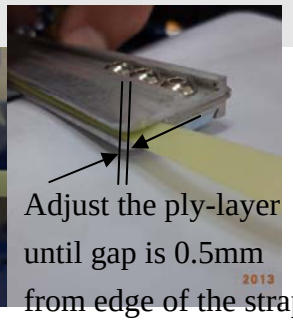
WARNING: DON NOT LOOSENS THE LEG BOLTS PRIOR TO SUPPORTING THE MACHINE WEIGHT.



Loose the four hex-head bolts

Lift the machine until the top plated are at the desired working height

4.11 Strap Width Adjustment



Adjust the ply-layer until gap is 0.5mm from edge of the strap to the opening of the strap guide

☞ Adjust the bottom right strap guide as follow

(a). Release the three fixed screws of the bottom right strap guide so the ply-layer of the guide can be adjusted.

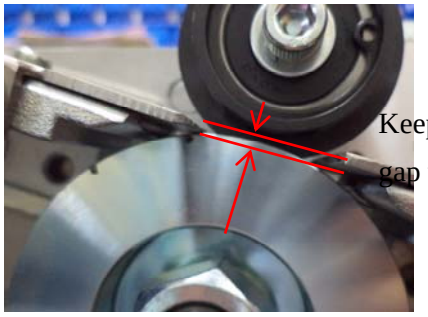
(b).Adjust the ply-layer so when place the strap against it, the gap until the opening of the guide is only 0.5mm.

4.12 Feeding roller gap adjustment

*Hold and press feed bottom during the whole adjustment. (A) Turn the screw counter-clockwise until the roller touch and stop. (B) Then, turn clockwise, halt when the roller just part. (C) Then continue turning clockwise for another 90°, the ideal gap is set.

By now, the rollers will be set 0.1mm apart from the bulge of top roller to the groove of bottom roller. **Final adjustment of pinch force achieved through setting spring force as shown in (section 4.4)*

Adjust feeding roller gap through this screw



Keep Feed Roller gap within0.1mm

4.13 Heater temperature adjustment

☞ **Heater temperature**

Heater's temperature is monitored at all times. The temperature controlling system would heat up or off to keep the heater temperature kept as preset value. The machine is set at 320℃ (3 on temp control dial for 5/6mm strap, 360℃ (4 on temp-control dial) for 9mm strap. If seal is still in melting stage after strapping, temperature is set too high. If seal snap right off when tearing, temperature is to low.

☞ **Tension**

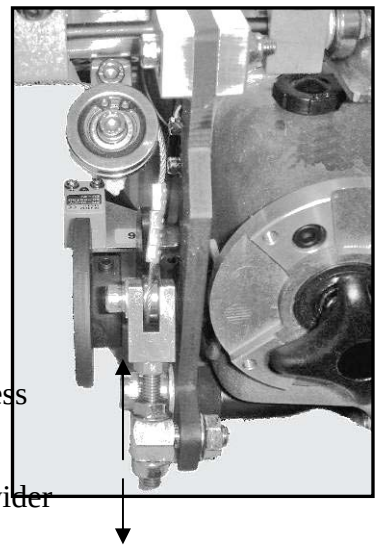
The tension is decided by the second retracting time. Operator may adjust the tension according to the needs.

☞ **Weld cooling**

Under higher strapping tension requirements, the machine should be adjusted to higher cooling time. The higher tension is set, the longer cooling time is required.

4.14 Track opener wiring Adjustment

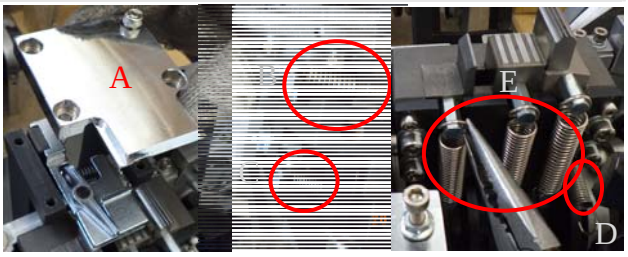
☞ The arch opening can be adjusted by setting the screw as shown in the picture. To adjust the wire, loosen the two nuts, adjust the wire as shown on proper position and then re-tighten the nuts. The wire must be of the original manufacture's; any other specification or type may create other problems. To make sure the adjustment is correct; check by turning hand-wheel to make sure the arch chute is closed against the back plate. It is recommended to open just 15±2mm from the back plate.

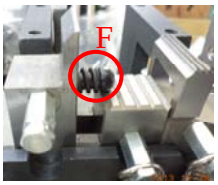


4.15 Cutter Block cleaning and replacement

The cutter block could be taken out for maintenance or replacement by going through the following steps:

(A). Remove slide table
(B). Release slide table bracket spring
(C). Release inner slide table arm spring
(D). Release heater arm spring
(E). Release front gripper, pres bar, rear gripper spring
(F). Release compression spring in rear gripper
Replace or perform maintenance activity on cutter block unit, reverse the previous steps after work is done.

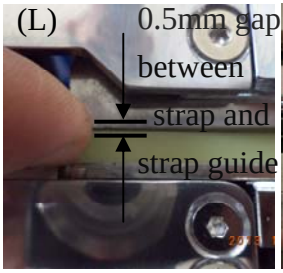


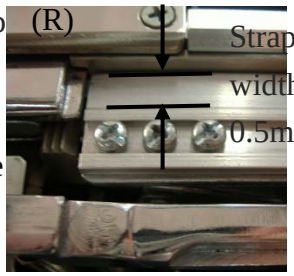


When press bar gets dull, change the side of the edges to make cuts sharp again. Change the spring post to other side when doing so.

4.16 Strap Sealing Alignment Adjustment

☞ Strap sealing alignment can be adjusted by loosening the screw of the strap width adjustment assembly as shown in bottom left illustration. Make adjustments to the assembly so that when closed, only 0.5mm gap is allowed.

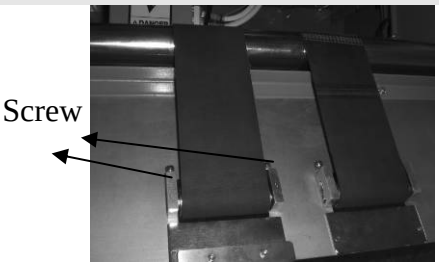




Loosen the screw of strap width adj. Ass'y

4.17 Table Belt Adjustment

☞ Loosen or tighten the screw to adjust the tension of belt.

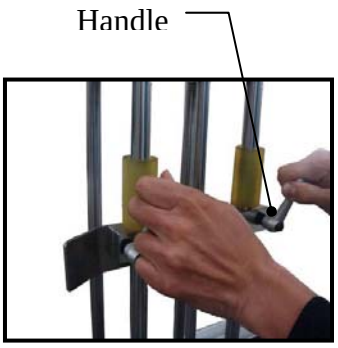


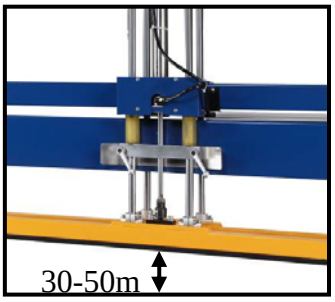
4.18 Top Press Plate Adjustment

☞ If height range of each bundle is similar, then can adjust top press platen to a suitable position to shorten the time of going to the top each time.

How to adjust

1. loose two handles
2. keep top press platen above bundle about 30~50 mm
3. tighten two handles





4.19 Pneumatic Pressure Adjustment

1. Connect air supply hose through quick coupling. Regulate the air pressure on 6kg. (Fig 1)
2. Regulator valve which can adjust the speed of pneumatic cylinders by regulating the flow of air. (Fig 2)

Fig 1

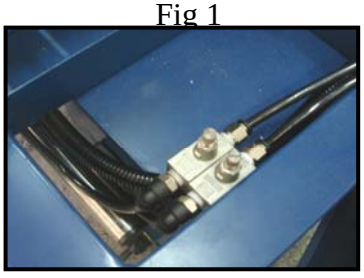


Fig 2

5 Preventive Maintenance

5.1 General Safety Instructions

☞ The strapping machine has been designed to provide safe, efficient and trouble-free service for many years. However, as with any automatic machinery there is a risk of damage or injury if appropriate precautions are not taken. You must read and understand the safety section and safety precautions in other sections of this manual before installation, operation, maintenance, or de-installation of the strapping machine.

Section 1 Safety precautions, details inherent risks and general safety considerations associated with the operation and maintenance of this machine. Failure to follow these precautions could result in equipment damage, personal injury, or loss of life. All operation and maintenance personnel must be trained by the manufacturer in the proper handling, operation, and maintenance of this machine.

5.1.1 Safety Warnings

☞ Warning labels found in this manual and on the strapping machine indicate situation that require extra attention during strapping machine installation, operation, maintenance, or de-installation. Observe the associated precautions carefully as they indicate potentially hazardous situations.

CAUTION

WARNING:

DANGER

5.2 Lockout Tag out Procedure

☞ The strapping machine is an automatic machine. Any inattention while close to the strapping machine could result in a mishap. Precautions must be taken to avoid material being automatically conveyed to the strapping machine when it is not in service. Shutting down the strapping machine does not necessary prevent other equipment in the line from operating.

For all maintenance activities not explicitly requiring the strapping machine to be in operating, a lockout tagout procedure applies. All personnel working on or around the strapping machine during installation must be qualified for their position. All local laws and facility specified lockout tagout requirements that meet or exceed this procedure must be strictly adhered to.

☞ 5.2.1.1 Ensure no product can be conveyed into the strapping machine.

5.2.1.2 Press the red Emergency Stop push button.

5.2.1.3 Turn the ON/OFF switch to the OFF position.

5.2.1.4 Lock the ON/OFF switch on the OFF position.

5.2.1.5 Tag the pendant with a sign: Maintenance Activities in Progress

To re-establish the normal strapping machine operation, reverse the lockout tagout procedure, and follow the instructions as shown in Section 3, Operation Instructions.

5.3 Pneumatic Safety (If so equipped)

☞ The following safety precautions must be observed when operating or doing maintenance：

1. DO NOT exceed the maximum operating pressure of the strapping machine.
2. DO NOT stand, sit or lie on the strapping machine.
3. Inspect all connections, hoses and fittings on a regular basis.
4. Periodically check strapping machine pneumatic component operation (if equipped).

5.4 Maintenance required after each 15,000 straps

☞

Maintenance Item	Maintenance activity	Safety Warning
1.Blow out machine 2.Apply bearing grease	- Blow the strap dust and other debris off of the interior and exterior of the machine at the end of every 15,000 straps. - Apply “KYODO YUSHI MUL TEMP PS NO.2” grease onto front gripper, press bar, and rear gripper.	**Caution**: Do not use the air horse to clean anything other than the machine. **Caution**: Flying debris can cause injury to the eyes and noise can result in hearing loss. Wear eye and hearing protection at all times.
＊It is recommended, if possible, to blow the debris out of the machine daily		

5.5 Maintenance required after each 150,000 straps

Maintenance Item	Maintenance activity	Safety Warning
1. Blowing down internal portion of sealing head 2. Apply bearing grease	-Blow out the sealing head with compressed air. -Apply “KYODO YUSHI MUL TEMP PS NO.2” grease onto front gripper, press bar, and rear gripper.	**Caution**: Be careful of pinch points when opening and closing doors and cover. **Caution**: Do not use air horse to clean anything other than the machine. **Caution**: Flying debris can cause injury to the eyes and noise can result in hearing loss. Wearing eye and hearing protection at all times.
＊It is recommended, if possible, to blow the debris out of the machine daily		

5.6 Maintenance required after each 300,000 straps

Maintenance Item	Maintenance activity	Safety Warning
1. Check heater blade temperature setting. 2. Check condition of clutch’s gap. 3. Check condition of all drive and conveyer belts 4. Check condition of all pneumatic (if is equipped) connections hoses and fittings. 5. Apply bearing grease	-make sure the gap is within 0.15~0.25mm wide; if not, please make adjustments -Apply “KYODO YUSHI MUL TEMP PS NO.2” grease onto front gripper, press bar, and rear gripper.	**Caution**: Be carefully of pinch point when opening and closing machine doors and cover. DO NOT touch the heater blade. A severe burn may result from contact.
＊It is recommended, if possible, to blow the debris out of the machine daily		

5.7 Maintenance required after each 500,000 straps

Maintenance Item	Maintenance activity	Safety Warning
1.Check adjustment of right hand gripper, height and force 2.Apply bearing grease 3. Check home position 4. Check brake 5. Check accumulator motor/roller	-check if the following height dimensions are within range, (front gripper: 106.5 + 0.2/-0.1 press bar: 97 + 0.2/-0 rear gripper: 98 + 0.2/-0.1 mm) if not, please replace. - Apply “KYODO YUSHI MUL TEMP PS NO.2” grease onto front gripper, press bar, and rear gripper. -For home position adj., refer to 4.2 - Check if hang-loose straps are presence at the bottom side of the dispenser; if yes, replace brakes -Check if strap skids or feeds smoothly; if not, check wear/replace on accumulator motor and feed roller (see adj. 4.9)	**Caution**: Be carefully of pinch point when opening and closing machine doors and cover. DO NOT touch the heater blade. A severe burn may result from contact.
＊It is recommended, if possible, to blow the debris out of the machine daily		

5.8 Maintenance for Applying Bearing Grease

Grease spec:
“KYODO YUSHI MUL TEMP PS NO.2”

Procedure:
Following the instruction of maintenance, regularly apply the grease onto front gripper, press bar, and rear gripper of sealing head unit. Paste bearing grease on the sides of bars/cutter, to ensure smooth movement of bars.

6 Trouble Shooting

Before troubleshooting, read Section 1 ‘Safety Precautions’ and Section 5 ‘Preventative Maintenance’ in the operation manual. Adjustments made to the strapping machine must be performed by trained and authorized personnel. Ensure the area is clear before restarting the machine. A maintenance log should be kept to track the machine’s malfunctions. Recommend to record:

- ✓ The date of problem occurrence
- ✓ A description of the encountered problem
- ✓ Pertinent machine settings at the time of problem occurrence or machine settings that seem to result in a problem.
- ✓ Any corrective actions taken

If a pattern of mechanical problems becomes evident, please inform your dealer and provide recorded log information, photos, or videos.

The following troubleshooting chart is designed to assist maintenance personnel in the identification and correction of problems that may occur with the strapping machine. If problems persist or cannot be resolved, contact your dealer for further assistance.

Symptom	Probable cause	Remedy
☞ Machine not start	1. Strapping machine not started properly. 2. Emergency stop push on. 3. Door with Safety key open. 4. Tabletop not closed 5. Strap improperly threaded	1. Refer to starting the strapping machine. 2. Release the E-Stop button. 3. Close the Electrical control box's door. 4. Close the tabletop 5. Check if the machine is properly threaded
☞ Strap not loaded	1. Strap accumulator motor pinch rollers out of adjustment. 2. Strap feed idle roller interfering with strap guide cover. 3. Strap accumulator fill proximity sensor out of adjustment. 4. Machine configured for incorrect strap width. 5. Accumulator motor not working	1. Adjust the accumulator pinch force. (See adjustment 4.9). 2. If feel the idle roller interfered, then adjust the cover so it may turn freely. 3. Adjust strap empty sensor. (See adjustment 4.6.) 4. Change the strap according the instructions. 5. Check and see if replacement is needed
☞ Strap not feed around track	1. Obstruction in feed path. 2. Track out of adjustment. 3. Feed wheel gap too wide. 4. Feed distance too short.	1. Hand feeding the strap through the track, remove the obstruction. Verify the sealing head is in the home position during the feed cycle. 2. Adjust the track (See adjustment 4.16). Make sure the track is close against the side frame. And opening is wide enough. 3. Adjust the feed roller gap which should be 0.1mm. (see adj. 4.12, 4.4) 4. Adjust the feeding time which should be set according to the adjustments.

6 Trouble Shooting

Symptom	Probable cause	Remedy
	5. Idler wheel not rotating.	5. Feed idle roller interfered with strap guide or guide cover. Eliminate interferences.
	6. Lubrication or contamination	6. Clean wheel surface.
	7. Strap reservoir out of strap.	7. Check if the strap reservoir is empty. If so, adjust according to 4.8 fill volume.
	8. Strap is jammed – feed idle roller not rotating.	8. Feed idle roller interfered with strap guide or guide cover. Eliminate interferences.
	9. Strap is jammed – Strap guide cover loose.	9. Fasten the strap cover plate.
	10. Strap is jammed – obstruction in the strap auto loading path.	10. Hand feed the strap to find out the obstruction then remove it.
	11. Strap feeding out of sealing head.	11. Adjust the home position. (See adjustment 4.2).
	12. Pinch rollers are worn.	12. Change roller.
☞ Poor or no seal	1. Heater blade temperature incorrect.	1. Set the temperature. (See adjustment 4.13).
	2. Heater blade mounting screws loose.	2. Check screws and tighten if necessary.
	3. Weld cooling time too short.	3. Change the setting. (See adjusment4.13).
	4. Second tension set too high.	4. Adjust the second tension. (See adjustment 4.5).
	5. Poor strap seal alignment.	5. See adjustment 4.16.

6 Trouble Shooting

Symptom	Probable cause	Remedy
	Misalignment due to improper adjustment of the entry plate guide.	
	6. Heater bus bar dirty.	6. Clean the bus bar.
	7. Heater blade deformed	7. Replace heater blade
☞ Strap does not tension	1. Tension force not adequate.	1. Adjust the tension force according to 4.5
	2. Lubrication or contamination on wheels.	2. Clean wheel surface.
	3. Strap is jammed – strap guide cover loose.	3. Fasten the strap cover plate.
	4. Primary tension pinch rollers are worn.	4. Change roller.
☞ Strap is not being cut.	1. Dull or damaged strap cutter.	1. Reverse or replace the strap cutter.
	2. Strap cut under tension.	2. Check adjustment of the home position (See section 4.2).
☞ Strap tension is not enough	1. Different carton boxes sizes	1. If first retracting time is not long enough, adjust retracting time (B), See 3.3 HMI systems. 2. If second tension is not long enough (see 3.3 HMI), adjust roller rotation cycle (C) (see adj. 4.5.)

7 Safety During Installation

7.1 Introduction

☞ The strapping machine has been designed to provide safe, efficient, and trouble-free service for many years. Component design and material selection have been carefully considered to ensure operator safety, ease of operation, and machine longevity. Our engineering and manufacturing procedures are designed to ensure consistent high quality.

However, with any powered and/or automatic machine, there is a risk of damage or injury if appropriate precautions are not taken. Carefully read and understand Section 1, Safety PRECUTIONS, and related safety precautions in other sections of this manual before installing the strapping machine. The safety section details inherent risks and general safety considerations associated with the operation and maintenance of this machine.

Failure to follow the precautions could be result in equipment damage, personal injury, and/or loss of life. All installation personnel must be trained and qualified their particular job.

7.2 Safety Warnings

☞ Safety warning found in this manual and on the strapping machine indicate situation that require extra attention during installation of the machine. Observe the associated precautions carefully as they indicate potentially hazardous situations. The different warnings are

CAUTION **WARNING**: **DANGER**

CAUTION: indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

WANNING: indicates a potentially hazardous which, if not avoided, could result in death or serious injury.

DANGER: indicates an imminently hazardous situation, which if not avoid, will result in death or serious injury.

7.3 Personal Safety Provisions

☞ The strapping machine is an automatic machine. Any inattention while close to the strapping machine could result in personal injury or equipment damage. Precautions must also be taken to avoid material being automatically conveyed to the strapping machine while it is not in service.

Shutting down the strapping does not necessary prevent other equipment in the line from operating. For all installation activities not requiring the strapping machine to be in operation, a lockout procedure applies. All personnel working on or around the strapping machine during installation must be qualified for their position.

7.4 Mechanical Safety

☞ The following safety precautions must be observed when using or working the strapping machine:

a. Never work on strapping machine when it is running.
b. Never put any part of your body in the bundle opening when the strapping machine is in the automatic mode.
c. Keep body and clothing clear of the conveyors (if so equipped), bundle stop (if so equipped), compactors (if so equipped) and strap coils when the strapping machine is running.
d. Never circumvent safety switches or operate the strapping machine with the safety guarding removed or any doors opened or removed.
e. Do not stand, sit, or lie on the strapping machine.
f. The use of suitable eye and ear protection is required when operating the strapping machine or performing certain maintenance functions.
g. Appropriate footwear is required when moving the strapping machine.

7.5 Electrical Safety

☞ The following safety precautions must be observed when installing or working on the strapping machine:

a. Ensure the power source for the strapping machine is the correct voltage and current rating.
b. Verify the strapping machine is properly grounded to the facility ground.
c. Do not use the strapping machine is a wash down application.
d. Do not remove plug-in cables with the power supply under load.

7.6 Pneumatic Safety (If So Equipped)

☞ The following safety precautions must be observed when using or working on the strapping machine:

1. Do not exceed the maximum operation pressure of the strapping machine.
2. Inspect all connections, hoses, and fittings on a regular basis.
3. Periodically check strapping machine pneumatic component operation.
4. Ensure that all components are correctly assembled before applying air pressure.

Carefully read and under the safety sections of the manual before installing the strapping machine. The safety sections of this manual identify general safety issue and inherent risks associated with the strapping machine. Failure to follow this precaution may result in personal injury and or equipment damage.

7.7 General Product Information

☞ The strapping machine is to be manually rolled into place or lifted with a forklift suitable for the weight of this equipment. Do not lift the strapping by the arch.

Approximate Weight:

Strapping Machine:	440 lbs / 200 kg.
Coil:	26lbs / 12 kg

7.8 Installing The Strapping Machine

☞ The following procedure must be followed for the proper installation of the strapping machine.

1. Turn the ON/OFF switch to the “OFF” position.
2. Plug machine into a properly sized and ground power source.
3. Connect to compressed air supply.
4. Lock caster to prevent unintentional rolling.
5. Refer to “Starting the Strapping Machine” and “Loading the Strap”.

8 Safety During De-Installation

8.1 Introduction

☞ Read this section of the manual carefully before you start de-installation of the strapping machine, as it deals with potential risks occurring during de- installation. Failure to follow mentioned precautions and safety warnings could result in personal injury. Before starting electrical de-installation activities on the strapping machine, ensure that all electrical sources are disconnected.

8.2 General product information

☞ The strapping machine is to be manually rolled into place or lifted with a forklift suitable for the weight of this equipment only. DO NOT lift the strapping machine by the arch.

8.3 Clearing the strapping machine

☞ Remove the strap from the strapping machine as described “Unloading the strap”.

8.4 Electrical shutdown of the strapping machine

☞ Prior to unplugging the strapping machine, verify that ON/OFF switch is in the “OFF” position. All the local codes pertaining to electrical activities must be followed.

<u>WARNING:</u> The shut down procedure must be followed for all work performed on the strapping machine electrical circuit. High voltage represents a life threatening danger.

PC Pro

PARTS LIST
FOR
AUTOMATIC STRAPPING MACHINE

POLYCHEM Corporation

6277 Heisley Road, Mentor OH 44060.
TEL : 440-358-7060 FAX : 440-358-7061

9.1 Control Unit

Fig-1A **Cam unit**

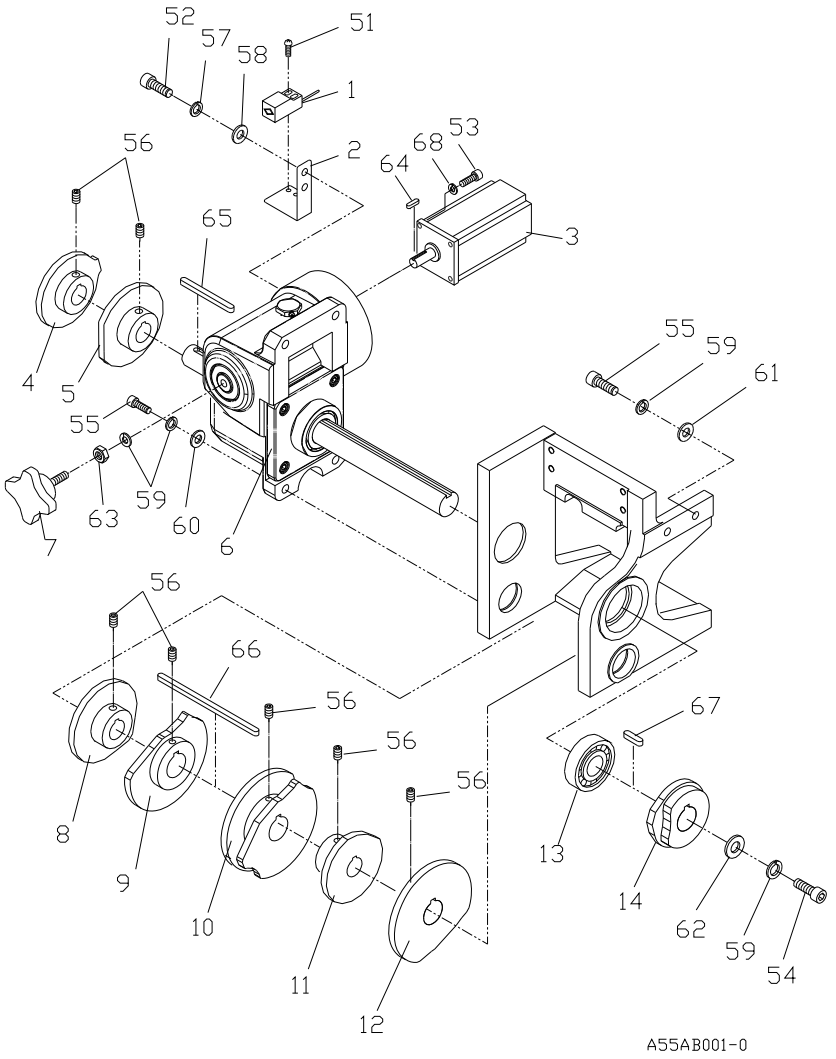


Fig-1A	Cam unit			
No.	**Part no.**	**Part name**	**Part No. Effective since Oct. 2013**	**Quantity**
1	A68-1A0101	Proximity switch	E07090036	1
2	A68-1A0102	Bracket for proximity switch	A55-111012-0	1
3	A68-1A0103-1	Yaskawa Servo motor (old) ~ used until 2010.08 (Appendix A)	E25401027-1	1
	A68-1A0103-2	Yaskawa Servo motor (new) ~ since 2010.09 (Appendix A)	E25401027-2	1
4	A68-1A0104	Cam for home position.	A55-111003-0	1
5	A68-1A0105	Cam for arch opening	A55-111004-0	1
6	A68-1A0106	Gear Reducer	A55-111002-0	1
7	A68-1A0107	Plastic turning knob	A55-111011-0	1
8	A68-1A0108	Cam - slide table	A55-111005-0	1
9	A68-1A0109	Cam - left gripper	A55-111006-0	1
10	A68-1A0110	Cam – Press bar with cutter	A55-111007-0	1
11	A68-1A0111	Cam – front gripper	A55-111008-0	1
12	A68-1A0112	Cam - heater	A55-111009-0	1
13	A68-1A0113	Bearing. -6004RS	G04216004-1	1
14	A68-1A0114	Cam – tension	A55-111010-0	1
51	A68-1A0151	TMS 3x25	W07110325	2
52	A68-1A0152	HBS 4x8	W01510408	2
53	A68-1A0153	HBS 5x15	W01510515	4
54	A68-1A0154	HBS 6x15	W01510615	1
55	A68-1A0155	HBS 6x25	W01510625	6
56	A68-1A0156	HSS 6x10	W02210610	7
57	A68-1A0157	SW 4mm	W19020104	2

Fig-1A		Cam unit		
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
58	A68-1A0158	PW 4mm	W19010104	2
59	A68-1A0159	SW 6mm	W19020106	7
60	A68-1A0160	PW 6mm	W19010106	4
61	A68-1A0161	PW 6mm (19)	W19010106(19)	2
62	A68-1A0162	PW 6mm (25)	W19010106(25)	1
63	A68-1A0163	HN 6mm	W15110600	1
64	A68-1A0164	KYA	W35050512	1
65	A68-1A0165	KYA	W35050545	1
66	A68-1A0166	KYA	W350505100	1
67	A68-1A0167	KYA	W35050515	1
68	A68-1A0168	SW 5mm	W19020105	4

9.1 Control Unit

Fig-1B-AB **Slide Table Unit**

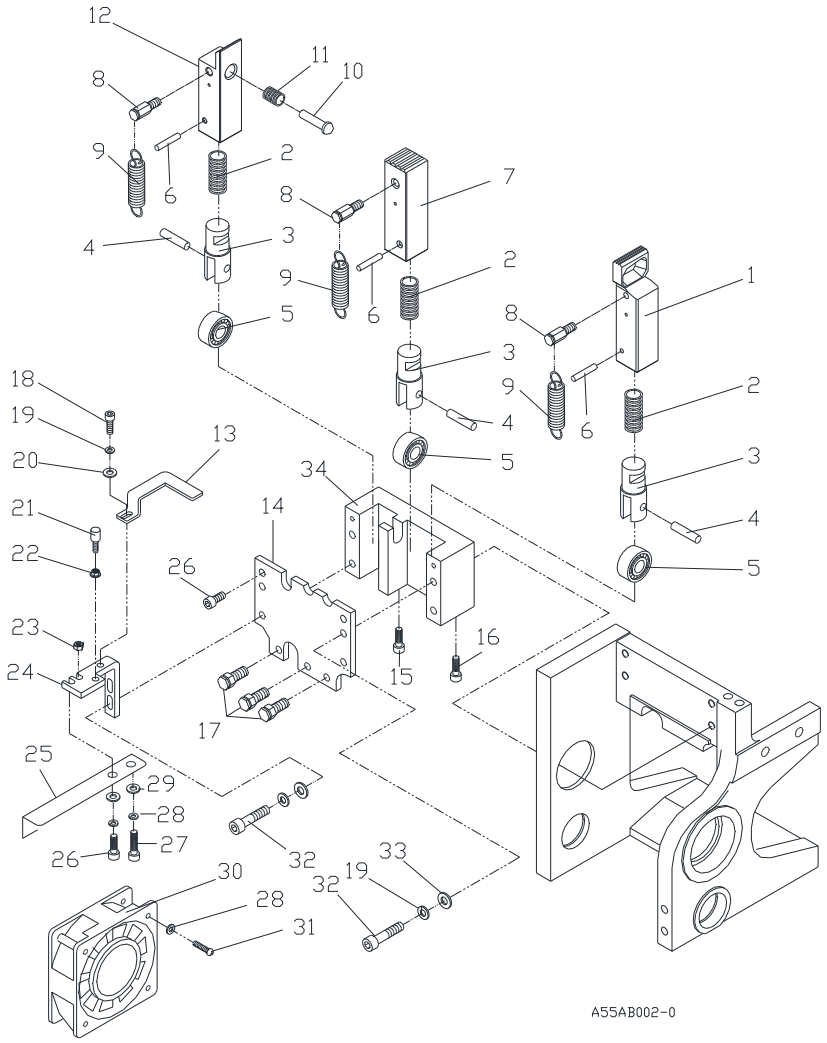


Fig-1B-AB		Slide Table Unit		
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
1	A68-1B0221	Front Gripper	A55-112001-0	1
2	A68-1B0220	Compression Spring	A55-112002-0	3
3	A68-1B0219	Shaft of cutter	A55-112003-0	3
4	A68-1B0288	SP 5 mm	W31105018	3
5	A68-1B0218	Bearing IKO NAR T6VR	A55-112012-0	3
6	A68-1B0287	SP 3 mm	W31103018	3
7	A68-1B0222	Press bar	A55-112006-0	1
8	A68-1B0226	Hexagon screw	A55-112004-0	3
9	A68-1B0227	Spring	A55-112005-0	3
10	A68-1B0225	Plastic	A55-112008-0	1
11	A68-1B0224	Spring	A55-112009-0	1
12	A68-1B0223	Rear gripper	A55-112007-0	1
14	A68-1B0229	Cover of gripper bracket	A55-112011-0	1
15	A68-1B0292	HBS 4x25	W01510425	1
16	A68-1B0268	HBS 5x15	W01510515	1
17	A68-1B0230	Hexagon screw	A55-112013-0	3
21	A68-1B0232	Plastic pad	A55-114004-0	1
22	A68-1B0286	FLG 6mm	W15620600	1
23	A68-1B02103	HN 4 mm	W15110400	1
24	A68AB-1B0233-1	L type bracket –Belt type exclu.	A55B-114002-0	1
25	A68-1B0236	Fan bracket	A55-114007-0	3
26	A68-1B0262	HBS 4x8	W01510408	1
27	A68-1B02104	HBS 4x12	W01510412	4
28	A68-1B0277	SW 4mm	W19020104	2

Fig-1B-AB		Slide Table Unit		
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
29	A68-1B0278	PW 4mm	W19010104	1
30	A68-1B0237	Fan	E01040005	2
31	A68-1B0265	PMS 4x30	W08110430	4
32	A68-1B0274	HBS 6x55	W01510655	3
33	A68-1B0283	PW 6mm	W19010106	4
34	A68-1B0228	Gripper bracket	A55-112010-0	1

9.1 Control Unit

Fig-2B-AB **Slide Table Unit**

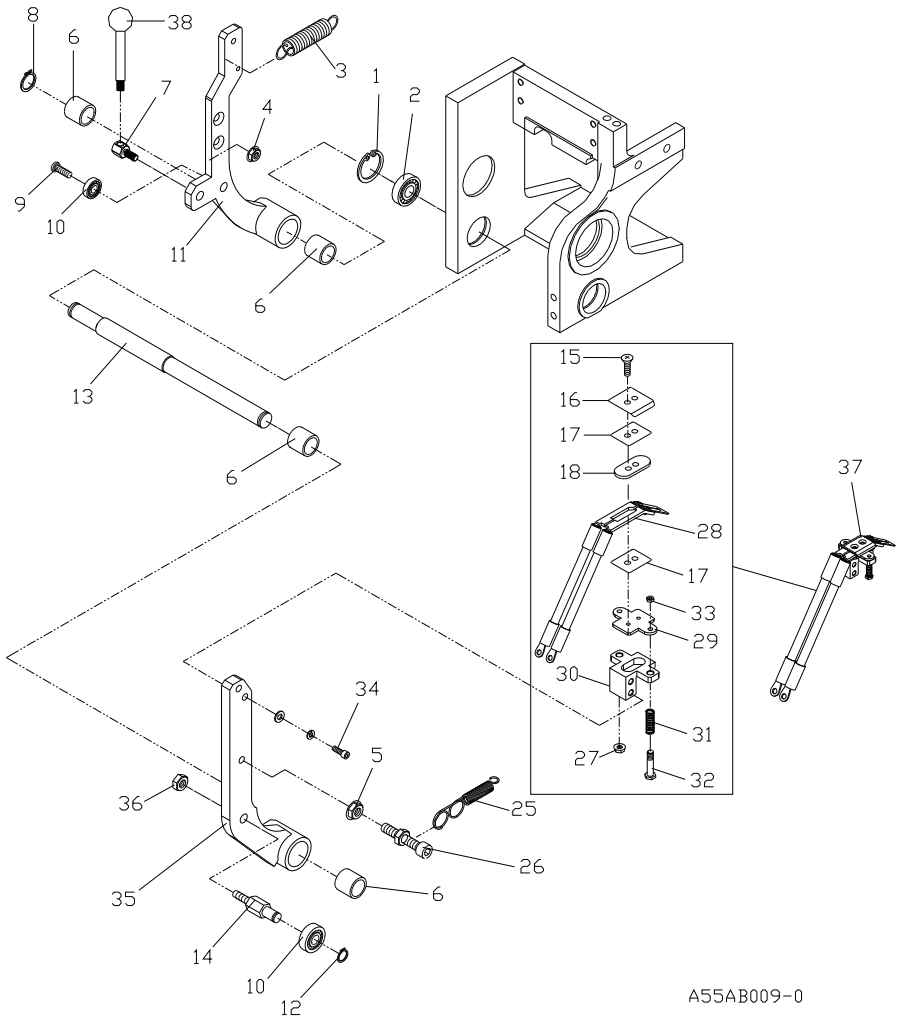


Fig-2B-AB	Slide Table Unit			
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
1	A68-2B0290	RR	W33040260	2
2	A68-2B0241	Bearing-6803	G04216803-1	2
3	A68-2B0238	Spring	A20-510002-1	1
4	A68-2B02105	FLG 8mm	W15620800	1
5	A68-2B0286	FLG 6mm	W15620600	1
6	A68-2B0208	Self lubricating bearing	G01171915	4
7	A68-2B0239	Hexagon screw	A55B-113001-0	1
8	A68-2B0289	SR	W33020170	1
9	A68-2B0212	Hexagon screw	W03110816	1
10	A68-2B0211	Bearing 628	G04210628RS	2
11	A68-2B0240	Swing leveler of arch	A55-113050-1	1
12	A68-2B0291	SR	W33020080	1
13	A68-2B0248	Shaft	A55-113001-0	1
14	A68-2B0250	Hexagon shaft	A55-113004-0	1
15	A68-2B0264	FMS 4x12	W10410412	2
16	A68-2B0243	Stainless plate	A55-113006-0	1
17	A68-2B0244	Heat insulation plate	A55-113013-0	2
18	A68-2B0245	Bakelite	A55-113007-0	1
25	A68-2B0251	Spring	A55-113003-0	1
26	A68-2B0273	HBS 6x45	W01510645	1
27	A68-2B02106	FLG 4mm	W15620400	2
28	A68-2B02109	Heater	A55-113008-0	1
	*for older version of the heater (shipment before Oct.2011), see appendix B heater variation			
29	A68-2B02110	Heater Bracket	A55-113009-0	1

2014.09

Fig-2B-AB		Slide Table Unit		
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
30	A68-AB02111	Bracket	A55-113010-0	1
31	A68-AB02112	Spring	A55-113011-0	2
32	A68-2B02113	Heater Screw	A55-113012-0	2
33	A68-2B02114	Locking nut	W17210500	2
34	A68-2B 0268	HBS 5x15	W01510515	2
35	A68-2B 02115	Heater arm	A55-113150-1	1
36	A68-2B02116	HN 8mm	W15110800	1
37		Heater Assembly	A55-113008A-0	1
38		Handle	TR1.118.008.0	1

9.1 Control Unit

Fig-3B **Slide Table Unit**

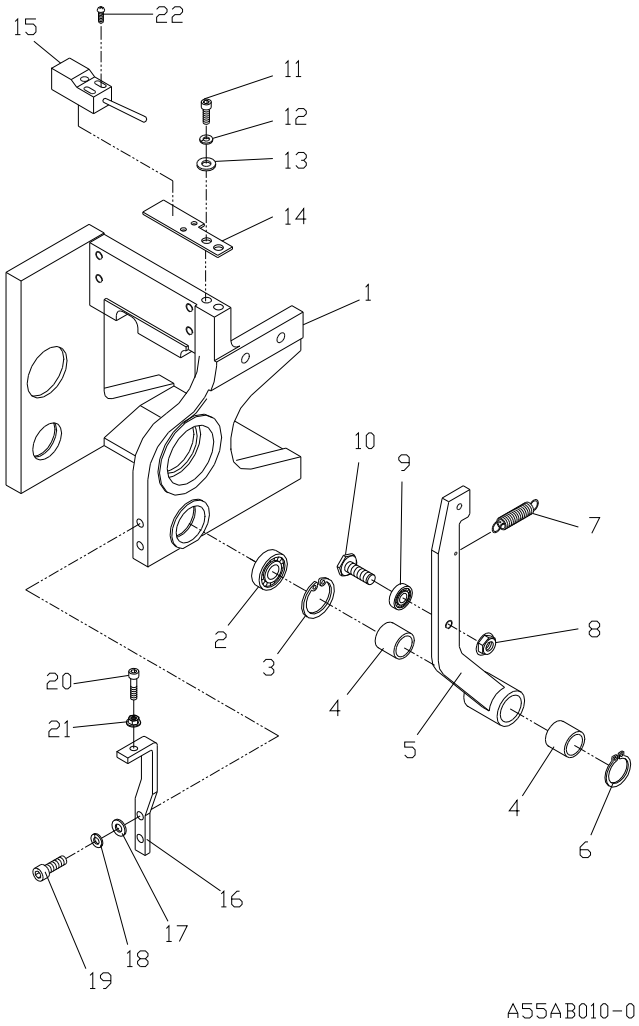


Fig-3B	Slide Table Unit			
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
1	A68-3B0201	Sealing head Housing	A55B-111001-0	1
2	A68-3B0241	Bearing 6803	G04216803RS	1
3	A68-3B0290	RR	W33040260	1
4	A68-3B0208	Self lubricating bearing	G01171915	2
5	A68-3B0252	Track swing pole	A55-114050-0	1
6	A68-3B0289	SR	W33020170	1
7	A68-3B0253	Spring	A55-113002-0	1
8	A68-3B0285	FLG 5mm	W15620500	1
9	A68-3B0254	Bearing 635	G04210635RS	1
10	A68-3B02108	FMS 5x16	A55-114008-0	1
11	A68-3B0262	HBS 4x8	W01510408	2
12	A68-3B0277	SW 4mm	W19020104	2
13	A68-3B0278	PW 4mm	W19010104	2
14	A68-3B0202	Bracket for proximity switch	A55-114002-0	1
15	A68-3B0203	Proximity switch	E07090036	1
16	A68AB-3B0299-1	Bracket –Belt type exclu.	A55B-114001-0	1
17	A68-3B0280	PW 5mm	W19010105	2
18	A68-3B0279	SW 5mm	W19020105	2
19	A68-3B0268	HBS 5x15	W01510515	1
20	A68-3B0232	HBS 5x30	W01510530	1
21	A68-3B0286	FLG 6mm	W15620600	1
22	A68-3B02107	TMS 3x16	W07110316	2

9.1 Control Unit

Fig-4B **Slide Table Unit**

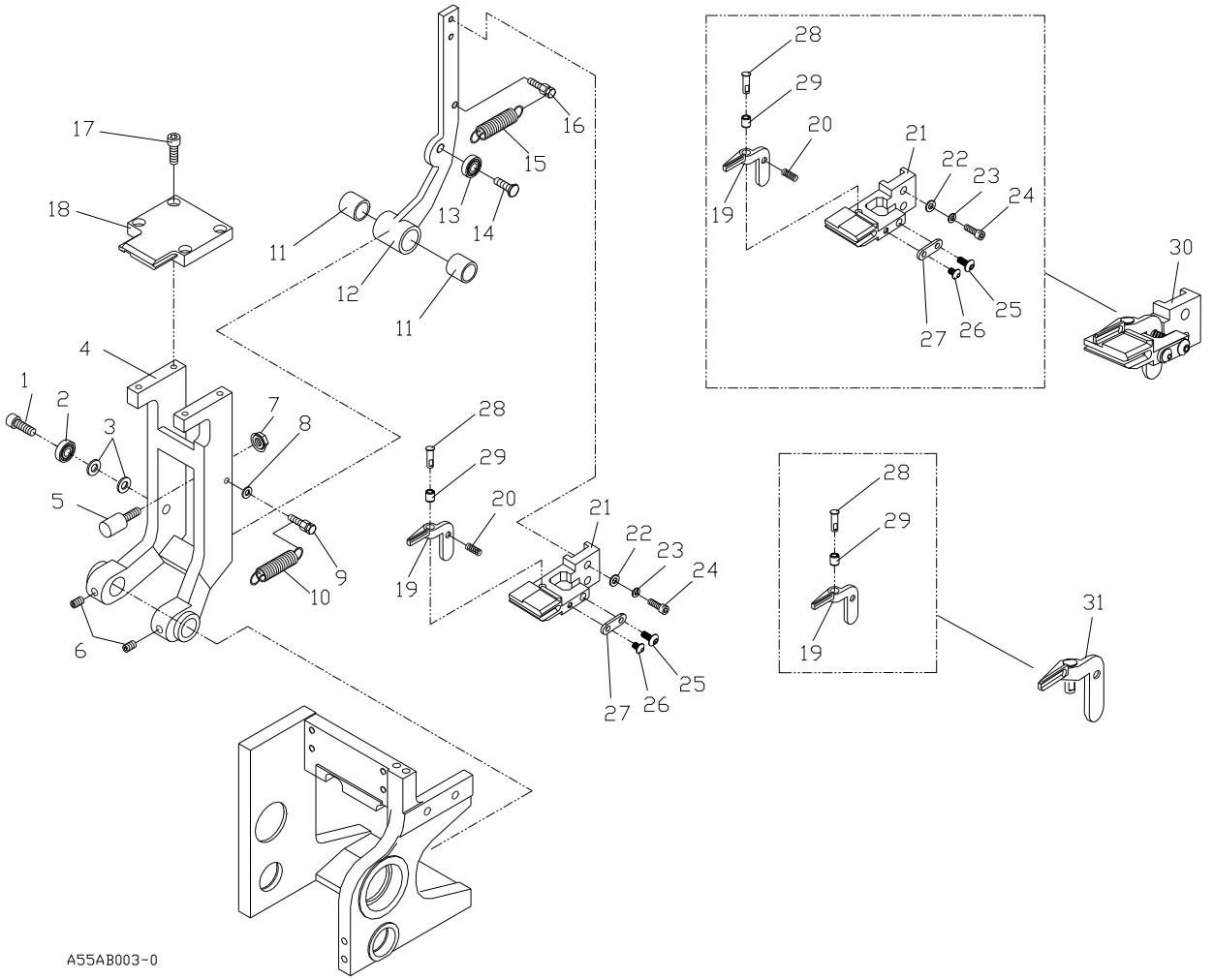


Fig-4B	Slide Table Unit			
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
1	A68-4B0276	HBS 8x15	W01510815	1
2	A68-4B0204	Bearing 6000	G04216000RS	1
3	A68-4B0284	SW 8mm	W19020108	2
4	A68-4B0206	Slide table arm	A55-115001-0	1
5	A68-4B0205	Rubber pad (with screw)	A55-114004-0	1
6	A68-4B0275	HSS 6x10	W02210610	2
7	A68-4B0286	FLG 6mm	W15620600	1
8	A68-4B0282	SW 6mm	W19020106	1
9	A68-4B0210	HEX Screw	A55-112004-0	1
10	A68-4B02100	Spring	A55-115002-0	1
11	A68-4B0208	Self lubricating bearing	G01171915	2
12	A68-4B0209	Inner slide table arm	A55-115050-0	1
13	A68-4B0211	Bearing 628	G04210628RS	1
14	A68-4B0212	Hexagon screw	W03110816	1
15	A68-4B02101	Spring	A55-115003-0	1
16	A68-4B0213	Hexagon	A55-112013-0	1
17	A68-4B0271	HBS 6x15	W01510615	4
18	A68-4B0207	Slide table	A55-115004-0	1
19	A68-4B0217	Striker	A55-115005-0	1
20	A68-4B0216	Spring	A55-115006-0	1
21	A68-4B0215	Inner slide table	A55-115007-0	1
22	A68-4B0280	PW 5mm	W19010105	1
23	A68-4B0279	SW 5mm	W19020105	1
24	A68-4B0268	HBS 5x15	W01510515	1

Fig-4B	Slide Table Unit			
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
25	A68-4B0266	THS 5x10	W12110510	1
26	A68-4B0263	THS 4x6	W12110406	1
27	A68-4B0214	Washer	A55-115008-0	1
28	A55-115009-1	Pin	same as previous	1
29	G01050708	Bushing	same as previous	1
30	A55-115007-0A	Inner Slide Table Sub-ass'y	same as previous	1
31	A55-115005-0A	Striker Sub-ass'y	Same as previous	1

9.2 Cam Unit

Fig-1C **Roller Block Unit**

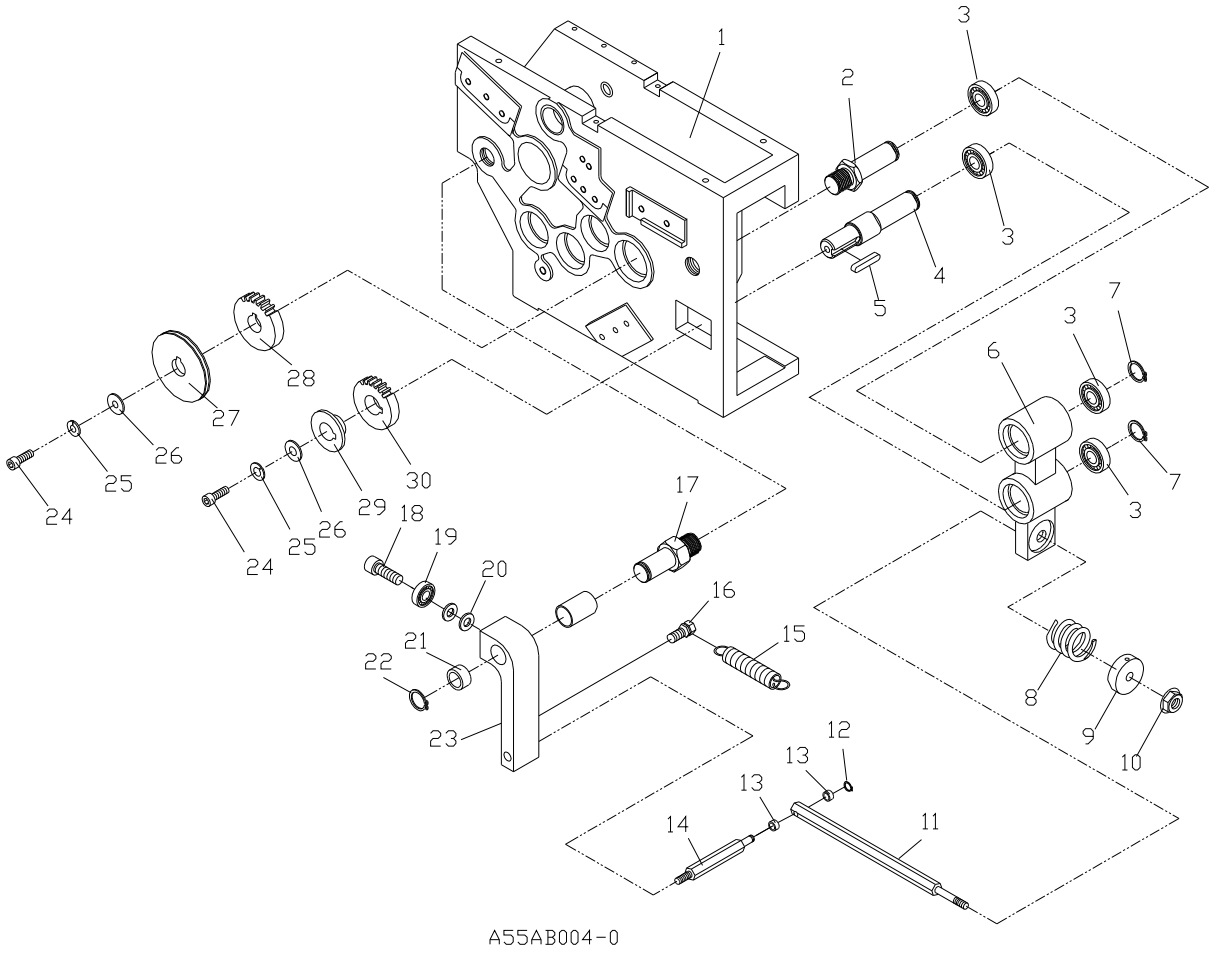


Fig-1C	Roller Block Unit			
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
1	A68-1C0301	Feeding, re-tracking housing	A55B-121001-0	1
2	A68-1C0305	Tension Roller shaft	A55-121002-0	1
3	A68-1C0306	Bearing 6002	G04216002RS	4
4	A68-1C0304	Shaft	A55-121003-0	1
5	A68-1C0374	KYA (5x5x25 l)	W35050525	1
6	A68-1C0307	Shaft housing	A55-121004-0	1
7	A68-1C0375	SR (E12)	W33030120	2
8	A68-1C0303	Compression spring	A55-121005-0	1
9	A68-1C0302	Round head screw	A55-121006-0	1
10	A68-1C0373	FLG 8mm	W15620800	1
11	A68-1C0312	Hexagon shaft	A55-121007-0	1
12	A68-1C0376	SR (S8)	W33020080	1
13	A68-1C0313	Self-lubricated bearing	G01081006	2
14	A68-1C0314	Hexagon shaft	A55-121008-0	1
15	A68-1C0322	Spring	A55-121009-0	1
16	A68-1C0321	Hex screw	A55-112013-0	1
17	A68-1C0318	Hexagon shaft	A55-121010-0	1
18	A68-1C0361	HBS 8x15	W01510815	1
19	A68-1C0319	Bearing 628	G04210628RS	1
20	A68-1C0369	SW 8mm	W19020108	2
21	A68-1C0382	Self-lubricated bearing	G01171925	1
22	A68-1C0379	SR (E12)	W33030120	1
23	A68-1C0320	Cam for tensioning	A55-121011-0	1

No.	Part No.	Part Name	Part No. Effective since Oct. 2013	Quantity
24	A68-3C0359	HBS 6x15	W01510615	1
25	A68-3C0367	SW 6mm	W19020106	1
26	A68-3C0368	PW 6mm (25)	W19010106 (25)	1
27	A68-3C0330-1	Tension roller – lower (5-6mm)	A55-121012u-0	1
	A68-3C0330-2	Tension roller – lower (9mm)	A55-121012w-0	1
28	A68-3C0331	Gear	A55-121013-0	1
29	A68AB-4C0335-1	Tension roller - upper (5-6mm)	A55-121014u-0	1
	A68AB-4C0335-2	Tension roller - upper (9mm)	A55-121014w-0	1
30	A68AB-4C0331	Gear	A55-121015-0	1

9.2 Cam Unit

Fig.-3C-AB Roller Block Unit

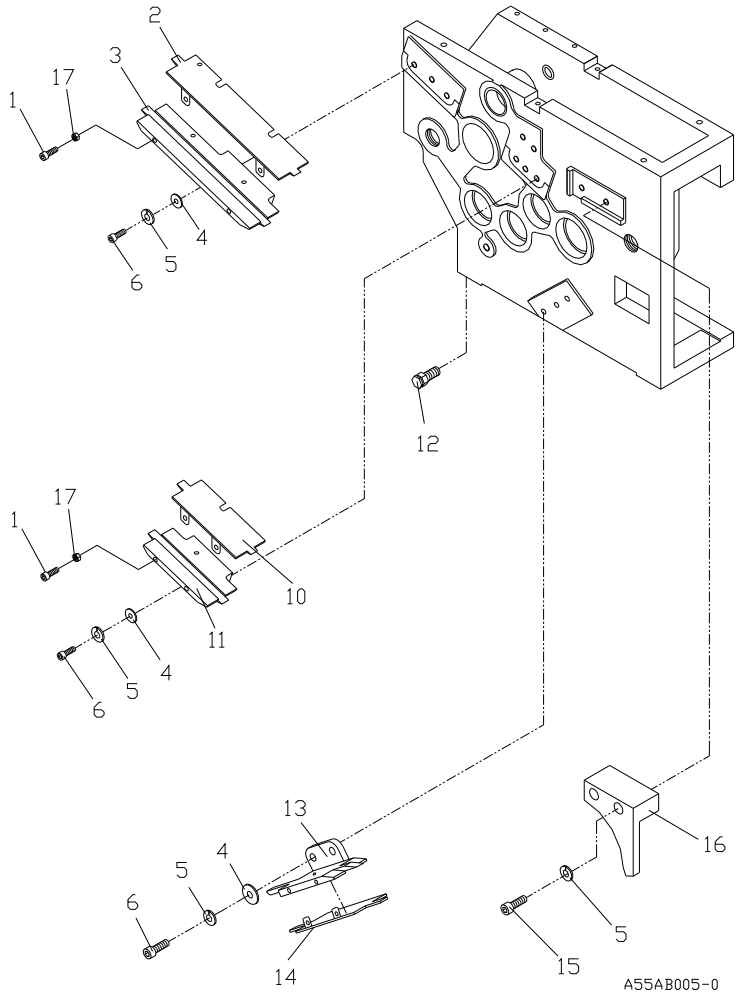


Fig.-3C-AB		Roller Block Unit		
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
1	A68-3C0384	HBS 4x12	W01510412	6
2	A68-3C0325-1	Strap guide plate (5-6mm)	A55-122001u-0	1
	A68-3C0325-2	Strap guide plate (9mm)	A55-122001w-0	1
3	A68-3C0326-1	Strap chute (5-6mm)	A55-122002u-0	1
	A68-3C0326-2	Strap chute (9mm)	A55-122002w-0	1
4	A68-3C0365	PW 5mm	W19010105	3
5	A68-3C0364	SW 5mm	W19020105	3
6	A68-3C0356	HBS 5x20	W01510520	3
10	A68-3C0327-1	Strap guide plate (5-6mm)	A55-122003u-0	1
	A68-3C0327-2	Strap guide plate (9mm)	A55-122003w-0	1
11	A68-3C0328-1	Strap guide (5-6mm)	A55-122004u-0	1
	A68-3C0328-2	Strap guide (9mm)	A55-122004w-0	1
12	A68-3C0321	Hex screw	A55-112013-0	1
13	A68-3C0333-1	Strap guide (5-6mm)	A55-122005u-0	1
	A68-3C0333-2	Strap guide (9mm)	A55-122005w-0	1
14	A68-3C0334-1	Strap guide plate (5-6mm)	A55-122006u-0	1
	A68-3C0334-2	Strap guide plate (9mm)	A55-122006w-0	1
15	A68-3C0357	HBS 5x25	W01510525	2
16	A68-3C0332-1	Guide plate (5-6mm)	A55-122007u-0	1
	A68-3C0332-2	Guide plate (9mm)	A55-122007w-0	1
17	A68-3C0386	FLG	W15620400	6

9.2 Cam Unit

Fig.-4C-AB **Roller Block Unit**

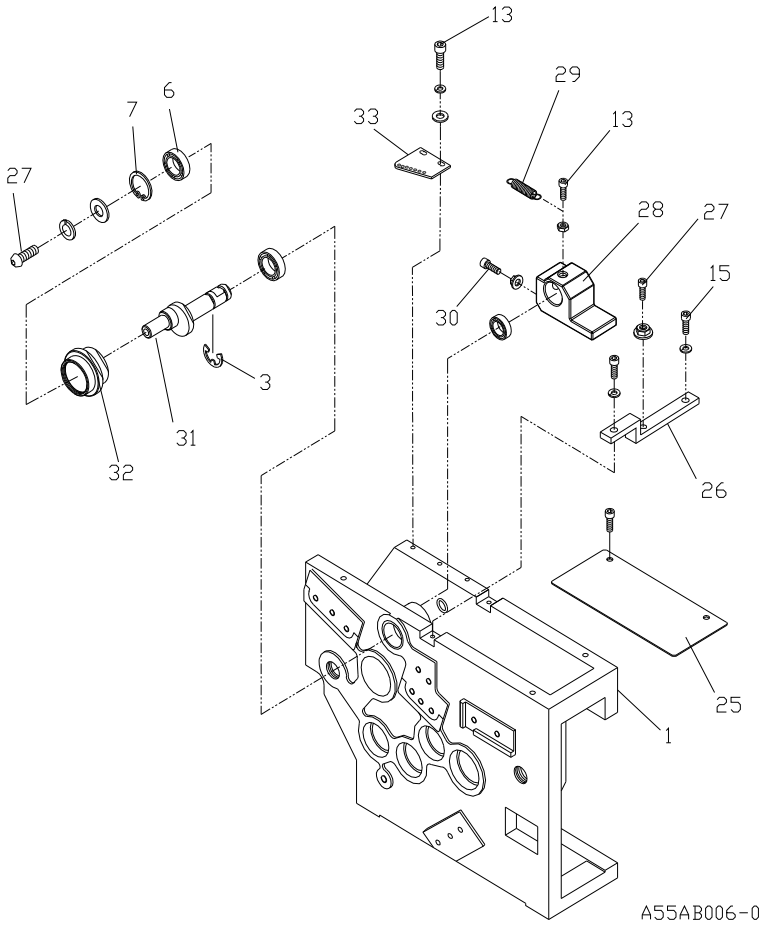


Fig.-4C-AB		Roller Block Unit		
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
1	A68AB-4C0386	Feeding, re-tracking housing	A55B-121001-0	1
3	A68AB-4C0378	ER (E8)	W3303080	1
6	A68AB-4C0317	Bearing 628	G04210628RS	1
7	A68AB-4C0377	RR (R24)	W33010240	1
13	A68AB-4C0353	HBS 4x8	W01510408	2
15	A68AB-4C0384	HBS 4x12	W01510412	1
25	A68AB-4C0396	Roller Block Cover	A55B-123005-0	1
26	A68AB-4C0397	Sleeve for fixing shaft	A55B-123004-0	1
27	A68AB-4C0398	HBS 5x15	W01510515	2
28	A68AB-4C0399	Shaft tube	A55B-123003-0	1
29	A68AB-4C03100-1	Spring (5-6mm)	A55B-123006u-0	1
	A68AB-4C03100-2	Spring (9mm)	A55B-123006w-0	1
30	A68AB-4C03101	HBS 5x12	W01510512	1
31	A68AB-4C03102	Feed, re-tracking roller shaft	A55B-123001-0	1
32	A68AB-4C0316-1	Upper Re-tracking roller (5-6mm)	A55B-123002u-0	1
	A68AB-4C0316-2	Upper Re-tracking roller (9mm)	A55B-123002w-0	1
33	A68AB-4C0403	Spring holder plate	A55-123008-0	1

9.2 Cam Unit

Fig.-1D-AB **Roller Block Unit**

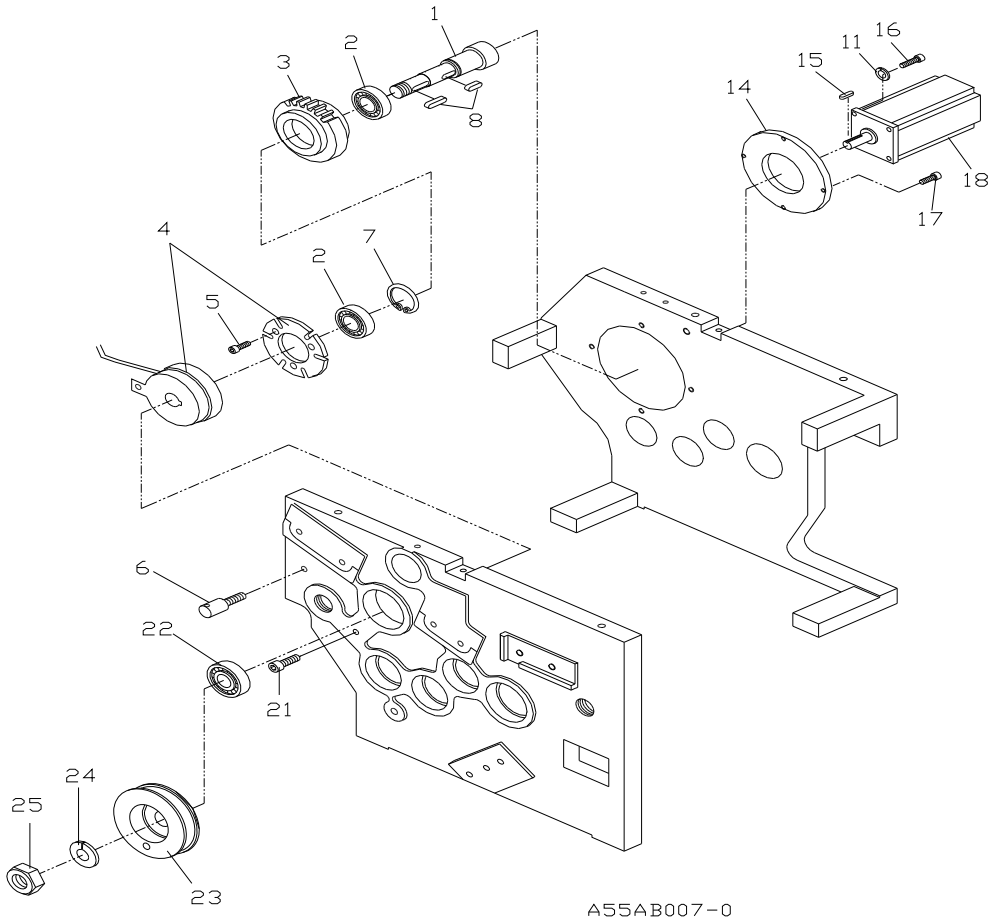


Fig.-1D-AB		Roller Block Unit		
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
1	A68-1D0405	Feeding, re-tracking shaft	A55-124001-0	1
2	A68-1D0406	Bearing 6805	G04216805RS	2
3	A68-1D0407	Gear	A55-124002-0	1
4	A68-1D0408	Clutch	A55-124003-0	1
5	A68-1D0451	HBS 3x6	W01510306	3
6	A68-1D0416	Round Head screw	A55-124004-0	1
7	A68-1D0466	RR	W34010250	1
8	A68-1D0460	KYA (5x5x15)	W35050515	2
14	A68-1D0402	Motor fixing bracket	A55-124005-0	1
15	A68-1D0459	KYA	A55B-124001-0	1
16	A68-1D0454	HBS 4x16	W01510416	4
17	A68-1D0453	HBS 4x12	W01510412	4
18	A68-1D0401-1	Yaskawa Servo motor (old) ~ used until 2010.08 (Appendix A)	E25401027-1	1
	A68-1D0401-2	Yaskawa Servo motor (new) ~ since 2010.09 (Appendix A)	E25401027-2	1
21	A68-1D0468	HBS 4x12		1
22	A68-1D0417	Bearing 6002	G04216002RS	1
23	A68-3C0329-1	Feed/Re-tracking roller (5-6mm)	A55-123005u-0	1
	A68-3C0329-2	Feed/Re-tracking roller (9mm)	A55-123005w-0	1
24	A68-3C0381	SW 14mm	W19020114	1
25	A68-3C0380	HN 14mm	W15111400	1

9.2 Cam Unit

Fig.-2D **Roller Block Unit**

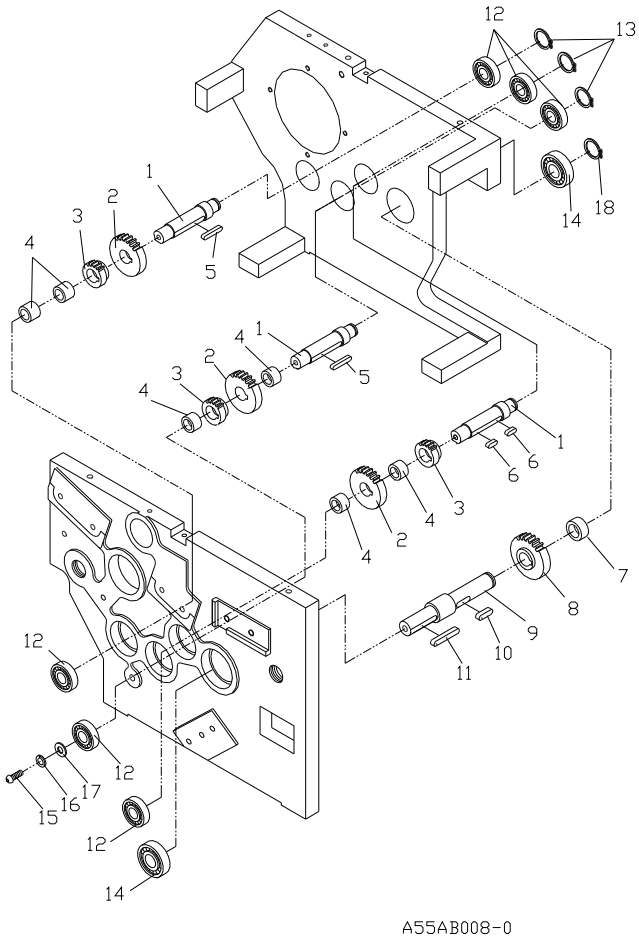


Fig.-2D	Roller Block Unit			
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
1	A68-2D0412	Gear Shaft	A55-125001-0	3
2	A68-2D0411	Gear	A55-125002-0	3
3	A68-2D0410	Gear	A55-125003-0	3
4	A68-2D0409	Shim	A55-125004-0	6
5	A68-2D0461	KYA 4x4x24	W35040424	2
6	A68-2D0462	KYA 4x4x12	W35040412	2
7	A68-2D0413	Shim	A55-125005-0	1
8	A68-2D0414	Gear	A55-125006-0	1
9	A68-2D0415	Gear Shaft	A55-125007-0	1
10	A68-2D0463	KYA 5x5x12	W35050512	1
11	A68-2D0464	KYA 5x5x25	W35050525	1
12	A68-2D0418	Bearing 6001	G04216001RS	6
13	A68-2D0465	SR (S12)	W33020120	3
14	A68-2D0417	Bearing 6002	G04216002RS	2
15	A68-2D0455	THS 5x10	W12110510	3
16	A68-2D0457	SW 5mm	W19020105	3
17	A68-2D0458	PW 5mm (16)	W19010105 (16)	3
18	A68-2D0467	ER E12	W33030120	1

9.3 Accumulator Unit

Fig.-2E **Accumulator Box**

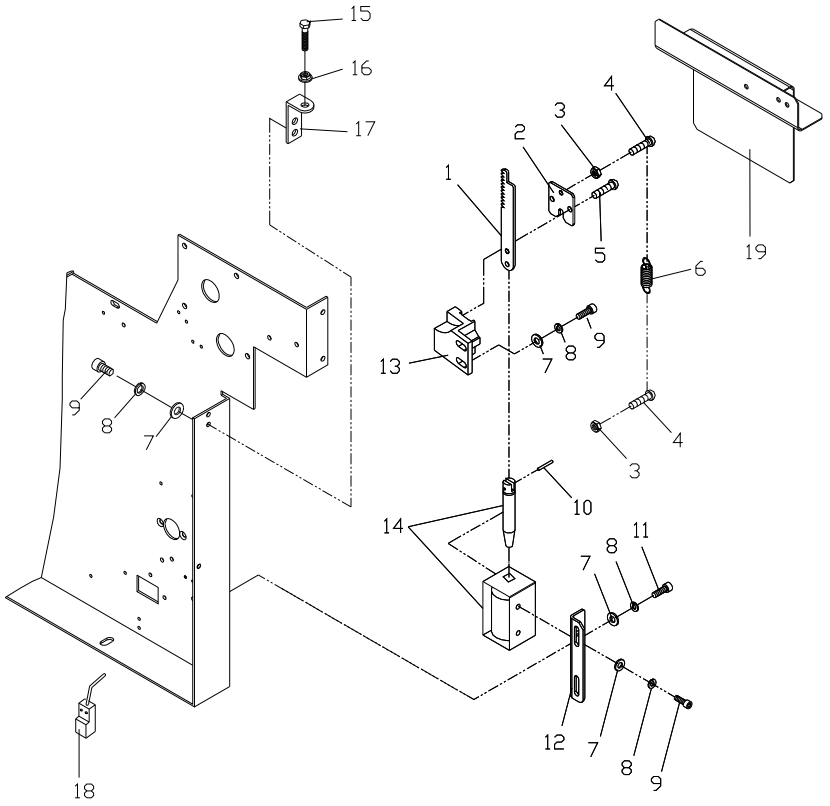


Fig.-2E	Accumulator Box			
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
1	A68-2E0535	Gear rack	A55-512006-0	1
2	A68-2E0536	Gear rack cover	A55-512007-0	1
3	A68-2E0569	HN 4mm	W15110400	2
4	A68-2E0554	PMS 4x8	W08110408	2
5	A68-2E0551	TMS 4x6	W07110406	2
6	A68-2E0537	Spring	A55-512008-0	1
7	A68-2E0565	PW 4mm	W19010104	8
8	A68-2E0564	SW 4mm	W19020104	10
9	A68-2E0555	HBS 4x8	W01510408	6
10	A68-2E0572	HBS 3x20	W01210320	1
11	A68-2E0553	HBS 4x6	W01510406	2
12	A68-2E0532	Fixing bracket of solenoid	A55-512004-1	1
13	A68-2E0534	Gear rack bracket	A55B-512001-0	1
14	A68-2E0533	Solenoid	E21040021	1
15	A68-2E0582	Hexagon screw 5x40 l	W03110540	1
16	A68-2E0570	FLG 5mm	W15620500	1
17	A68-2E0583	L type bracket	A55-511012-0	1
18	A68-2E0519	Proximity switch	E07090036	1
19		Solenoid Cover	A55B-512005-0	1

9.3 Accumulator Unit

Fig.-3E **Accumulator Box**

Current pool unit design applies to machine manufactured in Sep. 2012 or later; for older machines, please refer to previous manuals

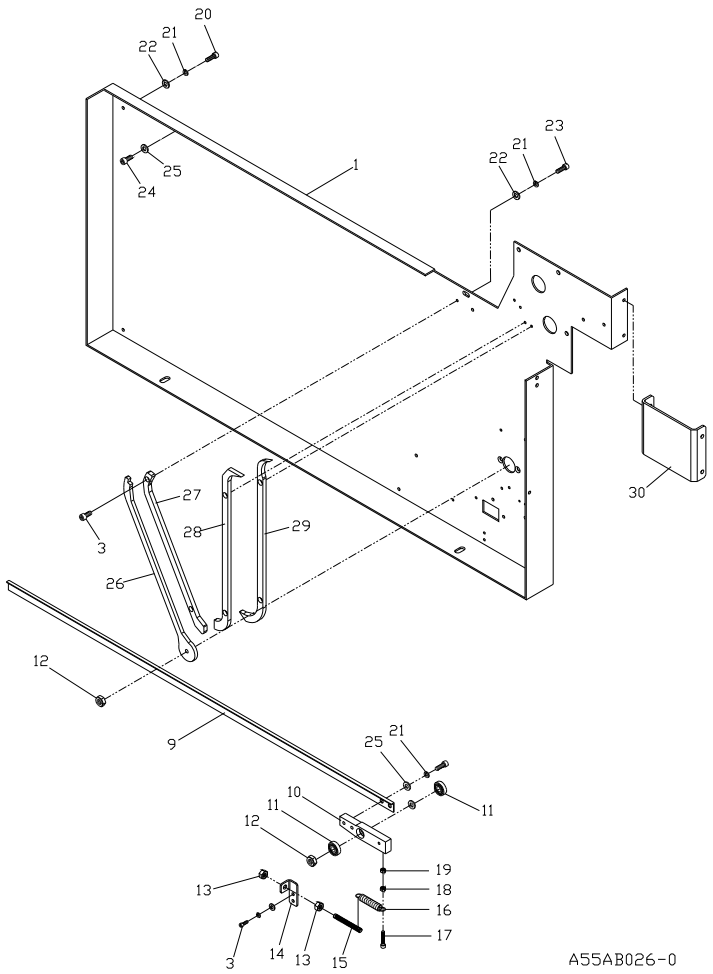


Fig.-3E		Accumulator Box		
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
1	A68-3E 0508	Accumulator	A55B-513001-2	1
3	A68-3E 0555	HBS 4x8	W01510408	11
5	A68-3E 0584	FLG 6mm	W15620600	1
9	A68-3E 0518-1	Balance Bar (5~6mm)	A55B-513002u-1	1
	A68-3E 0518-2	Balancer Bar (9mm)	A55B-513002w-1	1
10	A68-3E 0517	Balance bar fixing bracket	A55-513009-0	1
11	A68-3E 0516	Bearing 605	G04210605RS	2
12	A68-3E 0570	FLG 5mm	W15620500	1
13	A68-3E 0584	FLG 6mm	W15620600	2
14	A68-3E 0514	Pinch tension holding plate	A55B-513003-0	1
15	A68-3E 0512	Adjust Bolt M6x40	A55B-513004-0	1
16	A68-3E 0515-1	Spring (5~6mm)	A55-513008u-0	1
	A68-3E 0515-2	Spring (9mm)	A55-513008w-0	1
17	A68-3E 0586	PMS 4x30	W08110430	1
18	A68-3E 0569	HN 4mm	W15110400	1
19	A68-3E 0568	FLG 4mm	W15620400	1
20	A68-3E 0587	HBS 5x30	W01510530	4
21	A68-3E 0566	SW 5mm	W19020105	9
22	A68-3E 0567	PW 5mm (14)	W19010105 (14)	9
23	A68-3E 0574	HBS 5x25	W01510525	5
24	A68-3E 0559	HBS 5x10	W0510510	5
25	A68-3E 0588	PW 5mm (12)	W19010105 (12)	4
26	A68-3E 0593	Guide plate	A55B-513006-2	1

27	A68-3E 0594-1	Guide plate (5~6mm)	A55B-513007u-2	1
	A68-3E 0594-2	Guide plate (9mm)	A55B-513007w-2	1
28	A68-3E 0595-1	Guide plate (5~6mm)	A55B-513008u-4	1
	A68-3E 0595-2	Guide plate (9mm)	A55B-513008w-4	1
29	A68-3E 0596-1	Guide plate (5~6mm)	A55B-513005u-5	1
	A68-3E 0596-2	Guide plate (9mm)	A55B-513005w-5	1
30		Connect plate assembly	A55B-513150-0	1

9.3 Accumulator Unit

Fig.-4E **Accumulator Box**

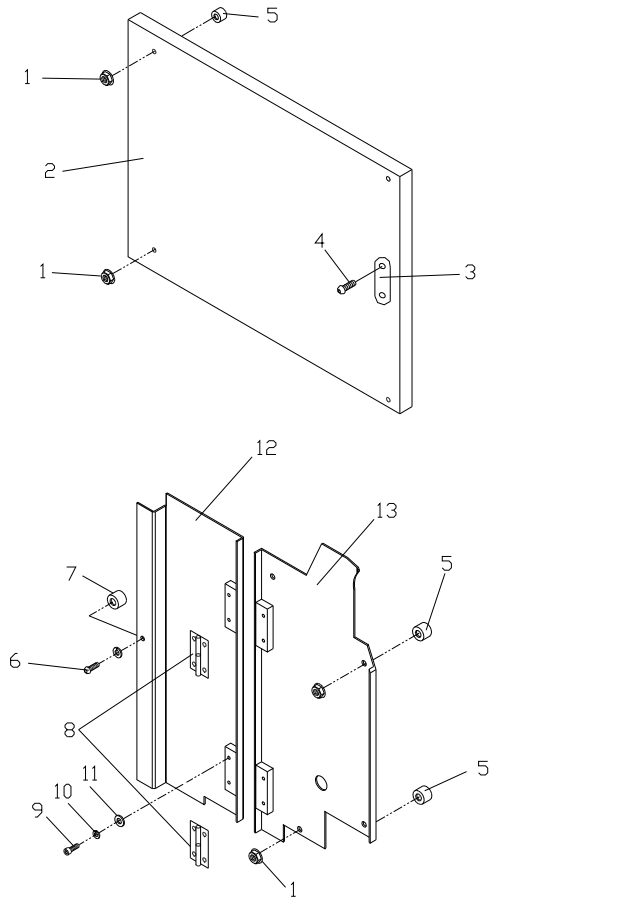


Fig.-4E	Accumulator Box			
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
1	A68-4E0570	FLG 5mm	W15620500	8
2	A68-4E0543	Accumulator cover – left	A55B-514001-2	1
3	A68-4E0576	Accumulator cover(Fixed plate)	A55B-514002-0	1
4	A68-4E0552	THS 4x6	W12110406	2
5	A68-4E0538-1	Hex screw (5~6mm)	A55-514001u-1	8
	A68-4E0538-2	Hex screw (9mm)	A55-514001w-1	8
6	A68-4E0581	THS 5x10	W12110510	1
7	A68-4E0541	Magnet / Magnet Assembly	A55-514002-0 / A55-514002-0A	1
8	A68-4E0542	Door hinge	A55-514003-0	2
9	A68-4E0579	HBS 4x10	W01510410	8
10	A68-4E0564	SW 4mm	W19020104	8
11	A68-4E0565	PW 4mm	W19010104	8
12	A68-4E0540	Accumulator cover – center	A55B-514150-1	1
13	A68-4E0539	Accumulator cover – right	A55B-514050-1	1

9.3 Accumulator Unit

Fig.-5E-AB **Accumulator Box**

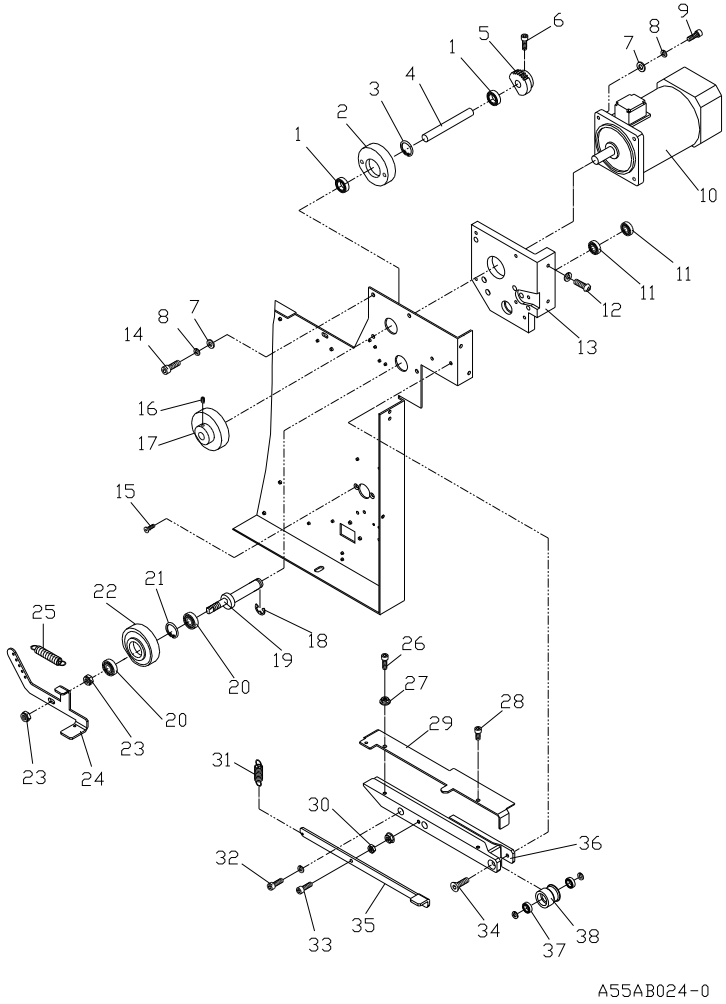


Fig.-5E-AB	Accumulator Box			
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
1	A68-1E0505	Bearing 626	G04210626RS	2
2	A68-1E0507	Bearing fixing bracket	A55-512003-1	1
3	A68-1E 0577	RR-19	W33010190	1
4	A68-1E 0506	Rod	A55-512002-0	1
5	A68-1E 0504	Gear	A55-512001-0	1
6	A68-1E 0555	HBS 4x8	W01510408	1
7	A68-1E 0567	PW 5mm	W19010105	7
8	A68-1E 0566	SW 5mm	W19020105	4
9	A68-1E 0560	HBS 5x18	W01510518	4
10	A68-1E0501	Motor	E01010191	1
11	A68-1E0502	Bearing 6800	G04216800RS	2
12	A68-1E0581	THS 5x10	W12110510	2
13	A68-1E0503	Motor fixing bracket	A55-511001-0	1
14	A68-1E0559	HBS 5x10	W01510510	3
15	A68-1E0556	FMS 4x10	W05210410	2
16	A68-1E0563	HSS 6X10	W02210610	1
17	A68-1E0511-1	Idle roller (5~6mm)	A55B-511002u-1	1
	A68-1E0511-2	Idle roller (9mm)	A55B-511002w-1	1
18	A68-1E0573	ER - 8	W33030080	1
19	A68-1E0520	Shaft	A55-511003-3	1
20	A68-1E0522	Bearing 628	G04210628RS	2
21	A68-1E0578	RR-24	W33010240	1

Fig.-5E-AB		Accumulator Box		
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
22	A68-1E0521-1	Upper feeding roller (5~6mm)	A55B-511001u-0	1
	A68-1E0521-2	Upper feeding roller (9mm)	A55B-511001w-0	1
23	A68-1E0571	FLG 8mm	W15620800	2
24	A68-1E0523	Bracket	A55-511005-1	1
25	A68-1E0524	Spring	A55-511006-0	1
26	A68-1E0579	HBS 4x10	W01510410	1
27	A68-1E0568	FLG 4mm	W15620400	1
28	A68-1E0553	HBS 4x6	W01510406	1
29	A68AB-5E0590-1	Strap guide cover (W650mm)	A55B-511004A-1	1
	A68AB-5E0590-2	Strap guide cover (W850mm)	A55B-511004B-1	1
30	A68-1E0569	HN 4mm	W15110400	1
31	A68-1E0575	Spring	A55-511013-0	1
32	A68-1E0574	HBS 5x25	W01510525	1
33	A68-1E0580	HBS 4x12	W01510412	2
34	A68-1E0562	FMS 5x30	W05210530	1
35	A68AB-5E0592-1	Self-loading feed lever (W650mm)	A55B-511005A-1	1
	A68AB-5E0592-2	Self-loading feed lever (W850mm)	A55B-511005B-1	1
36	A68AB-5E0591-1	Lower strap guide (W650, 5/6mm)	A55B-511003Au-3	1
	A68AB-5E0591-2	Lower strap guide (W650, 9mm)	A55B-511003Aw-3	1
	A68AB-5E0591-3	Lower strap guide (W850, 5/6mm)	A55B-511003Bu-3	1
	A68AB-5E0591-4	Lower strap guide (W850, 9mm)	A55B-511003Bw-3	1
37	A68-1E0531	Bearing 605	G04210605RS	1
38	A68-1E0530	Idle roller	A55B-511006-3	1

9.4 Arch Unit(Old Type)

Fig.-1F-AB

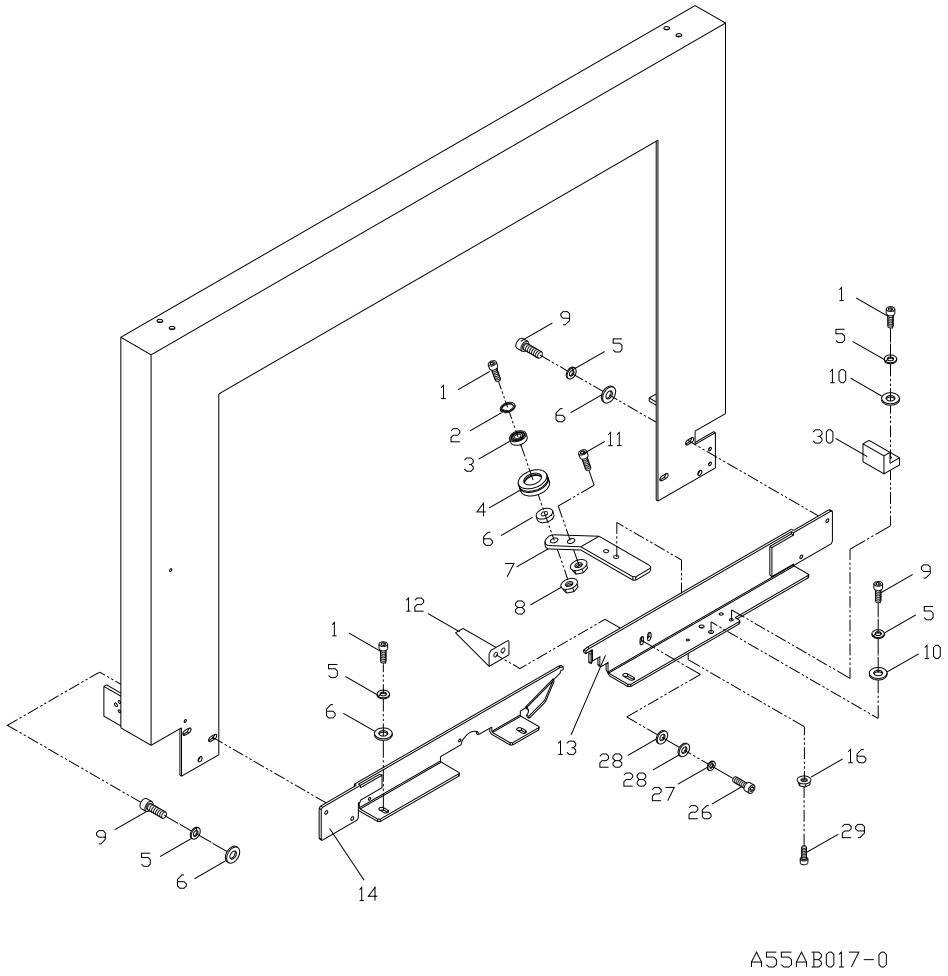


Fig.-1F-AB		Arch Unit		
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
1	A68-1F0656	HBS 5x15	W01510515	3
2	A68-1F0667	RR R19	W33010190	1
3	A68-1F0607	Bearing 635	G04210635RS	1
4	A68-1F0608	Pulley	A55-411003-0	1
5	A68-1F0660	SW 5mm	W19020105	10
6	A68-1F0662	PW 5mm(15)	W19010105(15)	7
7	A68-1F0609	Pulley fix bracket	A55-411004-1	1
8	A68-1F0665	FLG 5mm	W15620500	5
9	A68-1F0654	HBS 5x10	W01510510	8
10	A68-1F0663	PW 5mm	W19010105	4
11	A68-1F0655	HBS 5x12	W01510512	2
12	A68-1F0610	Strap guide fix plate	A55-411005-0	1
13	A68AB-1F0606-1	Strap guide plate – R (W650mm)	A55B-411002A-2	1
	A68AB-1F0606-2	Strap guide plate – R (W850mm)	A55B-411002B-2	1
14	A68AB-1F0605-1	Strap guide plate – L (W650mm)	A55B-411001A-3	1
	A68AB-1F0605-2	Strap guide plate – L (W850mm)	A55B-411001B-3	1
16	A68-1F0664	FLG 4mm	W15620400	2
26	A68-1F0651	HBS 4x8	W01510408	2
27	A68-1F0658	SW 4mm	W19020104	2
28	A68-1F0659	PW 4mm	W19010104	2
29	A68-1F0669	HBS 4x25	W01510425	1
30	A68-1F0618	Aluminum block	A55B-411003-0	1

9.4 Arch Unit(Old Type)

Fig.-2F

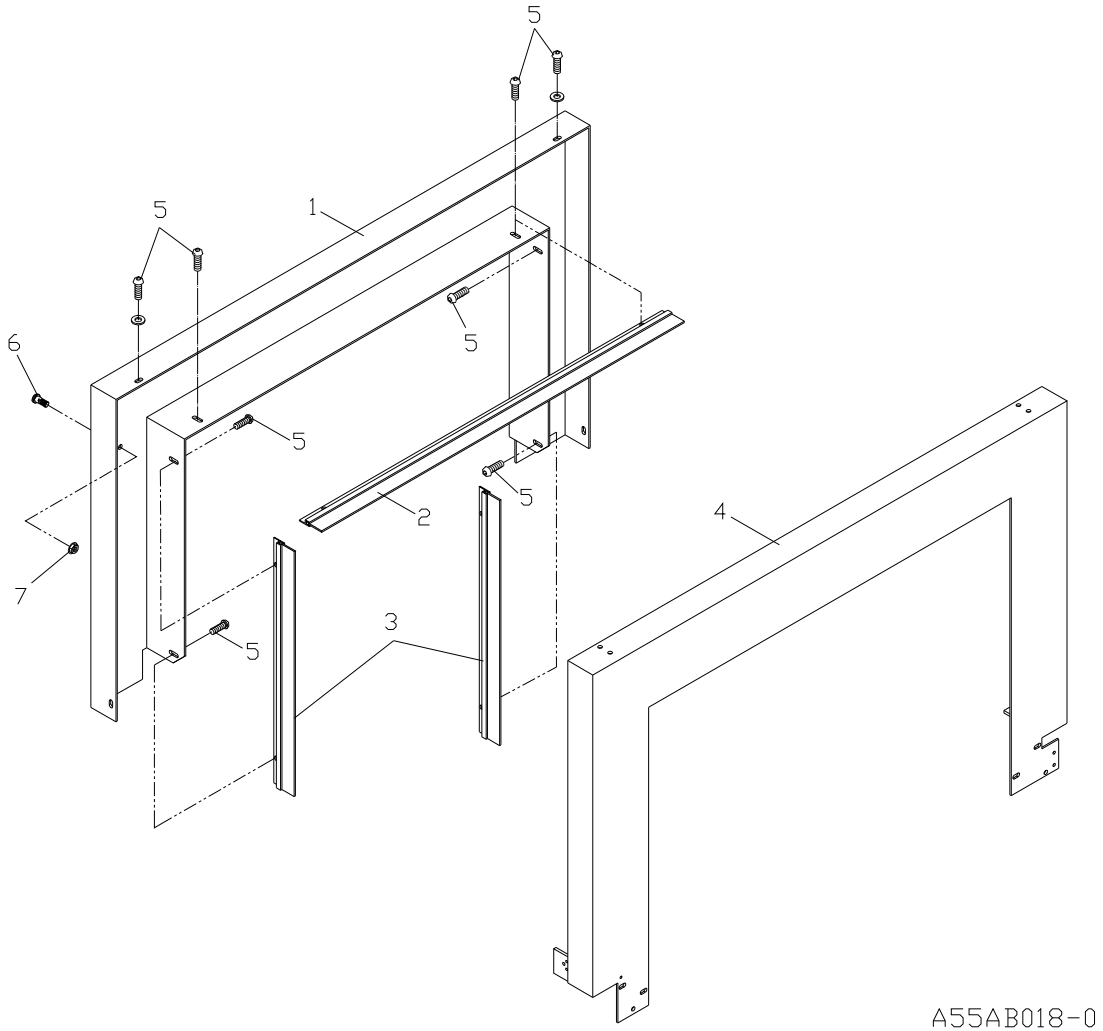
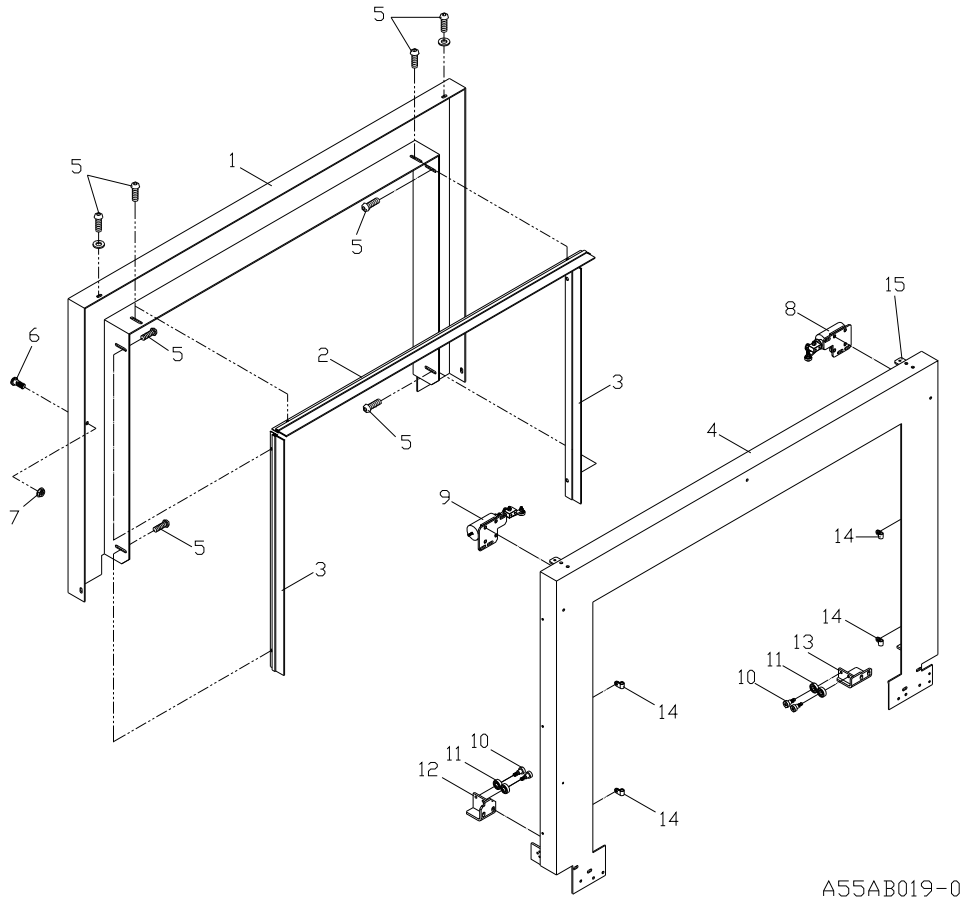


Fig.-2F		Arch Unit		
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
1	A68AB-2F0601-1	Arch cover – rear (W650*H400mm)	A55B-412002AI-1	1
	A68AB-2F0601-2	Arch cover – rear (W650*H600mm)	A55B-412002AK-1	1
	A68AB-2F0601-3	Arch cover – rear (W650*H800mm)	A55B-412002AM-1	1
	A68AB-2F0601-4	Arch cover – rear (W850*H400mm)	A55B-412002BI-1	1
	A68AB-2F0601-5	Arch cover – rear (W850*H600mm)	A55B-412002BK-1	1
	A68AB-2F0601-6	Arch cover – rear (W850*H800mm)	A55B-412002BM-1	1
2	A68-2F0602-1	Brush on top arch (W650mm)	A55-412001A-3	1
	A68-2F0602-2	Brush on top arch (W850mm)	A55-412001B-3	1
3	A68-2F0603-1	Brush of side arch (H400mm)	A55B-412001I-1	2
	A68-2F0603-2	Brush of side arch (H600mm)	A55B-412001K-1	2
	A68-2F0603-3	Brush of side arch (H800mm)	A55B-412001M-1	2
4	A68AB-2F0604-1	Arch cover – front(W650*H400mm)	A55-412150AI-2	1
	A68AB-2F0604-2	Arch cover – front(W650*H600mm)	A55-412150AK-2	1
	A68AB-2F0604-3	Arch cover – front(W650*H800mm)	A55-412150AM-2	1
	A68AB-2F0604-4	Arch cover – front(W850*H400mm)	A55-412150BI-2	1
	A68AB-2F0604-5	Arch cover – front(W850*H600mm)	A55-412150BK-2	1
	A68AB-2F0604-6	Arch cover – front(W850*H800mm)	A55-412150BM-2	1
5	A68-2F0653	THS 5x10	W12110510	10
6	A68-2F0668	Control Board Hanger	A55-412003-0	1
7	A68-2F0670	FLG 8mm	W15620800	1

9.4 Arch Unit(New Type)



Arch Unit(New Type)

No.	Part No.	Part Name	Part No. Effective since Oct. 2013	Quantity
1		Arch cover front 650W	A55B-432001-1	1
		Arch cover front 850W	A55B-422001-1	1
2		Brush on top arch 650W	A55-412001-2-A	1
		Brush on top arch 850W	A55-412001-2-B	1
3		Brush of side arch	A55B-422002-0	2
4		Arch cover-rear 650W	A55B-452050-0	1
		Arch cover-rear 850W	A55B-442050-0	1
5		THS 5×10	W12110510	10
6		Control Board Hanger	A55-412003-0	1
7		FLG 8mm	W15620800	1
8		Solenoid Opener Unit (L)	A55B-422100-0	1
9		Solenoid Opener Unit (R)	A55B-422200-0	1
10		Screw Ø8xM6x8L	W12540608	4
11		Ball Bearing NSK 698-2RS	SK40897	4
12		Bearing Holder(R)	A55B-422150-2	1
13		Bearing Holder(L)	A55B-422250-1	1
14		Wire Holder UC-1.0	E55140002	6
15		Connect plate	A55B-422003-0	2

9.4 Arch Unit(Old Type)

Fig.-1G

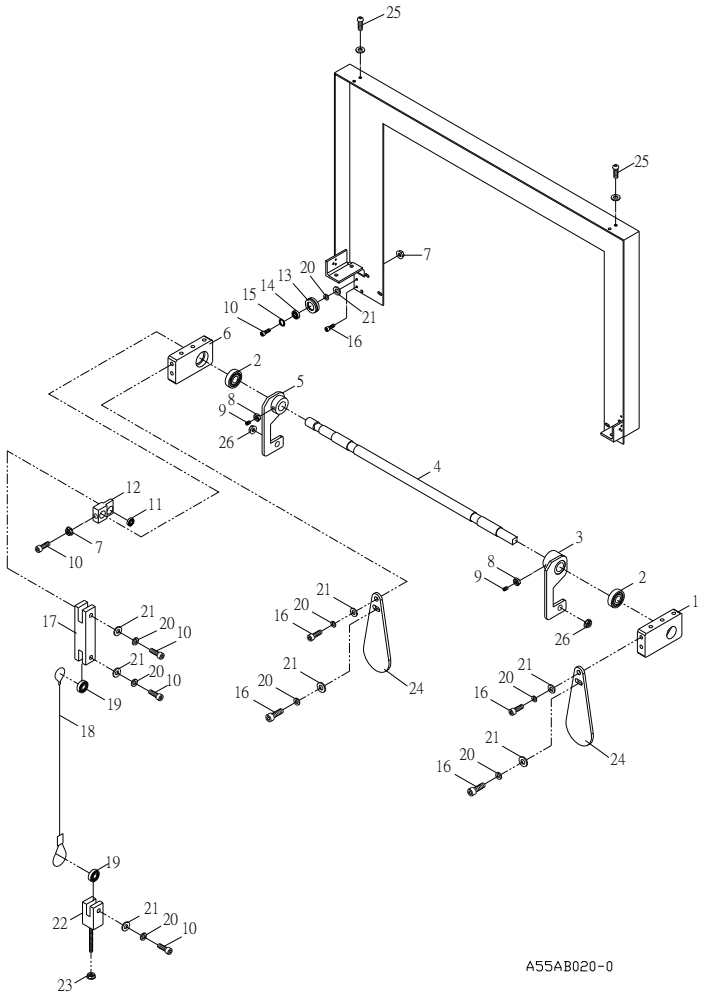


Fig.-1G	Arch Unit			
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
1	A68-1G0701-1	Bracket for connecting rod (5/6mm)	A55-413001u-1	1
	A68-1G0702	Bracket for connecting rod (9mm)	A55-413001w-1	1
2	A68-1G0702	Bearing 6800	G04216800RS	2
3	A68-1G0703	Strap guide fixing plate	A55-413050-0	1
4	A68AB-1G0704-1	Connecting rod shaft (W650mm)	A55-413002A-0	1
	A68AB-1G0704-1	Connecting rod shaft (W850mm)	A55-413002B-0	1
5	A68-1G0705	Strap guide fixing plate – left	A55-413150-0	1
6	A68-1G0706-1	Connect rod bracket – left (5/6mm)	A55-413003u-1	1
	A68-1G0706-2	Connect rod bracket – left (9mm)	A55-413003w-1	1
7	A68-1G0764	FLG 5mm	W15620500	3
8	A68-1G0763	HN 5mm	W15110500	2
9	A68-1G0759	HSS 5x16	W02210516	2
10	A68-1G0756	HBS 5x15	W01510515	5
11	A68-1G0707	Bearing	A55-413011-0	1
12	A68-1G0708	Link	A55-413004-0	1
13	A68-1G0716	Pulley	A55-411003-0	1
14	A68-1G0717	Bearing 635	G04210635RS	1
15	A68-1G0765	RR	W33010190	1
16	A68-1G0755	HBS 5x12	W01510512	5
17	A68-1G0709	Connecting rod	A55-413005-0	1

Fig.-1G	Arch Unit			
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
18	A68AB-1G0710-1	Wire rob (803mm) (650x400mm)	A55B-413001AI-1	1
	A68AB-1G0710-2	Wire rob (1003mm) (650x600mm)	A55-413001AK-1	1
	A68AB-1G0710-3	Wire rob (1203mm) (650x800mm)	A55-413001AM-1	1
	A68AB-1G0710-4	Wire rob (903mm) (850x400mm)	A55-413001BI-1	1
	A68AB-1G0710-5	Wire rob (1103mm) (850x600mm)	A55-413001BK-1	1
	A68AB-1G0710-6	Wire rob (1303mm) (850x800mm)	A55-413001BM-1	1
19	A68-1G0711	Bearing 605	G04210605RS	2
20	A68-1G0760	SW 5mm	W19020105	8
21	A68-1G0761	PW 5mm	W19010105	8
22	A68-1G0721	Cable wire	A55-413010-1	1
23	A68-1G0767	FLG 6mm	W15620600	1
24	A68-1G0712	Auxiliary fasten plate	A55B-413002-0	2
25	A68-1G0753	THS 5x10	W12110510	4
26	A68-1G0768	Spacer 5mm	W19010105	2

9.4 Arch Unit(Old Type)

Fig.-2G-AB

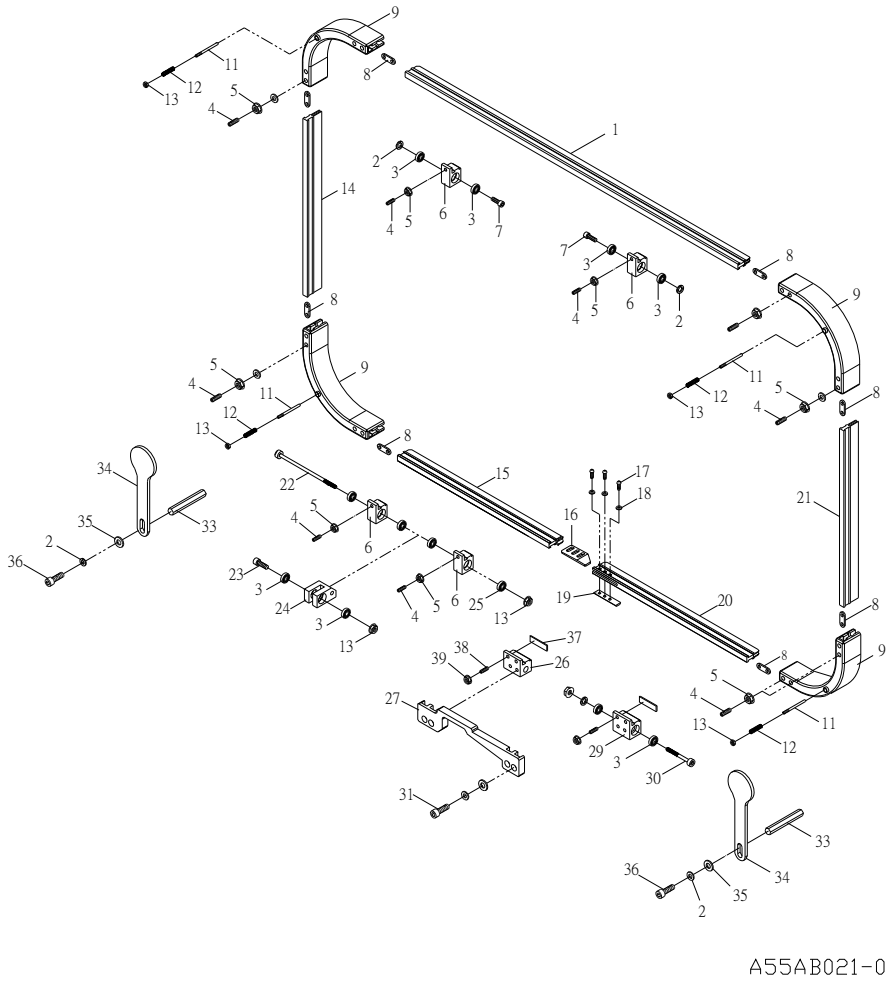
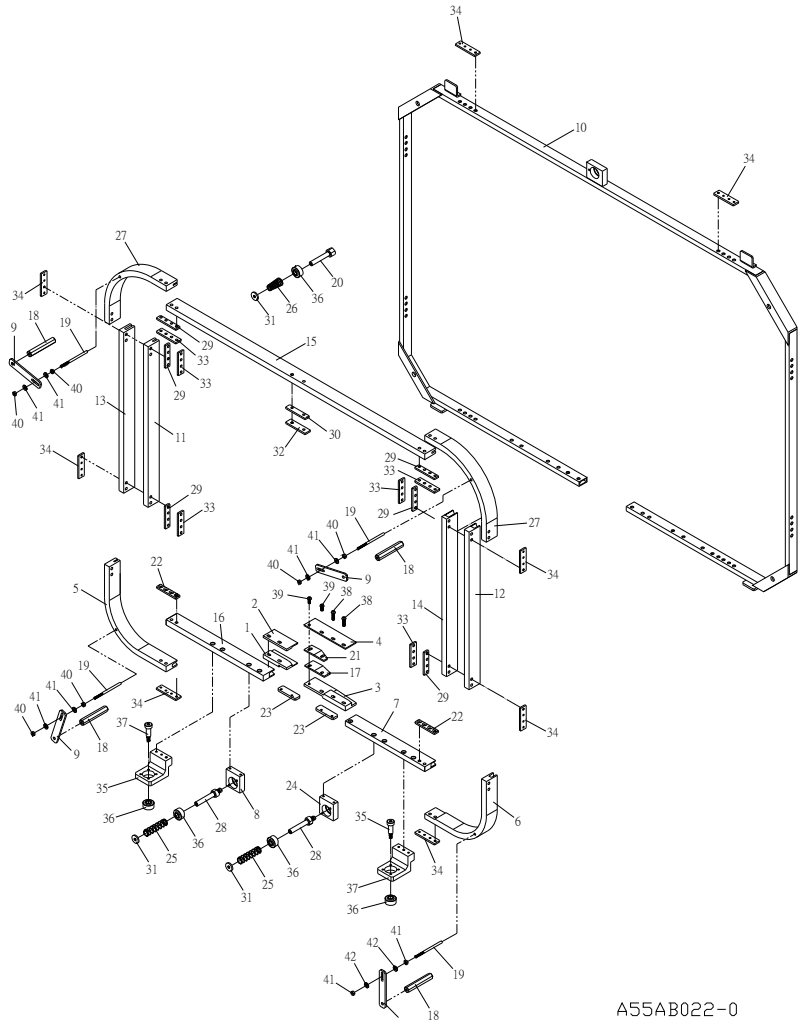


Fig.-2G-AB	Arch Unit(Old Type)			
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
1	A68-2G0732-1	Strap guide (upper) (W650, 5/6mm)	A55-414013Au-0	1
	A68-2G0732-2	Strap guide (upper) (W650, 9mm)	A55-414013Aw-0	1
	A68-2G0732-3	Strap guide (upper) (W850, 5/6mm)	A55-414013Bu-0	1
	A68-2G0732-4	Strap guide (upper) (W850, 9mm)	A55-414013Bw-0	1
2	A68-2G0760	SW 5mm	W19020050	7
3	A68-2G0718	Bearing 605	G04210605	10
4	A68-2G0759	HSS 5x16	W02210516	20
5	A68-2G0764	FLG 5mm	W15620500	20
6	A68-2G0719	Chute connecting rod	A55-414002-1	4
7	A68-2G0757	HBS 5x25	W01510525	2
8	A68-2G0724	Chute fix plate	A55-414006-1	8
9	A68-2G0715-1	Chute connecting plate (5~6mm)	A55-414001u-1	4
	A68-2G0715-2	Chute connecting plate (9mm)	A55-414001w-1	4
11	A68-2G0714	Chute	A55-413009-0	4
12	A68-2G0713	Spring	A55-413008-0	4
13	A68-2G0768	Spacer 5mm	W19010105	5
14	A68-2G0720-1	Strap guide (left) (H400, 5/6mm)	A55-414003Iu-0	1
	A68-2G0720-2	Strap guide (left) (H400, 9mm)	A55-414003Iw-0	1
	A68-2G0720-3	Strap guide (left) (H600, 5/6mm)	A55-414003Ku-0	1
	A68-2G0720-4	Strap guide (left) (H600, 9mm)	A55-414003Kw-0	1
	A68-2G0720-5	Strap guide (left) (H800, 5/6mm)	A55-414003Mu-0	1
	A68-2G0720-6	Strap guide (left) (H800, 9mm)	A55-414003Mw-0	1
15	A68AB-2G0725-1	Strap guide (L, btm)(W650, 5/6mm)	A55B-414001Au-0	1
	A68AB-2G0725-2	Strap guide (L, btm)(W650, 9mm)	A55B-414001Aw-0	1

	A68AB-2G0725-3	Strap guide (L, btm)(W850, 5/6mm)	A55B-414001Bu-0	1
	A68AB-2G0725-4	Strap guide (L, btm)(W850, 9mm)	A55B-414001Bw-0	1
16	A68-2G0728	Strap width adjust plate	A55-414009-0	1
17	A68-2G0751	PMS 4x8	W08110408	3
18	A68-2G0769	SW 4mm	W19020104	3
19	A68-2G0726	Strap width adjust plate	A55-414008-2	1
20	A68AB-2G0729-1	Strap guide (R, btm) (W650,5/6mm)	A55B-414002Au-2	1
	A68AB-2G0729-2	Strap guide (R, btm) (W650,9mm)	A55B-414002Aw-2	1
	A68AB-2G0729-3	Strap guide (R, btm) (W850,5/6mm)	A55B-414002Bu-2	1
	A68AB-2G0729-4	Strap guide (R, btm) (W850,9mm)	A55B-414002Bw-2	1
21	A68-2G0730-1	Strap guide (right) (H400, 5/6mm)	A55-414011Iu-0	1
	A68-2G0730-2	Strap guide (right) (H400, 9mm)	A55-414011Iw-0	1
	A68-2G0730-3	Strap guide (right) (H600, 5/6mm)	A55-414011Ku-0	1
	A68-2G0730-4	Strap guide (right) (H600, 9mm)	A55-414011Kw-0	1
	A68-2G0730-5	Strap guide (right) (H800, 5/6mm)	A55-414011Mu-0	1
	A68-2G0730-6	Strap guide (right) (H800, 9mm)	A55-414011Mw-0	1
22	A68-2G0758	HBS 5x100	W015105100	1
23	A68-2G0770	HBS 5x30	W01510530	1
24	A68-2G0723	Swing block	A55-414005-0	1
25	A68-2G0717	Bearing 635	G04210635RS	1
26	A68-2G0733	Left	A55B-414004-0	1
27	A68AB-2G0735	Link	A55B-414003-1	1
29	A68-2G0734	Right	A55-414015-0	1
30	A68-2G0766	HBS 5x40	W01510540	1
31	A68-2G0756	HBS 5x15	W01510515	4
32	A68-2G0775	HBS 4x8	W01510408	2

33	A68-2G0722	Hexagon shaft	A55-414004-0	2
34	A68-2G0712	Auxiliary fasten plate	A55-413007-0	2
35	A68-2G0761	PW 5mm	W19010105	6
36	A68-2G0755	HBS 5x12	W01510512	2
37	A68-2G0776	Iron Sheet	A55-414018-0	2
38	A68-2G0777	HSS 5x10	W02210510	4
39	A68-2G0778	Stops the slippery cap nut	W17110500	4

Arch Unit 850W(New Type)

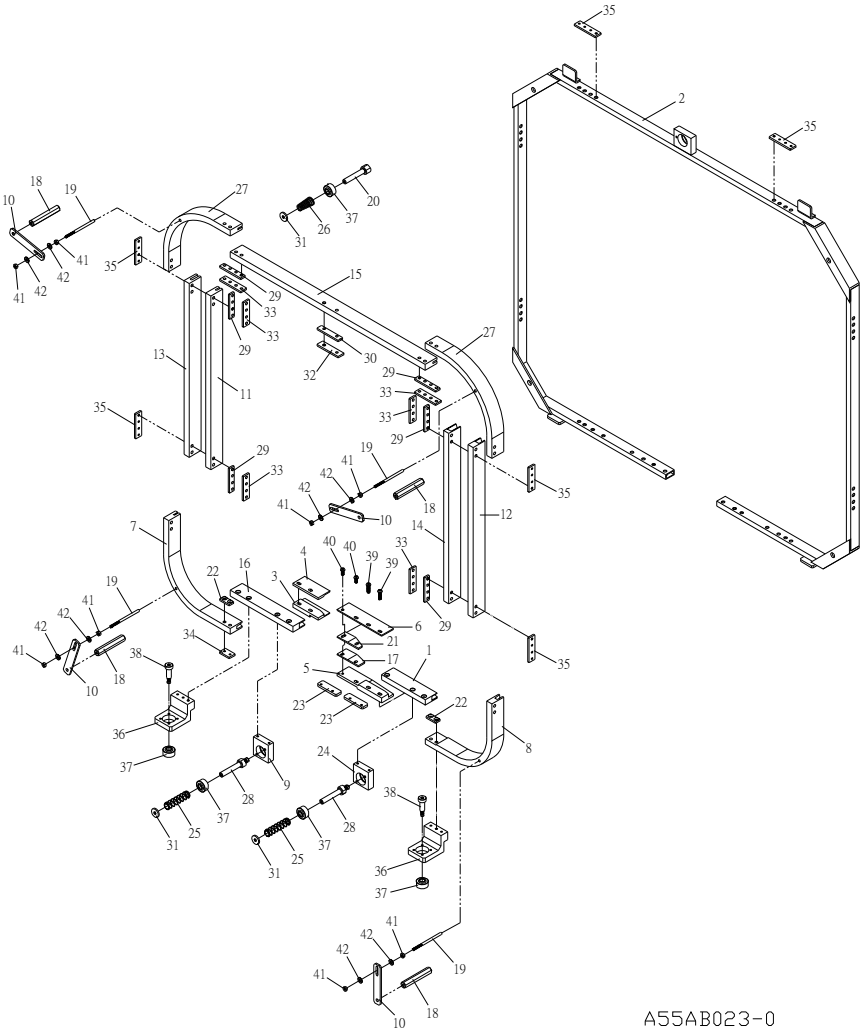


Arch Unit 850W(New Type)

No.	Part No.	Part Name	Part No. Effective since Oct. 2013	Quantity
1		Inlet Bandway	A55B-441001-0	1
2		Inlet cover	A55B-441002-0	1
3		Outlet Bandway	A55B-441003-0	1
4		Outlet Cover	A55B-441004-0	1
5		Track Corner (L,Btm)	A55B-441005-0	1
6		Track Corner (R,Btm)	A55B-441006-0	1
7		Bandway (Lower)(850W)	A55B-441007-0	1
8		Bearing Holder	A55B-441008-0	1
9		Fixed Plate	A55B-441009-0	4
10		Arch Frame	A55B-441050-0	1
11		Bandway(L) 5mm/6mm	A55B-421001-1	1
12		Bandway(R) 5mm/6mm	A55B-421002-1	1
13		Bandway(L) 9mm/12mm	A55B-421003-1	1
14		Bandway(R) 9mm/12mm	A55B-421004-1	1
15		Bandway (Upper) (850W)	A55B-421005-1	1
16		Bandway (L,Btm) (850W)	A55B-421006-1	1
17		Adjustment Plate 5mm/6mm	A55B-421011-1	1
18		Hexagon Shaft	A55B-421013-0	4
19		Pin	A55B-421015-0	4
20		Guide Shaft (Upper)	A55B-421016-1	1
21		Adjustment Plate 9mm/12mm	A55B-421018-1	1
22		Arch Fixed Plate t=3	A55B-421020-0	2
23		Fixed Plate (L)	A55B-421022-0	2
24		Bearing Holder	A55B-421025-0	1

25	Spring	A55B-421023-0	2
26	Spring	A55B-421024-0	1
27	Track Corner	1L121-1	2
28	Guide Shaft	A85-451005-3	2
29	Arch Fixed Plate (A) 9mm/12mm	A85-4I1002-0	6
30	Arch Fixed Plate 9mm/12mm	A85-4I1003-0	1
31	Pad	S35-160024-0	3
32	Arch Fixed Plate	C68-410002-1	1
33	Arch Fixed Plate (A)	C68-410027-0	6
34	Arch Fixed Plate (B)	C68-410028-0	8
35	Bearing Holder	C68-410030-2	2
36	Ball Bearing PB8	SK40904	5
37	Ball Bearing PB8	SK40904	5
38	Screw M6x20L	W12540620	2
39	Screw M4x16L	W12-410416	2
40	Screw M4x10L	W12-410410	2
41	M4Hexagon Nut	W15-110400	8

Arch Unit 650W(New Type)

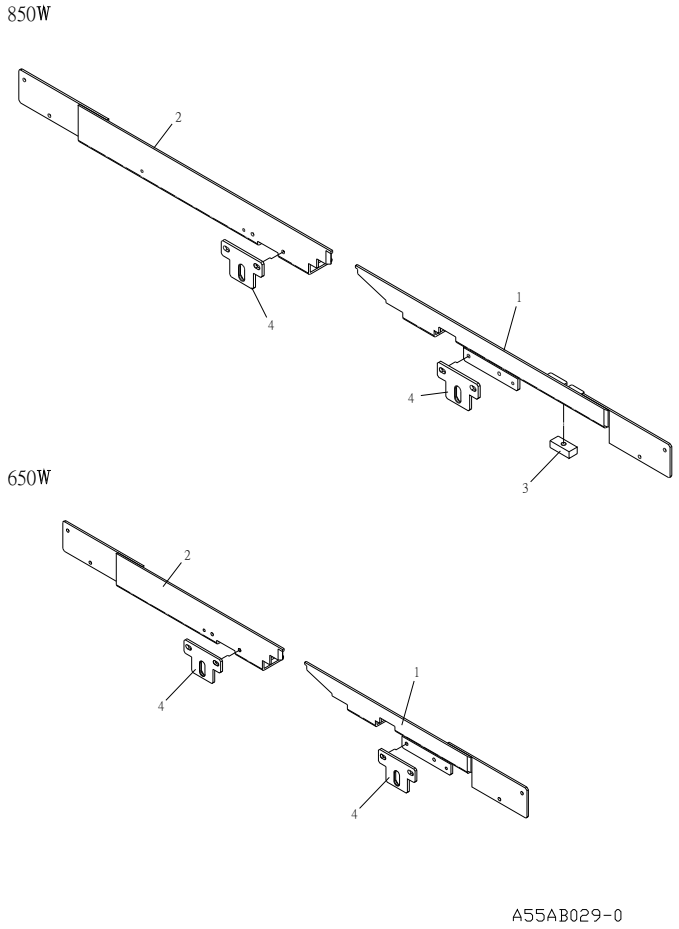


Arch Unit 650W(New Type)

No.	Part No.	Part Name	Part No. Effective since Oct. 2013	Quantity
1		Bandway (Lower)(650W)	A55B-451001-0	1
2		Arch Frame	A55B-451050-0	1
3		Inlet Bandway	A55B-441001-0	1
4		Inlet Cover	A55B-441002-0	1
5		Outlet Bandway	A55B-441003-0	1
6		Outlet Cover	A55B-441004-0	1
7		Track Corner (L.btm)	A55B-441005-0	1
8		Track Corner (R.btm)	A55B-441006-0	1
9		Bearing Holder	A55B-441008-0	1
10		Fixed Plate	A55B-441009-0	4
11		Bandway (L) 5mm/6mm	A55B-421001-1	1
12		Bandway (R) 5mm/6mm	A55B-421002-1	1
13		Bandway (L) 9mm/12mm	A55B-421003-1	1
14		Bandway (R) 9mm/12mm	A55B-421004-1	1
15		Bandway (Upper)(650W)	A55B-431001-1	1
16		Bandway (L.btm) (650W)	A55B-431002-1	1
17		Adjustment Plate 5mm/6mm	A55B-421011-1	1
18		Hexagon Shaft	A55B-421013-0	4
19		Pin	A55B-421015-0	4
20		Guide Shaft (Upper)	A55B-421016-1	1
21		Adjustment Plate 9mm/12mm	A55B-421018-1	1
22		Arch Fixed Plate(S)	A55B-431004-0	2
23		Fixed Plate (L)	A55B-421022-0	2
24		Bearing Holder	A55B-421025-0	1

25	Spring	A55B-421023-0	2
26	Spring	A55B-421024-0	1
27	Track Corner	1L121-1	2
28	Guide Shaft	A85-451005-3	2
29	Arch Fixed Plate(A) 9mm/12mm	A85-4I1002-0	6
30	Arch Fixed Plate 9mm/12mm	A85-4I1003-0	1
31	Pad	S35-160024-0	3
32	Arch Fixed Plate 5mm/6mm	C68-410002-1	1
33	Arch Fixed Plate (A) 5mm/6mm	C68-410027-0	6
34	Arch Fixed Plate (B)	A85-451034-0	1
35	Arch Fixed Plate (B) t=3	C68-410028-0	6
36	Bearing Holder	C68-410030-2	2
37	Ball Bearing PB8	SK40904	5
38	Screw M6x20L	W12540620	2
39	Screw M4x16L	W12-410416	2
40	Screw M4x10L	W12-410410	2
41	Hexagon Nut M4	W15-110400	8
42	Washer(Φ4xΦ10x1mm)	W19010104-1	8

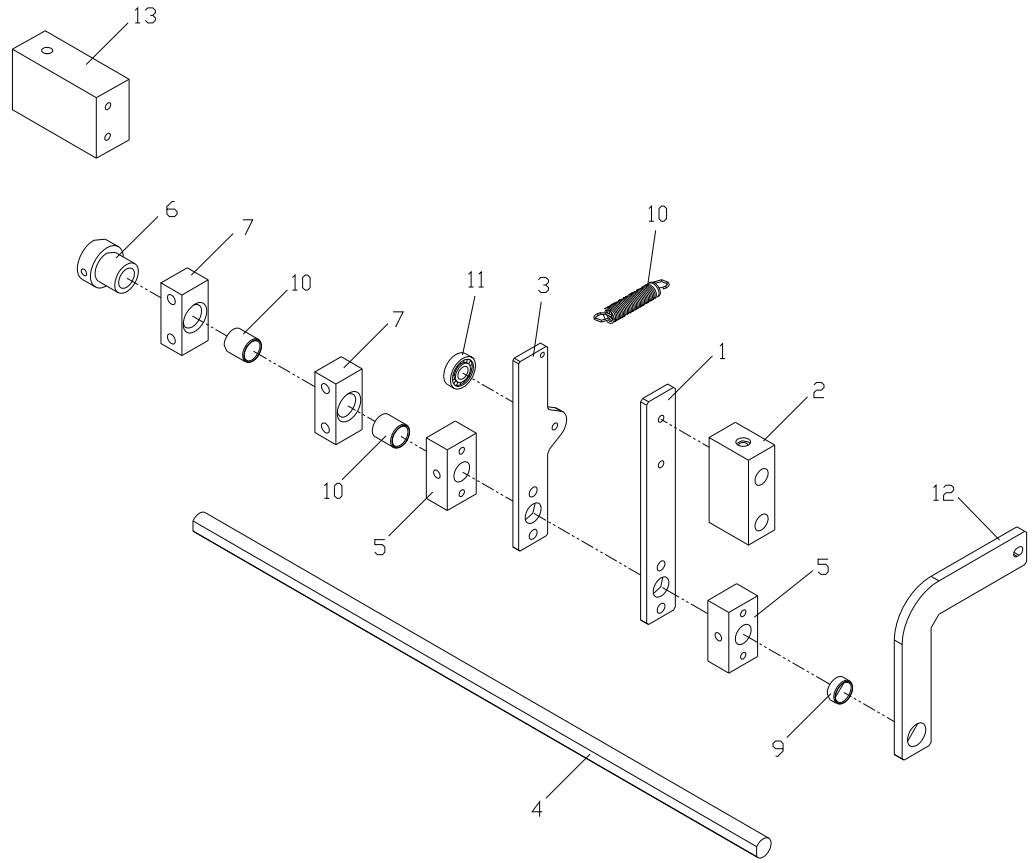
Side Plate Unit



Side Plate Unit

No.	Part No.	Part Name	Part No. Effective since Oct. 2013	Quantity
1		RH Bandway Side Plate Unit 650W	A55B-453050-0	1
		RH Bandway Side Plate Unit 850W	A55B-443050-0	1
2		LH Bandway Side Plate Unit 650W	A55B-453150-0	1
		LH Bandway Side Plate Unit 850W	A55B-443150-0	
3		Pad 850W	A55B-423001-0	1
4		Shaft Fixed Plate	C68-420011-2	2

Opener Unit



Opener Unit

No.	Part No.	Part Name	Part No. Effective since Oct. 2013	Quantity
1		Arch Opener Lever	C68-130001-0	1
2		Opener Block	C68-130002-1	1
3		Cam Opener Lever	C68-130004-2	1
4		Shaft	C68-130005-0	1
5		Fixed Block	1K506-0	2
6		Fixed Ring (L)	1K496-1	1
7		Fixed Block	1K438-3	2
8		Spring	A55-113002-0	1
9		DU Metal Bush 12x14x06L	G01-121406	1
10		DU Metal Bush 12x14x15L	G01-121415	2
11		Ball Bearing 635ZZ	G04-210635	1
12		Support	C68-130006-0	1
13		Connect Block	C68-100005-1	1

9.5 Body Unit

Fig.-6H-AB

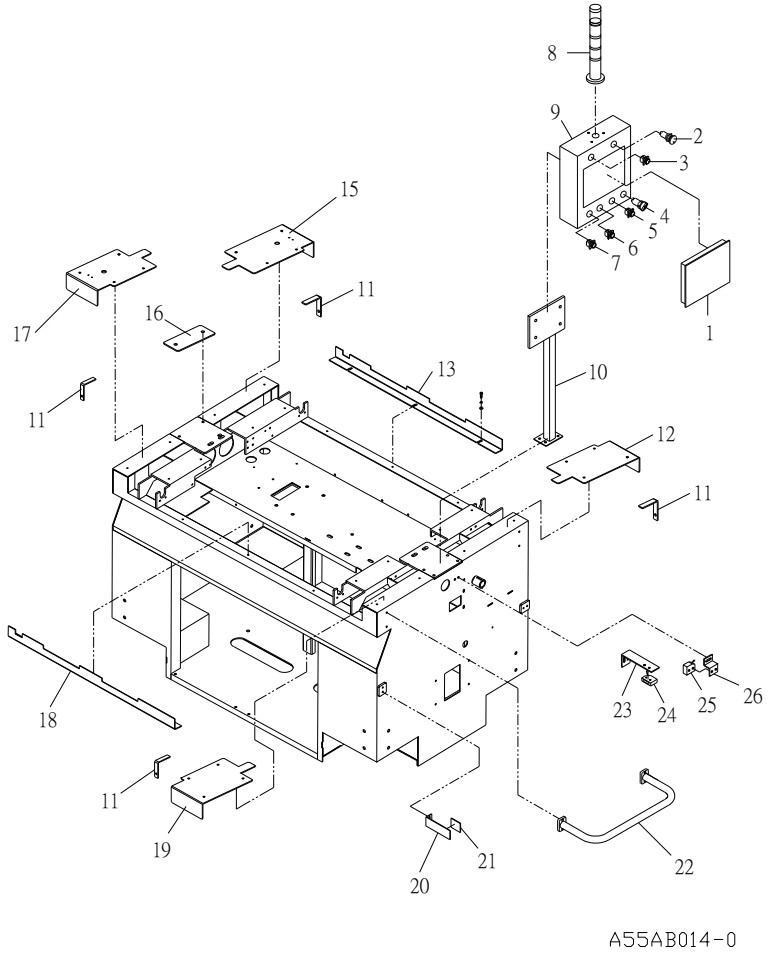


Fig.-6H-AB		Body Unit		
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
1	A68AB-6H08152	HMI touch screen 7”	E25501015	1
2	A68AB-6H08150	E-Stop	E07020091+ E07050061	1
3	A68AB-6H08151	Push button - white	E07020100	1
4	A68AB-6H08155	Select Switch	E07010042	1
5	A68AB-6H08156	Push Button - orange	E07020088	1
6	A68AB-6H08157	Push Button – Green	E07020062	1
7	A68AB-6H08158	Push Button – yellow	E07020075	1
8	A68AB-6H08148-2	Stack Light (4 colors), since 201.07	E19020029	1
9	A68AB-6H08149	Operating Panel	C68-210002-0+C68-210003-0+C68-210001-0	1
10	A68AB-6H08159	Bracket	A55B-212050-1	1
11	A68AB-6H08172	Cover	E25501015	1
12	A68AB-6H08182	Rear right cover	A55B-311007-1	1
13	A68AB-6H08146-1	Rear cover (W650mm)	A55B-311008A-1	1
	A68AB-6H08146-2	Rear cover (W850mm)	A55B-311008B-1	1
14	A68AB-6H08145-1	Frame (W650mm)	A55B-311050A-5	1
	A68AB-6H08145-2	Frame (W850mm)	A55B-311050B-5	1
15	A68AB-6H08181	Rear left cover	A55B-311009-3	1
16	A68AB-6H08180	Centre left cover	A55B-311010-0	1
17	A68AB-6H08174	Front left cover	A55B-311011-1	1
18	A68AB-6H08147-1	Front cover (W650mm)	A55B-311012A-1	1
	A68AB-6H08147-2	Front cover (W850mm)	A55B-311012B-1	1
19	A68AB-6H08169	Front right cover	A55B-311013-0	1

Fig.-6H-AB		Body Unit		
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
20	A68AB-6H08168	Low Strap Sensor Bracket	A55B-213001-0	1
21	A68AB-6H08167	Reflector	E07080074	1
22	A68AB-6H08185	Handle	A55B-311550-0	1
23	A68AB-6H08166	Low Strap Sensor Bracket	A55B-213002-0	1
24	A68AB-6H08127	Low Strap Photocell	E07080072	1
25	A68AB-6H08101	Empty Strap Sensor	E07080073	1
26	A68AB-6H08165	Photocell Bracket	A55B-213003-2	1

9.5 Body Unit

Fig.-7H-AB

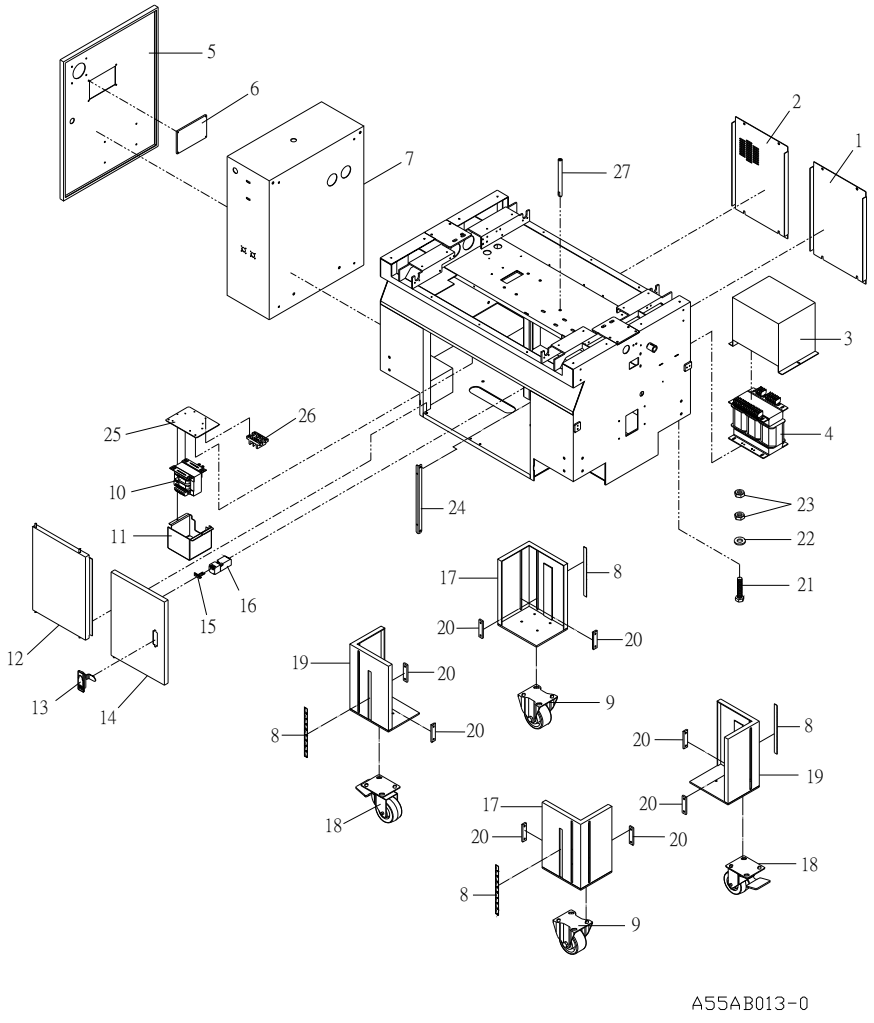


Fig.-7H-AB **Body Unit**

No.	Part No.	Part Name	Part No. Effective since Oct. 2013	Quantity
1	A68AB-7H08183-1	Right Rear Cover (W650mm)	A55B-311001A-1	1
	A68AB-7H08183-2	Right Rear Cover (W850mm)	A55B-311001B-1	1
2	A68AB-7H08184-1	Left Rear Cover (W650mm)	A55B-311002A-2	1
	A68AB-7H08184-2	Left Rear Cover (W850mm)	A55B-311002B-2	1
3	A68AB-7H08136	Cover	A55B-214001-0	1
4	A68AB-7H08135	Transformer	E17020041	1
5	A68AB-7H08178	Electrical Control Box Door	A55B-211150-2	1
6	A68AB-7H08177	Acrylic	A55B-211002-0	1
7	A68AB-7H08179	Electrical Control Box	A55B-211050-0	1
8	A68AB-7H08160	Table Height Indicator	A55B-311003-0	4
9	A68AB-7H08164	Caster	A55B-311004-0	2
10	A68AB-7H0804	Heater Transformer	E17010059	1
11	A68AB-7H0805	Transformer Cover	A55-214001-0	1
12	A68AB-7H08153-1	Front Door (Left) (W650mm)	A55B-311150A-3	1
	A68AB-7H08153-2	Front Door (Left) (W850mm)	A55B-311150B-3	1
13	A68AB-7H0813	Latch	A55B-311014-0	1
14	A68AB-7H08154-1	Front Door (Right) (W650mm)	A55B-311250A-3	1
	A68AB-7H08154-2	Front Door (Right) (W850mm)	A55B-311250B-3	1
15	A68AB-7H0814	Safety Switch Key	E07040051	1
16	A68AB-7H0815	Safety Switch	E07040051	1
17	A68AB-7H08161	Right Adjustable Led	A55B-311350-1	2
18	A68AB-7H08163	Caster with Brake	A55B-311005-0	2
19	A68AB-7H08162	Left Adjustable Led	A55B-311450-1	2
20	A68AB-7H0887	Fasten Plate	A55-311005-0	8

Fig.-7H-AB **Body Unit**

No.	Part No.	Part Name	Part No. Effective since Oct. 2013	Quantity
21	A68AB-7H08186	5mm screw		1
22	A68AB-7H08187	spacer	W19010105	1
23	A68AB-7H08188	5mm nuts	W15110500	2
24		Stopper	A55-311001-0	1
25		Transformer Holder	A55B-214002-0	1
26		Terminal Block	E53120004	1
27		Upper Table Support	A68-300029-0	1

9.5 Body Unit

Fig.-8H-AB

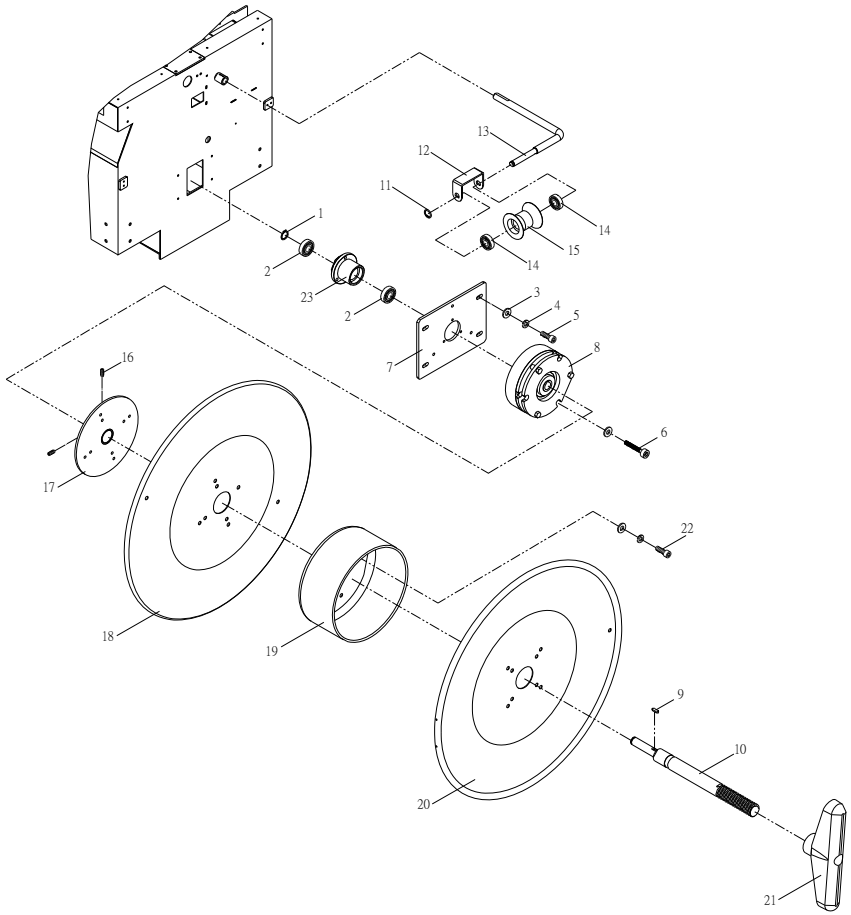
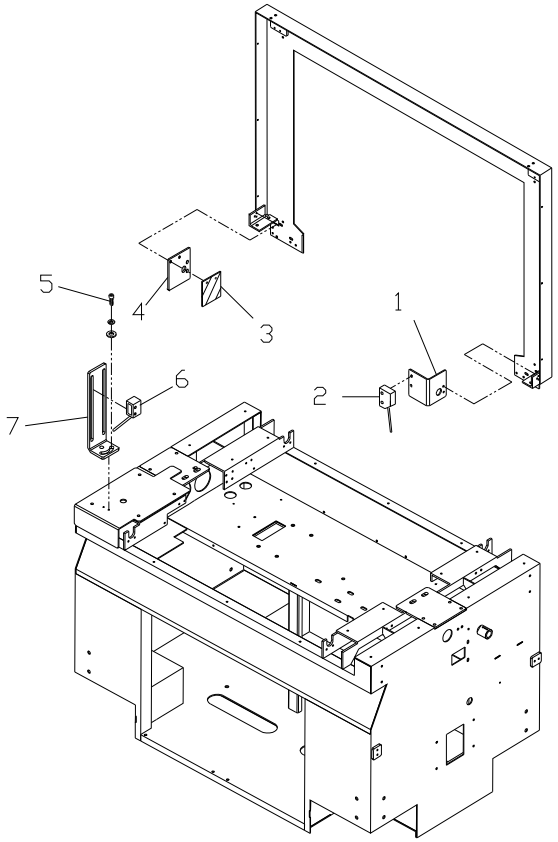


Fig.-8H-AB **Body Unit**

No.	Part No.	Part Name	Part No. Effective since Oct. 2013	Quantity
1	A68AB-8H0866	SR-12	W33020120	1
2	A68AB-8H0834	Bearing 6002	G04216002	2
3	A68AB-8H0862	PW 6mm (19)	W19010106(19)	4
4	A68AB-8H0861	SW 6mm	W19020106	4
5	A68AB-8H0857	HBS 6x16	W01510616	4
6	A68AB-8H0873	HBS 6x33	W01510633	3
7	A68AB-8H0886	Magnetic Brake Bracket	A55-611001-1	1
8	A68AB-8H0832	Magnetic Brake	A55-611006-0	1
9	A68AB-8H0865	KYA 5x15	W35050515	1
10	A68AB-8H0885	Shaft	A55B-611001-1	1
11	A68AB-8H0867	SR-8	W33020080	1
12	A68AB-8H0890	Roller Holder	A55B-612001-0	1
13	A68AB-8H0889	Arm	A55B-612002-1	1
14	A68AB-8H0842	Ball Bearing 628	G04210628RS	2
15	A68AB-8H8343	Idle Roller	A55-612003-0	1
16	A68AB-8H0855	HSS 6x10	W02210610	2
17	A68AB-8H0882	Dispenser Bracket	A55B-611050-0	1
18	A68AB-8H0883	Dispenser Flange (Flat)	A55B-611002-0	1
19	A68AB-8H0884	Dispenser Inner Ring	A55B-611003-0	1
20	A68AB-8H0829	Dispenser Flange	A55-611003-0	1
21	A68AB-8H0830	Dispenser Handle	A11-610001-0	1
22	A68AB-8H08111	HBS 6x10	W01510610	8
23		Bearing Holder	A55B-611004-0	1

9.5 Body Unit

Fig.-9H-AB



A55AB012-0

Fig.-9H-AB		Body Unit		
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
1	A68AB-9H08175	Photocell Bracket	A55B-213004-1	1
2	A68AB-9H08176	Photocell for Strapping position	E07080072	1
3	A68AB-9H08171	Reflector	E07080074	1
4	A68AB-9H08170	Reflector Bracket	A55B-213005-0	1
5	A68AB-9H08197	HBS 5x10	W01510510	2
6	A68AB-9H08199	Sleep photo eye	E07080065	1
7	A68AB-9H08200	Photo eye bracket	A55B-213010-0	1

9.6 Control Box Unit

Fig.-2J-AB

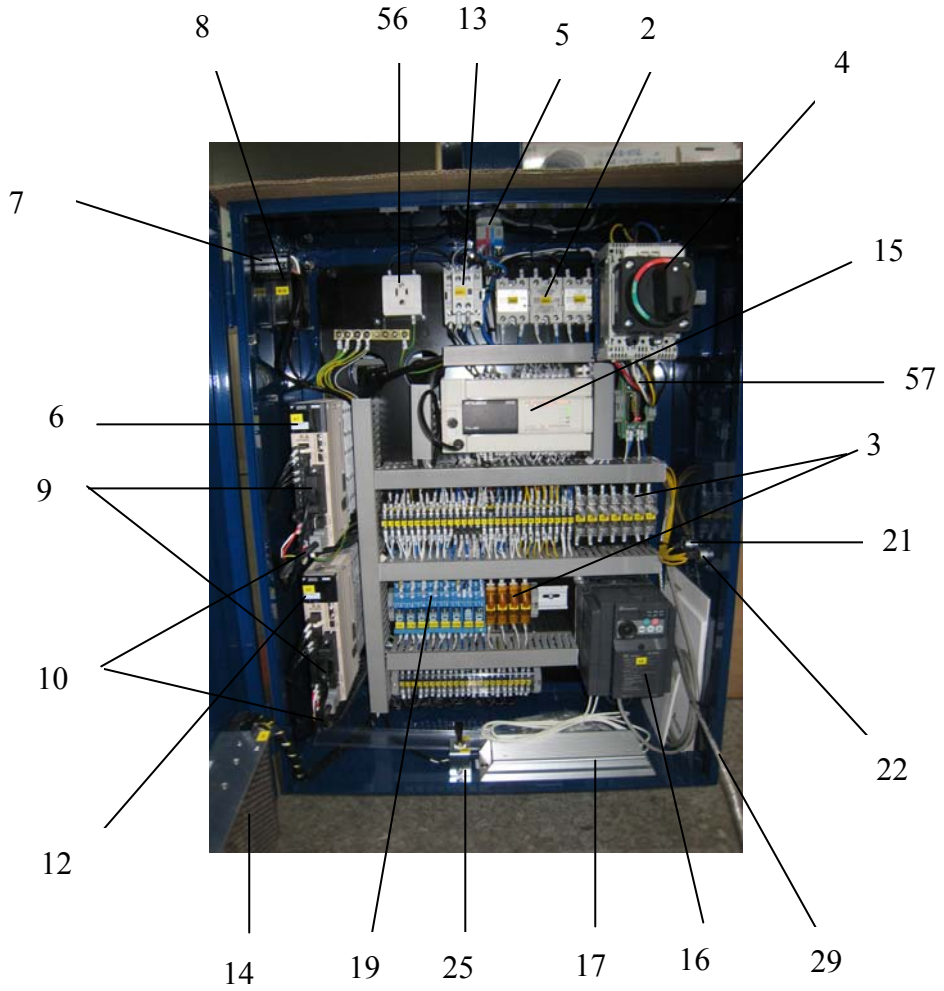


Fig.-2J-AB		Control Box Unit		
No.	**Part No.**	**Part Name**	**Part No. Effective since Oct. 2013**	**Quantity**
2	A68AB-2J0930	SSR 480VAC/25A(SSR4,5,27)	E03020075	3
		SSR 120VDC/10A(SSR21)	E03020061	1
3	E23010017-1	Fuse F1,2 6*30 5A	E23010031	2
	E23010006-1	Fuse F3,4 slow blow 6*30 2A	E23010006-1	2
	E23010036	Fuse F5 slow blow 6*30 5A	E23010036	1
	E23010002	Fuse F6,7 6*30 10A	Same as previous	2
	E23010005	Fuse F8~10 6*30 1A	Same as previous	4
		Fuse Holder(F1~F11)	E23050002	11
		Fuse Cover AC220V(F1~F7)	E23050009	7
		Fuse Cover DC24V(F8~F11)	E23050010	4
4	A68AB-2J0928	Power Switch	E23020047	1
4	A68AB-2J0944	No fuse breaker	E23020046	1
4	E23020060	NFB Cover	E23020060	1
5	A68AB-2J0929-2	Stop Button (with light), since 2012.06	E07020091+E07050061	1
6	A68AB-2J0906-1	Old Yaskawa Cam Shaft Servo Driver, used until 2010. 08 (see Appendix A)	E25401023	1
	A68AB-2J0906-2	New Yaskawa Cam Shaft Servo Driver Since 2010. 09(see Appendix A)	E25401109	1
7	A68AB-2J0907	Counter	Sk33075	1
8	A68AB-2J0908	Fan	E01040005	1
9	A68AB-2J0909-1	Connector, PCB and Cam Shaft Servo Driver	E66A55B004	2
	A68AB-2J0909-2	Connector, PCB and F/R Servo Driver	E66A55B004-1	2
10	A68AB-2J0910	Servo power Cord	E25401090	2

10	A68AB-2J0911	Servo Signal Cable	E25401089	2
12	A68AB-2J0912-1	Old Yaskawa Feed/retracting Servo Driver, used until 2010.08(see Appendix A)	E25401023-1	1
	A68AB-2J0912-2	New Yasakawa Feed/retracting Servo Driver, since 2010.09 (see Appendix A)	E25401110	1
13	A68AB-2J0913	Magnet Contactor	E03010030	1
13	A68AB-2J0941	CUA-2	E03060022	1
14		Power Supply 150W/6.5A	SK32949	1
15	A68AB-2J0915	PLC	E25301108	1
		Communication Board	E25301109	
15	A68AB-2J0942	RS422 Module	E25301109	1
16	A68AB-2J0923	Inverter	E25101210	1
17	A68AB-2J0924	Brake resistor	E25101211	1
19	E03050005	Relay base (K5,20,16,23,24,26,28,29)	E03050005	8
19	E03020018	Relay finder 40.61 (K5,20,16,23,24,26,29)	E03020018	7
		Relay finder 44.52	E03020070	1
		Led + Diode Module	E03050008	8
21	A68AB-2J0933	External Connector socket -1	E09030030	1
22	A68AB-2J0934	External Connector Socket 2	E09020027	1
*Machine manufactured before July 31st , 2012 uses different relay base and relay for No. 23, 24, refer to appendix C if placing order for older machines				
25	A68AB-2J0939	Switch	E07030008	1
25	A68AB-2J0940	Switch holder	XA5R200002-1	1
29	A68AB-2J0943	USB cable	E65030068	1
54	E53212507	Terminal Block (double layer)	Same as previous	29
55	E53212501-1	Terminal Block (single layer)	Same as previous	22
56		Socker	E61010007	1
57		SSR(DUAL) SSR22	E03020085	1

9.7 Belt Driving Table Top Assembly

Fig.-1K-AB

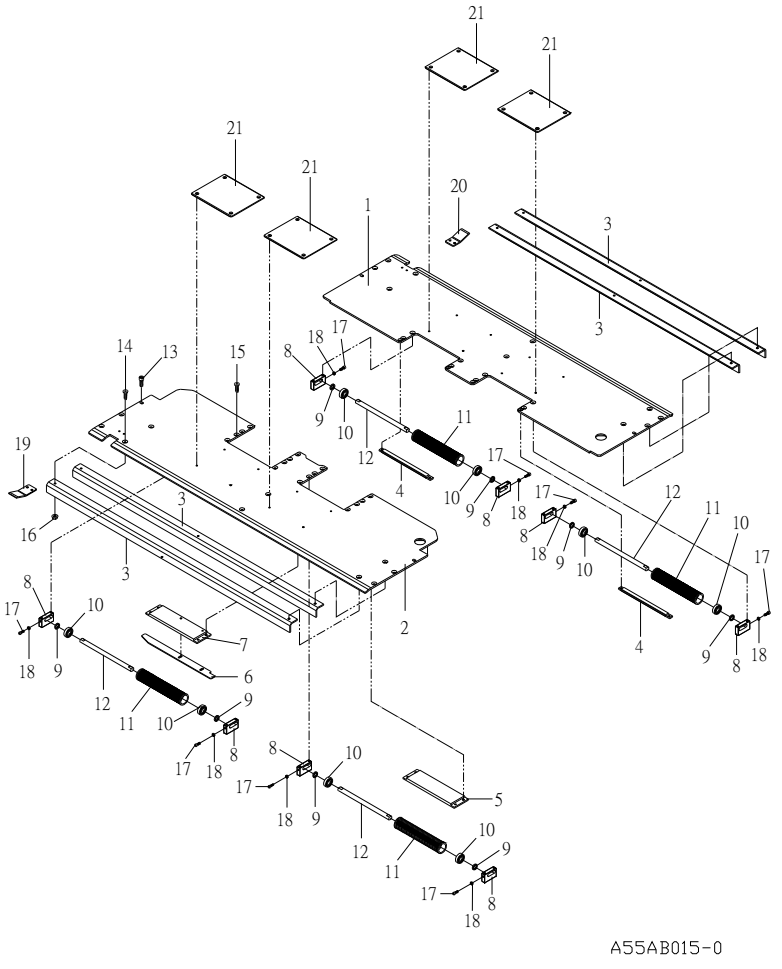


Fig.-1K-AB **Belt Driving Table Top Assembly**

No.	Part No.	Part Name	Part No. Effective since Oct. 2013	Quantity
1	A68AB-1K1001-1	Rear Cover (W650mm)	A55B-312001A-3	1
	A68AB-1K1001-2	Rear Cover (W850mm)	A55B-312001B-3	1
2	A68AB-1K1002-1	Front Cover (W650mm)	A55B-312002A-3	1
	A68AB-1K1002-2	Front Cover (W850mm)	A55B-312002B-3	1
3	A68AB-1K1003-1	Tope Plate Reinforce (W650mm)	A55B-312003A-1	4
	A68AB-1K1003-2	Tope Plate Reinforce (W850mm)	A55B-312003B-1	4
4	A68AB-1K1039	Rear Cover Plate	A55B-312004-0	2
5	A68AB-1K1040	Front Cover Plate	A55B-312005-0	1
6	A68AB-1K1041	Strap width Adjustment Assembly	A55B-312006-0	1
7	A68AB-1K1042	Front Cover Plate	A55B-312007-0	1
8	A68AB-1K1008	Shaft Backet	A55B-312008-0	8
9	A68AB-1K1009	Washer	A55B-312009-0	8
10	A68AB-1K1010	Ball Bearing 6900RU (Koyo)	G04216900RU	8
11	A68AB-1K1043	Multi Grove Front Roller	A55B-312010-0	4
12	A68AB-1K1044	Shaft	A55B-312011-0	4
13	A68AB-1K1051	HBS 5x25	W01510525	4
14	A68AB-1K1053	5x12 FMS	W05210512	12
15	A68AB-1K1052	5x8 FMS	W05210508	28
16	A68AB-1K1055	FLG 5mm	W15620500	12
17	A68AB-1K1060	HBS 5x30	W01510530	8
18	A68AB-1K1054	HN 5mm	W15110500	8
19	A68AB-1K1066	Front Cover Plate	A55B-312012-1	1
20	A68AB-1K1067	Rear Cover Plate	A55B-312013-1	1
21		Pad	A55B-312014-1	4

9.7 Belt Driving Table Top Assembly

Fig.-2K-AB

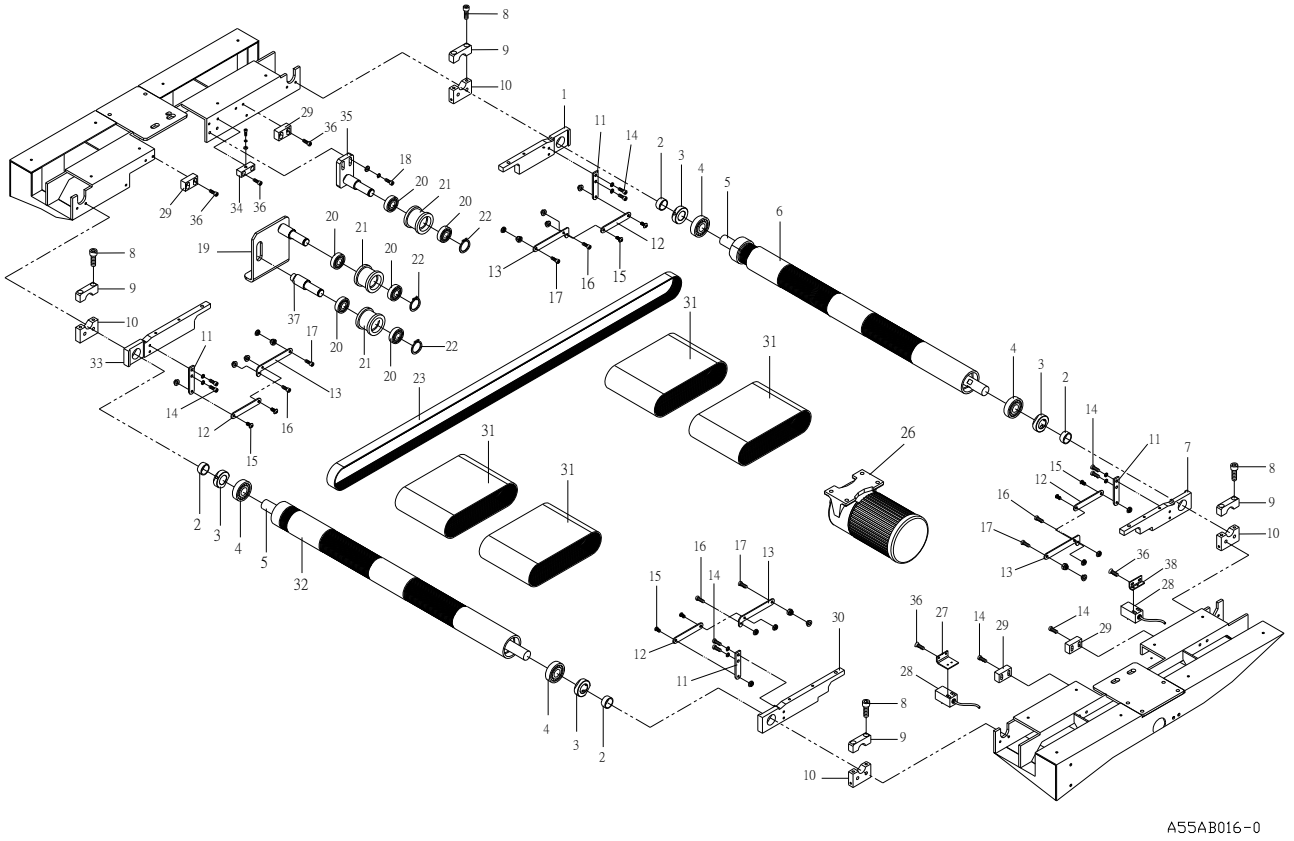


Fig.-2K-AB **Belt Driving Table Top Assembly**

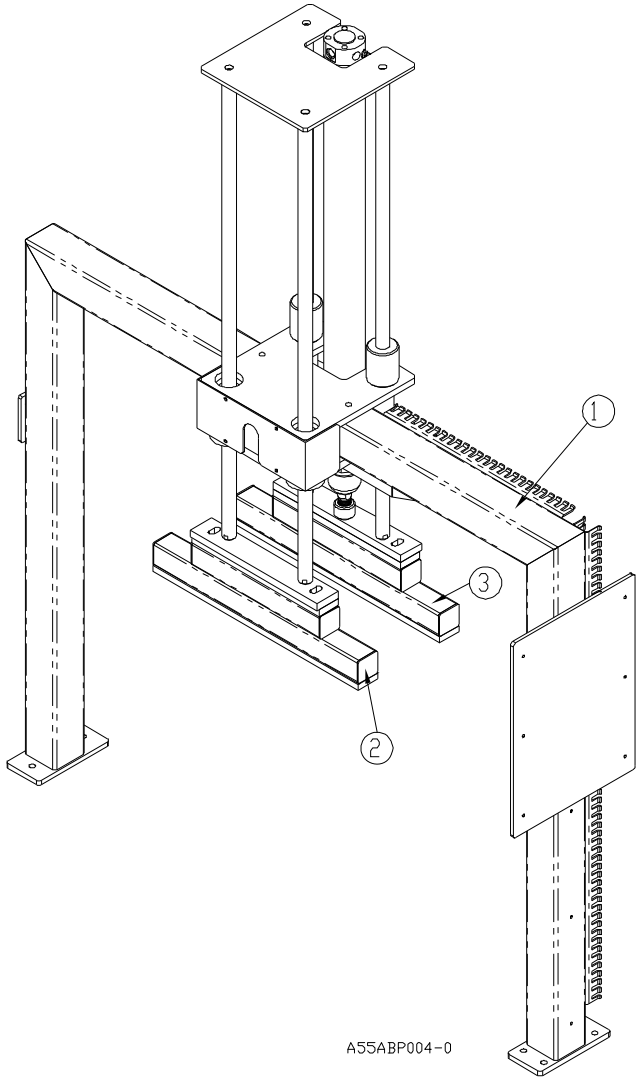
No.	Part No.	Part Name	Part No. Effective since Oct. 2013	Quantity
1	A68AB-2K1024	Base Frame	A55B-313006-0	1
2	A68AB-2K1030	Sleeve Bearing MB2010	G01202310	4
3	A68AB-2K1029	Fixed Collar	A55B-3130R-0	4
4	A68AB-2K1028	Bearing 6004	G04216004RS	4
5	A68AB-2K1031-1	Shaft (W650mm)	A55B-313003A-0	2
	A68AB-2K1031-2	Shaft (W850mm)	A55B-313003B-0	2
6	A68AB-2K1027-1	Rear Belt Driving Roller (W650mm)	A55B-313001A-0	1
	A68AB-2K1027-2	Rear Belt Driving Roller (W850mm)	A55B-313001B-0	1
7	A68AB-2K1026	Rear Aluminum Basket	A55B-313007	1
8	A68AB-2K1056	HBS 6x20		8
9	A68AB-2K1014	Shaft Collar	A55B-313010-0	4
10	A68AB-2K1013	Shaft Base	A55B-313011-0	4
11	A68AB-2K1060	Puller 1	A55B-313018-0	4
12	A68AB-2K1061	Puller 2	A55B-313019-0	4
13	A68AB-2K1062	Puller 3	A55B-313020-0	4
14	A68AB-2K1058	HBS 5x15	W01510515	10
15	A68AB-2K1063	THS 5x10	W12110510	8
16	A68AB-2K1064	HBS 4x8	W01510408	4
17	A68AB-2K1065	HBS 5x25	W01510525	4
18	A68AB-2K1057	HBS 6x16	W01510616	2
19	A68AB-2K1017	Pulley Guide Base	A55B-313050-0	1
20	A68AB-2K1018	Ball Bearing 6002	G04216002RS	6
21	A68AB-2K1019	Pulley	A55B-313013-0	3
22	A68AB-2K1020	SR-12	W33020120	3

Fig.-2K-AB **Belt Driving Table Top Assembly**

No.	Part No.	Part Name	Part No. Effective since Oct. 2013	Quantity
23	A68AB-2K1045	Transmission Belt 9-73’	A55B-313005-0	1
24	A68AB-2K1059	HSS 6x10	W02210610	2
25	A68AB-2K1038	Motor Pulley (Grooved)	A55B-313014-0	1
26	A68AB-2K1037	Reducing Motor	E01030022-1	1
27	A68AB-2K1035	Proximity Switch Bracket	A55B-313015-0	2
28	A68AB-2K1036	Proximity Switch	E07090036	2
29	A68AB-2K1021	Table Plate Frame Bracket	A55B-313016-0	4
30	A68AB-2K1025	Front Aluminum Base Frame	A55B-313008-0	1
31	A68AB-2K1046	Table Top driving Belt 59-24’	A55B-313004-0	4
32	A68AB-2K1047-1	Front Belt Roller (W650mm)	A55B-313002A-0	1
	A68AB-2K1047-2	Front Belt Roller (W850mm)	A55B-313002B-0	1
33	A68AB-2K1023	Front Left Aluminum Base Frame	A55B-313009-0	1
34	A68AB-2K1022	Adjustment Base Frame	A55B-313017-0	1
35	A68AB-2K1016	Belt Guiding Roller Bracket	A55B-313150-0	1
36		Screw	W05110412	4
37		Idle Roller Shaft	A55B-313022-0	1
38		Sensor Plate	A55B-313021-0	1

9.8 Pneumatic Assembly (if equipped)

Compression Unit Ass'y (650Wx600H) (A55B-710000-0)

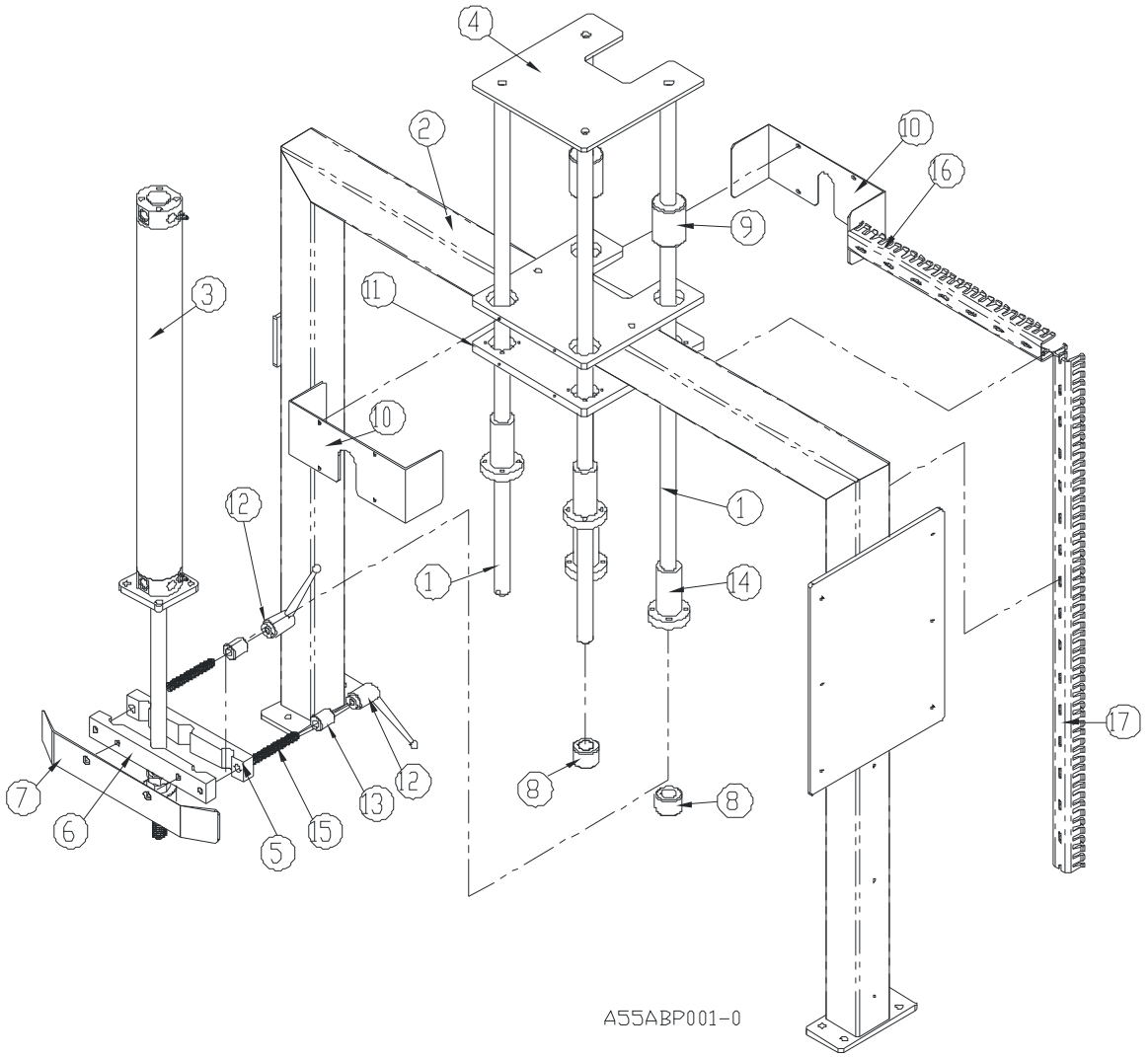


Compression Unit Ass'y (650Wx600H) (A55B-710000-0)

No.	Part No.	Part Name	Part Name	Quantity
1	A55B-711000-0	Compression unit		1
2	A55B-712000-0	Press Platen	(front)	1
3	A55B-713000-0	Press Platen	(main)	1

9.8 Pneumatic Assembly (if equipped)

Compression Unit (650Wx600H)(A55B-711000-0)

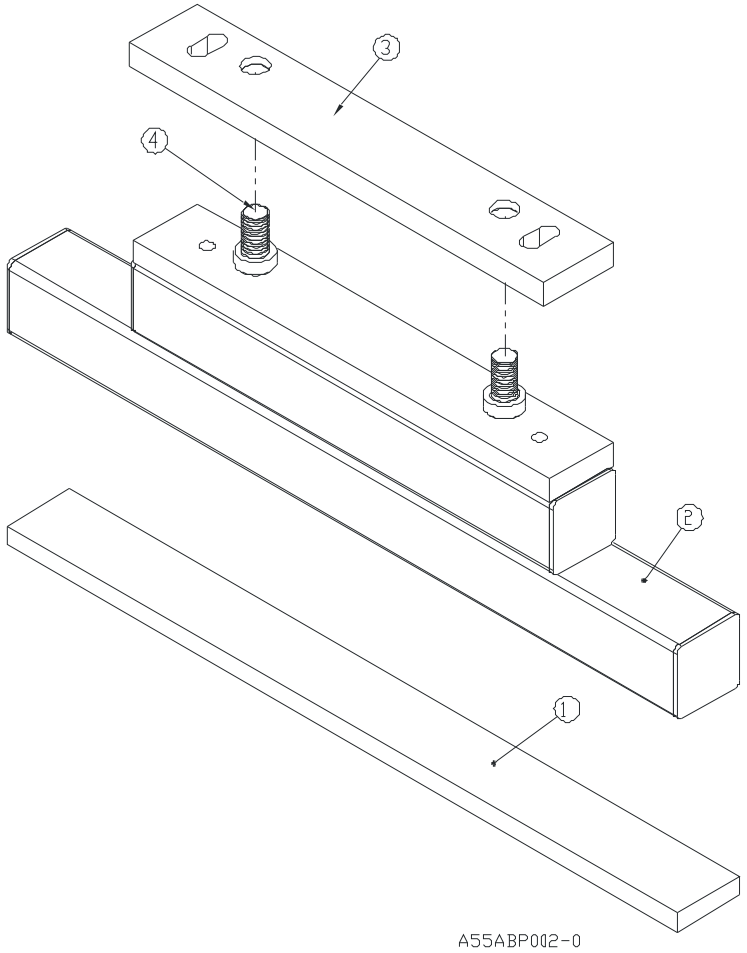


Compression Unit (650Wx600H)(A55B-711000-0)

No.	Part No.	Part Name	Part Name	Quantity
1	A55B-711001-0	Guide Shaft		4
2	A55B-711050-0	Press frame		1
3	A55B-711100-0	Cylinder Ass'y		1
4	C68-710001-3	Upper plate		1
5	C68-710003-2	Front Block		1
6	C68-710004-2	Rear Block		1
7	C68-710005-1	Guide plate		1
8	C68-710006-1	Lower Buffer		2
9	C68-710007-1	Upper Buffer		2
10	C68-710008-2	Front & rear cover		2
11	C68-710018-1	Top press base lower plate		1
12	C68-710019-0	Handle		2
13	C68-710020-0	Collar		2
14	G14-203280B	Roller bearing set		4
15	W02-211080	M10x80L set screw		2
16		25x25x350L cable duct		1
17		25x25x800L cable duct		1

9.8 Pneumatic Assembly (if equipped)

Press platen (front) (A55B-712000-0)

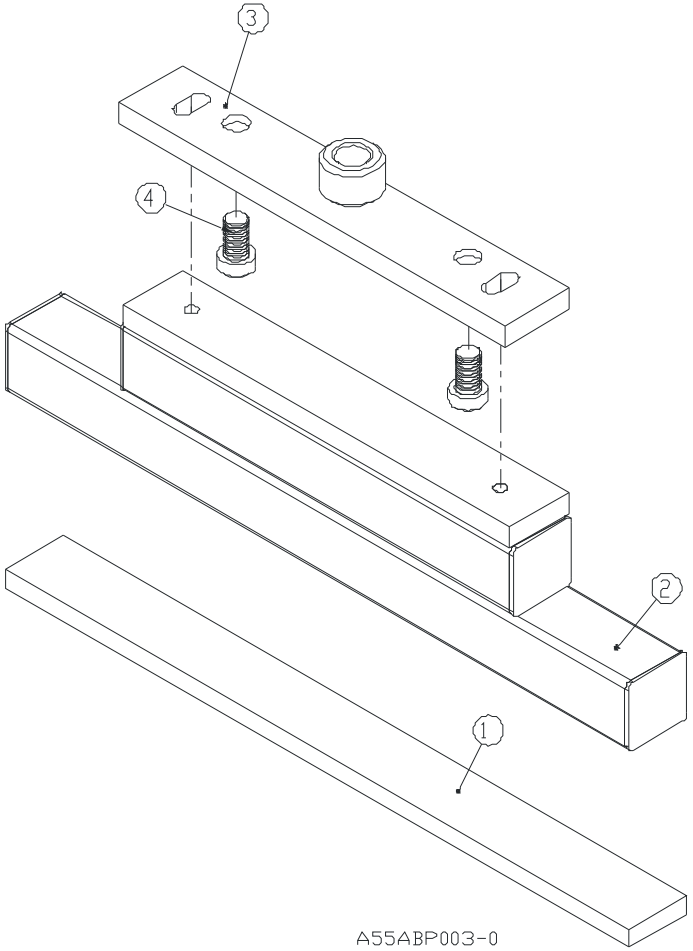


Press platen (front) (A55B-712000-0)

No.	Part No.	Part Name	Part Name	Quantity
1	A55B-712001-0	Press plate		1
2	A55B-712050-0	Press platen		1
3	C68-720151-2	Top press block		1
4	W01-231220-1	Soc. Hd. Cap Screw M12*20		2

9.8 Pneumatic Assembly (if equipped)

Press platen (main) (A55B-713000-0)

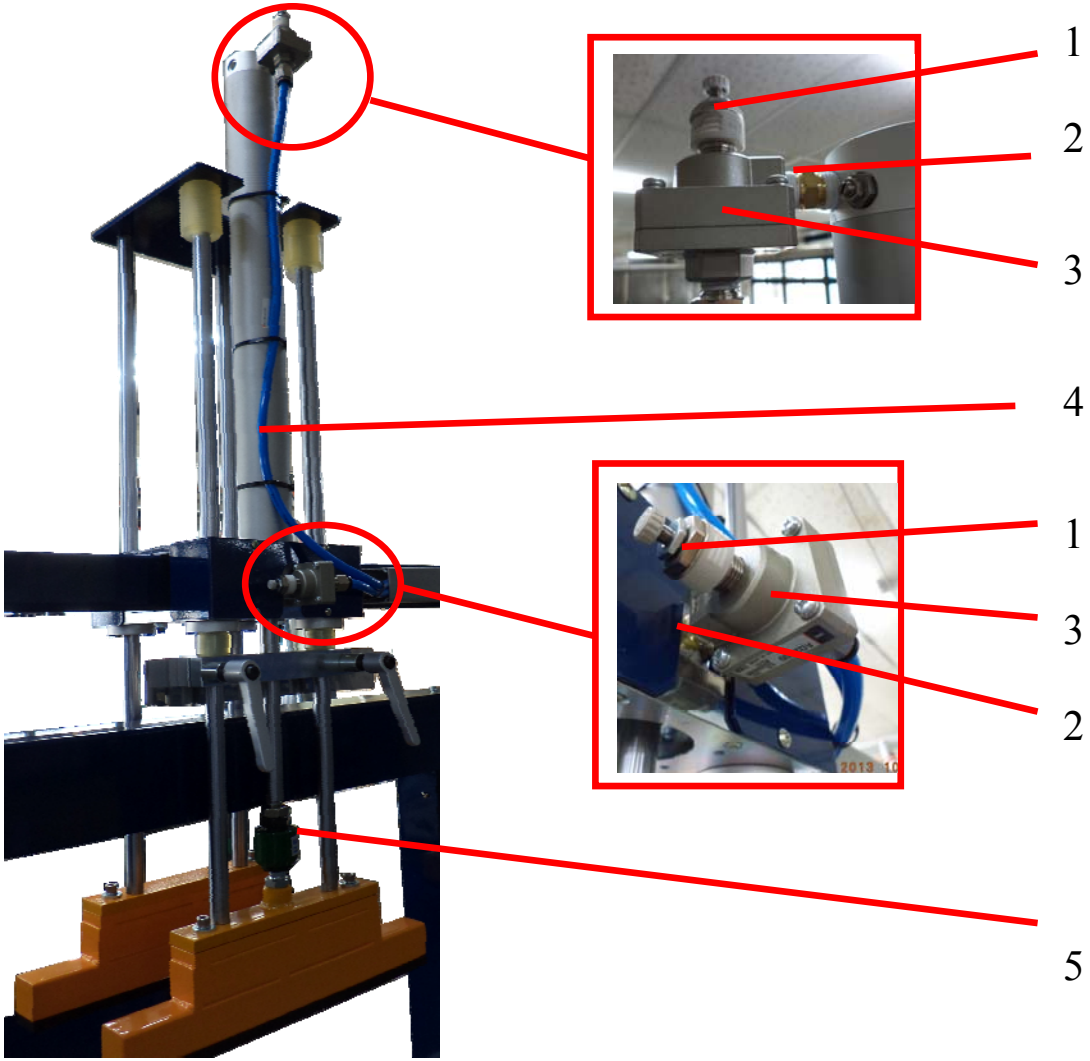


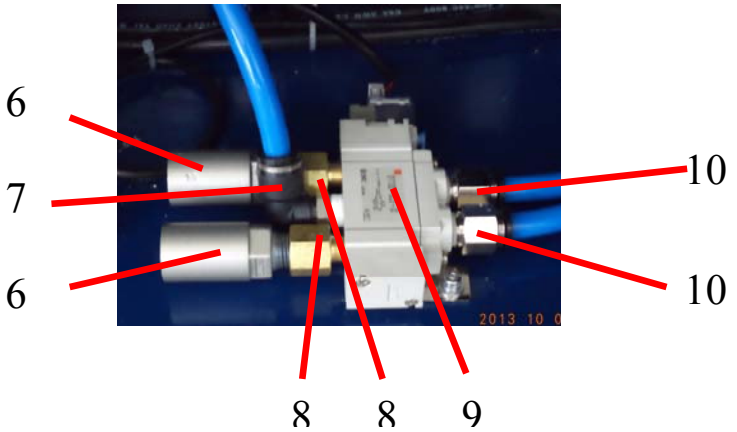
Press platen (main) (A55B-713000-0)

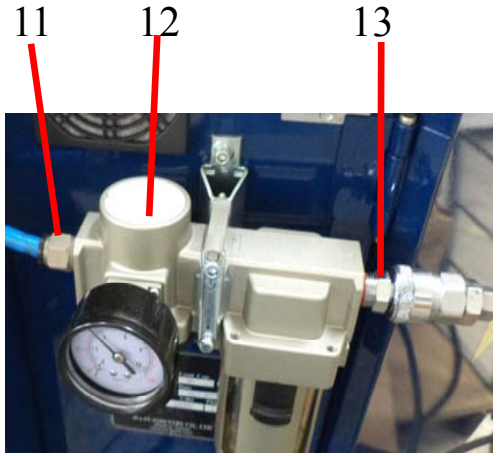
No.	Part No.	Part Name	Part Name	Quantity
1	A55B-712001-0	Press plate		1
2	A55B-712050-0	Press platen		1
3	C68-741150-1	Top pres block (M18)		1
4	W01-231220-1	Soc. Hd. Cap Screw M12*20		2

9.8 Pneumatic Assembly (if equipped)

Pneumatic components



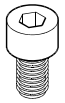
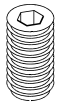
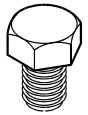
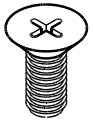
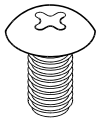
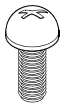


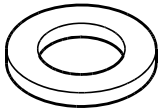
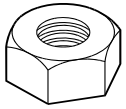
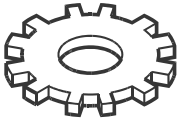
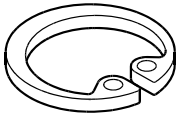
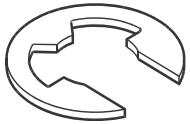
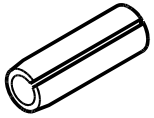


Pneumatic components

No.	Part No.	Part Name	Part Name	Quantity
1	E21050318	Silencer throttle valve		2
2	E21050251	Brass coupler		2
3	E21050132	Quick exhaust valve		2
4	G39-050550	Cylinder		1
5	E21-050327	Floating joint		1
6	E21050133	Silencer		2
7	E21050026	Coupler		1
8	E21050135	Brass coupler		2
9	E21050108	Solenoid valve		1
10	E21050218	Coupler		4
11	E21050095	Coupler		1
12	E21050129	Air units (F.R. Units)		1
13	E21050166	Coupler plug		1

9.9 Screw Classification List

Shape	Classification	Name	Specification
	HBS	Hexagon Bot Screw	HBS M____*____
	HSS	Headless Set Screw	HSS M____*____
	HB	Hex.hd Blot	HB M____*____
	FMS	Flat M/C Screw	FMS M____*____
	TMS	Truss hd.M/C Screw	TMS M____*____
	PMS	Pan M/C Screw	PMS M____*____

Shape Classification		Name	Specification
	PW	Plain Washer	PW M____
	HN	Hex.Nut	HN M____
	WN		WN M____
	TW		TW M____
		Stop Ring	H-____
		Stop Ring	S-____
		Stop Ring	E-____
		Spring Pin	SP Ø____

9.10 Part List And Drawings

Appendix A: Motor Application Phase

ATTENTION

When replacing the parts, motors at each application phase have their own corresponding drivers. Motor and driver has to be tied in the same brand. Different brands cannot be mutually shared. Be sure to check in advance its manufacture date when purchasing spare parts.

1. Motor

In previous version of operational manual, the part numbers of motors are listed as following:

A68-1A0103 (cam shaft servo motor);

A68-1D0401 (feed retracting servo motor);

Due to the adoption of new motors, the part number of motors now is split into different numbers, corresponding to different versions.

Part No.	Part # Oct. 2013~	brand	Part Name	Q'ty	Application Phase
A68-1A0103-1	E25401027-1	Yaskawa (old)	servo motor SGMAH-04AAA41	1	until August, 2010
A68-1D0401-1	E25401027-1	Yaskawa (old)	servo motor SGMAH-04AAA41	1	until August, 2010
A68-1A0103-2	E25401027-2	Yaskawa (new)	servo motor SGMJV-04AAA61	1	September, 2010 - present
A68-1D0401-2	E25401027-2	Yaskawa (new)	servo motor SGMJV-04AAA61	1	September, 2010 - present

** When placing order for motor, please check first the I.D. plate of the machine or present its serial number for checking its version.

2. Motor driver

In previous version of operational manual, the part number of motors is listed as following:
A68-2J0906 (cam shaft servo driver)
A68-2J0912 (feed re-tracking servo driver)

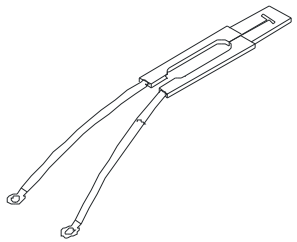
Due to the adoption of new motor driver (in response to adoption of new motors), the part number of motor drivers is now split into different numbers, corresponding to different versions.

Part No.	Part # Oct. 2013~	Brand	Part Name	Q'ty	Application Phase
A68AB-2J0912-1	E25401023	Yaskawa (old)	feed re-tracking servo driver SGDM-04ADA	1	until August, 2010
A68AB-2J0906-1	E25401023-1	Yaskawa (old)	cam shaft servo driver SGDM-04ADA	1	until August, 2010

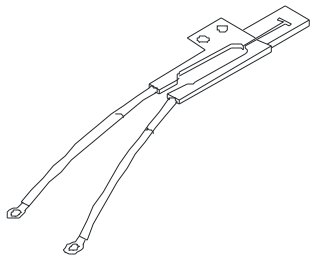
A68AB-2J0912-2	E25401109	Yaskawa (new)	feed re-tracking servo driver SGDV-2R8A01A	1	September, 2010 - present
A68AB-2J0906-2	E25401110	Yaskawa (new)	cam shaft servo driver SGDV-2R8A01A	1	September, 2010 - present

** when placing order for motor dirver, please check first the I.D. plate of the machine or present its serial number for checking its version.

Appendix B: Heater variation



intermediate version



earliest version

Below are part number for earlier version of the heater (shipments made before Oct.2011). Please make sure the right order of heater is placed when replacing.

Part no	Part # Oct. 2013~	Part name	Description	Q'ty	Application Phase
UA-680246-0	—	Heater	with thermocouple hook	1	earliest
UA-680246	A55-113014-0	Heater	without thermocouple hook	1	Intermediate

Appendix C: Relay Base & Relay

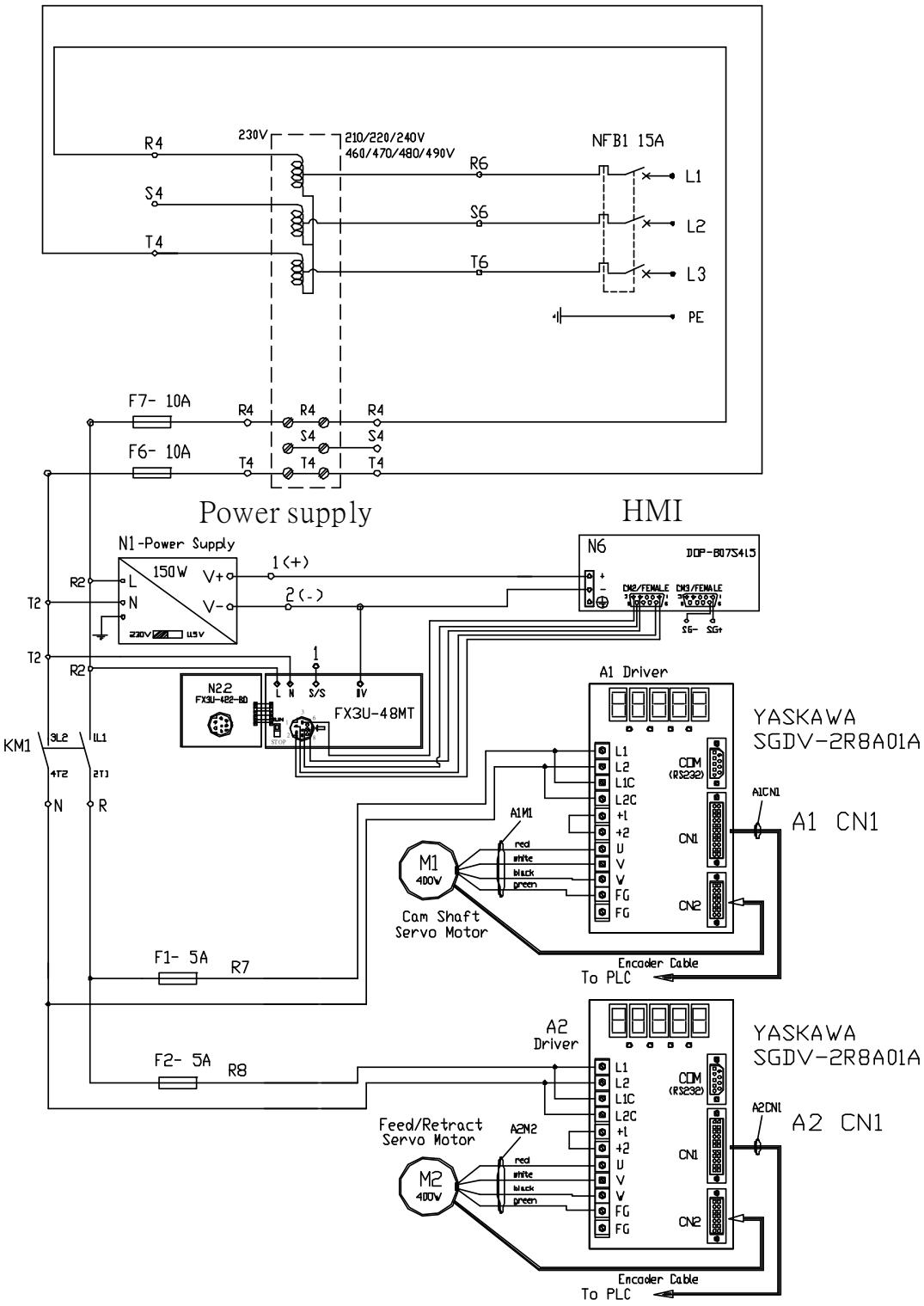
Refer to Fig.-2J-AB Control Unit

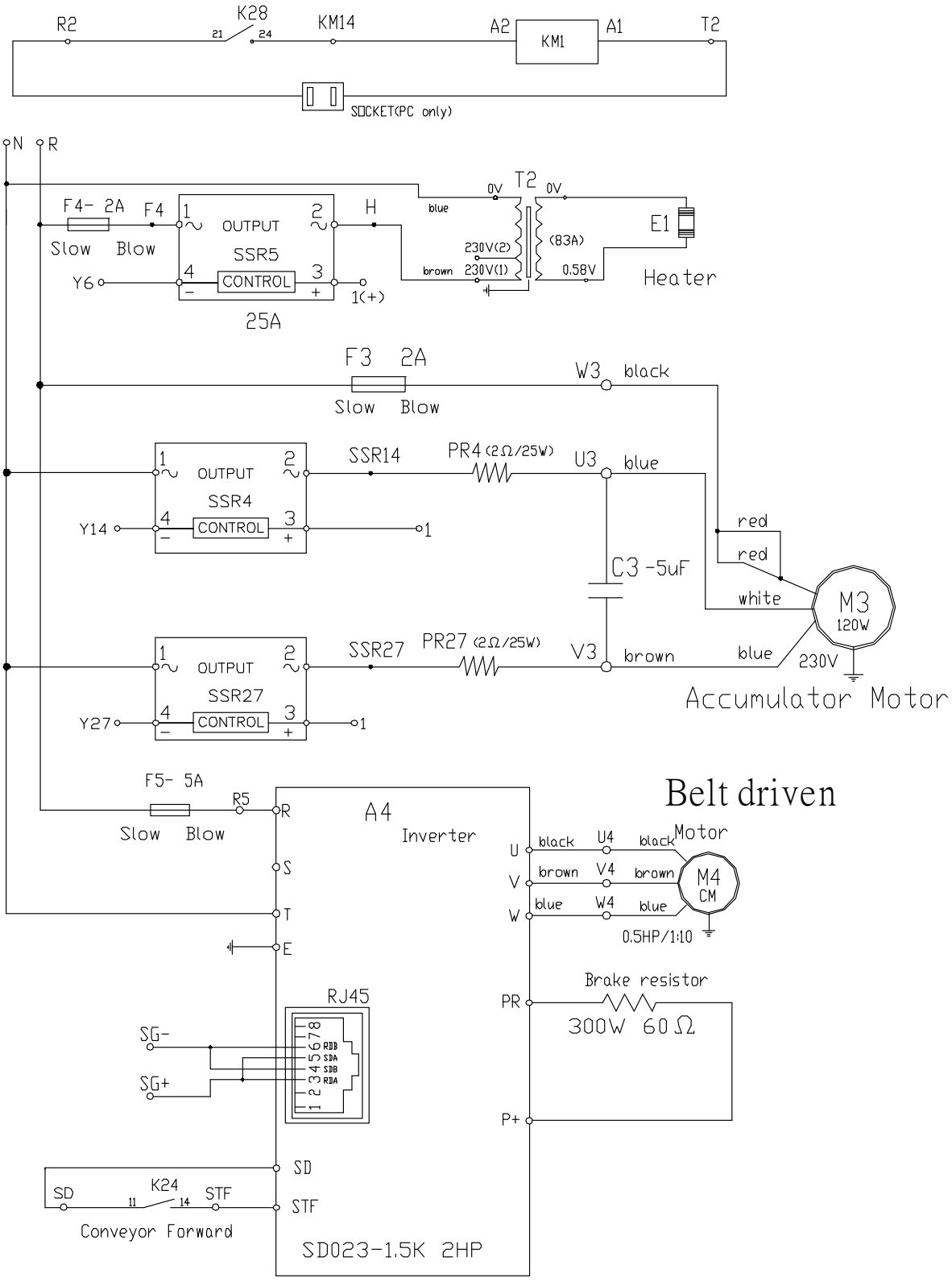
Machine manufactured before July 31st, 2012 uses different parts for No. 23, 24 (see Control Box Unit, Fig. 2J-AB),

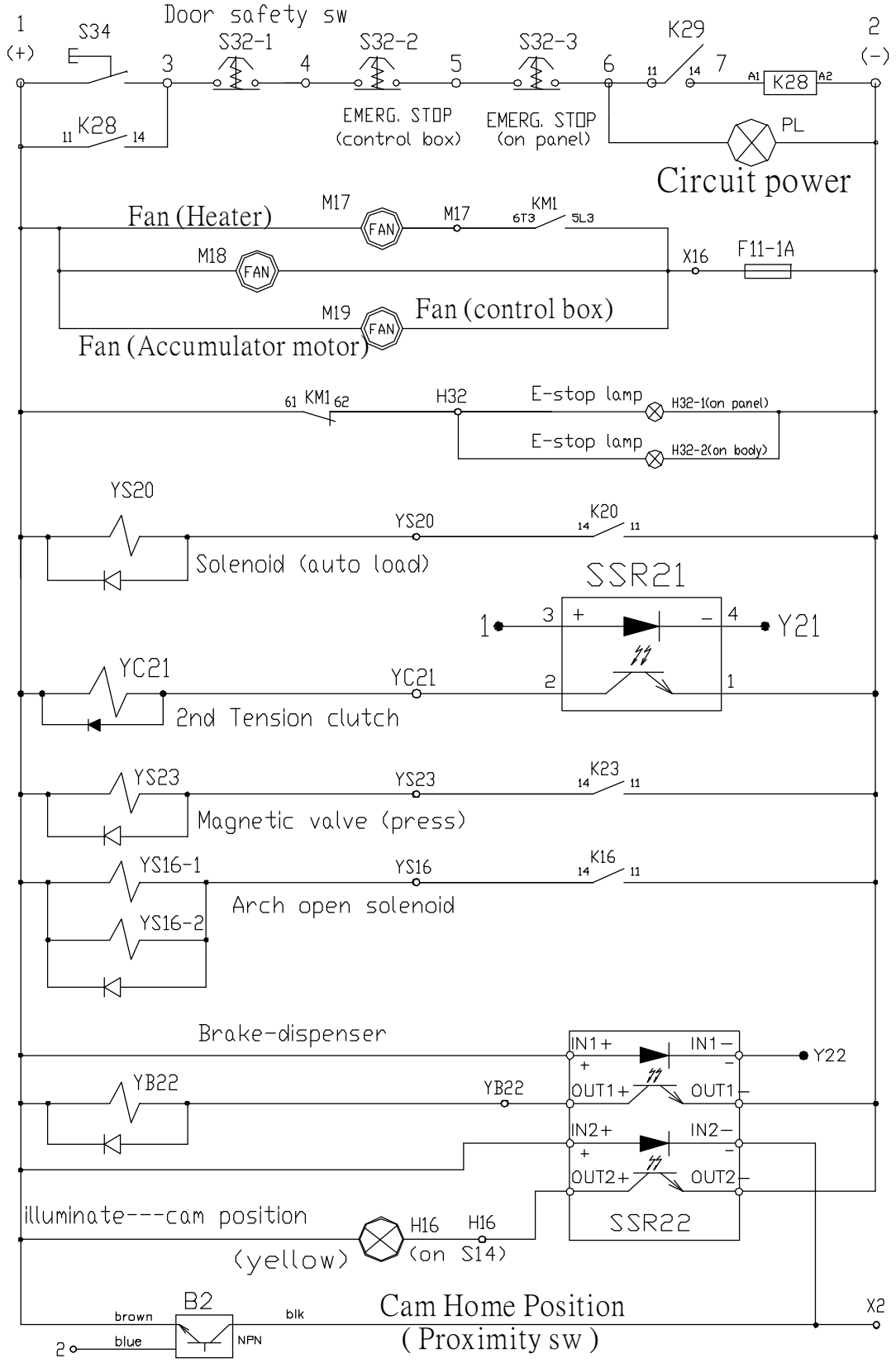
No.	Part No.	Part # Oct. 2013~	Part Name	Description	Q'ty	Application Phase
23	A-68AB-2J0937	E03050007	Relay Base	(K28, 29)	1	Before Jul. 31st, 2012
24	A-68AB-2J0938	E03020062	Relay IDEC	(K28, 29)	1	Before Jul. 31st, 2012

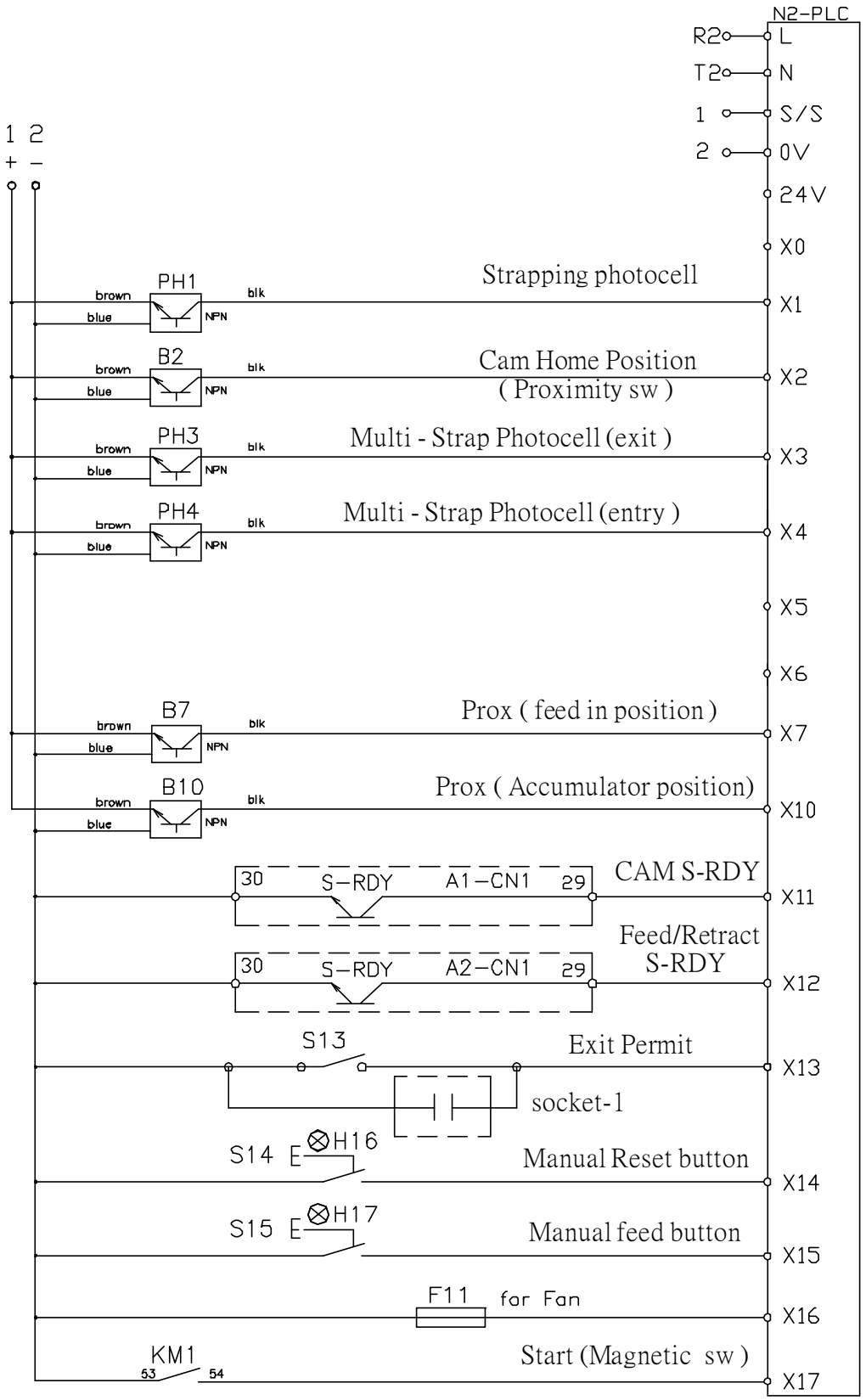
10 Electrical Schematics

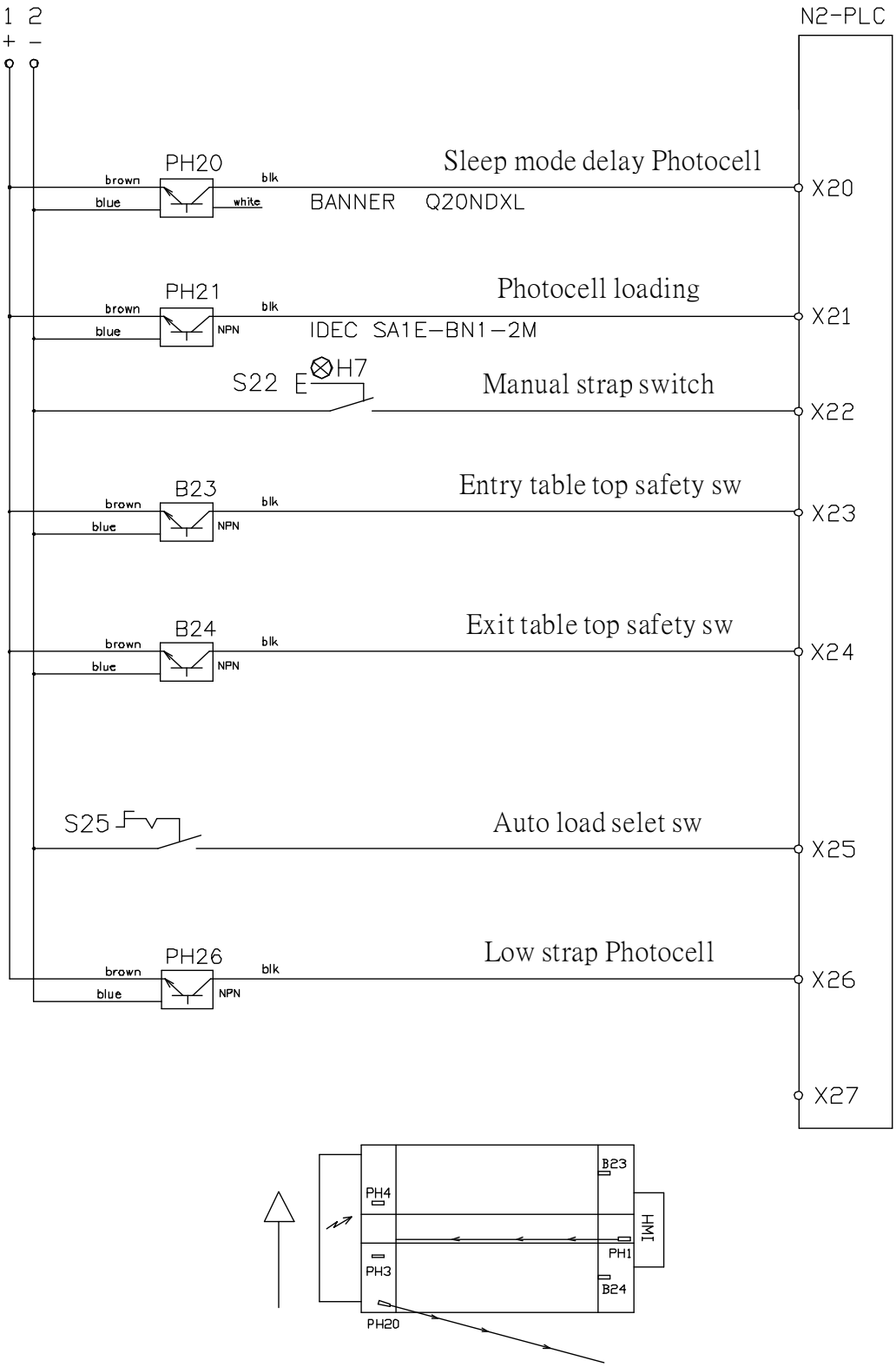
10.1 Wiring Schematic



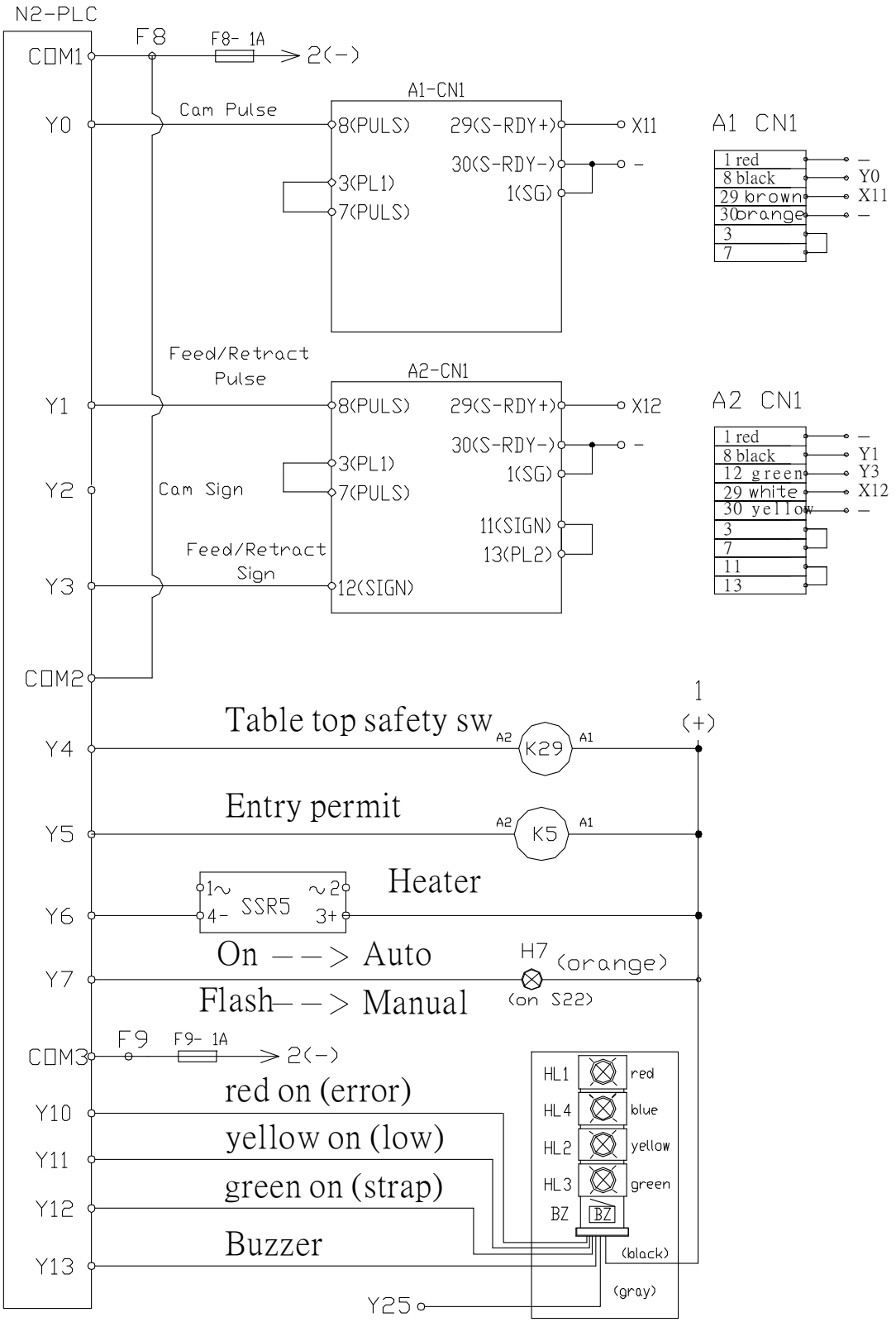

R2
K28
21
24
KM14
A2
KM1
A1
T2
SOCKET(PC only)
N
R
F4- 2A
F4
Slow Blow
OUTPUT
SSR5
CONTROL
Y6
H
1(+)
25A
T2
0V
0V
blue
230V(2)
(83A)
brown
230V(1)
0.58V
E1
Heater
F3 2A
Slow Blow
W3
black
SSR14
PR4 (2Ω/25W)
U3
blue
OUTPUT
SSR4
CONTROL
Y14
red
red
C3 -5uF
white
M3
120W
SSR27
PR27 (2Ω/25W)
V3
brown
blue
230V
OUTPUT
SSR27
CONTROL
Y27
Accumulator Motor
F5- 5A
Slow Blow
R5
R
S
T
E
A4
Inverter
Belt driven
U
V
W
black
U4
black
Motor
brown
V4
brown
M4
CM
blue
W4
blue
0.5HP/1:10
RJ45
SG-
SG+
Brake resistor
PR
300W 60Ω
P+
SD
K24
SD
STF
STF
Conveyor Forward
SD023-1.5K 2HP

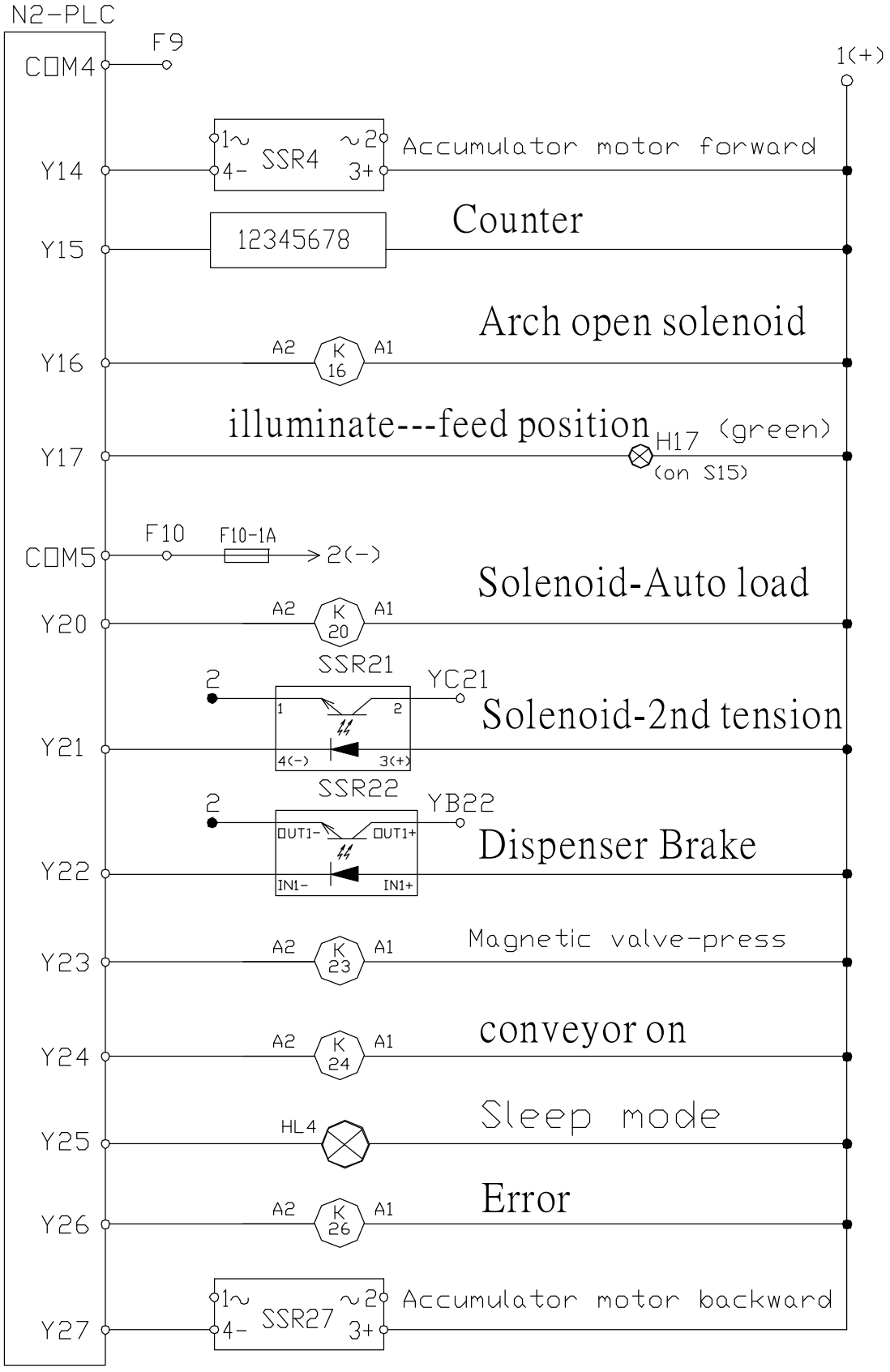

Door safety sw
S34
S32-1
S32-2
S32-3
K29
K28
EMERG. STOP (control box)
EMERG. STOP (on panel)
PL
Circuit power
Fan (Heater)
M17
KM1
M18
X16
F11-1A
M19
Fan (control box)
Fan (Accumulator motor)
E-stop lamp
H32-1(on panel)
H32-2(on body)
YS20
Solenoid (auto load)
SSR21
Y21
YC21
2nd Tension clutch
YS23
Magnetic valve (press)
YS16-1
YS16-2
YS16
K16
Arch open solenoid
Brake-dispenser
YB22
Y22
SSR22
illuminate---cam position
(yellow)
H16
(on S14)
B2
brown
blue
blk
NPN
Cam Home Position
(Proximity sw)
X2

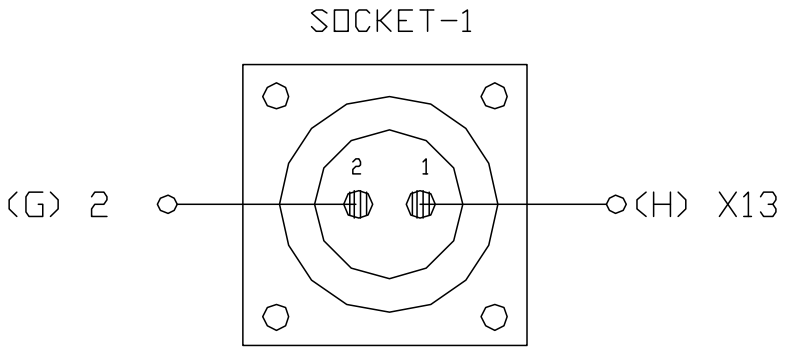

N2-PLC
R2
T2
1
2
L
N
S/S
0V
24V
1 2
+ −
X0
PH1
brown
blue
blk
NPN
Strapping photocell
X1
B2
Cam Home Position
(Proximity sw)
X2
PH3
Multi - Strap Photocell (exit)
X3
PH4
Multi - Strap Photocell (entry)
X4
X5
X6
B7
Prox (feed in position)
X7
B10
Prox (Accumulator position)
X10
30
S−RDY
A1−CN1
29
CAM S-RDY
X11
A2−CN1
Feed/Retract
S-RDY
X12
S13
Exit Permit
X13
socket-1
S14
H16
Manual Reset button
X14
S15
H17
Manual feed button
X15
F11
for Fan
X16
KM1
53
54
Start (Magnetic sw)
X17

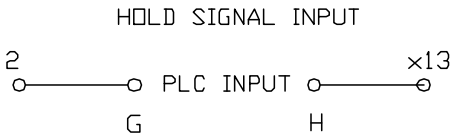

1 2
+ −
N2-PLC
PH20
brown
blue
blk
white
BANNER Q20NDXL
Sleep mode delay Photocell
X20
PH21
brown
blue
blk
NPN
IDEC SA1E-BN1-2M
Photocell loading
X21
S22
H7
Manual strap switch
X22
B23
brown
blue
blk
NPN
Entry table top safety sw
X23
B24
brown
blue
blk
NPN
Exit table top safety sw
X24
S25
Auto load selet sw
X25
PH26
brown
blue
blk
NPN
Low strap Photocell
X26
X27

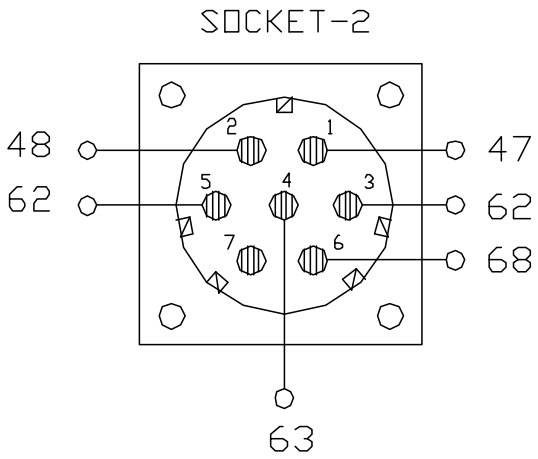
B23
PH4
HMI
PH1
PH3
B24
PH20


N2-PLC
COM1
F8
F8- 1A
2(-)
A1-CN1
Cam Pulse
Y0
8(PULS)
29(S-RDY+)
X11
30(S-RDY-)
-
3(PL1)
1(SG)
7(PULS)
A1 CN1
1 red
8 black
29 brown
30 orange
3
7
Feed/Retract Pulse
A2-CN1
Y1
X12
Y2
Cam Sign
11(SIGN)
13(PL2)
Feed/Retract Sign
Y3
12(SIGN)
A2 CN1
12 green
29 white
30 yellow
11
13
COM2
1
(+)
Table top safety sw
A2
K29
A1
Y4
Entry permit
K5
Y5
Heater
SSR5
Y6
On --> Auto
H7
(orange)
Y7
Flash--> Manual
(on S22)
F9
F9- 1A
COM3
red on (error)
Y10
yellow on (low)
Y11
green on (strap)
Y12
Buzzer
Y13
HL1
red
HL4
blue
HL2
yellow
HL3
green
BZ
(black)
(gray)
Y25


N2-PLC
COM4
F9
1(+)
Y14
1~
SSR4
~2
4-
3+
Accumulator motor forward
Y15
12345678
Counter
Y16
A2
K
16
A1
Arch open solenoid
Y17
illuminate---feed position
H17 (green)
(on S15)
COM5
F10
F10-1A
2(-)
Y20
A2
K
20
A1
Solenoid-Auto load
SSR21
YC21
2
1
2
4(-)
3(+)
Y21
Solenoid-2nd tension
SSR22
YB22
2
OUT1-
OUT1+
IN1-
IN1+
Y22
Dispenser Brake
Y23
A2
K
23
A1
Magnetic valve-press
Y24
A2
K
24
A1
conveyor on
Y25
HL4
Sleep mode
Y26
A2
K
26
A1
Error
Y27
1~
SSR27
~2
4-
3+
Accumulator motor backward


SOCKET-1
(G) 2
2
1
(H) X13


HOLD SIGNAL INPUT
2
PLC INPUT
×13
G
H


SOCKET-2
48
62
2
1
5
4
3
7
6
47
62
68
63


K5
47
11
14
48
Y5 Up Stream Entry Permit


K26
62
11
14
63
Y26 Trouble / Fault


K26
62
11
12
68
Y26 Trouble / Fault

PC Pro Electrical Component Identification 05-04-12

Fuses Am	perage	Description
F1	5A	Servo Drive: Cam
F2	5A	Servo Drive: Feed/Retract
F3	2A	Accumulator Motor
F4	2A	Heater Blade
F5	5A	Inverter: Conveyor
F6	10A	Power Supply
F7	10A	Power Supply
F8	1A	PLC Output

Motors Descriptio	n
M1	Cam Servo Motor

Photo Cells	Description
PH20	Conveyor Sleep Sensor

Proximity Switches	Description
B2	Cam home position

Relays Descriptio	n
K24	Conveyor

10.2 Motor Driver (SGDM-04ADA)Parameter Setting

Motor Driver

New Part No.	Part Name	Q'ty	Application Phase
A68AB-2J0912-1	feed retracting servo driver (Yaskawa SGDM-04ADA)	1	until August, 2010
A68AB-2J0906-1	cam shaft servo driver (Yaskawa SGDM-04ADA)	1	until August, 2010

Main motor driver		Feed/retracting motor driver	
Pn00	N0011	Pn00	N0011
Pn103	0211	Pn103	0500
Pn110	0012	Pn110	0012
Pn200	1000	Pn200	1000
Pn202	1536	Pn202	8192
Pn203	0375	Pn203	2400
Pn50A	8170	Pn50A	8170
Pn50B	6548	Pn50B	6548

10.3 Motor Driver (SGDV-2R8A01A) Parameter Setting

New Part No.	Part Name	Q'ty	Application Phase
A68AB-2J0912-2	Yaskawa feed retracting servo driver SGDV-2R8A01A	1	September, 2010 - present
A68AB-2J0906-2	Yaskawa cam shaft servo driver SGDV-2R8A01A	1	September, 2010 - present

Main motor driver		Feed/retracting motor driver	
Pn00B	0101	Pn00B	0101
Pn000	0011	Pn000	0010
Pn101	005.00	Pn103	650
Pn102	0040.0	Pn200	1000
Pn103	650	Pn20E	2048
Pn200	1000	Pn210	0357
Pn20E	1536	Pn50A	8170
Pn210	0375	Pn50B	6548
Pn50A	8170		
Pn50B	6548		

Shihlin Inverter Parameter(SD023-1.5K 2HP 220V) 120628

Parameter	Name	Setting
P7	Acceleration time	0.2 s
P8	Deceleration time	0.2 s
P30	Regenerative function selection(0,1,2)	1
P70	Special regenerative brake duty	10 %
P72	PWM frequency selection(0-15)	14
P79	Operation mode selection(0-4,6,7)	6
P117	PU communication station number	1
P118	PU communication speed(48,96,192,384)	96
P119	PU communication stop bit length(0,1,10,11)	0
P120	PU communication parity check(0,1,2)	1
P121	Number of PU communication retries	9999
P122	PU communication check time interval (0, 0.1-999.8, 9999)	9999 s
P124	PU communication CR/LF selection(0-150ms,9999)	0
P161	Frequency setting/key lock operation selection (0,1,10,11)	1
P338	Communication operation command source (0,1)	1
P339	Communication speed command source (0,1,2)	2
P340	Communication startup mode selection(0,1,10)	10
P549	Protocol selection(0,1)	1