SEMI-AUTO PALLET STRAPPING MACHINE

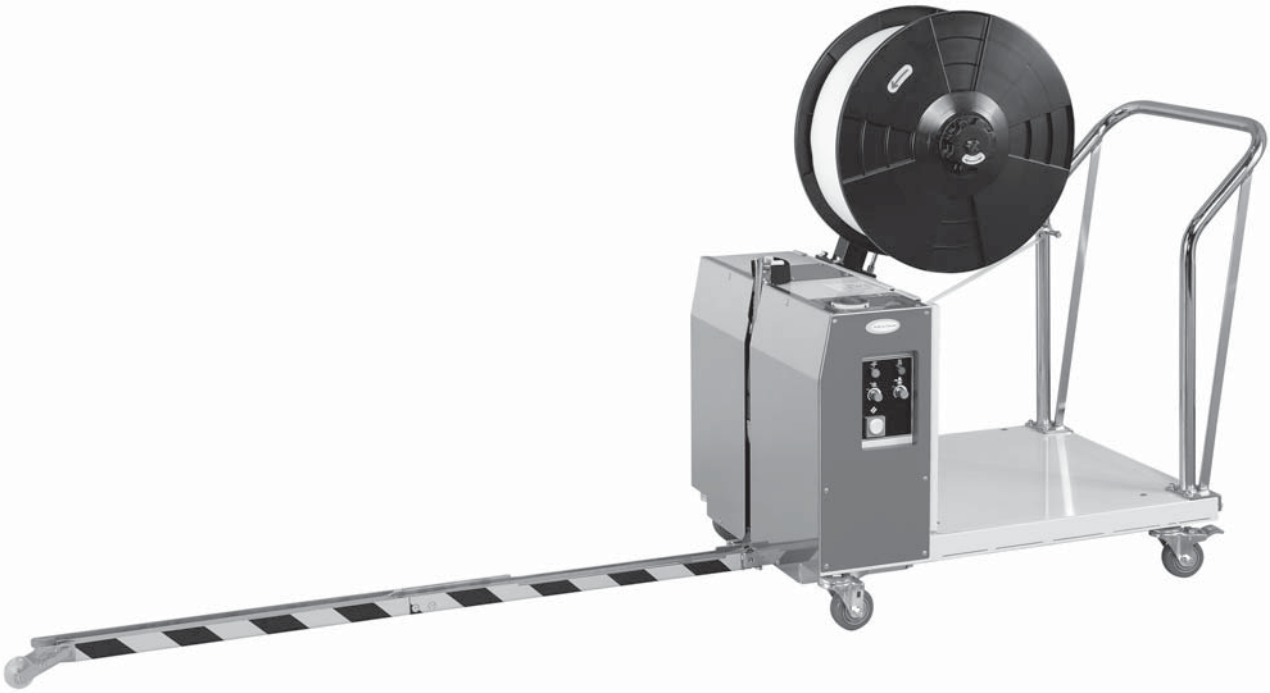
GENESIS VERTI

TP-502MV

IMPORTANT
Keep it

OPERATION, SAFETY & SPARE PARTS MANUAL

TP-502MV
TP-502MVB (with battery)



CE

Made in Taiwan

Read All Instructions Before Operating This Product

Original Instruction

03/2019

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1. Safety Instructions

THIS MANUAL GIVES YOU INFORMATION ON SAFETY INSTRUCTIONS, SPECIFICATIONS, OPERATION AND MAINTENANCE OF STRAPPING MACHINES.

BEFORE OPERATING OR SERVICING THE MACHINE, PLEASE REVIEW THE ENTIRE MANUAL AND FOLLOW THE SAFETY INSTRUCTIONS CAREFULLY.

(1) Before Operating

a. Verify that the power line voltage is correct.
b. The machine must be properly grounded to avoid a shock hazard. All wiring must be in accordance with local wiring standards.
c. The strapping machine can only be operated with polypropylene (P.P.) strapping; do not use polyester (PET) strapping or polyethylene (PE) cord strap.

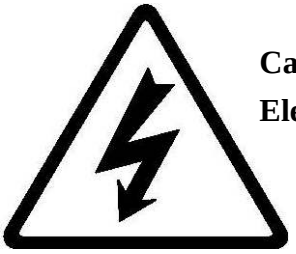
(2) During Operation

a. The height of the package should not be less than 380mm (14.96").
b. Check if the machine emits any smokes or unusual sound when it is running.

(3) After operating

a. Remove dust and dirt from the unit.
b. Turn off the power when the machine is not in use.

(4) Signs



Caution!
Electric Shock Hazard

Caution!
Hot!
Do not touch!

(5) Maintenance

a. Turn off the power before removing either of the covers.
b. Use the correct tools and parts to repair the machine.
c. The heater tongue is very hot; do not touch it.

(6) Storage

a. The store room must be dry.
b. Do not expose the machine to extreme cold or heat environment.
c. Place the machine on an even floor in order to avoid any distortion.

(7) Other Reminders

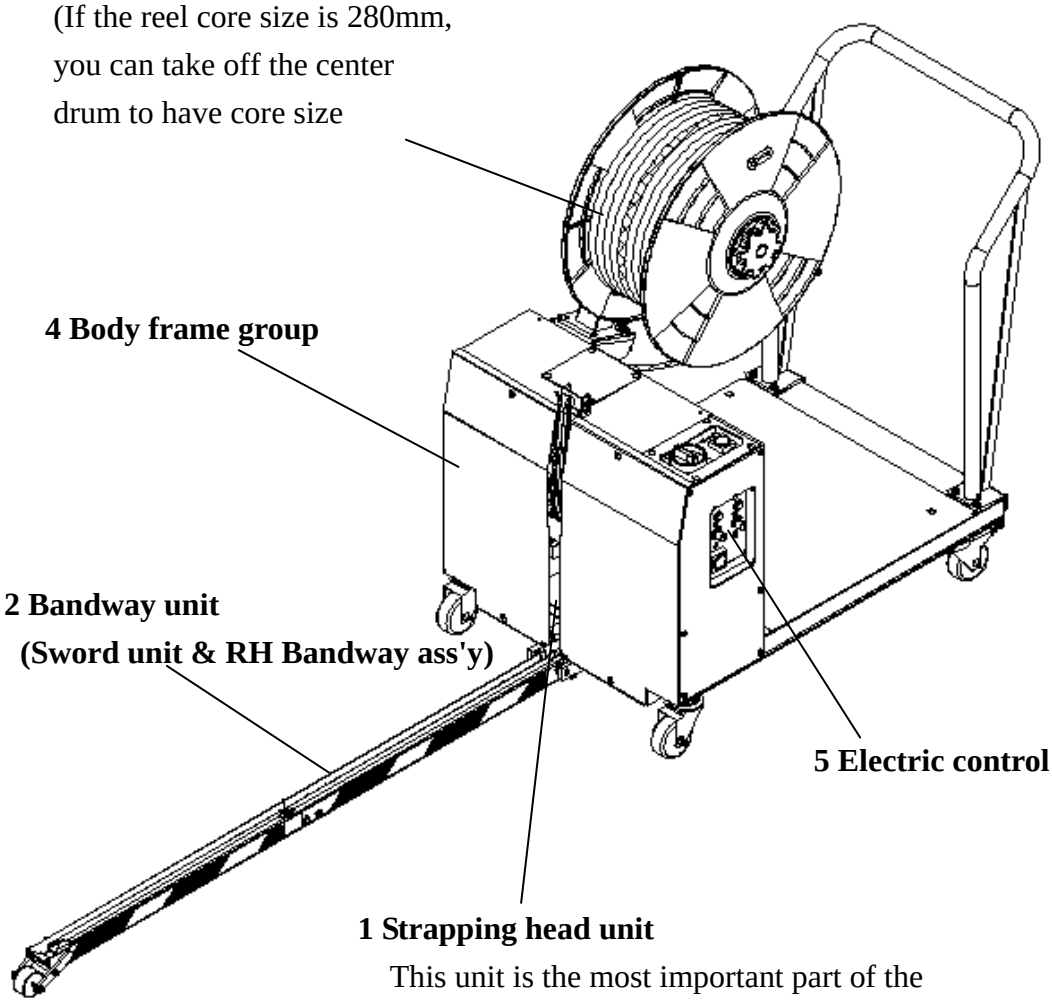
a. An operation manual must remain attached to the machine at all times.
b. Do not alter the equipment or circuitry unless authorized to do so by the manufacturer.
c. Do not operate the machine with the covers removed.
d. Never put any part of your body near, under or into a moving machine.
e. Do not overload the machine by exceeding the performance limitations specified in this manual.

2. Construction and Units

a. TP-502MV

3 Reel unit

Holds the strap coil.
(If the reel core size is 280mm, you can take off the center drum to have core size



4 Body frame group

2 Bandway unit
(Sword unit & RH Bandway ass'y)

5 Electric control unit

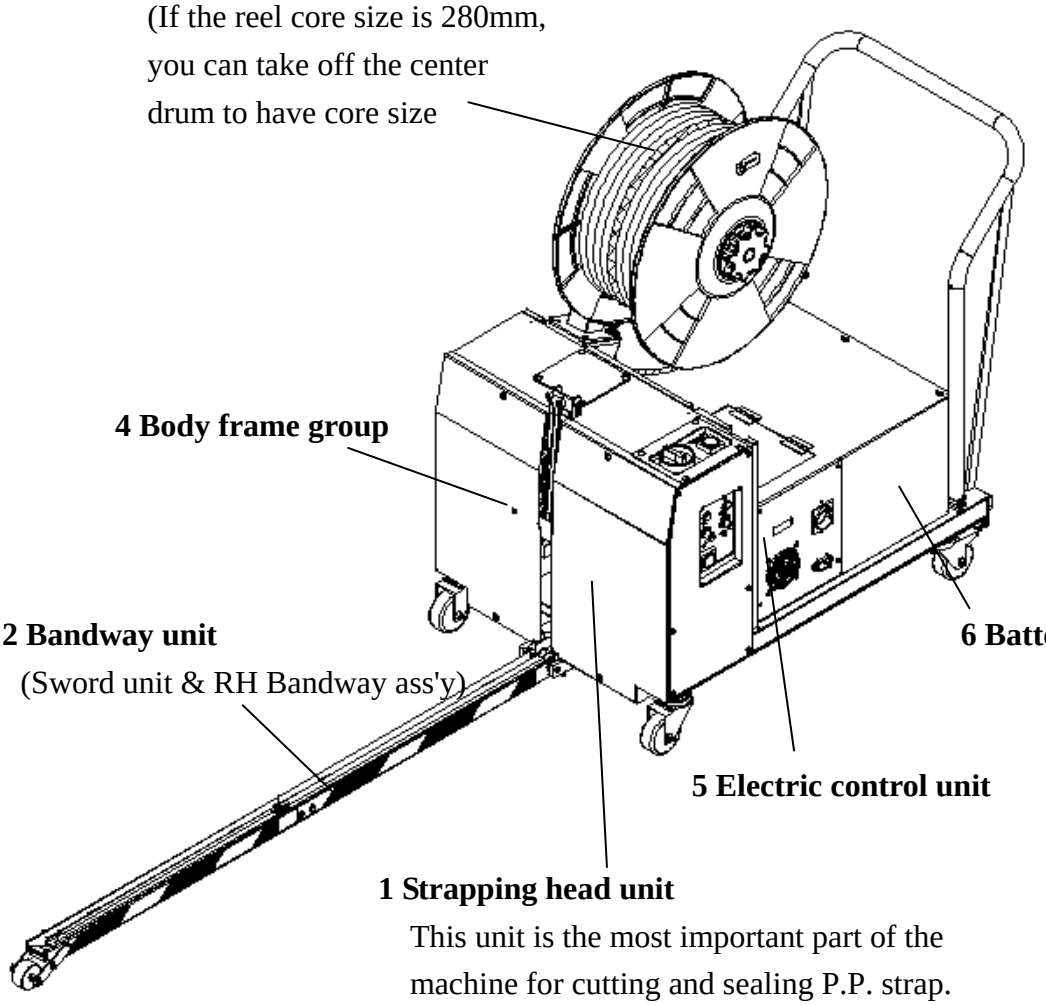
1 Strapping head unit

This unit is the most important part of the machine for cutting and sealing P.P. strap.

b. TP-502MVB

3 Reel unit

Holds the strap coil.
(If the reel core size is 280mm, you can take off the center drum to have core size



4 Body frame group

2 Bandway unit
(Sword unit & RH Bandway ass'y)

6 Battery unit

5 Electric control unit

1 Strapping head unit

This unit is the most important part of the machine for cutting and sealing P.P. strap.

3. General Safety Remarks

(1) Basic Operation

The manual and the safety remarks are to be read before use. The operation manual should be kept with the machine at all times for regular maintenance and inspections.

This machine was built with state of the art technology and rigid adherence to safety standards.

Unless used properly, it can cause injury to operators or persons in close proximity to the machine. In addition, improper use can cause damage to the machine or property around the machine.

(2) Basic Safety Precautions

The user is to be instructed in all other generally applicable legal and other mandatory regulations relevant to accident prevention and environmental protection in addition to the operating instructions.

For safety reasons, long hair must be tied back or otherwise secured, garments must be close fitting and no jewelry may be worn.

Use protective equipment whenever required by circumstances or by law.

Carefully observe all safety instructions and warnings attached to the machine and make sure that they are always complete and perfectly legible.

Always make certain that persons being trained and instructed in working on or with the machine are permanently supervised by an experienced person.

Work on the electrical system and equipment of the machine is only to be carried out by a skilled electrician or by persons under the supervision and guidance of a skilled electrician and in accordance with the rules and regulations of electrical engineering.

(3) Safety Instructions Governing Specific Operational Phases

Avoid any operation mode that might be unsafe.

All necessary precautions to ensure that the machine is only used being in a safe and reliable state are to be taken. The machine is only to be operated if all protective and safety devices, including removable safety devices, emergency shut-off equipment, noise-protection elements and exhaust systems are in right place and fully functional.

The machine is to be checked for damage and defects at least once per work shift. Any changes including the working behavior of the machine are to be reported to competent persons immediately. If necessary, the machine is to be stopped and locked immediately.

In case of any malfunction the machine must be stopped and locked until the defect has been eliminated.

Generally make sure that nobody is at risk before starting up the machine.
All personnel that will be operating this machine should be thoroughly trained in all phases of operation and safety.

Always tighten unscrewed connections after maintenance and repair.

After completing maintenance and repair, all safety devices removed for setting up or repairing the machine must be reinstalled and checked for functionality prior to putting the machine back into service.

To minimize the environmental impact, all consumables and replaced parts must be disposed of safely.

Before starting the machine, check that the accessories have been stowed away safely.

Do not attempt any operation that may be a risk to the stability of the machine.

(4) Warning of Electrical Dangers

Immediately remove power to the machine in case of trouble in the electrical system. Replace a fuse with one with the same style and ratings; pay particular attention to matching the specified current.

Any electrical work performed on the equipment must be conducted by a skilled electrician or under the supervision of a skilled electrician. All work must be observed good electrical engineering practice and follow safety rules and local wiring standards.

Inspect the electrical equipment of the machine at regular intervals. Tighten any loose connections. Check wiring for scorch marks; replace scorched wiring and determine and correct the reason for the overheating.

When working on live equipment, ensure that a second person is available to cut power in case of an emergency. When appropriate, secure the working area with safety tape and a warning sign. Use insulated tools for electrical work.

Before working on high-voltage assemblies, turn off the power supply. Carefully discharge the supply cable and short-circuit any energy-storage components such as capacitors.

If the equipment was moved, carefully refit and refasten all parts removed for transport before reapplying power.

Before moving the machine, remember to disconnect the power cable. The length of power cord is 10 meter long; take care of power cord when moving the machine if necessary.

(5) Grounding Instructions Shall Include the Following:

This product must be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock. This product is equipped with a cord that has a grounding wire and an appropriate grounding plug. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

If repair or replacement of the cord or plug is necessary, connect the ground wire to the ground terminal of the plug. The wire with green insulation (with or without yellow stripes) is the grounding wire.

Check with a qualified electrician or service person if the grounding instructions are not clear or if in doubt about the proper grounding of the machine. Do not modify the plug provided; if it will not fit the power outlet, have the proper outlet installed by a qualified electrician.

This product is designed for use on a nominal 120 (230) volt AC circuit and has a grounding plug.

DANGER!
Improper installation of the grounding can result in electrocution.

4. Machine Information

(1) Areas of Application and Machine Description

TP-502MV (Genesis Verti) can be used for a wide range of applications where the minimum package height is at least 380mm.
This machine is particularly suitable for vertical low volume pallet strapping applications.

Machine Description

- Semi-automatic plastic strapping machine for use with polypropylene strapping.
- Heavy duty construction.
- Simple, safe and user-friendly operation.
- With light weight and compact size, it is easy to move beside the pallet you want to strap.

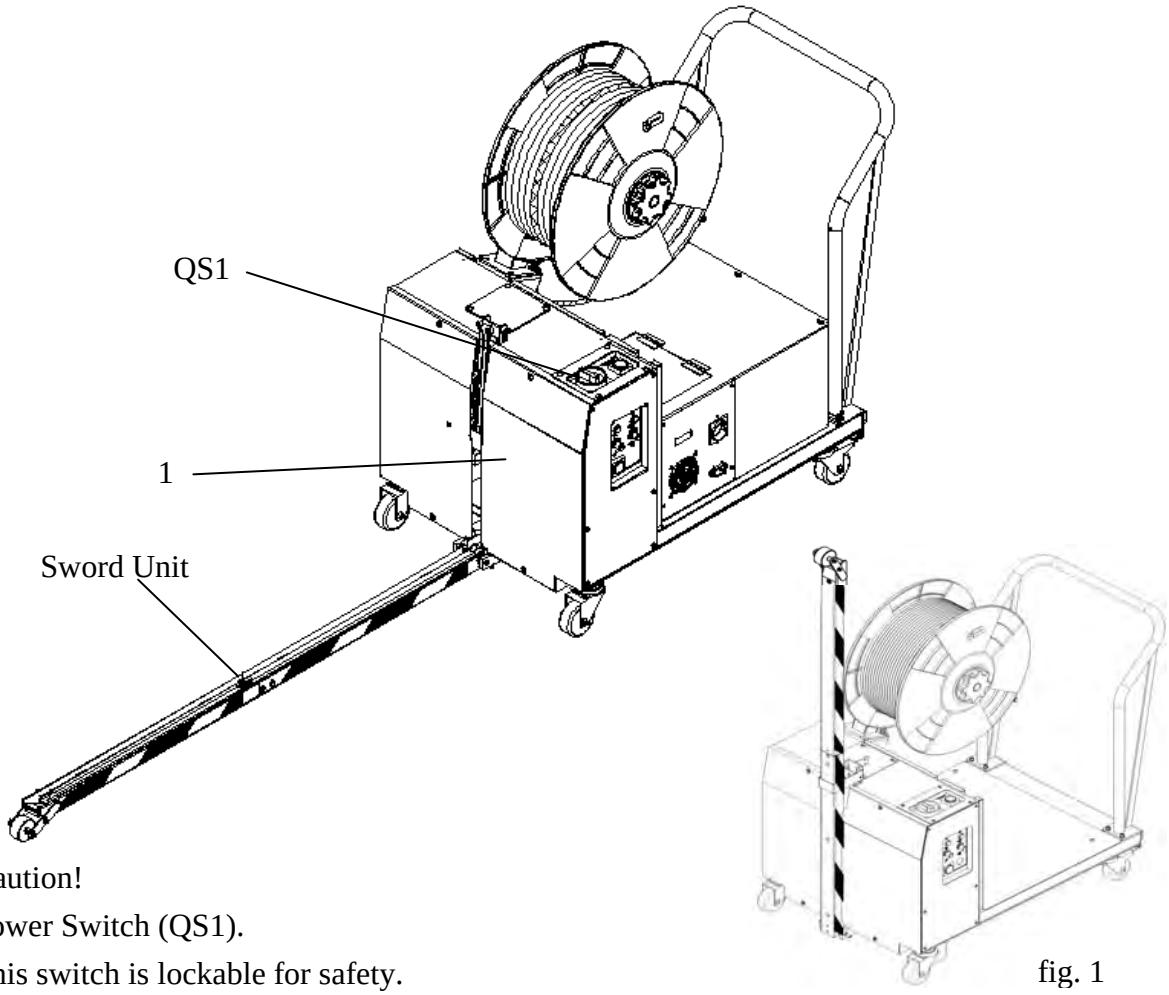
Environment Information

The strapping machine shall be installed in the following conditions:

- Supply voltage: 0.9 - 1.1 nominal supply voltage
- Source frequency: 0.99 - 1.01 nominal frequency
- Ambient temperature: 5°C - 40°C (41°F-104°F).
- Relative humidity: not exceed 50% at 40°C.
- Please provide a suitable illumination around the machine for safety operation.

(2) The Safety Devices

This machine must only be operated with polypropylene strapping. The use of other synthetic straps may produce hazardous substances to health.



Caution!

Power Switch (QS1).

This switch is lockable for safety. fig. 1

Danger of burns near the heating unit! (1)

Dangerous points in the machine are covered by the screwed table top.

For safety reason, please lift up the Sword Unit and put it close to the machine body and hold it in position like fig. 1 by Velcro when the machine is not operated, that is to prevent the people hitting or stepping the Sword Unit and will make the Sword Unit damage.

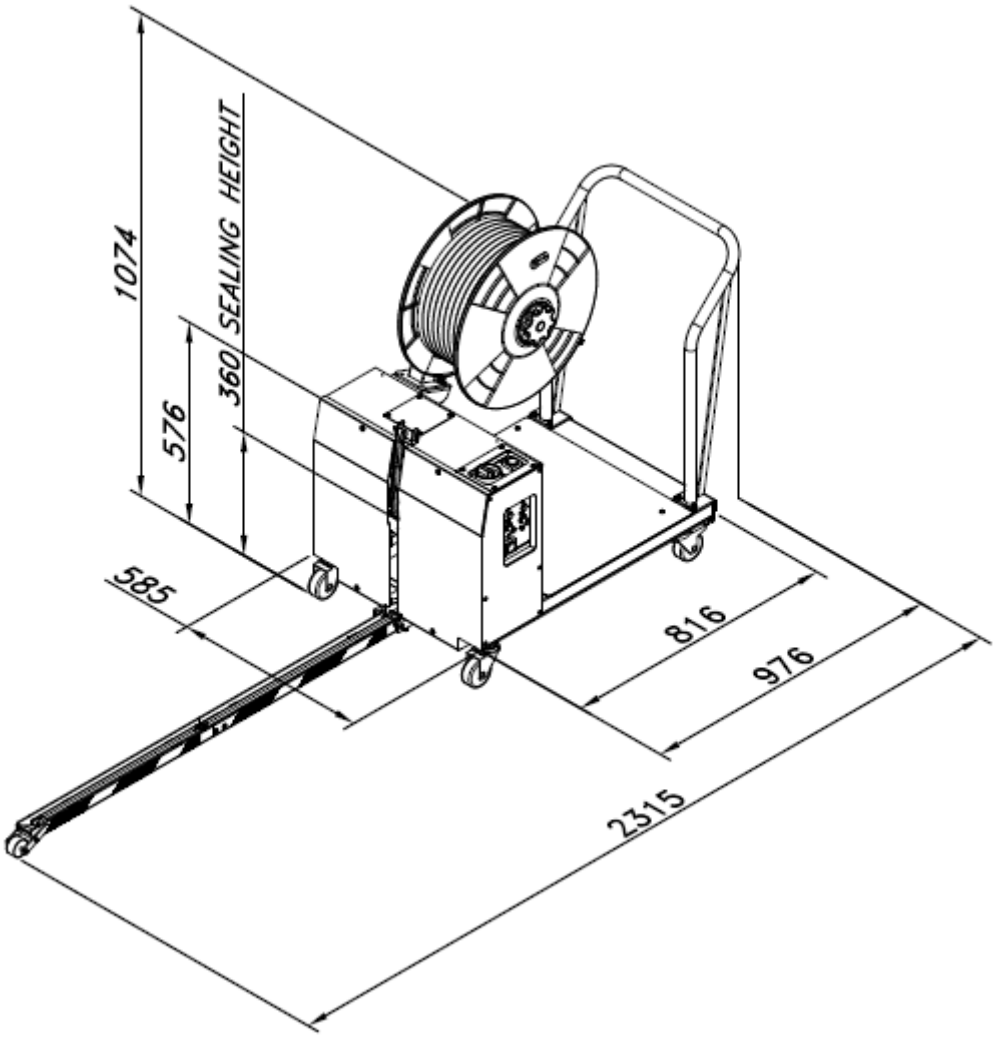
For safety reason, make sure the Sword Unit do not be hit or crushed when moving the machine.

(3) Electrical Specifications

System configuration：	1L+N+PE (Ground)	1L+N+PE (Ground)
Nominal power：	0.33 KW	0.33 KW
Rated current：	3A	6.3A
Rated voltage：	220V/230V/240V	110V
Rated frequency：	50Hz/60Hz	
Type of current：	AC - single phase	

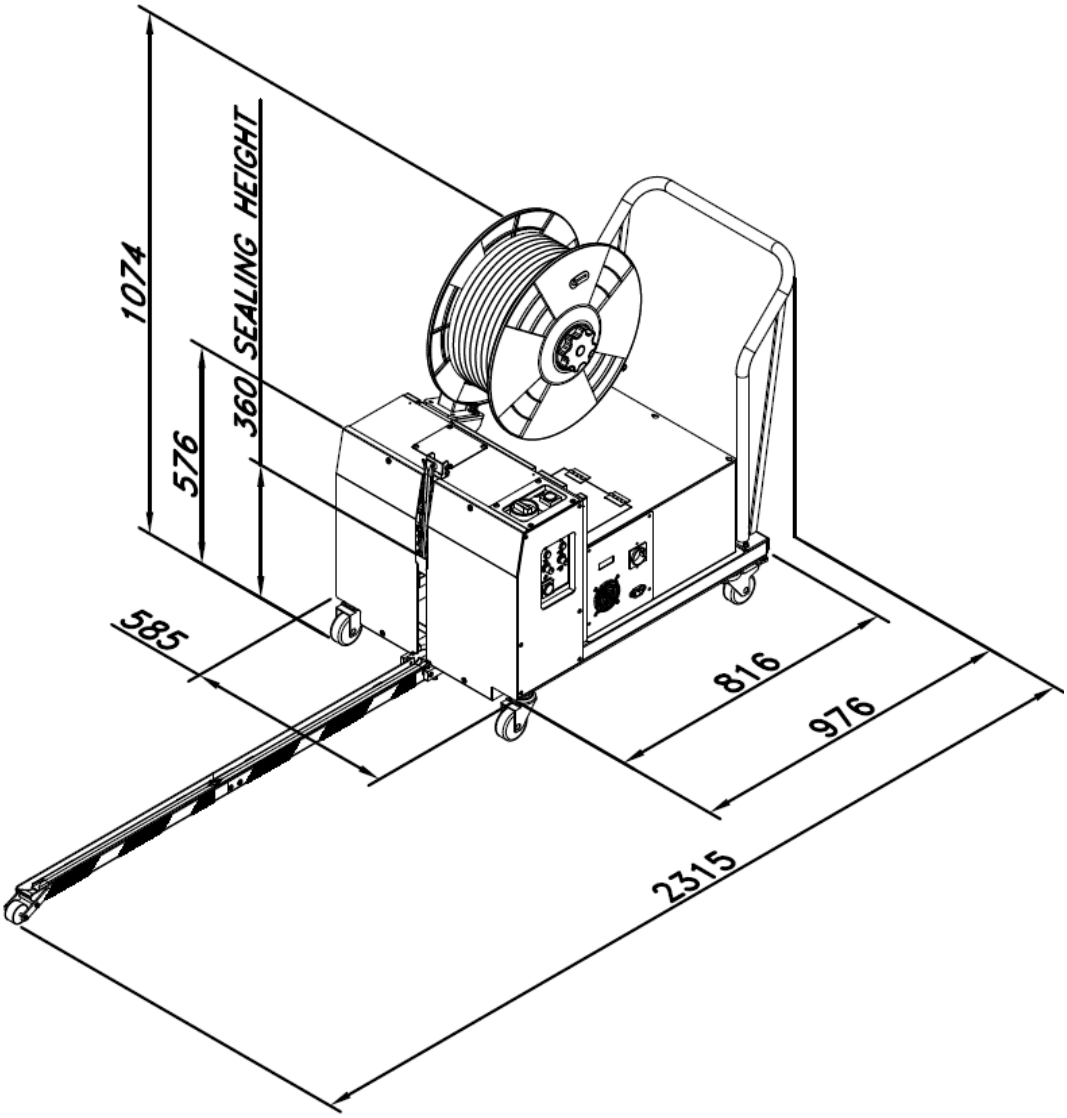
(4) Technical Data

a. TP-502MV



Sealing method	Heat
Strap width :	9 mm to 15.5 mm (3/8" to 5/8")
Strap reel diameter :	200 mm (8")
Strap reel diameter(OPTION) :	280 mm (11")
Width :	585 mm (23.03")
Depth :	2315 mm (91.14")
Electrical Requirement :	AC 110V/220V/230V/240V (50/60Hz), 1PH
Weight :	93 kg (205 lbs.)
Noise emission :	72dB (A)
Ambient temp :	5℃~40℃(41℉~104℉)

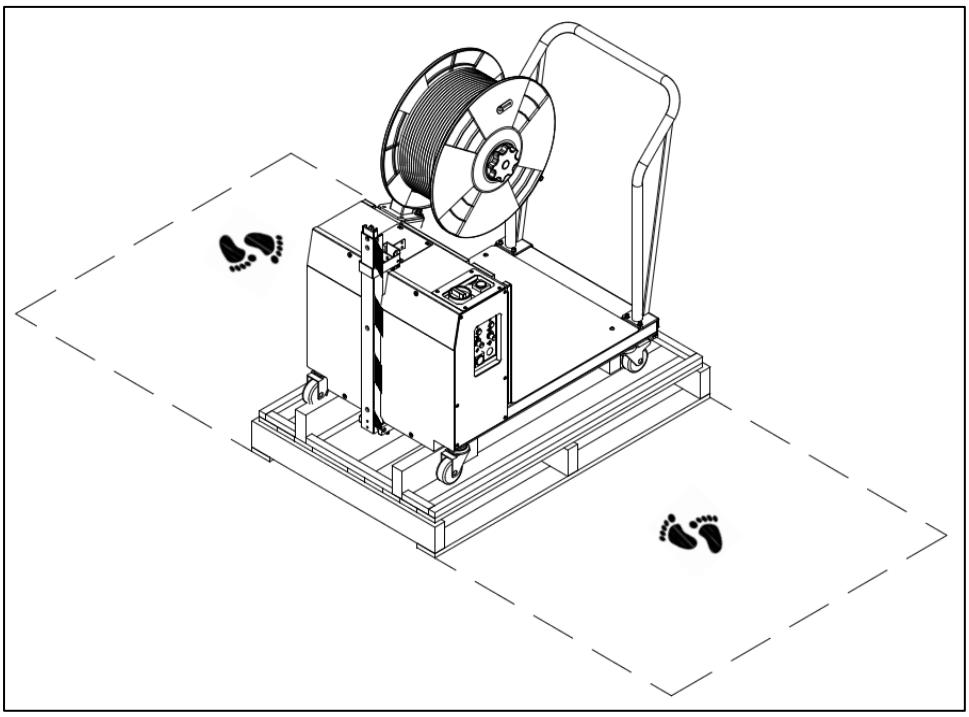
b. TP-502MVB



Sealing method	Heat
Strap width :	9 mm to 15.5 mm (3/8" to 5/8")
Strap reel diameter :	200 mm (8")
Strap reel diameter(OPTION) :	280 mm (11")
Width :	585 mm (27.4")
Depth :	2315 mm (91.14")
Electrical Requirement :	AC 110V/220V/230V/240V (50/60Hz), 1PH
Weight :	153 kg (337 lbs.)
Noise emission :	72dB (A)
Ambient temp :	5℃~40℃(41℉~104℉)

(5) How to Remove/Handle the Machine from the Pallet

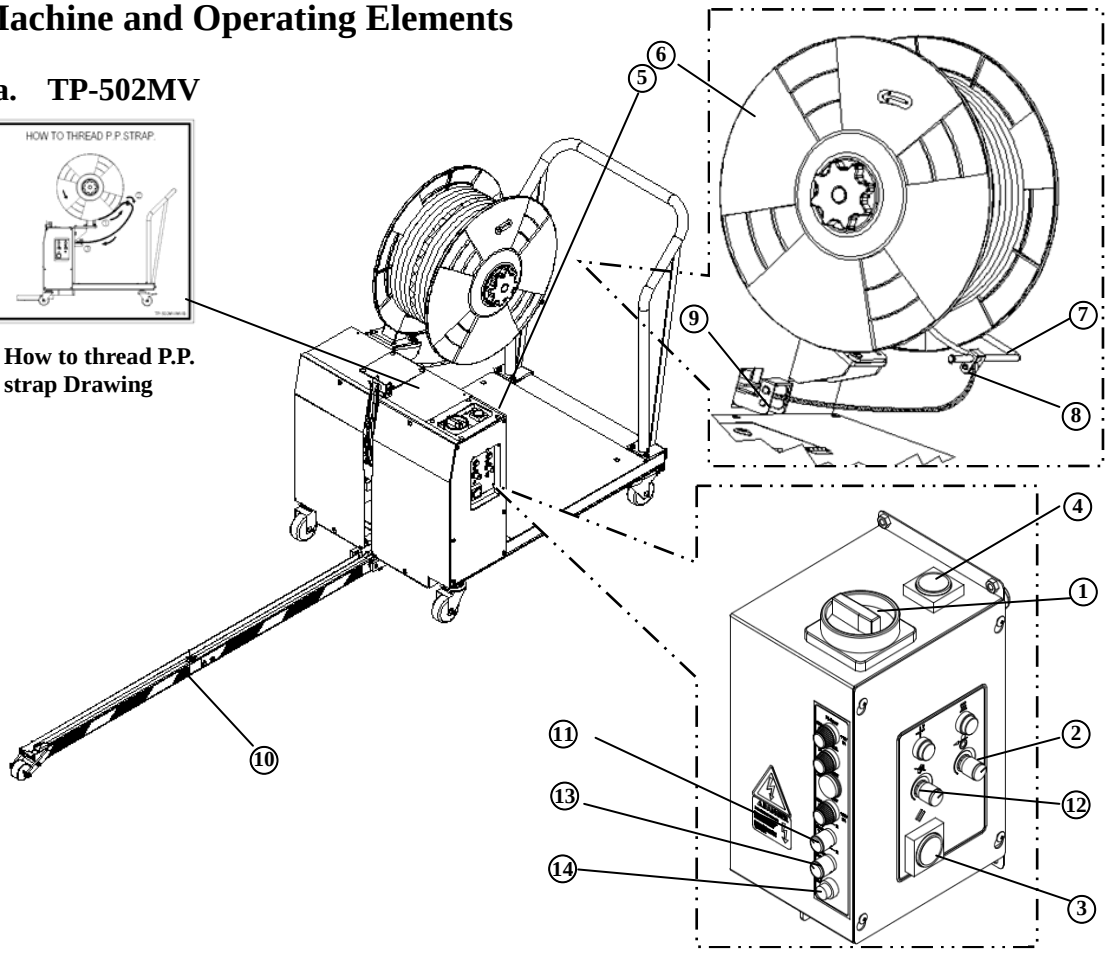
Two people stand on each side of the machine and remove the machine from the pallet to the floor.



(6) Machine and Operating Elements

a. TP-502MV

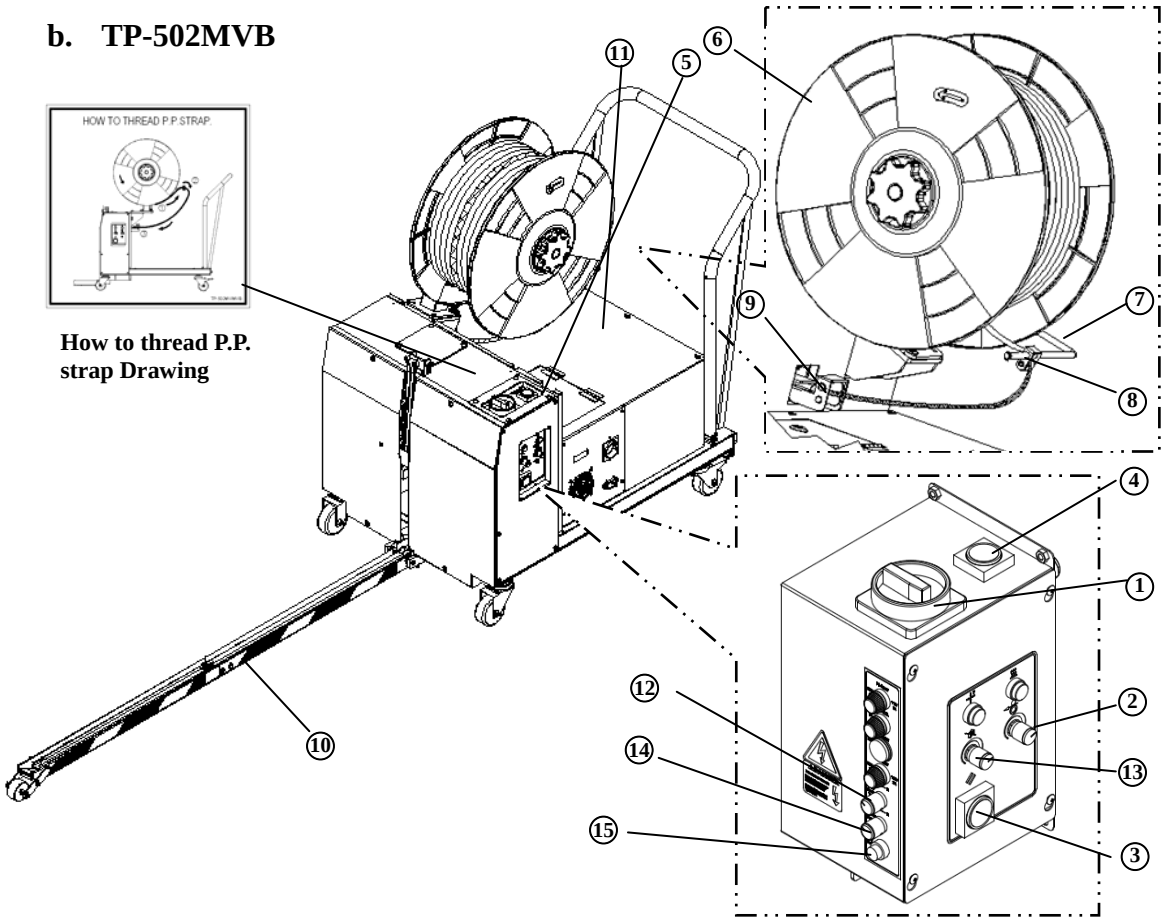
How to thread P.P. strap Drawing



① **Power Switch**	Supply the power when switch is ON.
② **Feeding Length Knob**	Strap is automatically fed according with the time preset by the knob.
③ **Reset Button**	Restart the machine and/or to pull strap back into machine and/or to cut off strap.
④ **Strap Feed Button**	To feed strap out of machine manually.
⑤ **Power Plug**	To be connected to a 110V or 220V/230V/240V source.
⑥ **Strap Reel**	Slide on strap coil here. (If the reel core is 280mm, you can take off the center drum to have core size 200mm.)
⑦ **Brake**	Stops the over-rotation of the strap reel.
⑧ **Strap Guide for Brake**	Place strap on the Brake ⑦.
⑨ **Strap Bypass Guide**	The strap is passed through this guide.
⑩ **Sword Unit**	To guide strap running through pallet.
⑪ **Weld cooling timer**	To ensure good sealing efficiency under higher tension.
⑫ **Tension Adjust Knob**	To Adjust the tension.
⑬ **Heater Temperature**	To Adjust the Temperature of Heater
⑭ **Jog Switch**	Pushing down this switch, you can get any cycling stage you need for maintenance. If the machine does not stop in home position after you have pushed the jog switch, you only need to switch off the power and turn on again.

b. TP-502MVB

How to thread P.P. strap Drawing



① **Power Switch**	Supply the power when switch is ON.
② **Feeding Length Knob**	Strap is automatically fed according with the time preset by the knob.
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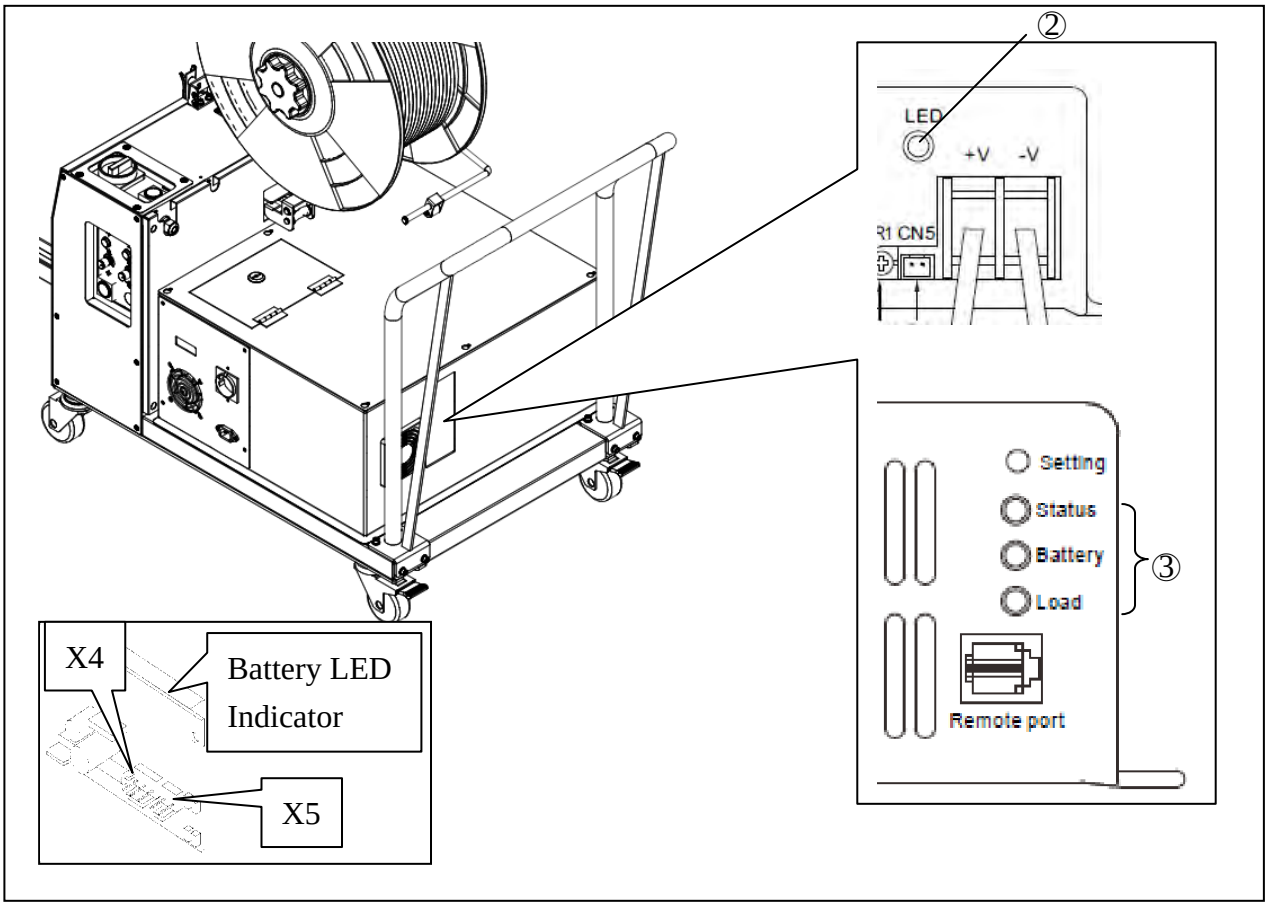
⑤ **Power Plug**	To be connected to a 110V or 220V/230V/240V source.
⑥ **Strap Reel**	Slide on strap coil here. (If the reel core is 280mm, you can take off the center drum to have core size 200mm.)
⑦ **Brake**	Stops the over-rotation of the strap reel.
⑧ **Strap Guide for Brake**	Place strap on the Brake ⑦.
⑨ **Strap Bypass Guide**	The strap is passed through this guide.
⑩ **Sword Unit**	To guide strap running through pallet.
⑪ **Battery Unit**	Supply the power through battery.
⑫ **Weld cooling timer**	To ensure good sealing efficiency under higher tension.
⑬ **Tension Adjust Knob**	To Adjust the tension.
⑭ **Heater Temperature**	To Adjust the Temperature of Heater
⑮ **Jog Switch**	Pushing down this switch, you can get any cycling stage you need for maintenance. If the machine does not stop in home position after you have pushed the jog switch, you only need to switch off the power and turn on again.

c. UPS Operation Panel for TP-502MVB



① Battery LED Indicator: It shows the Voltage of Battery. (Function when X5 bridged and X4 is connected)

② Indicator on Charger: Red when Constant Charge, turn Green when Floating charge.

③ LED Indicator on Inverter：It shows Operating status, battery status, load condition, and all kinds of warnings will be displayed on this panel.

Status LED: Represents current operating status

LED Color	Green	Orange	Red
Status	Normal	Saving mode	Abnormal

*Note: Refer to page -31- for explanation of abnormal status

Battery LED: Represents the remaining capacity of external batteries

LED Color	Green	Orange	Red
Battery Capacity	>70%	40~70%	<40%

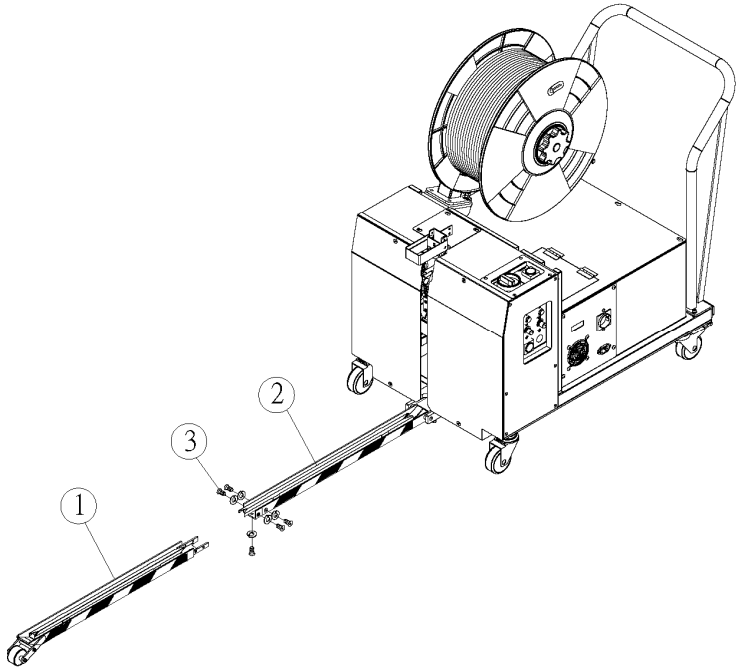
LOAD LED: Represents the magnitude of output load

LED Color	Green	Orange	Red
Load percentage	<50%	50~80%	>80%

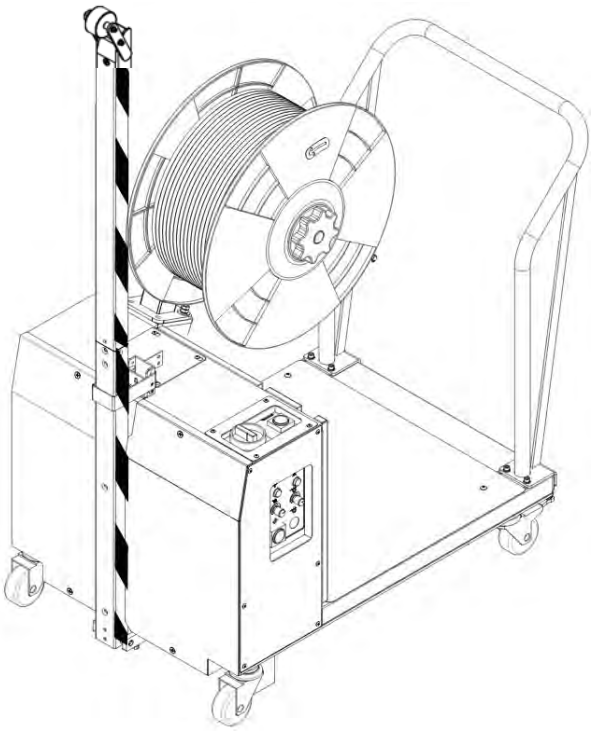
(7) Installation

a. Sword Assembling

Lock Bandway Ass'y (LH) ① and Bandway Ass'y (RH) ② in place by FMS0610 ③.

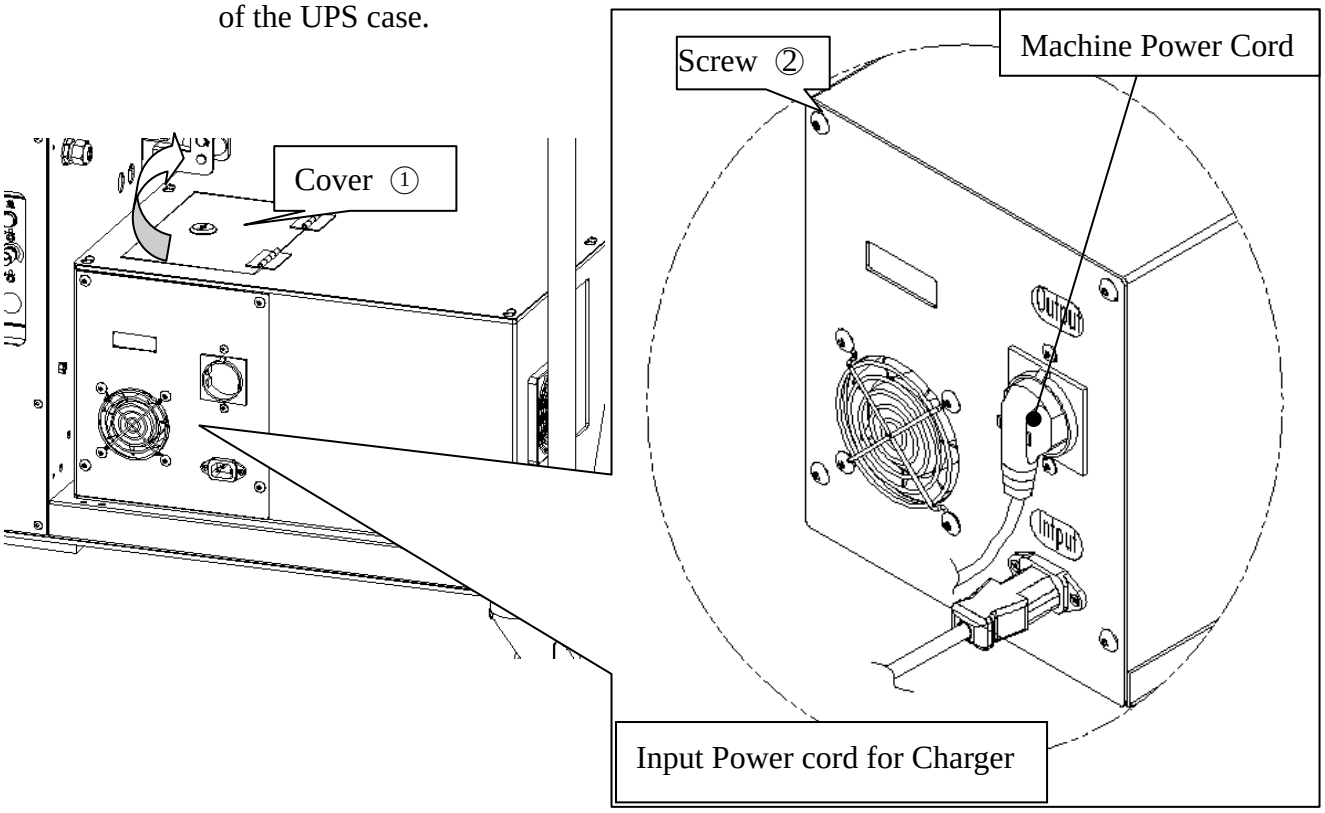


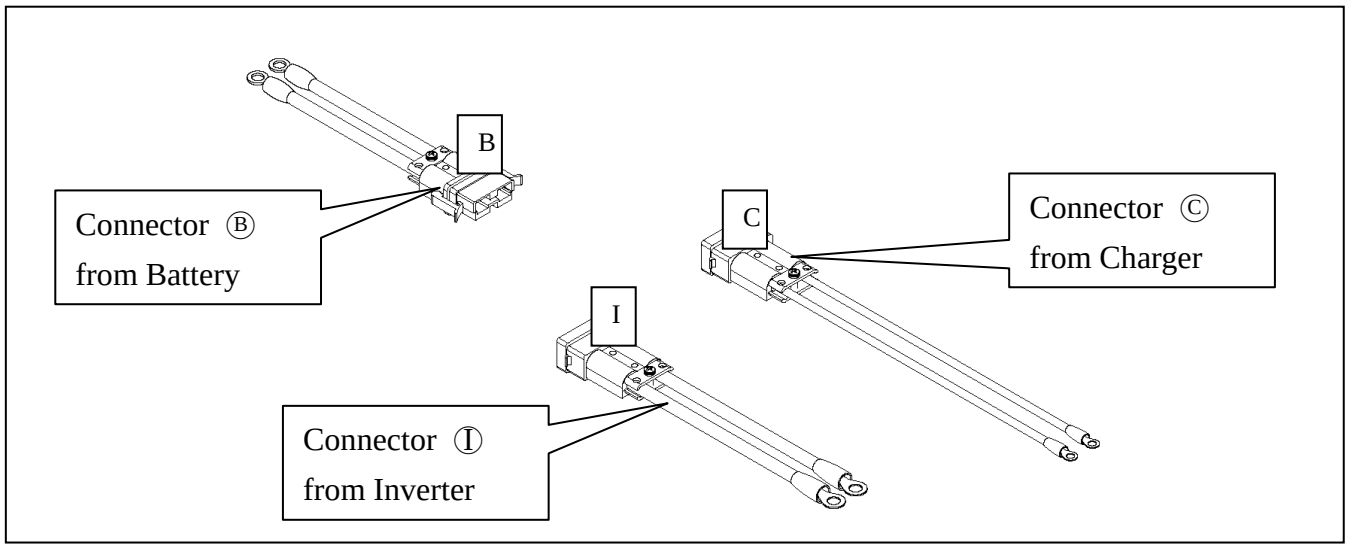
Note: Rotate the sword unit up to close to the machine frame and hold it in position by Velcro if machine would not be used for a long time.



b. Plug the connector from battery to UPS (only TP-502MVB)

1. Use the Key we attached with the manual to open the cover ① of Battery case.
2. Check inside of case, there are 3 connectors inside, please plug the Battery connector Ⓑ to the connector Ⓘ of UPS if you would like to use machine with battery power.
3. Close the cover of the Battery and fix it by Key.
4. Use screw driver to lose 4 screws ② to open the UPS panel.
5. Plug in the power wire X4 inside of UPS for Battery power LED indicator. (We unplug this wire (X4) before we ship the machine to prevent battery power loose.)
6. Put UPS panel back and fixed by 4 screws ②.
7. Plug the Power Cord (MV-6-10060/MV-6-10061) in the Output socket on the back of the UPS case.





5. Operating the Machine

(1) How to Load P.P Strap

Step 1

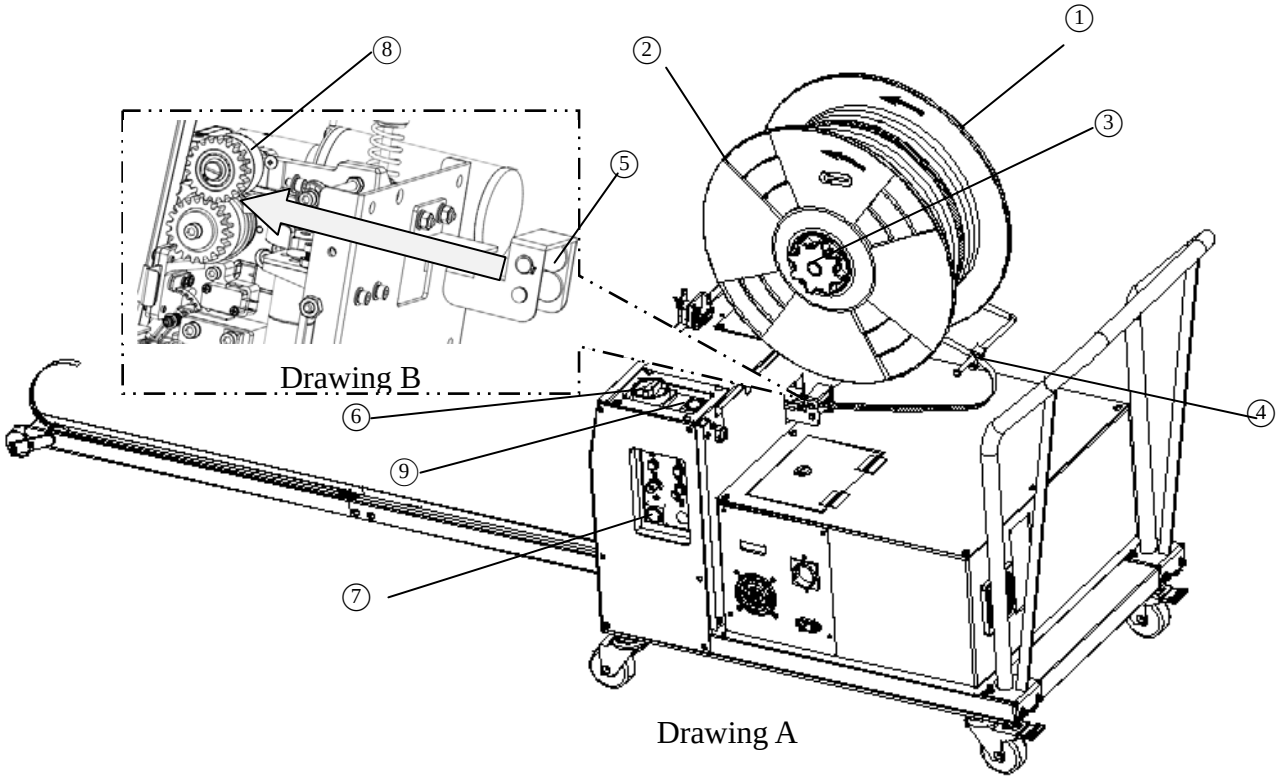
Please pay attention to the direction mark on the Outer Flange ②. Put a coil of strap into the Inner Flange ① according to the direction mark. Then install the Outer Flange ② and tighten the reel nut handle ③. (refer to following drawing A)

Step 2

Pull out some strap to thread it through the roller ④ on the Break Arm as well as two rollers ⑤.

Step 3

Turn on the power switch ⑥. Then push reset button ⑦ to start up the machine and let strap tip can feed smoothly into roller ⑧ about 10cm or longer. (refer to following drawing B) Then push feed button ⑨ to feed the strap.



Drawing B

Drawing A

(2) How to Operate

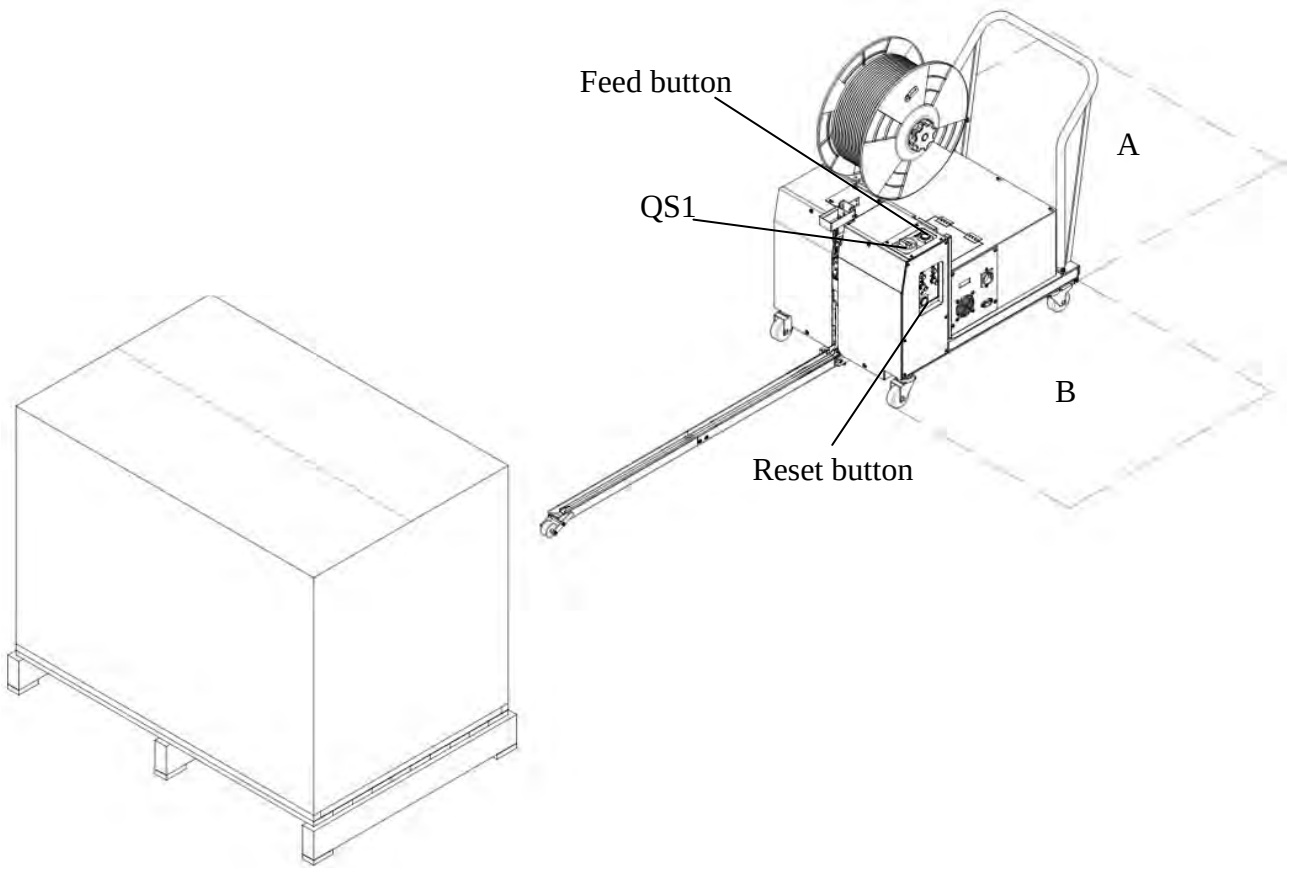
a. TP-502MV

1. Turn main switch QS1 to ON. The heating element will reach the working temperature at approximately 40 second.
2. Press reset button to start up the machine.
3. Push the machine to let the sword unit pass through the pallet. Have the front plate of the machine close to the package.
4. Press Feed button to feed the strap out of the sword, first time will depend on the value setting of Feed length Knob, other will depend on how long you press the button until you release the button.
5. Pull strap around the package and insert the leading edge of the strap into the strap inlet to activate the strapping cycle. Then the strapping cycle is completed.
6. Move the machine away from the package. Be sure the whole sword unit is totally out of the package.
7. Operation Space

   Keep the area (A) and (B) free for the operator.

   The area (A) is necessary for operating strapping machine.

   The area (B) is necessary for changing the strap or operation strapping machine.



b. TP-502MVB

1. When operate the machine with battery power, Check the plug connection inside of Battery Case should be Ⓑ and Ⓘ (Power from battery to Inverter).
2. Turn main switch QS1 to ON. The heating element will reach the working temperature in approximately 40 second. Green Lamp flash when heating element under heating, Green lamp will keep on when temperature reach.
3. Press reset button to start up the machine.
4. Push the machine to let the sword unit pass through to the pallet. Have the front plate of the machine close to the package.
5. Press Feed button to feed the strap out of the sword, first time strap feed will depends on the value of Feed length Knob, other will depend on how long you press the button until you release the button.
6. Pull strap around the package and insert the leading edge of the strap into the strap inlet to activate the strapping cycle. Then the strapping cycle is completed.
7. Move the machine away from the package.
8. After operation, please turn off switch QS1 before Unplug the wire connection Ⓑ & Ⓘ.

c. The meaning of Lamp blinking：

1. Normal Situation:

	Switch on the power of the machine	Under heating	Strapping cycle start (SQ1 ON)	Machine ready to use	Sleep mode (10 minute without using)	Sleep mode (Deep) (1hour without using)
Amber Lamp	Both lamp are blinking 3 times at same time	OFF	ON	OFF	OFF	OFF
Green Lamp		blinking	Continue ON	Continue ON	Blinking (two quick and one slow blinking)	Blinking (One quick and one slow blinking)

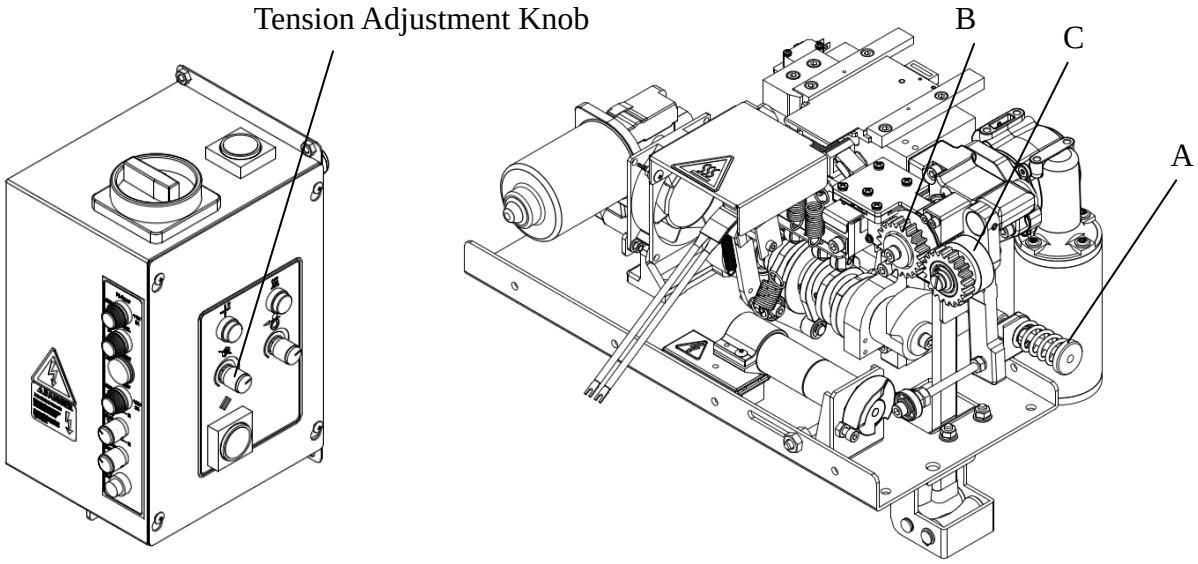
If the machine goes into sleep mode, you have to press reset button to start up the machine if you would likes to use the machine again.

6. Adjustment

(1) Adjustment on Tensioning Rollers

The machine is already well set for enough high tension. However, according to different strap characteristics (such as smoother surface or different thickness), some adjustments for higher tension might be necessary.

When insufficient strapping tension occurs while tension adjustment knob is on MAX position, please turn Nut A clockwise.
This can solve the problem of insufficient strapping tension at high tension and strap slipping between B & C due to this.



(2) Strap Width

a. Adjust the position of Strap Guide B (5MV-1-100400) according to the strap width. (refer to fig. 5)

b. Loosen the 5 screws outside the Strap Guide B (T5-1-24132) and adjust its position according to the scale indicated. (refer to fig. 6)

c. Change RH Bandway Ass'y (5MV-2-200301 / 5MV-2-200311 / 5MV-2-200321) according to the strap width. (refer to fig. 7.)

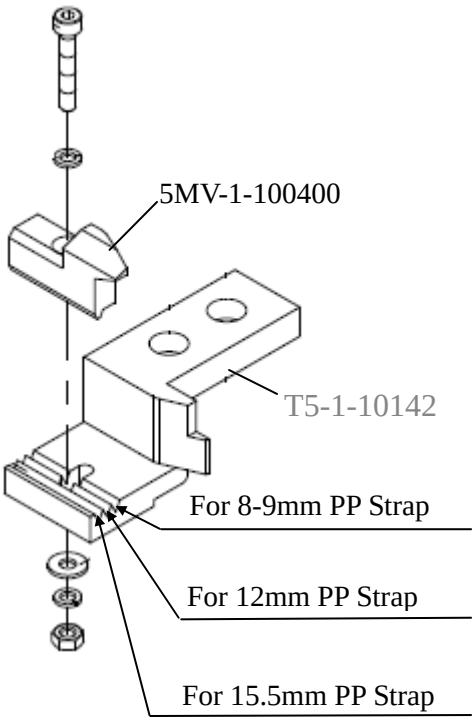


Fig.5.

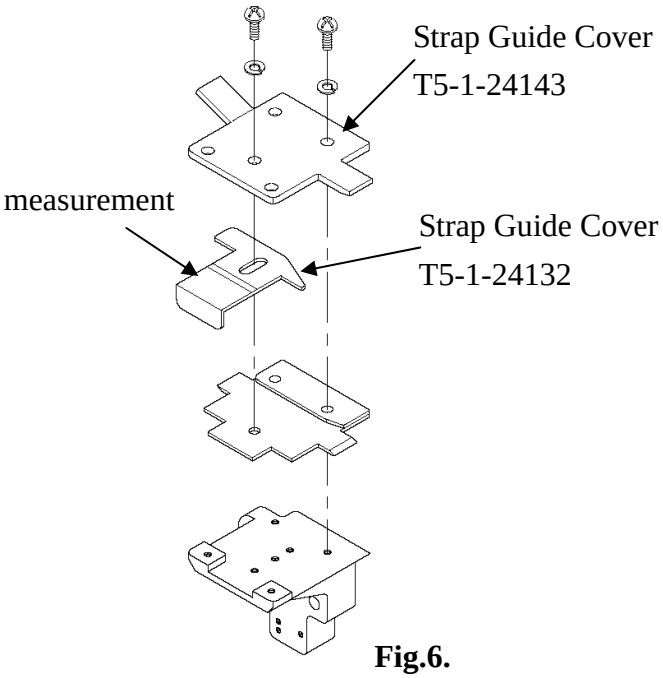
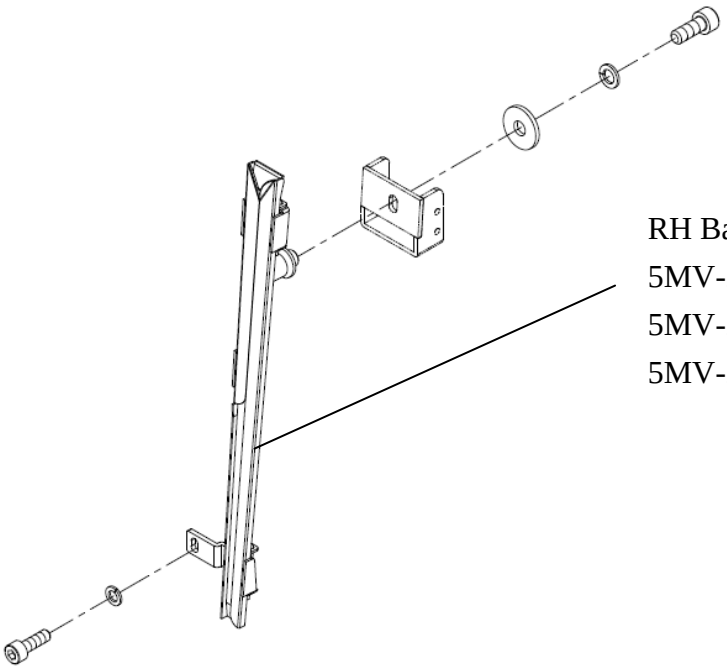


Fig.6.



7. Maintenance

(1) Maintenance of the Battery

a. The temperature of the battery shouldn't be higher than 50℃ whenever it is.

b. Keep the terminal of the battery and the environment clean and dry. Be sure to mop the dust or liquid on the battery whenever there is any. (Note: it's necessary to keep the top of the battery clean and dry because dust or humidity could be electric conduction).

c. Be sure to check the connection between the charger and the battery before charging. Check the condition of the poles and the wires. Make sure the terminal brackets at the battery side are installed correctly.

d. Fully charge (charge battery over 12 Hours) the battery when battery isn't used exceed 3 months.

e. Note whether the battery is too old (can not charge the single battery over 13.5 Voltage) or dead (the capacity of the battery drop dramatically). It will be dangerous if doing the charging process on an old/dead battery because the temperature of the battery will rise while charging.

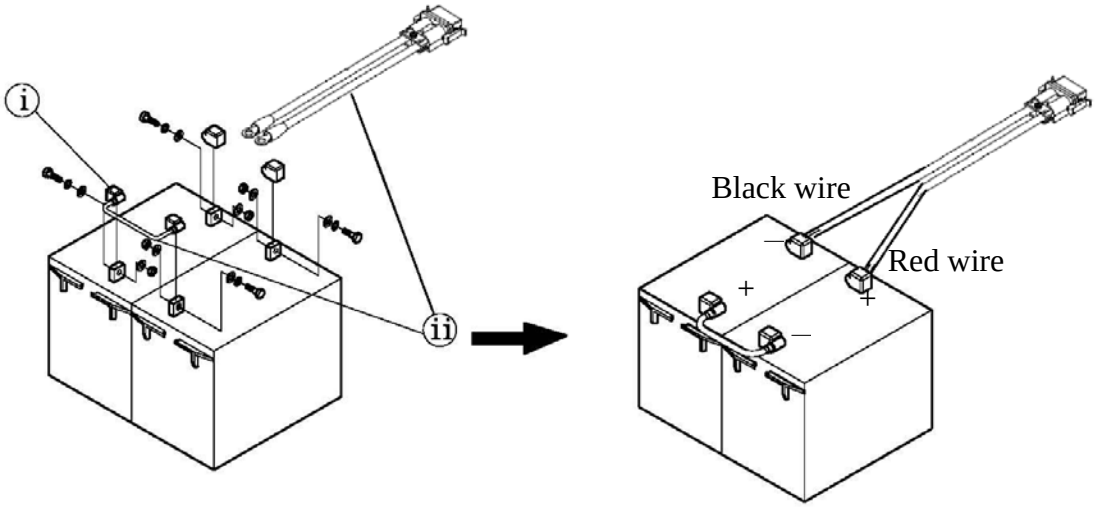
f. When the battery is dead, both batteries need to be changed at the same time.

g. How to replace the battery:

Note: Take care about the procedure when changing battery or will caused short circuit easily.

i. Connect the Battery wire connection. The longer wire (with black and red wires), connect the black wire to the negative pole of the battery, and the red wire to the positive pole of other battery. Make sure each part is connected correctly and firmly. (refer to the illustration). As to the shorter wire is to connect the positive and negative pole of the battery (when loosing the wire from battery should be reverse-loose short wire before longer wire).

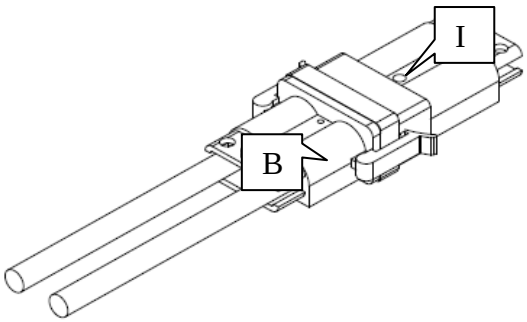
ii. Put grease on each and every pole to avoid pitting. The pitting will influence the charging/discharging efficiency, and also dangerous.



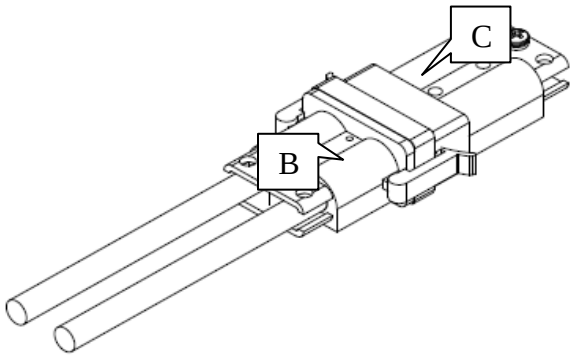
(2) How to Charge the Battery

a. Turn off power from the machine or unplug machine power cord from UPS socket。

b. Unplug the wire connector B and I。



c. Plug wire connector C with B firmly



d. Plug the input power cord of UPS to the socket.

e. LED in charger indicates battery status when charging.

   i. When LED indicates Red, which means battery is under charging.

   ii. When LED indicates Green, which means battery charge is completed and it is under floating charge mode. Please unplug power cord, and the machine is ready for use.

f. It takes around 5-7 hours for charging.

Note the following points while charging:

i. Avoid water and direct sun light.
ii. Make sure it's situated somewhere ventilating.
iii. Stay away from fire.
iv. Avoid high-temperature environment. The temperature of the battery shouldn't be higher than 50℃.
v. Charging at flat surface. Avoid positing it on slope.
vi. Avoid shock and dust.
vii. Prevent short between positive pole and negative pole of the battery.

(3) Maintenance of the Machine

Before any maintenance or repairs on the machine, set the Main Power Switch to "O" (OFF). Wait about 5 minutes for cooling down the heater to avoid burns with this area.

1. Cleaning and Lubrication

The high reliability and long service life of the strapping machine will depend on regular cleaning and maintenance.

ATTENTION!

All the important strap transport components, such as the tension rollers and the strap guides, must be kept free from oil and grease. (lubricant)

The lubricant has to be non-resinous.

The lubricant is SAE 30

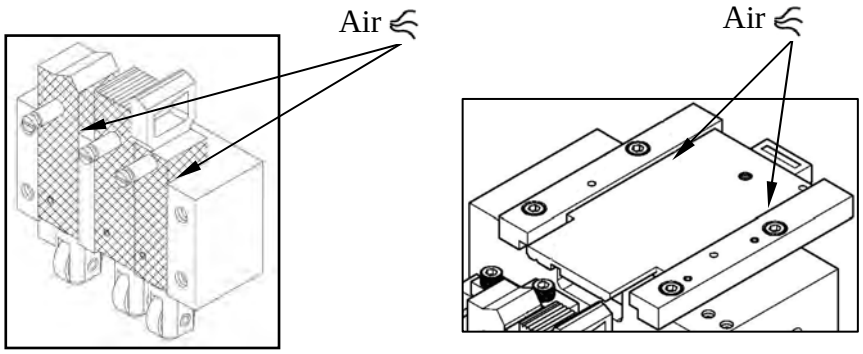
2. Maintenance

Only use original spare parts supplied by manufacturer.

Daily:

Use air gun to clean the circled positions (nearby the cutters, strap guide daily

Remove plastic residue in the machine.



Weekly:

- Lubricate front bar, press bar and rear bar weekly.
- Please refer to the above mesh areas for instruction.
- Before lubricating, be sure to clean the parts first to avoid mixing oil and debris which might have a bad effect on machine’s function.

Monthly :(or 3,000 strapping cycles)

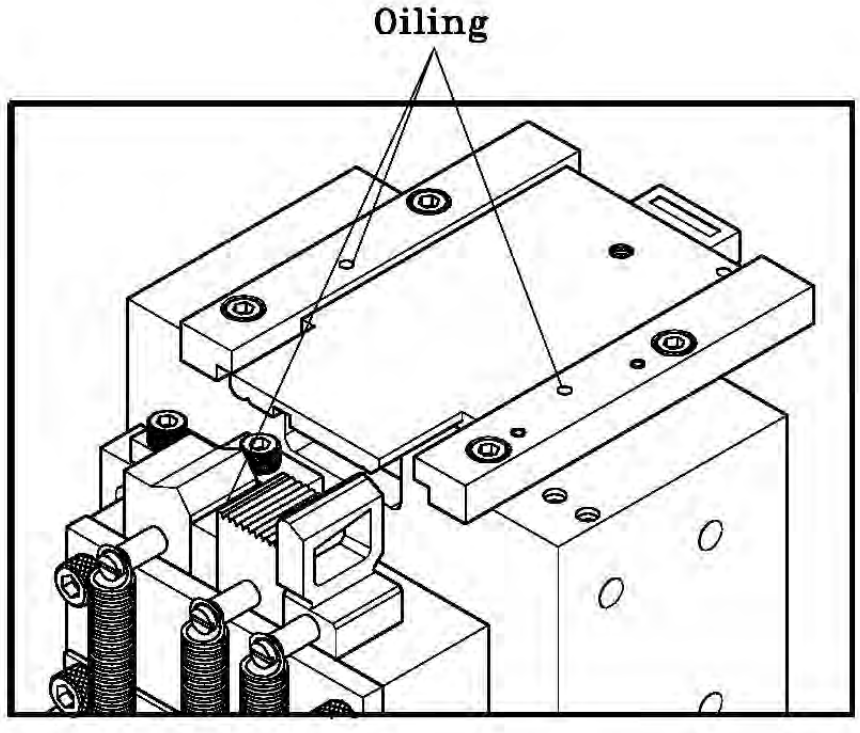
- Clean both sides of heater plate and polish with fine sandpaper if necessary.
  ATTENTION: Make sure the welding plate is cool first!!
- Check cam rollers of seal head for easy movement.
- Slide table back to home position automatically by the spring tension.
- Be sure to clean any debris in the tension roller.

6 Months:（or 18,000 strapping cycles）

- Check heater plate, replace and readjust it if necessary.
- Check strap cutter in seal head, replace it if necessary.
- Check that connector at wiring loom to printed circuit board is firmly fixed.
- Make machine ready for operation. Strap one bundle manually several times, paying attention to mal-functions, repeat procedure.

1 year :(or 36,000 strapping)

- Replace deflection roller if it shows visible changes.
- In case of loud noise at bearings: locate them, replace the bearings.
- Get machine ready for operation again, strap one bundle manually several times, paying attention to malfunctions.



8. Troubleshooting Guide

(1) Strap doesn't joint after sealing

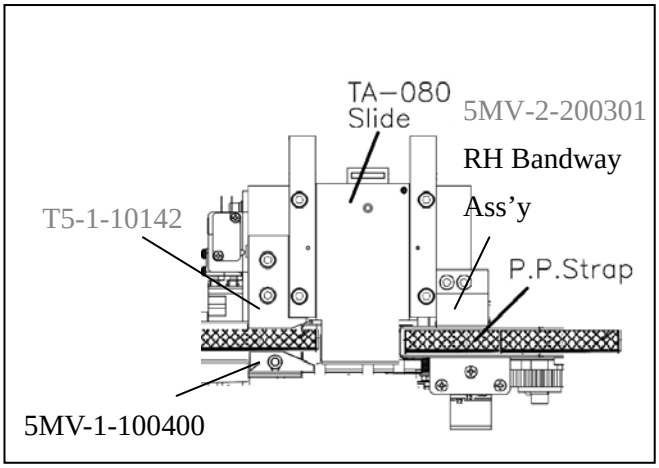
a. Check if Heater TB-113 has too much carbonized debris resided on both sides. Too much debris will cause Heater incapable of melting straps. Clean the surfaces of Heater from carbonized debris.

b. The temperature of Heater is whether too high or too low. When the temperature is too high, there might be not enough cooling time for cooling down. When the temperature is too low, Heater will be unable to melt the straps.

c. Increase welding cooling time (T5-4-10231) behind the control box so to produce longer cooling time.

d. Return Spring (TB-114) for Heater Arm (TB-102) is either broken, coming off or worn which makes Heater unable to enter the correct melting position.

e. If you find the jointed surface is smaller than the standard size, check if the position of the Strap Guide (B) (5MV-1-100400) is according to your requested strapping width. Or you can Change Upper Strap Guide as illustrated in the following drawing for positioning PP straps equal to each other.



(2) Insufficient strapping tension

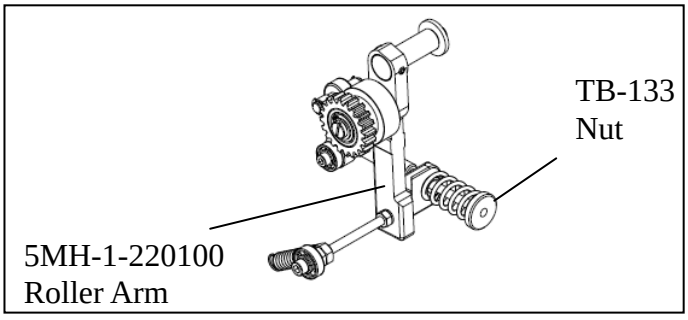
a. Turn VR T5-4-10231 clockwise to increase the tension.

b. The package is too small (The height of package is lower than 380mm).

c. The Bearing (BR635ZZ) for Rear Bar (TA-074) is broken or the tip of Rear Bar (TA-074) is worn which makes Rear Bar unable to hold the straps after tensioning. This produces bad quality tension.

d. Replace PC Board.

e. Turn Tension Adjustment Nut (TB-133) clockwise for an increase in the tension pressure as illustrated in the following drawing.



(3) Failure Messages on Front Panel of Inverter

Failure Message	LED Indicator ○ Status ○ Battery ○ Load	Failure Message	LED Indicator ○ Status ○ Battery ○ Load
Output Overload (105~115% load)	○ ○ ★	Abnormal AC Output Voltage	★ ○ ★
Output Overload (115~150% load)	○ ★ ○	AC Output Short Circuit	★ ★ ○
Output Overload (150% load)	○ ★ ★	Abnormal Battery Voltage	★ ★ ★
Over Temperature	★ ○ ○	LED Status	● Light ○ Dark ★ Flashing

Failure Correction Notes

INVERTER should be serviced by a professional technician. Any improper usage or modification may damage the unit or result in shock hazard.

Status	Possible Reasons	Ways to Eliminate
No AC output voltage	Abnormal input	Check the AC or DC input sources. Make sure the voltage is within the required range.
	Over temperature protection	Make sure that the ventilation is not blocked or whether the ambient temperature is too high. Please de-rating the output usage or reduce the ambient temperature.
	Overload protection	Make sure the output load does not exceed the rated value or the instantaneous start up current is not too high. (for inductive or capacitive loads)
	Short circuit protection	Make sure the output is not overloaded or short circuited
Discharging period of batteries is too short	Batteries are aged or broken	Replace the batteries
	Battery capacity is too small	Reconfirm the specification and enlarge the battery capacity as suggested
Fan does not spin	Clog with foreign bodies	Remove the foreign objects
	Malfunction of the fan	Repair required. Please send it back to us or any of our distributors

(4) Failure Messages on Control Panel

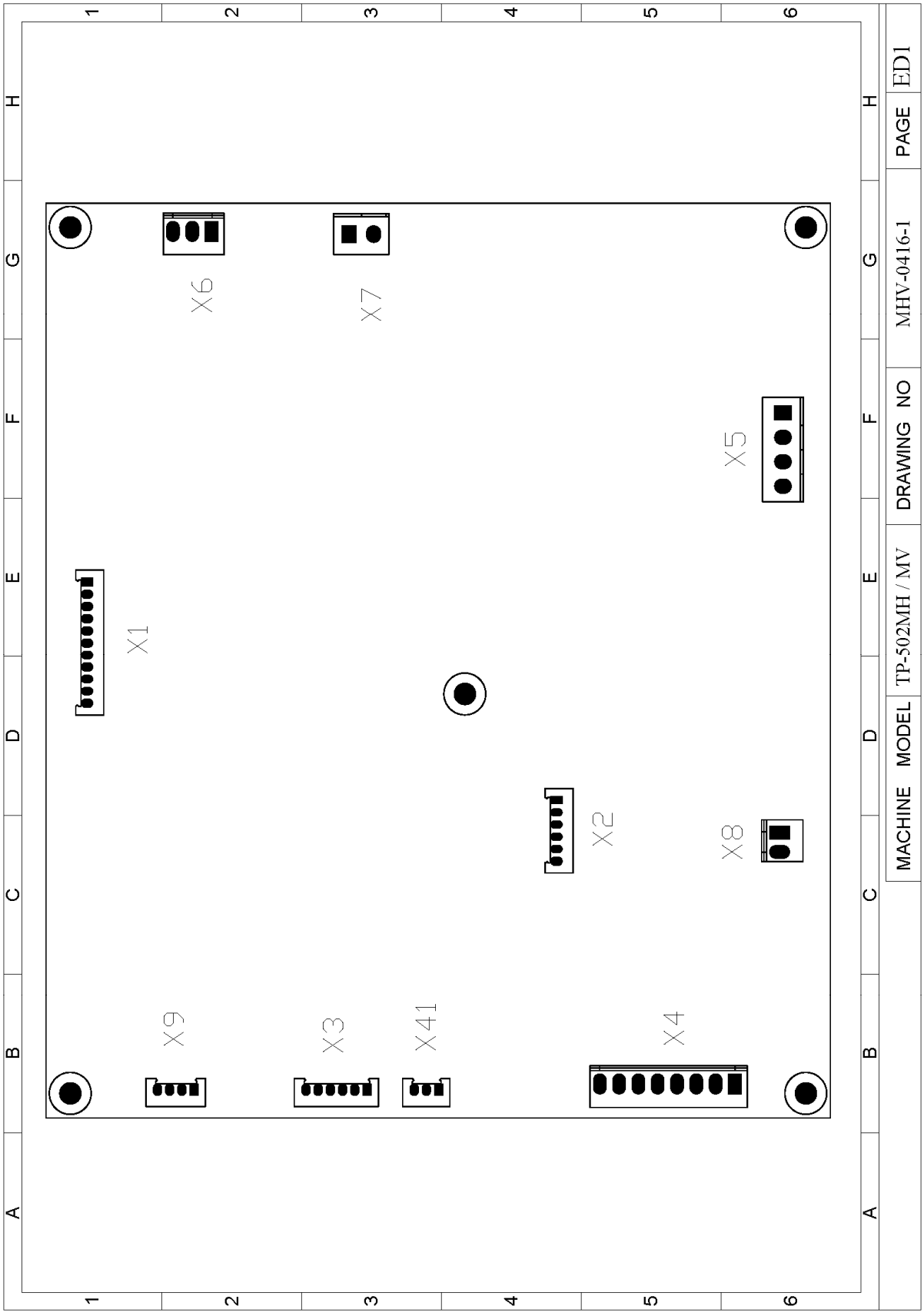
Signal	Status (The speed of lamp blinking)	Possible Reasons	Ways to Eliminate
Amber Lamp on control panel	Two shorter with one longer	PCB can't received signal form SQ2	Check wire connection and function of SQ2. Make sure the SQ2 is not broken and wire is connecting well.
	One shorter with one longer	PCB can't received signal form SQ3	Check wire connection and function of SQ3. Make sure the SQ3 is not broken and wire is connecting well.

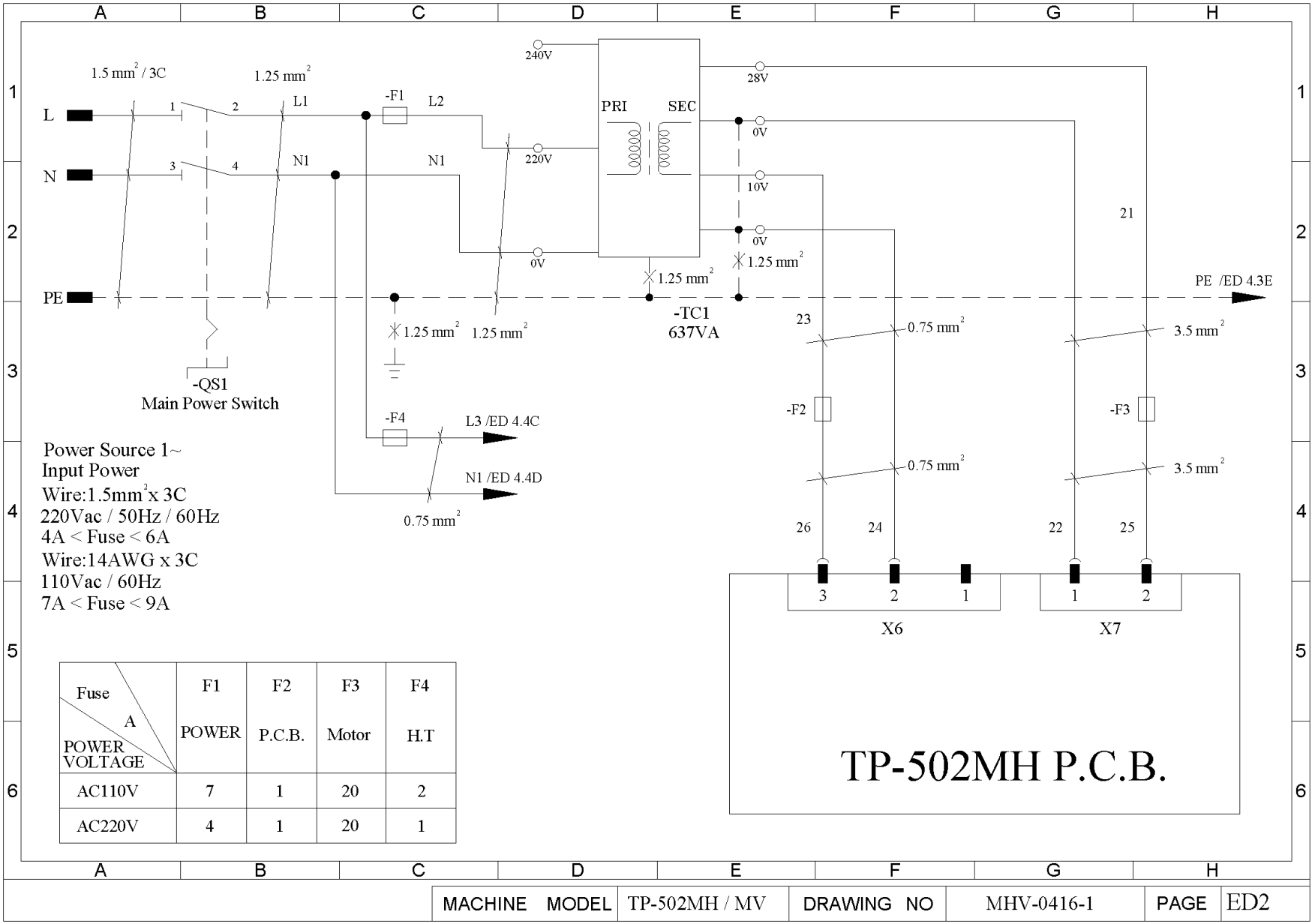
***More trouble shooting guide is on request.**

PART II

1. Wiring Diagram

a. TP-502MV





Fuse / A / POWER VOLTAGE	F1 POWER	F2 P.C.B.	F3 Motor	F4 H.T
AC110V	7	1	20	2
AC220V	4	1	20	1

MACHINE MODEL	TP-502MH / MV	DRAWING NO	MHV-0416-1	PAGE	ED2

-R4 Tension adj

-S1 Reset P.B

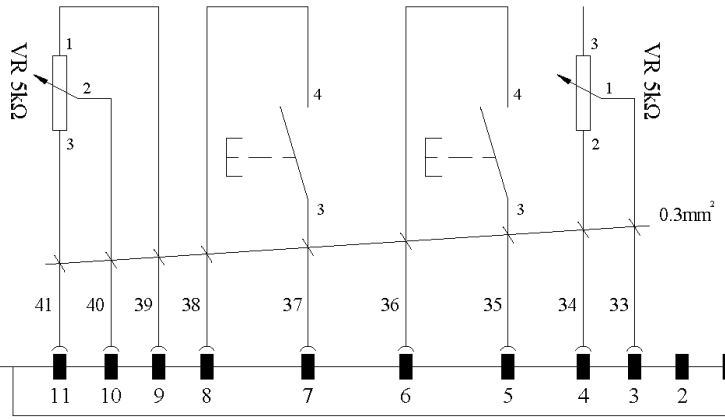
-S2 Feed P.B

-R3 Length adj

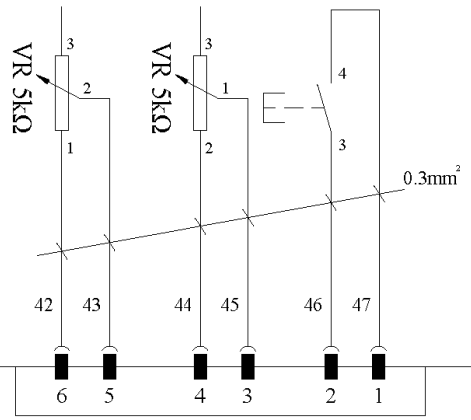
-R1 Weld Cooling Time adj

-R2 Heater Temp adj

-S3 JOG SW



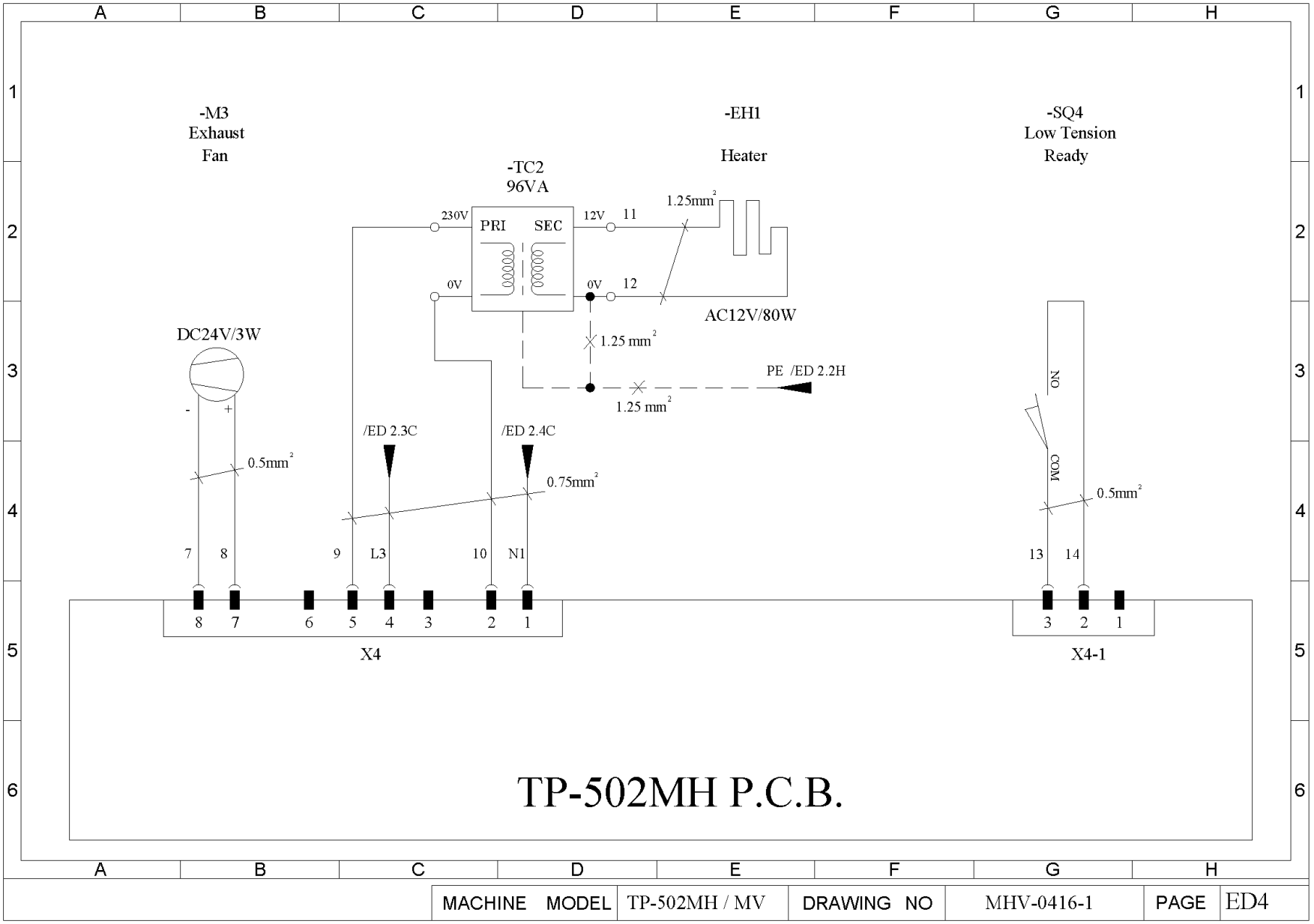
X1
(Front Pannel)



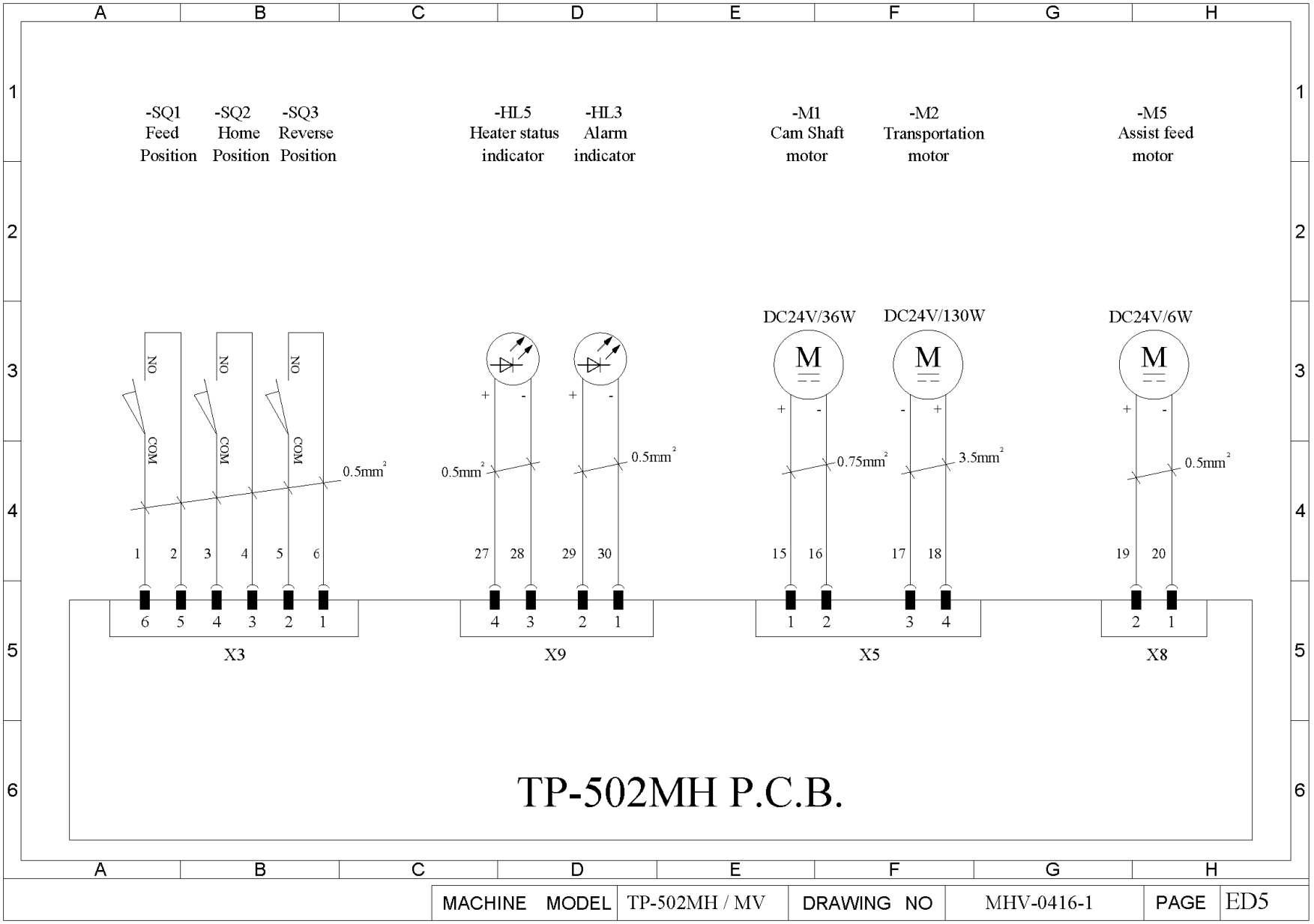
X2
(Real Panel)

TP-502MH P.C.B.

MACHINE MODEL	TP-502MH / MV	DRAWING NO	MHV-0416-1	PAGE	ED3

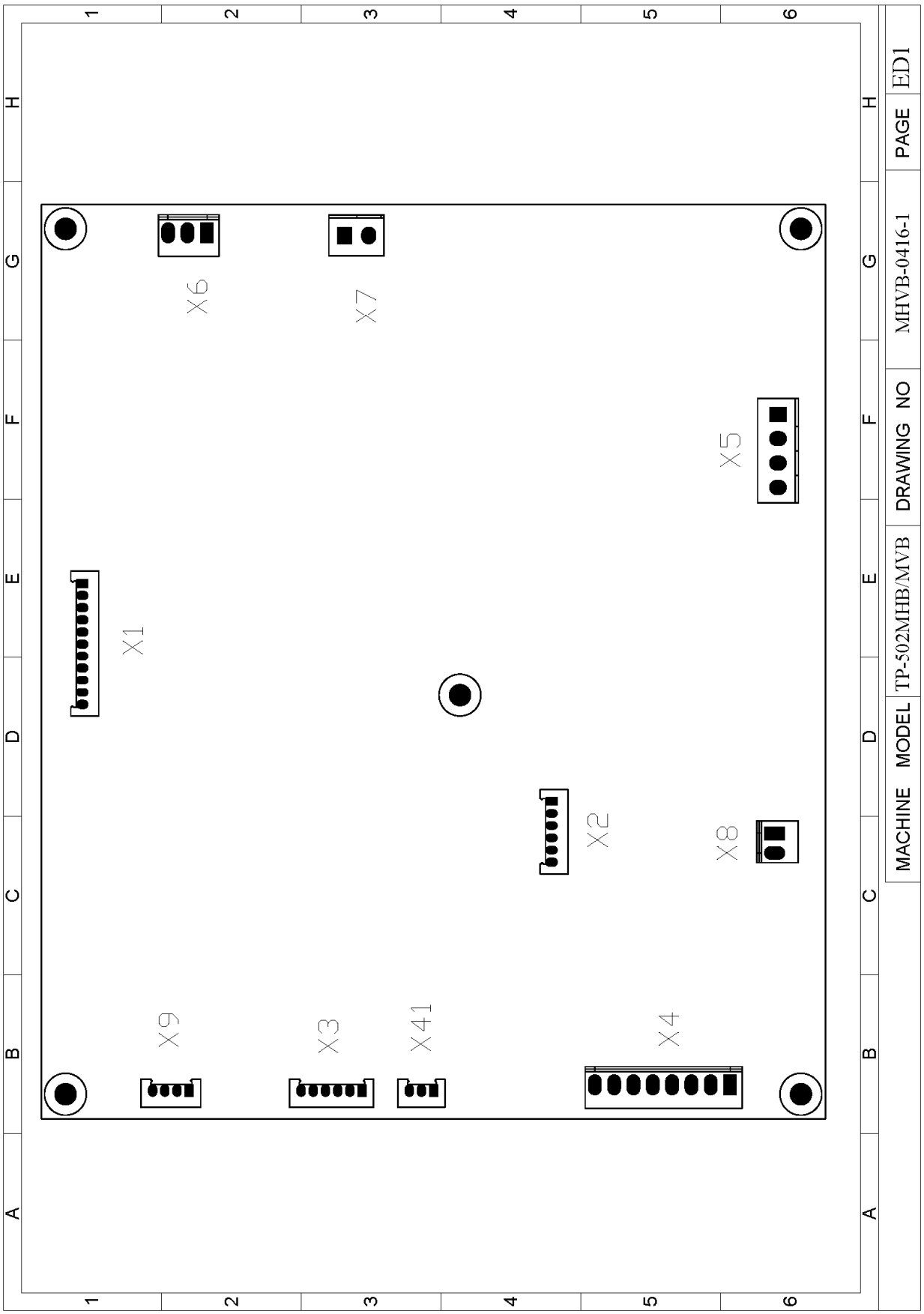


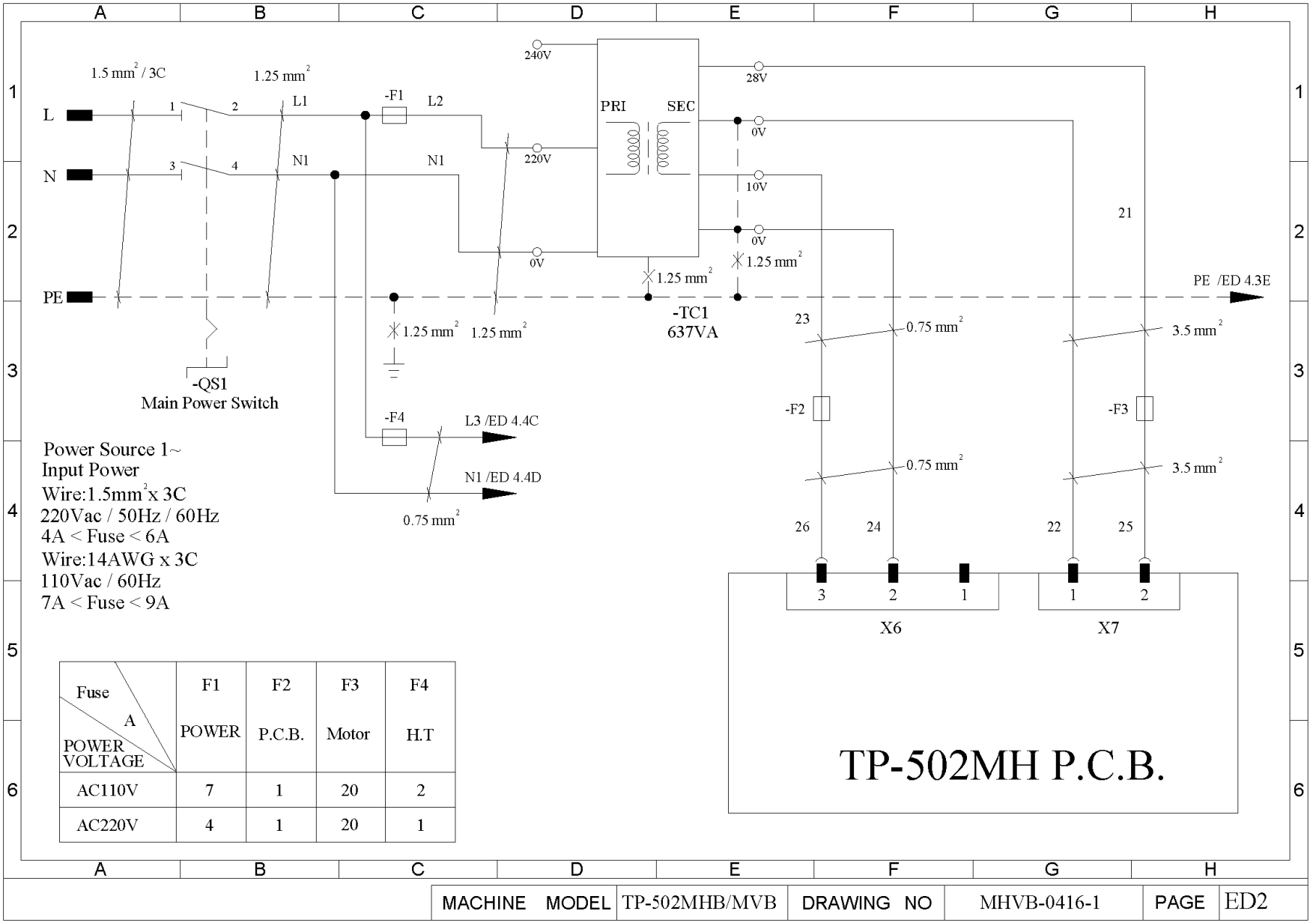
MACHINE MODEL	TP-502MH / MV	DRAWING NO	MHV-0416-1	PAGE	ED4



MACHINE MODEL	TP-502MH / MV	DRAWING NO	MHV-0416-1	PAGE	ED5

b. TP-502MVB


X6
X7
X5
X1
X2
X8
X9
X3
X41
X4
MACHINE MODEL
TP-502MHB/MVB
DRAWING NO
MHVB-0416-1
PAGE
ED1



Fuse / A / POWER VOLTAGE	F1 POWER	F2 P.C.B.	F3 Motor	F4 H.T
AC110V	7	1	20	2
AC220V	4	1	20	1

MACHINE MODEL	TP-502MHB/MVB	DRAWING NO	MHVB-0416-1	PAGE	ED2

-R4 Tension adj

-S1 Reset P.B

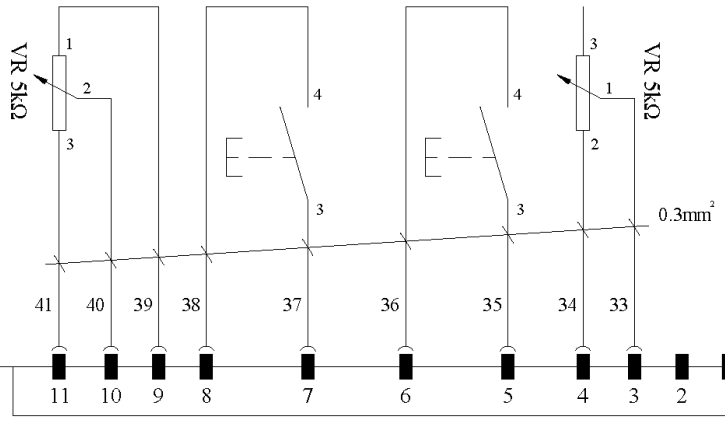
-S2 Feed P.B

-R3 Length adj

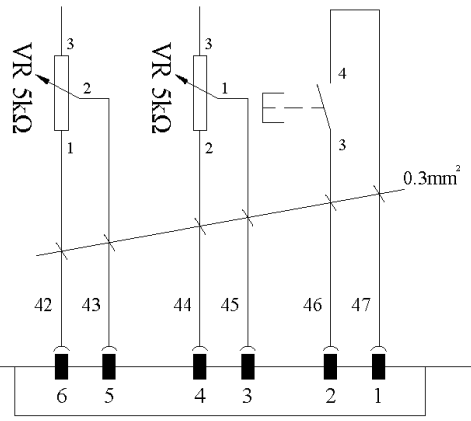
-R1 Weld Cooling Time adj

-R2 Heater Temp adj

-S3 JOG SW



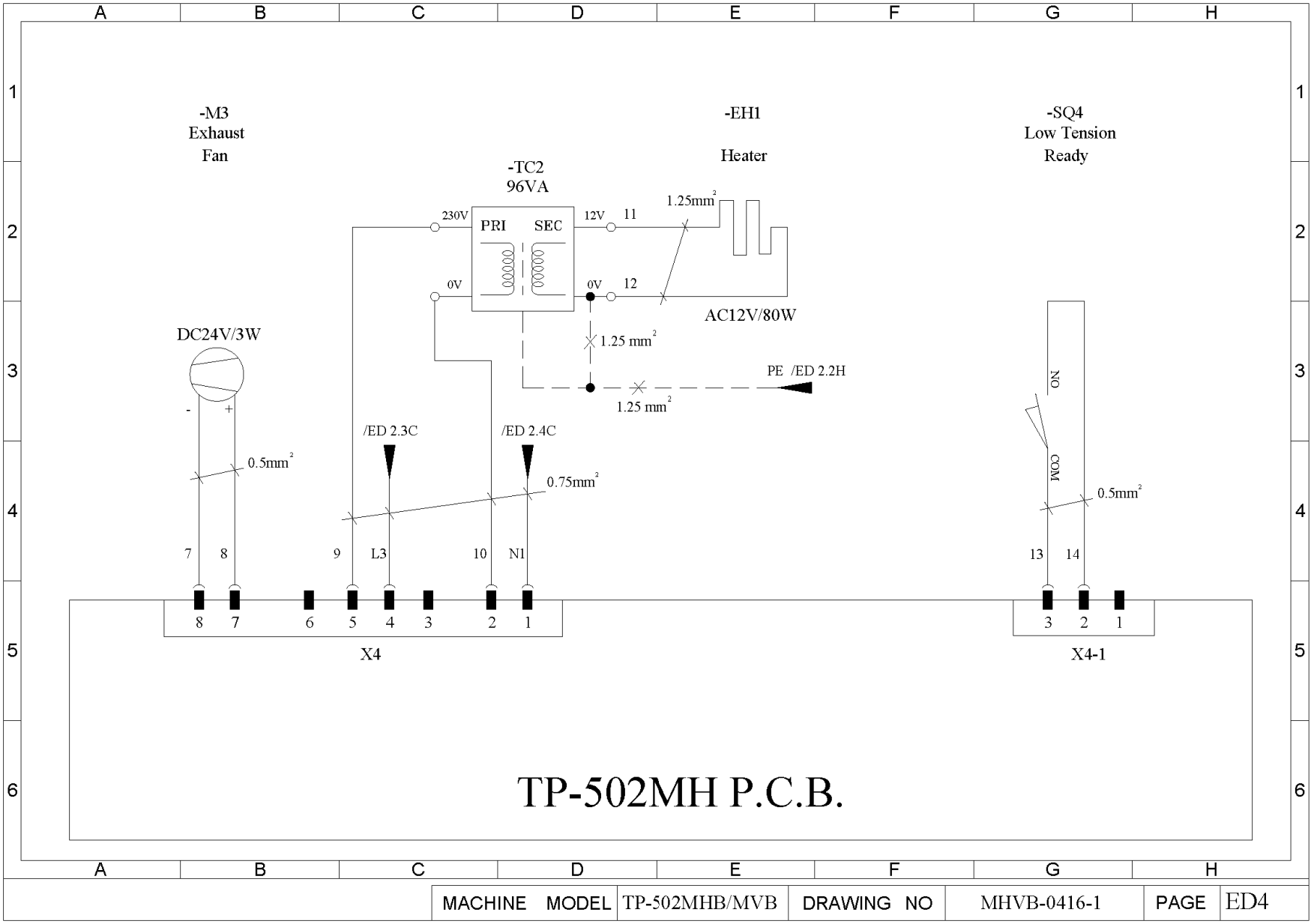
X1
(Front Pannel)



X2
(Real Panel)

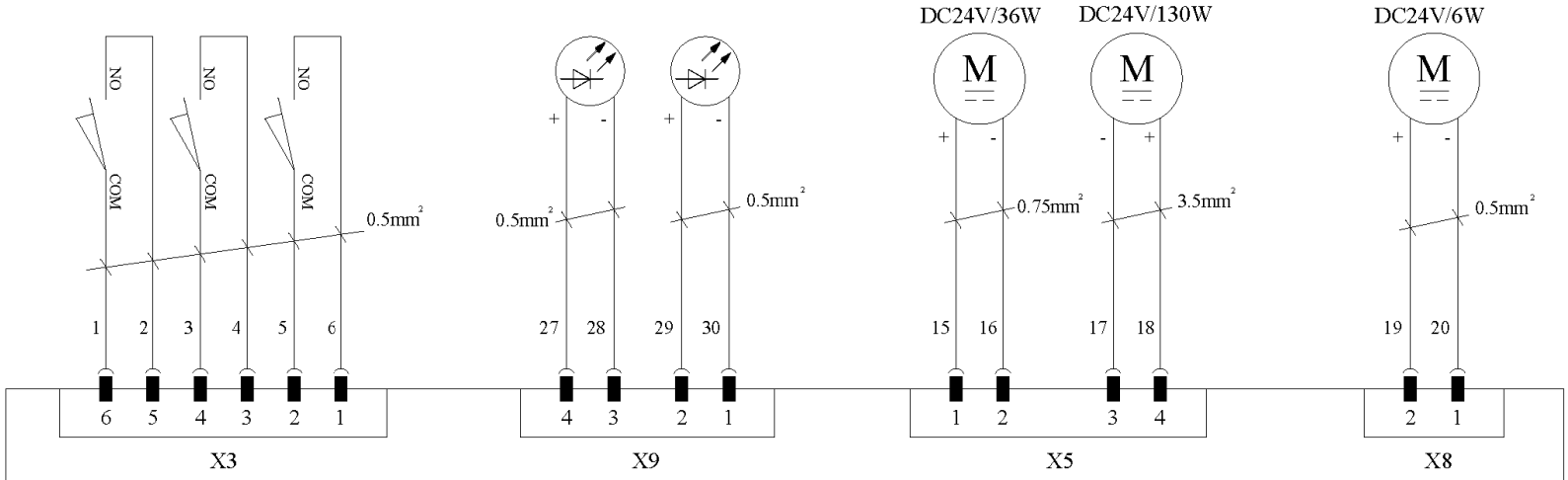
TP-502MH P.C.B.

MACHINE MODEL	TP-502MHB/MVB	DRAWING NO	MHVB-0416-1	PAGE	ED3



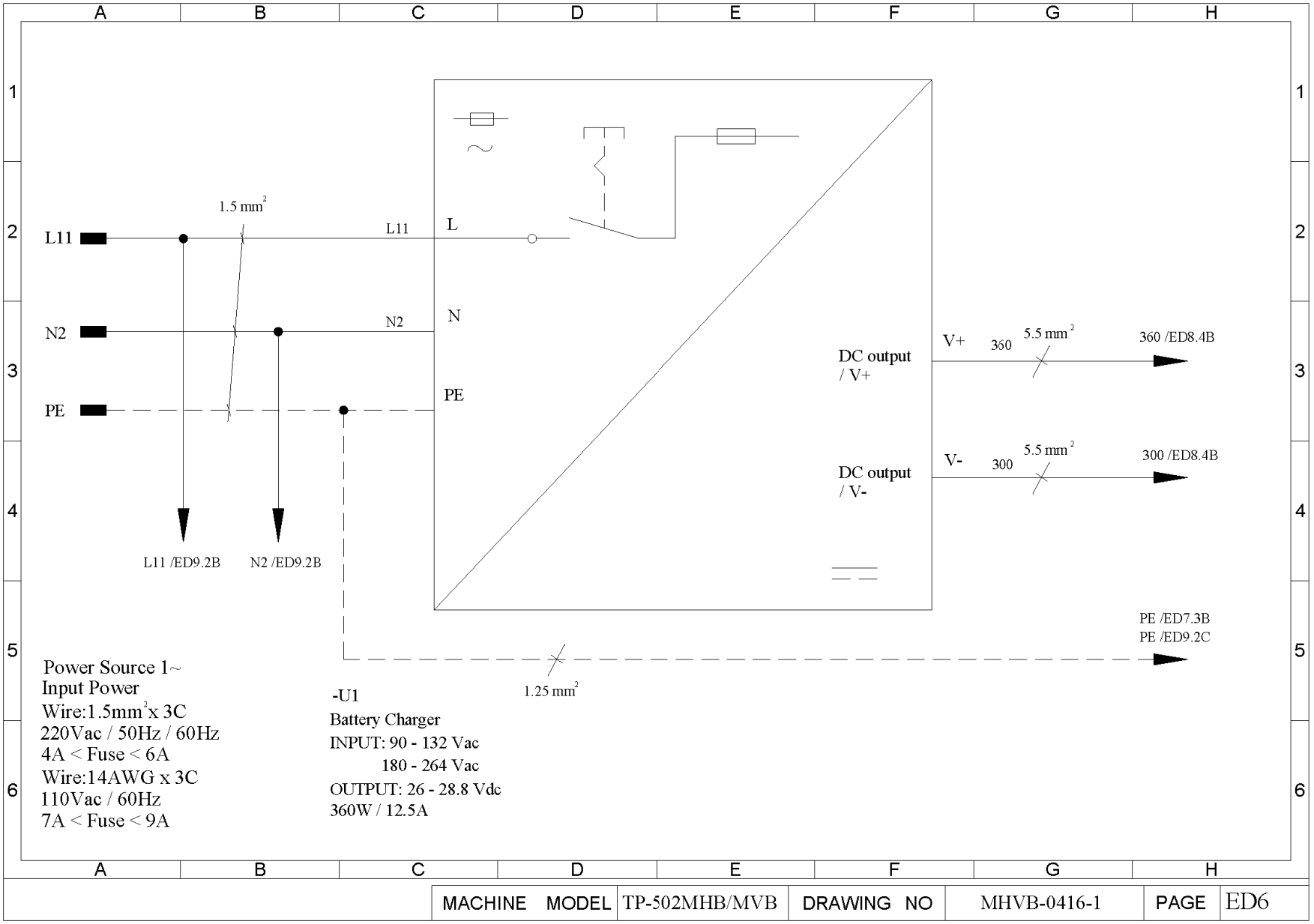
MACHINE MODEL	TP-502MHB/MVB	DRAWING NO	MHVB-0416-1	PAGE	ED4

-SQ1 Feed Position
-SQ2 Home Position
-SQ3 Reverse Position
-HL5 Heater status indicator
-HL3 Alarm indicator
-M1 Cam Shaft motor
-M2 Transportation motor
-M5 Assist feed motor

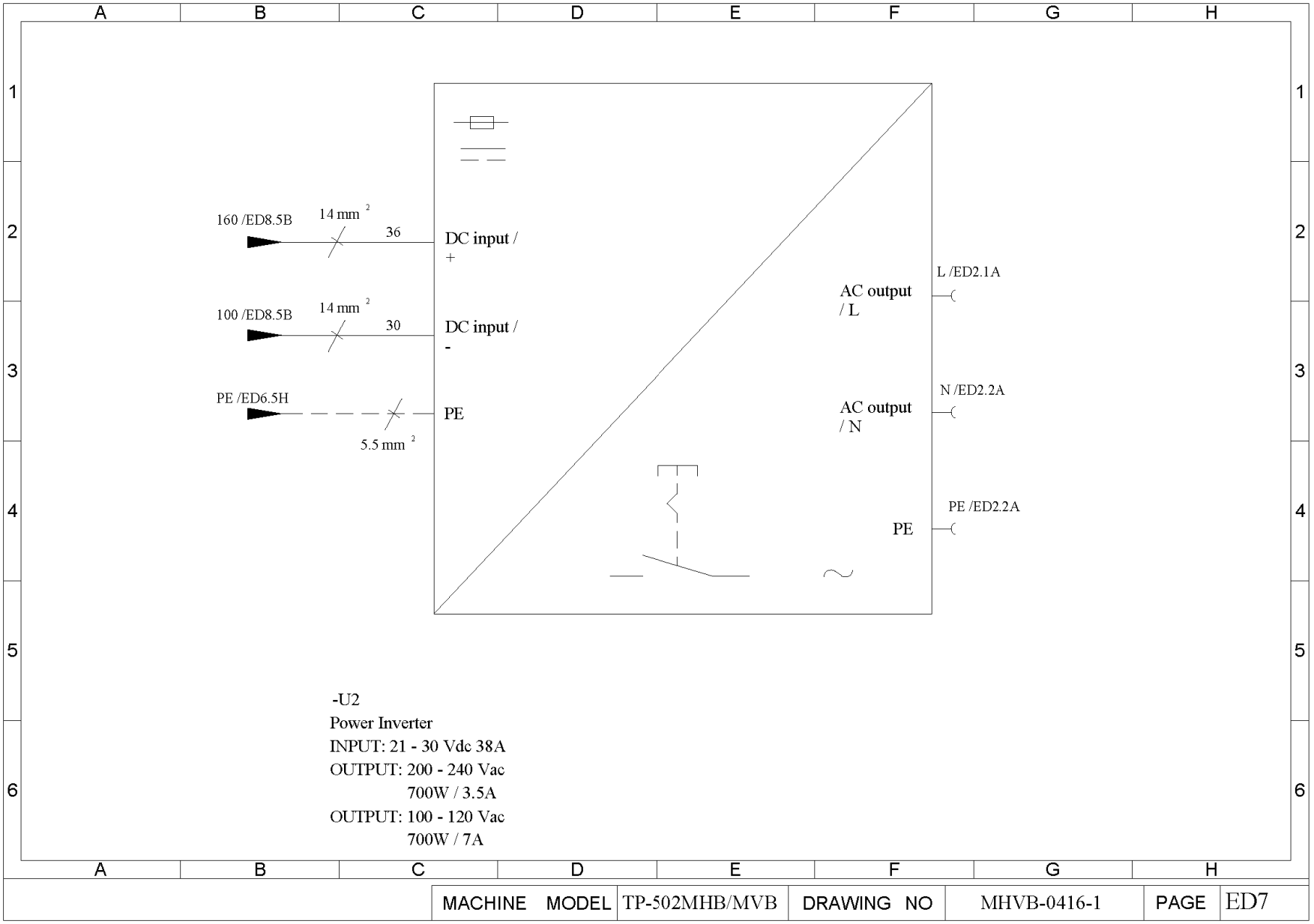


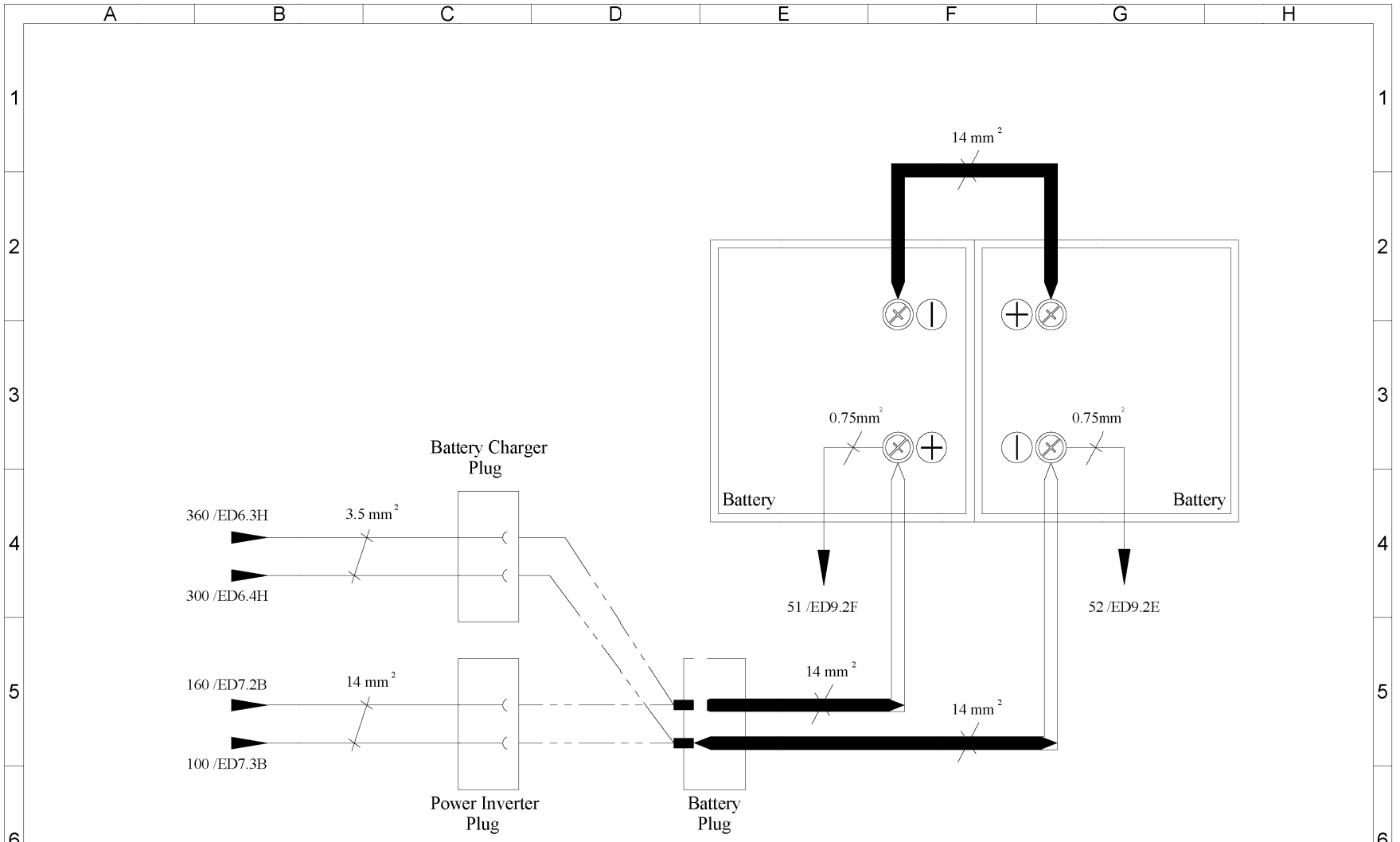
TP-502MH P.C.B.

MACHINE MODEL	TP-502MHB/MVB	DRAWING NO	MHVB-0416-1	PAGE	ED5

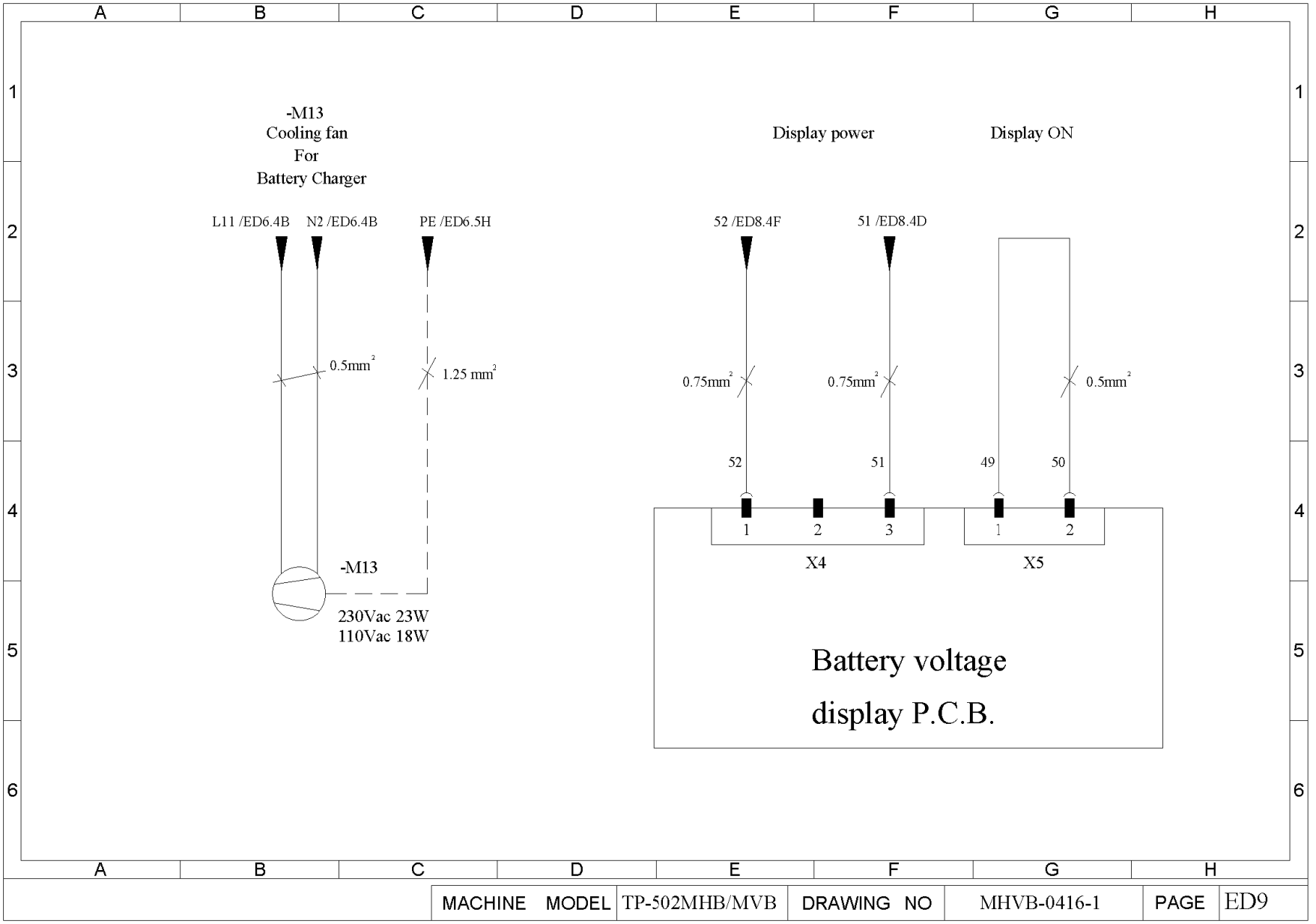

A
B
C
D
E
F
G
H
1
2
3
4
5
6
L11
N2
PE
1.5 mm²
L11
N2
L
N
PE
DC output
/ V+
DC output
/ V-
V+
360
5.5 mm²
360 /ED8.4B
V-
300
5.5 mm²
300 /ED8.4B
L11 /ED9.2B
N2 /ED9.2B
PE /ED7.3B
PE /ED9.2C
1.25 mm²
Power Source 1~
Input Power
Wire:1.5mm²x 3C
220Vac / 50Hz / 60Hz
4A < Fuse < 6A
Wire:14AWG x 3C
110Vac / 60Hz
7A < Fuse < 9A
-U1
Battery Charger
INPUT: 90 - 132 Vac
180 - 264 Vac
OUTPUT: 26 - 28.8 Vdc
360W / 12.5A
MACHINE MODEL
TP-502MHB/MVB
DRAWING NO
MHVB-0416-1
PAGE
ED6

-B11-


A
B
C
D
E
F
G
H
1
2
3
4
5
6
160 /ED8.5B
14 mm 2
36
DC input /
+
100 /ED8.5B
14 mm 2
30
DC input /
-
PE /ED6.5H
PE
5.5 mm 2
AC output
/ L
L /ED2.1A
AC output
/ N
N /ED2.2A
PE
PE /ED2.2A
-U2
Power Inverter
INPUT: 21 - 30 Vdc 38A
OUTPUT: 200 - 240 Vac
700W / 3.5A
OUTPUT: 100 - 120 Vac
700W / 7A
MACHINE MODEL
TP-502MHB/MVB
DRAWING NO
MHVB-0416-1
PAGE
ED7

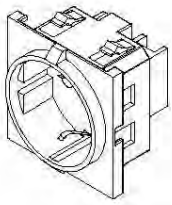
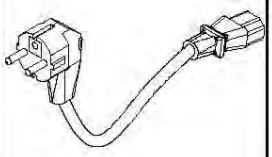
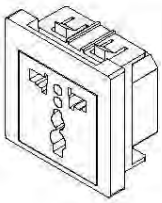
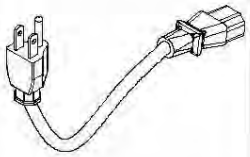


MACHINE MODEL	TP-502MHB/MVB	DRAWING NO	MHVB-0416-1	PAGE	ED8



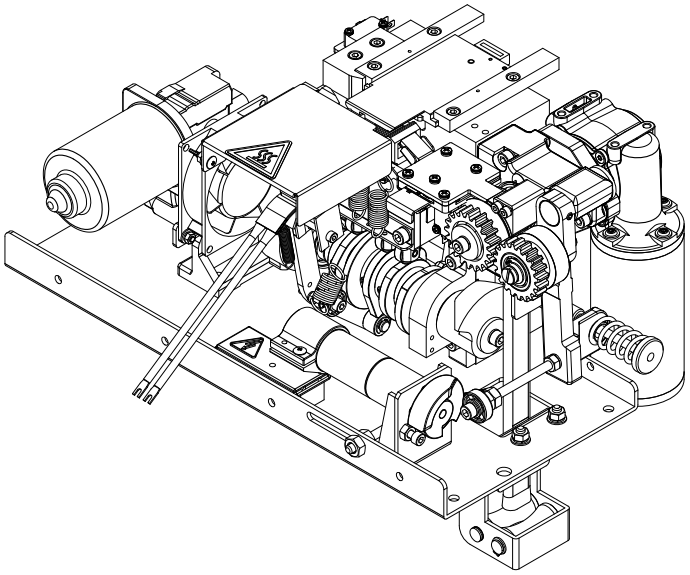
MACHINE MODEL	TP-502MHB/MVB	DRAWING NO	MHVB-0416-1	PAGE	ED9

shape	classification	shape	classification
	HBS		ER
	TMS		RR
	PMS		SR
	FMS		SP
	HB		BR
	THS		MB
	HSS		KYA
	CAP		KYB
	HN		KYC
	WN		HBW
	FLG		PWA ϕ 8x ϕ 12~ ϕ 16x0.8~1.2t ϕ 6x ϕ 13~ ϕ 14x0.8~1.2t
	NTE		PWB ϕ 8x ϕ 14~ ϕ 16x1.2~1.5t ϕ 6x ϕ 15~ ϕ 16x1.2~1.5t
	PN		PWC ϕ 8x ϕ 20~ ϕ 23x2.0t ϕ 6x ϕ 16~ ϕ 19x2.0t
	PW		PWD
	SW		DS
	TW		TTP
	BWW		FTP

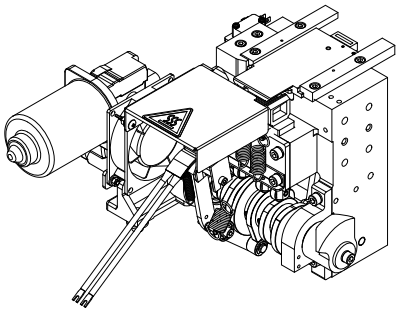
shape	classification	shape	classification
	T2-6-30230 UPS Outlet (Europe)		T2-6-30240 UPS Cable (Europe)
	T2-6-30231 UPS Outlet (America)		T2-6-30241 UPS Cable (America)

PART III

1 STRAPPING HEAD UNIT 5MV-1-900000



1



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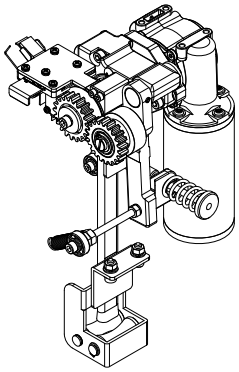

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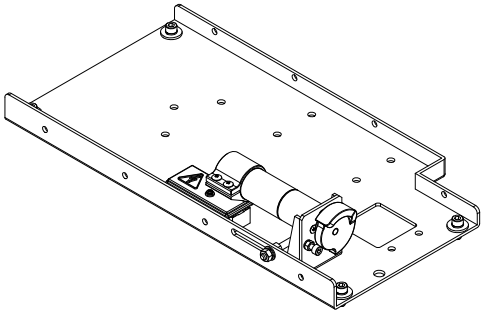
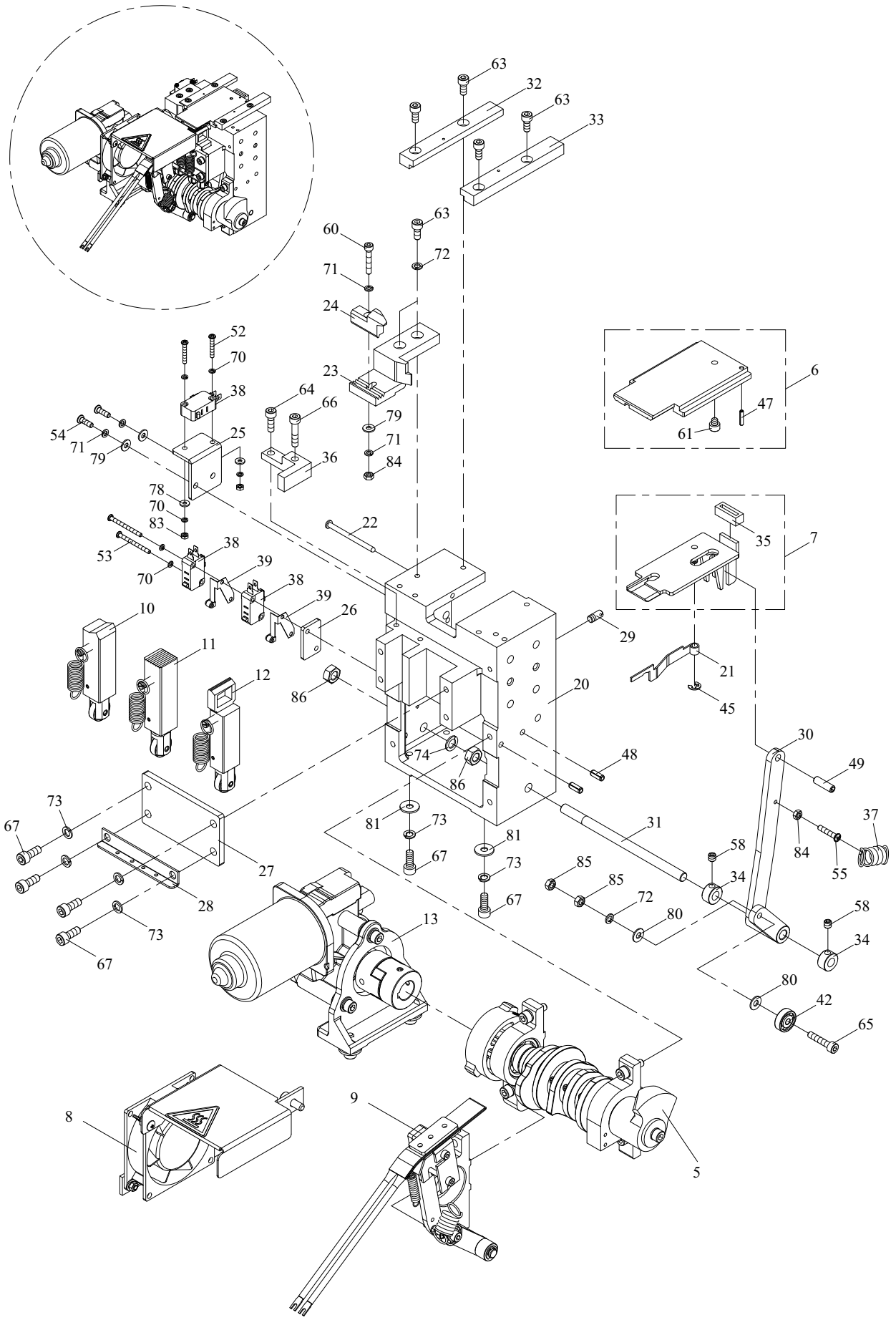


1 STRAPPING HEAD UNIT 5MV-1-900000

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	5MV-1-100000	Cam Group	1	SEE PAGE C3
2	5MV-1-200000	Feed Group	1	SEE PAGE C21
3	5MH-1-300000	Base Plate Group	1	SEE PAGE C31

1-1 CAM GROUP 5MV-1-100000



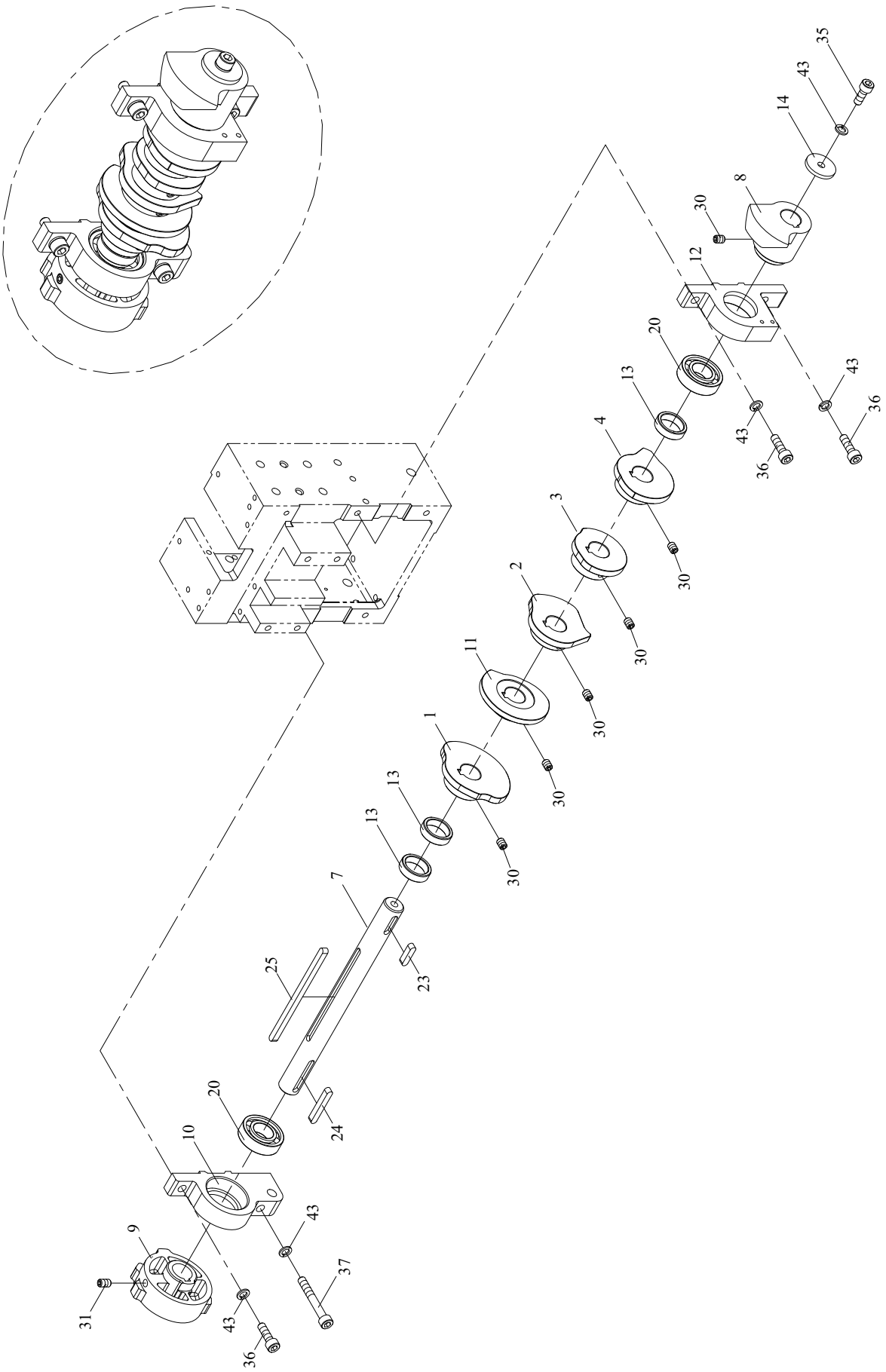
1-1 CAM GROUP 5MV-1-100000

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
5	5MH-1-110000	Cam Ass'y	1	SEE PAGE C7
6	T2-1-10240	Slide Ass'y	1	
7	T5-1-10250A	Separator Ass'y	1	
8	5MV-1-110000	Fan Ass'y	1	SEE PAGE C9
9	T5-1-12004	Heater Ass'y	1	SEE PAGE C11
10	5MH-1-120000	Rear Bar Ass'y	1	SEE PAGE C13
11	T5-1-14000	Press Bar Ass'y	1	SEE PAGE C15
12	5MH-1-130000	Front Bar Ass'y	1	SEE PAGE C17
13	T5-1-30000	Transmission Group	1	SEE PAGE C19
20	T5-1-10110	Main Body Block	1	
21	T5-1-10120	Switch Lever	1	
22	T5-1-10130	Switch Pin	1	
23	T5-1-10142	Strap Guide (A)	1	
24	5MV-1-100400	Strap Guide (B)	1	
25	T5-1-10160	Switch Bracket	1	
26	T5-1-10770	Plate	1	
27	TA-067	Bar Guide Lid	1	
28	TA-072	Spring Hook	1	
29	TA-089	Spring Hook	1	
30	TA-090	Arm	1	
31	TA-094	Shaft	1	
32	TA-095	Guide (L)	1	
33	TA-226	Guide (R)	1	
34	TA-229	Collar	2	
35	TA-236	Rubber Buffer	1	
36	TA-239	Cutter Holder	1	
37	TB-114	Return Spring	1	
38	TF-006	Micro Switch	3	
39	TF-009	Switch Trigger	2	
42	BR635ZZ	Bearing, 635ZZ	1	
45	ER03	Snap Ring, E-3	1	
47	SP0314	Spring Pin, 3×14	1	
48	SP0512	Spring Pin, 5×12	2	
49	SP0620	Spring Pin, 6×20	1	

1-1 CAM GROUP 5MV-1-100000

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
52	PMS0320	PMS, M3×20	2	
53	PMS0335	PMS, M3×35	2	
54	PMS0412	PMS, M4×12	2	
55	PMS0420	PMS, M4×20	1	
58	HSS0606G	HSS, M6×6 (G)	2	
60	HBS0425	HBS, M4×25	1	
61	HBS0505.2	HBS, M5×5.2	1	
63	HBS0512	HBS, M5×12	6	
64	HBS0516	HBS, M5×16	1	
65	HBS0525	HBS, M5×25	1	
66	HBS0525H	HBS, M5×25 (H)	1	
67	HBS0616	HBS, M6×16	11	
70	SW03	SW, M3	6	
71	SW04	SW, M4	4	
72	SW05	SW, M5	2	
73	SW06	SW, M6	11	
74	SW08	SW, M8	1	
78	PW03	PW, M3	2	
79	PW04	PW, M4	3	
80	PW05	PW, M5	4	
81	PW06C	PW, M6 (C)	7	
83	HN03	HN, M3	2	
84	HN04	HN, M4	2	
85	HN05	HN, M5	2	
86	HN08	HN, M8	2	

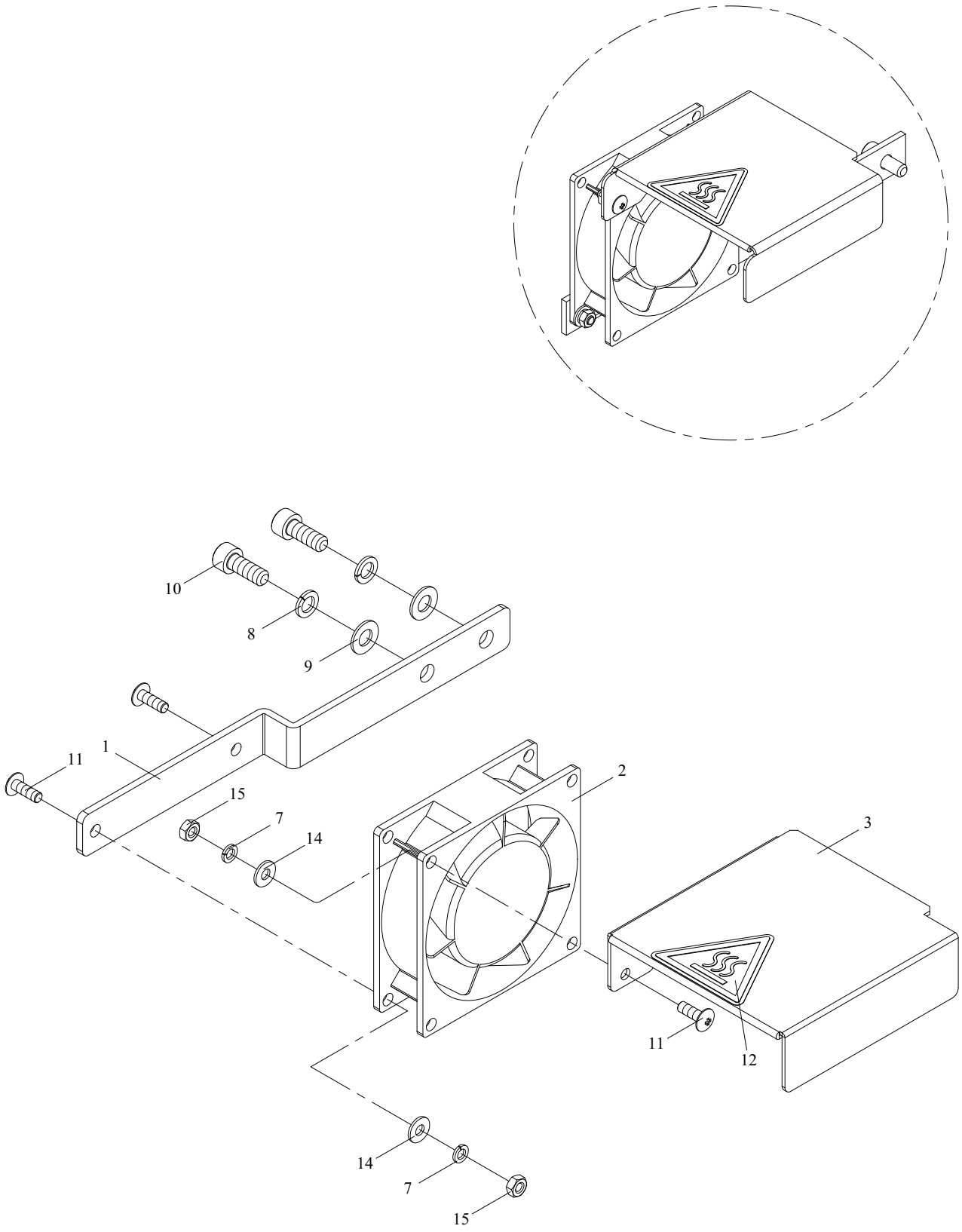
1-1-1 **CAM ASS'Y** **5MH-1-110000**



1-1-1 CAM ASS'Y 5MH-1-110000

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	5MH-1-110100	Rear Bar Cam	1	
2	5MH-1-110200	Press Bar Cam	1	
3	5MH-1-110300	Front Bar Cam	1	
4	5MH-1-110400	Slide Plate Cam	1	
7	T5-1-11121	Cam Shaft	1	
8	T5-1-11130	Tension Cam	1	
9	T5-1-11141	Limit Switch Contactor	1	
10	TA-008-2	Bearing Support (L)	1	
11	TA-015B	Heater Cam	1	
12	TA-017-2	Bearing Support (R)	1	
13	TA-241	Spacer	3	
14	TB-223	Washer	1	
20	BR6003ZZ	Bearing, 6003ZZ	2	
23	KYA050520	Key, 5×5×20	1	
24	KYA050535	Key, 5×5×35	1	
25	KYA0505101	Key, 5×5×101	1	
30	HSS0608G	HSS, M6×8 (G)	6	
31	HSS0610G	HSS, M6×10 (G)	1	
35	HBS0616	HBS, M6×16	1	
36	HBS0620	HBS, M6×20	3	
37	HBS0645H	HBS, M6×45 (H)	1	
43	SW06	SW, M6	5	

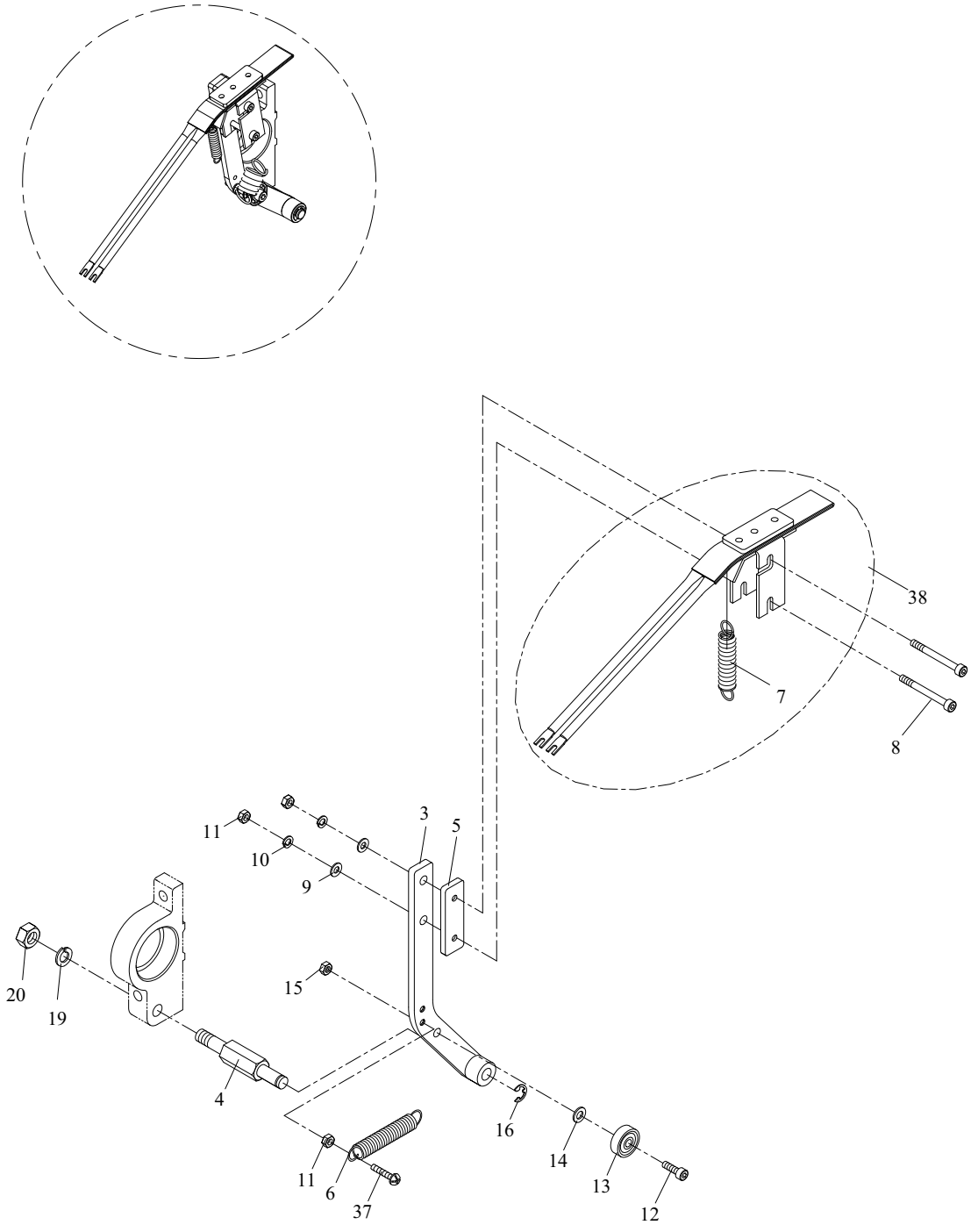
1-1-2 FAN ASS'Y 5MV-1-110000



1-1-2 FAN ASS'Y 5MV-1-110000

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	5MV-1-100100	Fan Support	1	
2	T5-1-12370	Fan	1	
3	5MV-1-100300	Fan Cover	1	
7	SW04	SW, M4	4	
8	SW06	SW, M6	2	
9	PW06A	PW, M6 (A)	2	
10	HBS0616	HBS, M6×16	2	
11	TMS0412	TMS, M4×12	4	
12	LA-40002	Label	1	
14	PW04	PW, M4	4	
15	HN04	HN, M4	4	

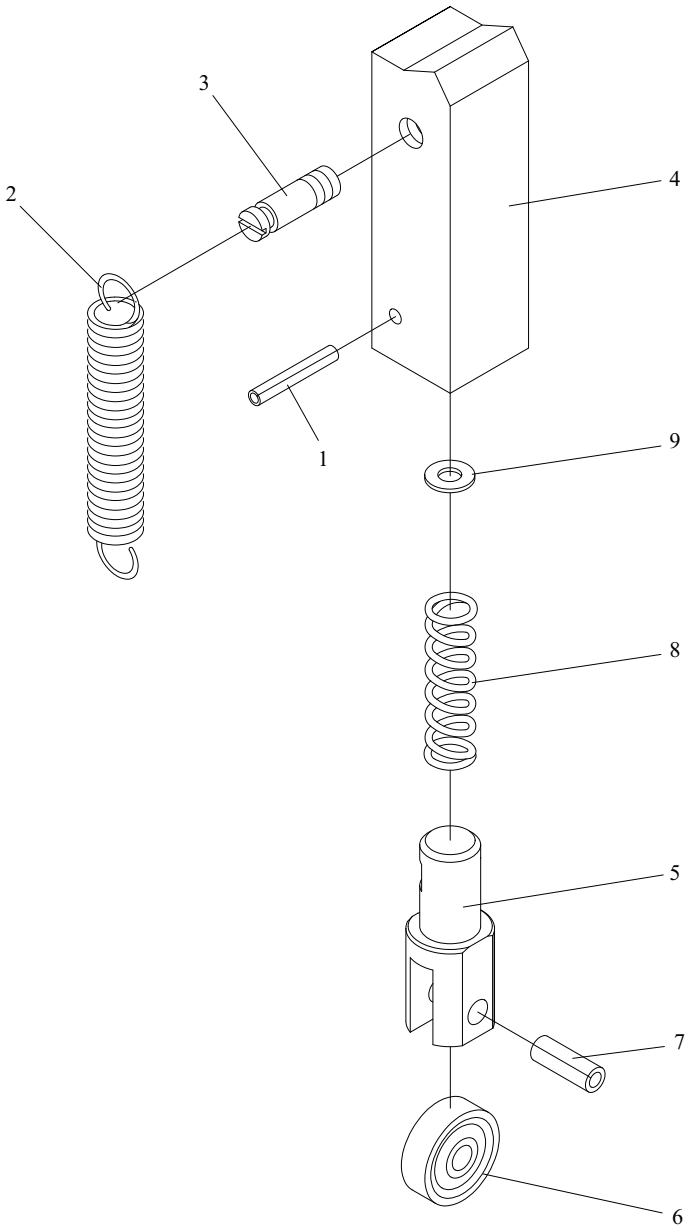
1-1-3 HEATER ASS'Y T5-1-12004



1-1-3 HEATER ASS'Y T5-1-12004

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
3	TB-102	Heater Arm	1	
4	TB-103	Pin	1	
5	TB-107	Side Plate	1	
6	TB-114	Return Spring	1	
7	TB-115	Spring	1	
8	HBS0440H	HBS, M4×40 (H)	2	
9	PW04	PW, M4	2	
10	SW04	SW, M4	2	
11	HN04	HN, M4	3	
12	HBS0516	HBS, M5×16	1	
13	BR635ZZ	Bearing, 635ZZ	1	
14	PW05	PW, M5	1	
15	HN05	HN, M5	1	
16	ER06	Snap Ring, E-6	1	
19	SW08	SW, M8	1	
20	HN08	HN, M8	1	
37	PMS0412	PMS, M4×12	1	
38	TB-113	Heater Ass'y	1	

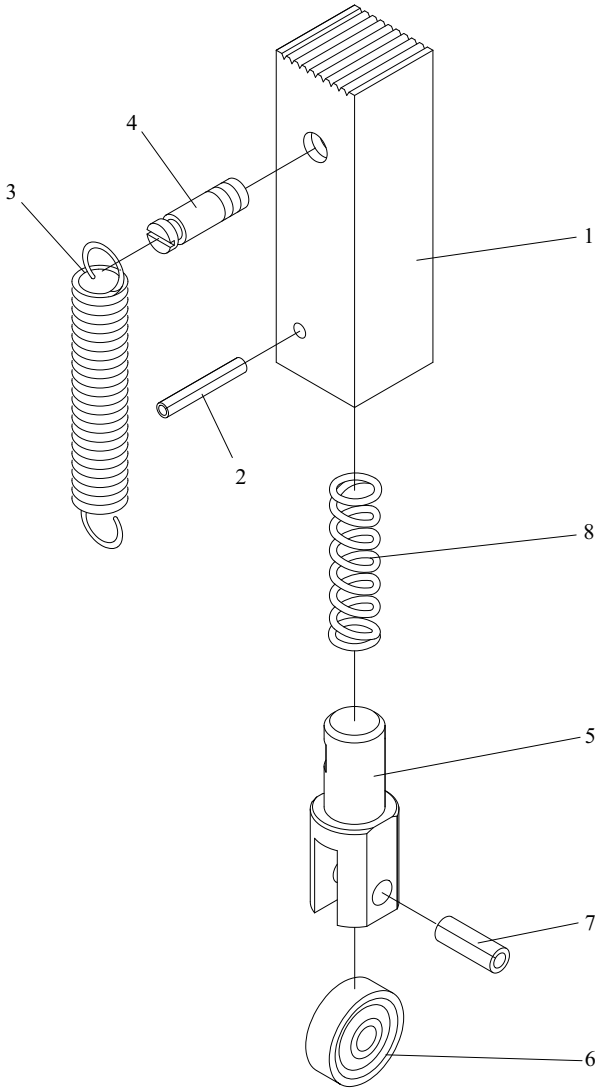
1-1-4 REAR BAR ASS'Y 5MH-1-120000



1-1-4 REAR BAR ASS'Y 5MH-1-120000

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	SP0318	Spring Pin, 3×18	1	
2	TA-071	Return Spring	1	
3	TA-073	Spring Hook	1	
4	TA-074	Rear Bar	1	
5	TA-075	Plunger	1	
6	BR635ZZ	Bearing, 635ZZ	1	
7	SP0514	Spring Pin, 5×14	1	
8	TA-078	Spring	1	
9	PW04	PW, M4	1	

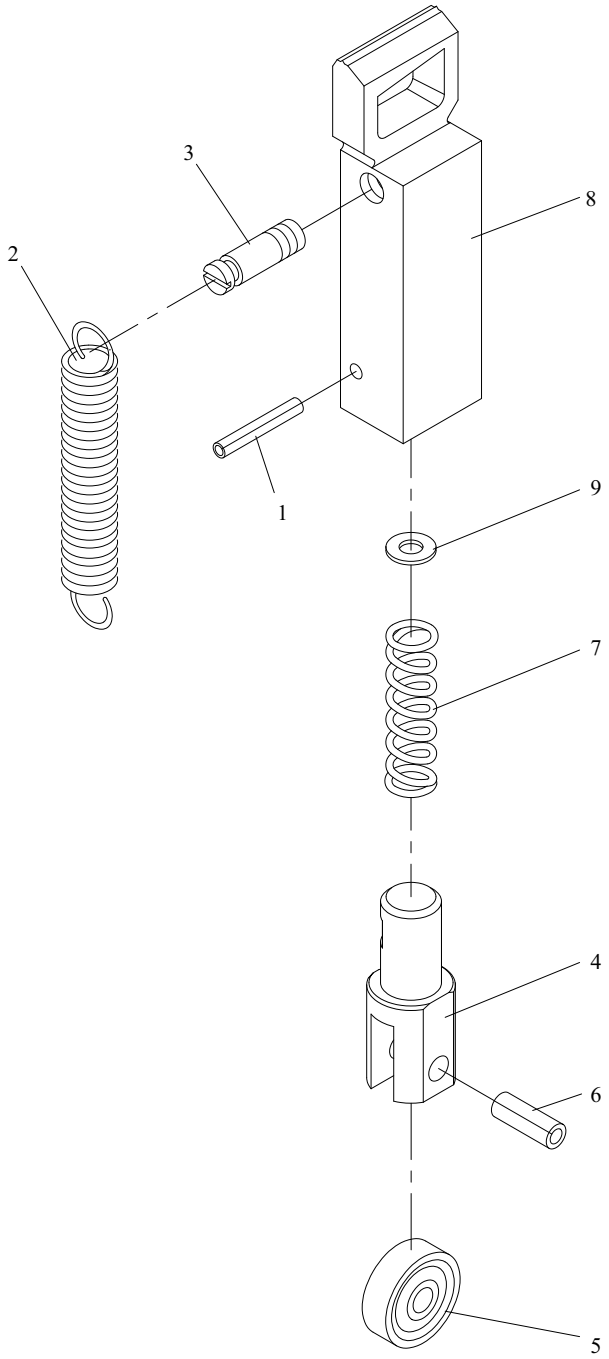
1-1-5 PRESS BAR ASS'Y T5-1-14000



1-1-5 PRESS BAR ASS'Y T5-1-14000

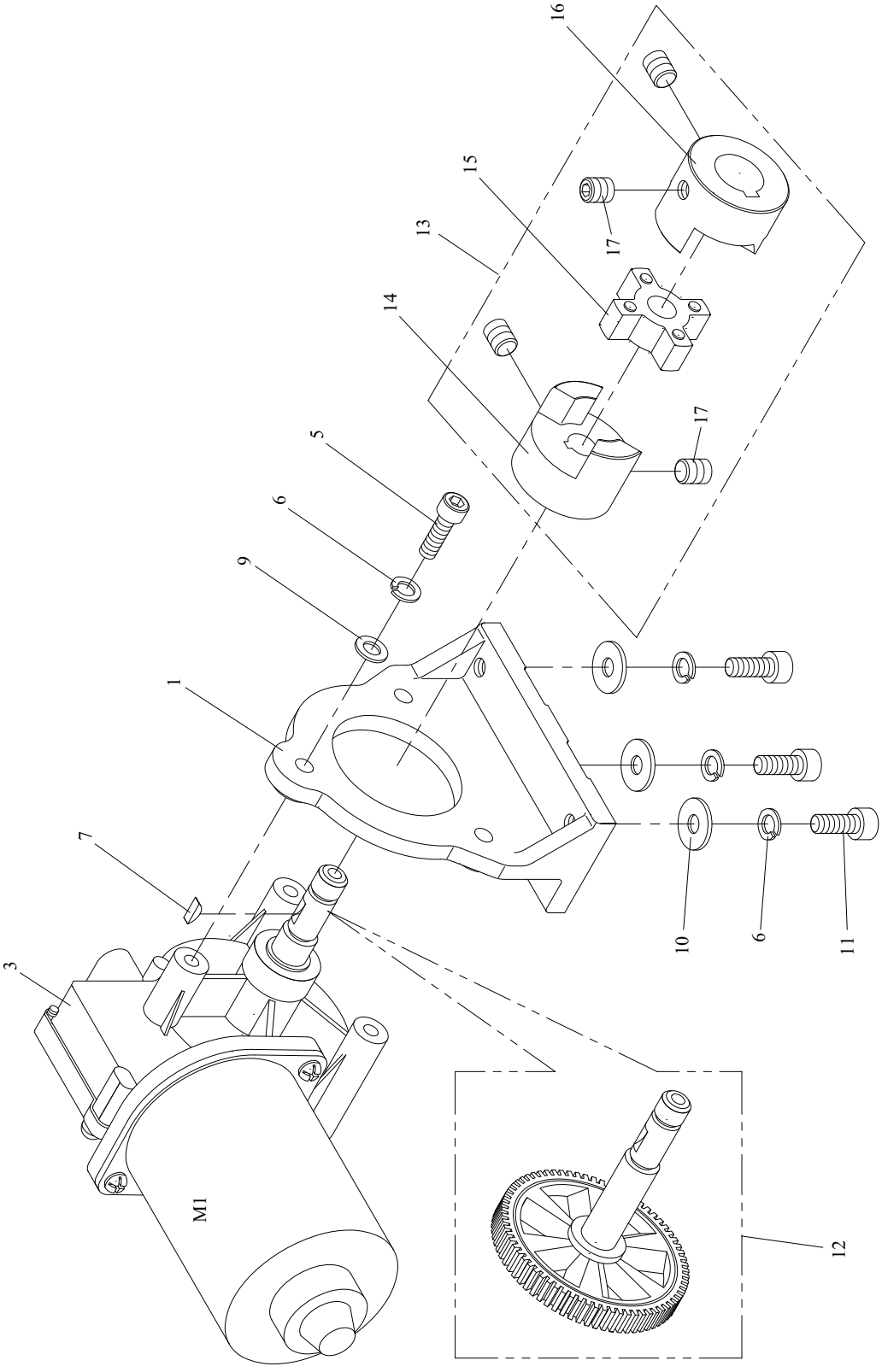
REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	TA-069	Press Par	1	
2	SP0318	Spring Pin, 3×18	1	
3	TA-071	Return Spring	1	
4	TA-073	Spring Hook	1	
5	TA-075	Plunger	1	
6	BR635ZZ	Bearing, 635ZZ	1	
7	SP0514	Spring Pin, 5×14	1	
8	TA-078	Spring	1	

1-1-6 FRONT BAR ASS'Y 5MH-1-130000



1-1-6 FRONT BAR ASS'Y 5MH-1-130000

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	SP0318	Spring Pin, 3×18	1	
2	TA-071	Return Spring	1	
3	TA-073	Spring Hook	1	
4	TA-075	Plunger	1	
5	BR635ZZ	Bearing, 635ZZ	1	
6	SP0514	Spring Pin, 5×14	1	
7	TA-078	Spring	1	
8	TA-079	Front Bar	1	
9	PW04	PW, M4	1	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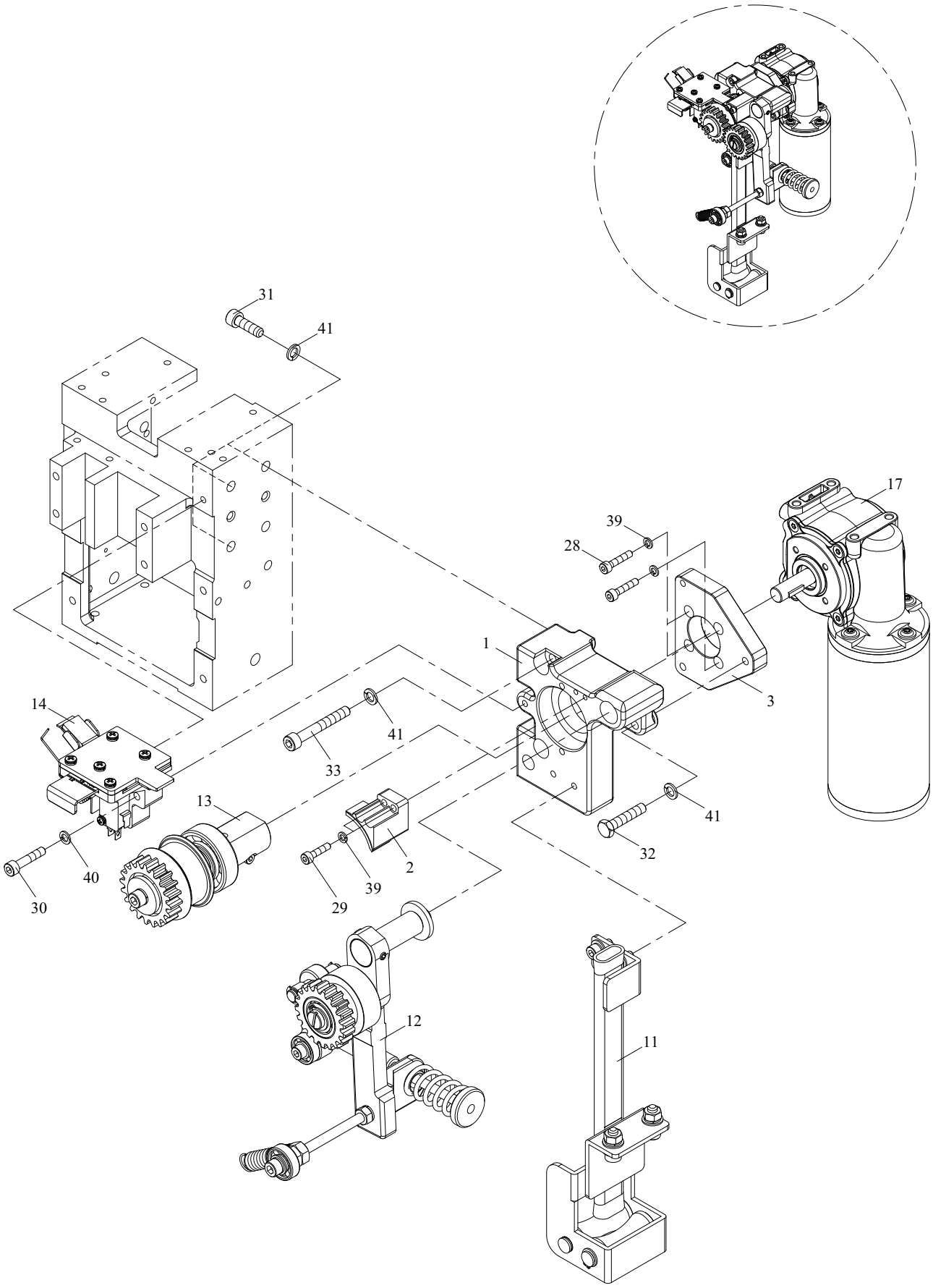
1-1-7 TRANSMISSION GROUP T5-1-30000

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	T5-1-30110	Main Motor Support	1	
3	T5-1-30130	Motor (M1)	1	
5	HBS0625	HBS, M6×25	3	
6	SW06	SW, M6	6	
7	KYC0310	Key, 3×10	1	
9	PW06A	PW, M6 (A)	3	
10	PW06C	PW, M6 (C)	3	
11	HBS0616	HBS, M6×16	3	
12	T5-1-30220	Worm Gear for M1 Motor	1	
13	T5-1-30230	Flexible Coupling	1	
14	T5-1-30240	Hub (L.H.)	1	
15	T5-1-30250	Flexible Spacer	1	
16	T5-1-30260	Hub (R.H.)	1	
17	HSS0608GN	HSS, M6×8 (G)(N)	4	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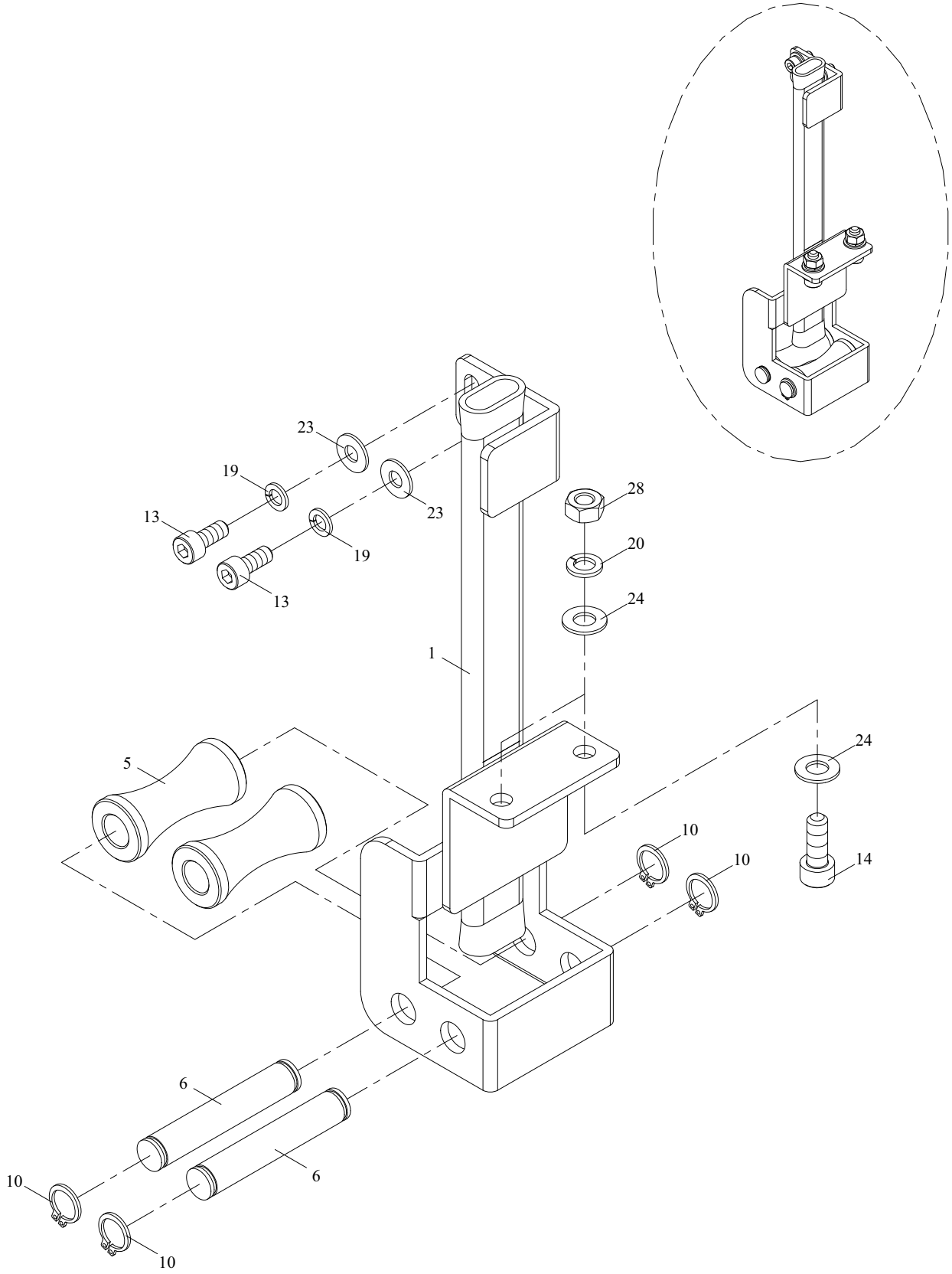
1-2 FEED GROUP 5MV-1-200000

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	5MH-1-200100	Bracket	1	
2	5MH-1-200200	Guide	1	
3	5MH-1-200300	Motor Bracket	1	
11	5MV-1-210000	Feed Shooter Ass'y	1	SEE PAGE C23
12	5MV-1-220000	Roller Arm Ass'y	1	SEE PAGE C25
13	5MH-1-230000	Main Roller Ass'y	1	SEE PAGE C27
14	5MH-1-240000	Strap Guide Ass'y	1	SEE PAGE C29
17	5MH-1-200400	Motor (M2)	1	
28	HBS0420	HBS, M4×20	4	
29	HBS0416	HBS, M4×16	2	
30	HBS0525H	HBS, M5×25 (H)	2	
31	HBS0620	HBS, M6×20	3	
32	HB0630	HB, M6×30	1	
33	HBS0645H	HBS, M6×45 (H)	1	
34	HBS0545H	HBS, M5×45 (H)	1	
39	SW04	SW, M4	6	
40	SW05	SW, M5	3	
41	SW06	SW, M6	6	

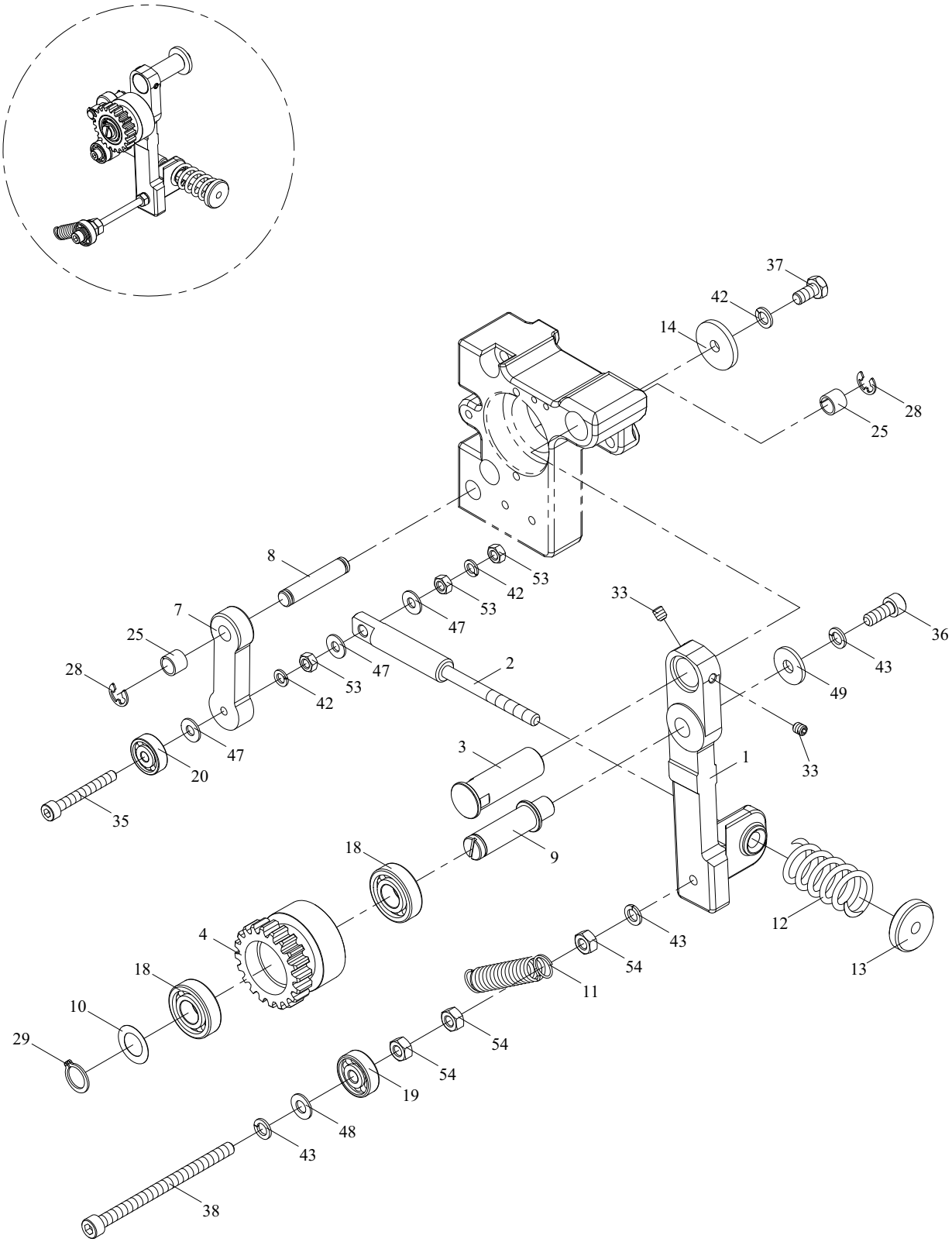
1-2-1 FEED SHOOTER ASS'Y 5MV-1-210000



1-2-1 FEED SHOOTER ASS'Y 5MV-1-210000

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	5MV-1-210100	Feed Shooter	1	
5	T2-3-10260	Roller	2	
6	TD-048	Shaft	2	
10	SR10	Snap Ring, S-10	4	
13	HBS0512	HBS, M5×12	2	
14	HBS0616	HBS, M6×16	2	
19	SW05	SW, M5	2	
20	SW06	SW, M6	2	
23	PW05	PW, M5	2	
24	PW06A	PW, M6 (A)	4	
28	HN06	HN, M6	2	

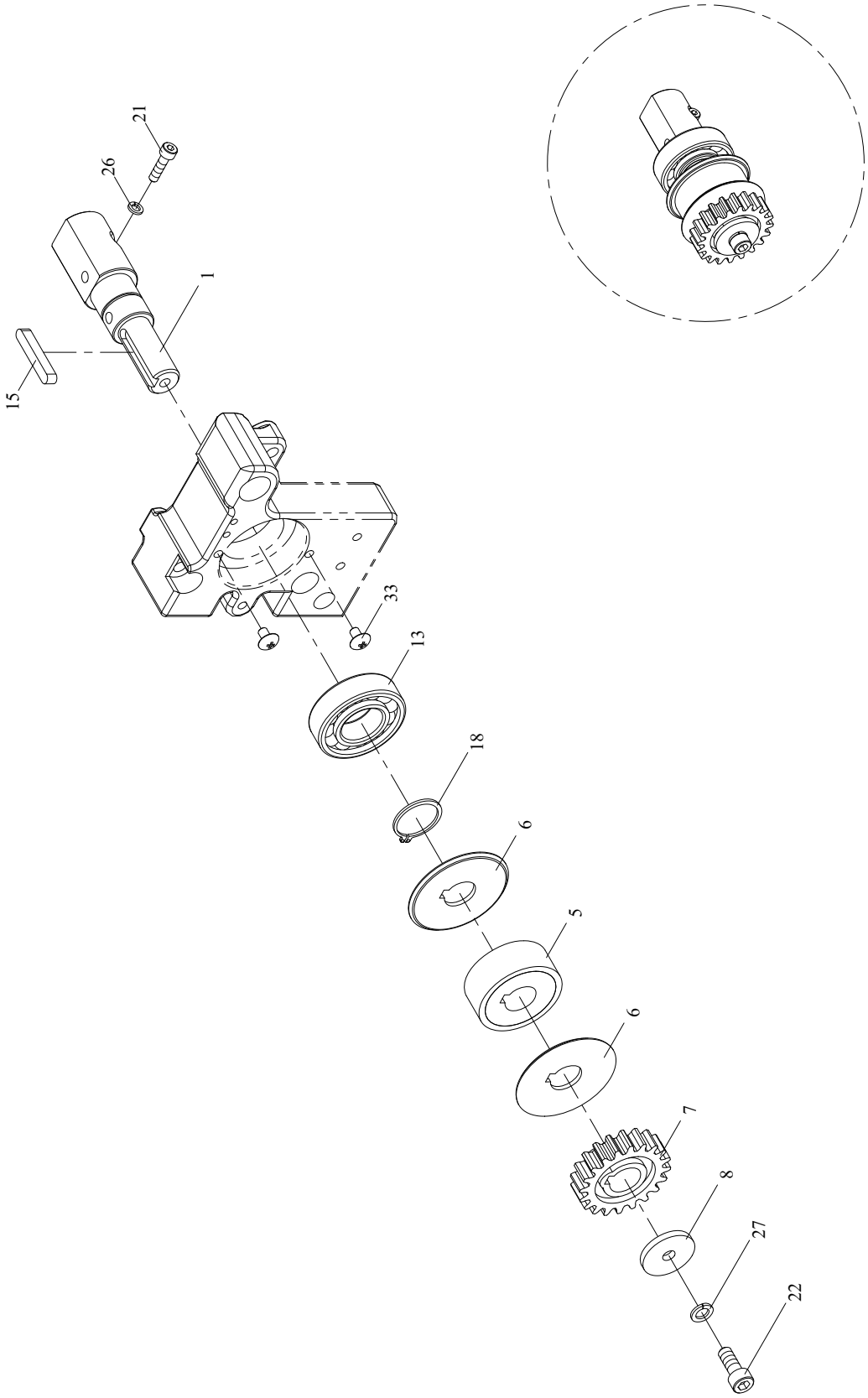
1-2-2 ROLLER ARM ASS'Y 5MV-1-220000



1-2-2 ROLLER ARM ASS'Y 5MV-1-220000

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	5MH-1-220100	Roller Arm	1	
2	5MH-1-220200	Connect Rod	1	
3	5MH-1-220300	Shaft	1	
4	5MH-1-220400	Roller	1	
7	T5-1-22110	Tension Arm	1	
8	T5-1-22120	Shaft	1	
9	T5-1-22171	Roller Shaft	1	
10	T5-1-22380	Spacer	1	
11	T6-3-10120	Accumulator Balance Spring	1	
12	T7-1-22200	Spring	1	
13	TB-133	Nut	1	
14	TB-223	Washer	1	
18	BR6001ZZ	Bearing, 6001ZZ	2	
19	BR636-2RS	Bearing, 636 2RS	1	
20	BR635ZZ	Bearing, 635ZZ	1	
25	MB0808	Metal Bushing, 0808	2	
28	ER06	Snap Ring, E-6	2	
29	SR12	Snap Ring, S-12	1	
33	HSS0506G	HSS, M5×6 (G)	2	
35	HBS0540	HBS, M5×40	1	
36	HBS0616	HBS, M6×16	1	
37	HB0612	HB, M6×12	1	
38	HBS0690	HBS, M6×90	1	
42	SW05	SW, M5	2	
43	SW06	SW, M6	4	
47	PW05	PW, M5	3	
48	PW06A	PW, M6 (A)	1	
49	PW06C	PW, M6 (C)	1	
53	HN05	HN, M5	3	
54	HN06	HN, M6	3	

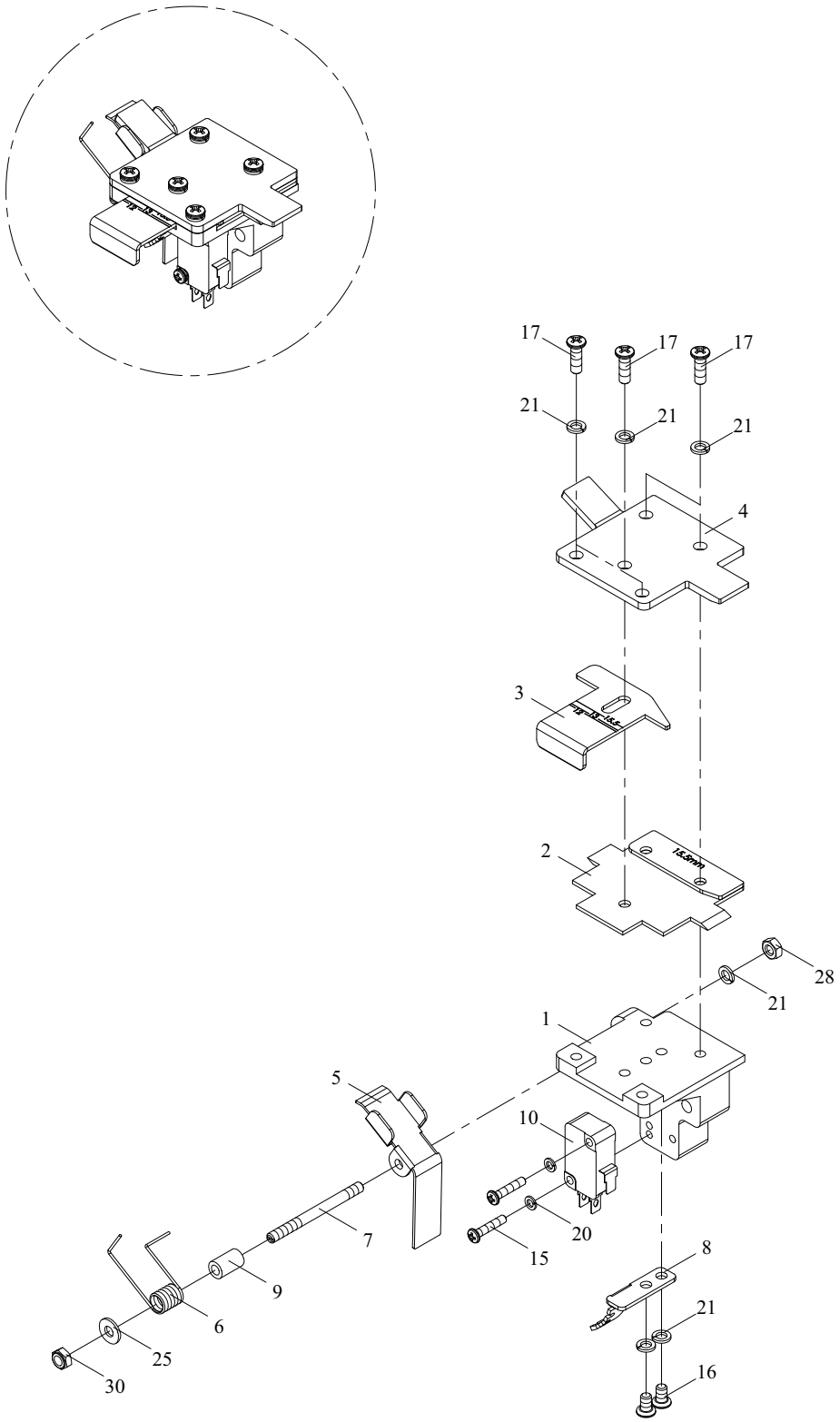
1-2-3 MAIN ROLLER ASS'Y 5MH-1-230000



1-2-3 MAIN ROLLER ASS'Y 5MH-1-230000

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	5MH-1-230100	Main Roller Shaft	1	
5	T5-1-21122	Main Roller	1	
6	T5-1-21130	Side Plate	2	
7	T5-1-21160	Gear	1	
8	TB-223	Washer	1	
13	BR6004-2RS	Bearing, 6004 2RS	1	
15	KYA050532	Key, 5×5×32	1	
18	SR20	Snap Ring, S-20	1	
21	HBS0416	HBS, M4×16	1	
22	HBS0616	HBS, M6×16	1	
26	SW04	SW, M4	1	
27	SW06	SW, M6	1	
33	TMS0508	TMS, M5×8	2	

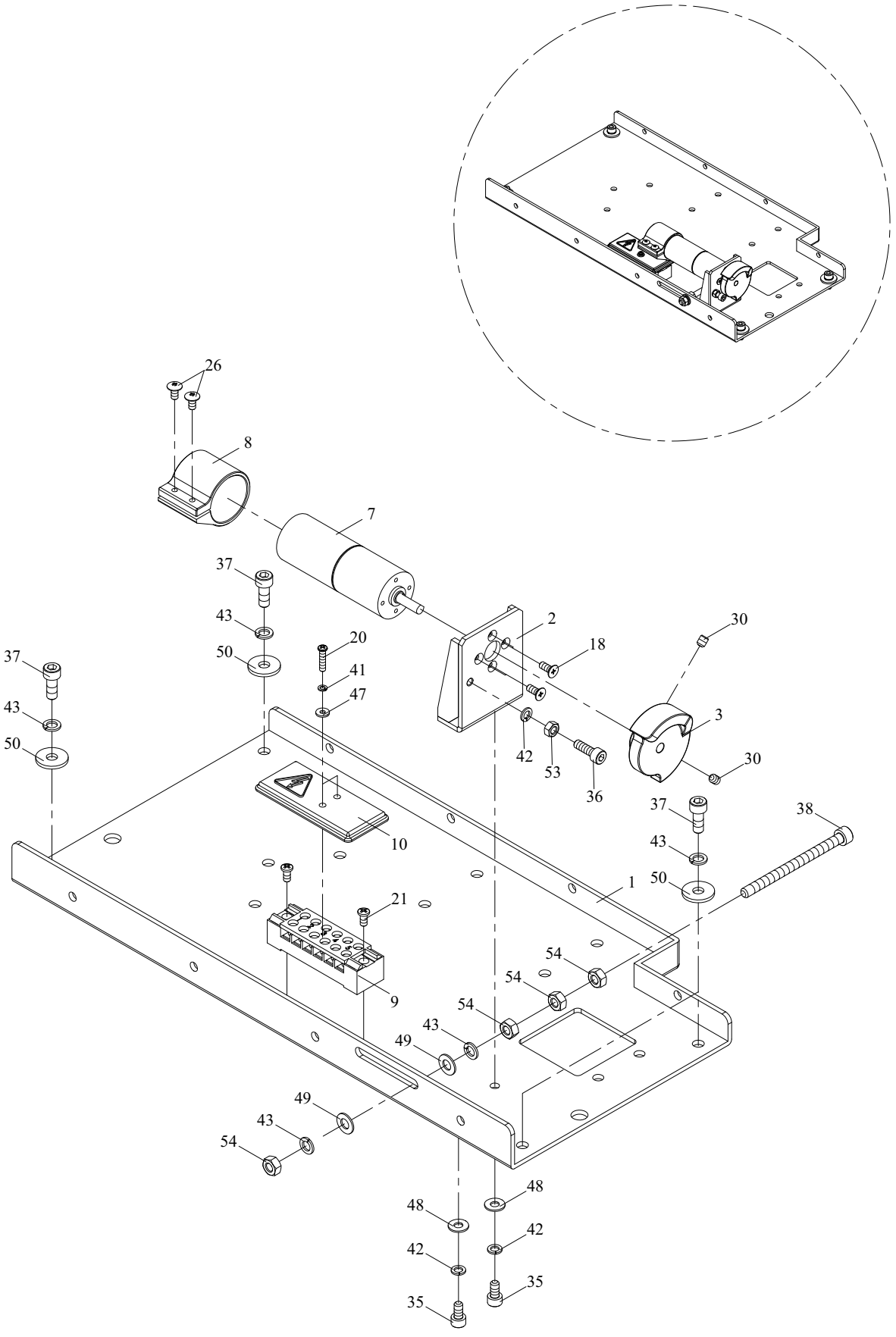
1-2-4 STRAP GUIDE ASS'Y 5MH-1-240000



1-2-4 STRAP GUIDE ASS'Y 5MH-1-240000

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	T5-1-24110	Strap Guide Support	1	
2	T5-1-24122	Strap Guide (A)	1	
3	T5-1-24132	Strap Guide (B)	1	
4	T5-1-24144	Strap Guide Cover	1	
5	T5-1-24152	Strap Guide (C)	1	
6	T5-1-24183	Spring	1	
7	T5-1-24191	Spring Shaft	1	
8	T5-1-24260	Tension Socket	1	
9	T5-1-24270	Spring Bushing	1	
10	TF-006	Micro Switch	1	
15	PMS0315	PMS, M3×15	2	
16	PMS0406	PMS, M4×6	2	
17	PMS0412	PMS, M4×12	5	
20	SW03	SW, M3	2	
21	SW04	SW, M4	8	
25	PW04	PW, M4	1	
28	HN04	HN, M4	1	
30	NTE04	NTE, M4	1	

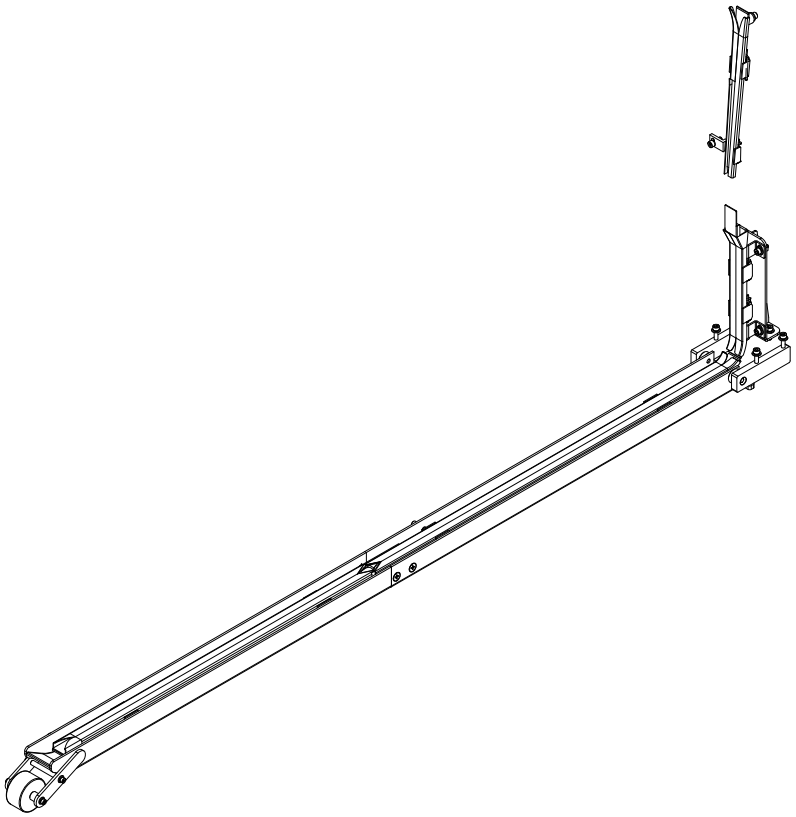
1-3 BASE PLATE GROUP 5MH-1-300000



1-3 BASE PLATE GROUP 5MH-1-300000

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	5MH-1-300100	Base Plate	1	
2	5MH-1-300200	Motor Bracket	1	
3	5MH-1-300300	Tension Cam	1	
7	T6-1-61211	Motor (M5)	1	
8	T6-8-10410	Motor Cover	1	
9	TF-015	Terminal Bracket	1	
10	TF-016	Cover	1	
18	FMS0410	FMS, M4×10	4	
20	PMS03.515	PMS, M3.5×15	2	
21	PMS0408	PMS, M4×8	2	
26	TMS0408	TMS, M4×8	2	
30	HSS0506G	HSS, M5×6 (G)	2	
35	HBS0510	HBS, M5×10	2	
36	HBS0516	HBS, M5×16	1	
37	HBS0616	HBS, M6×16	4	
38	HBS0690	HBS, M6×90	1	
41	SW03	SW, M3	2	
42	SW05	SW, M5	3	
43	SW06	SW, M6	6	
47	PW03	PW, M3	2	
48	PW05	PW, M5	2	
49	PW06A	PW, M6 (A)	2	
50	PW06C	PW, M6 (C)	4	
53	HN05	HN, M5	1	
54	HN06	HN, M6	4	

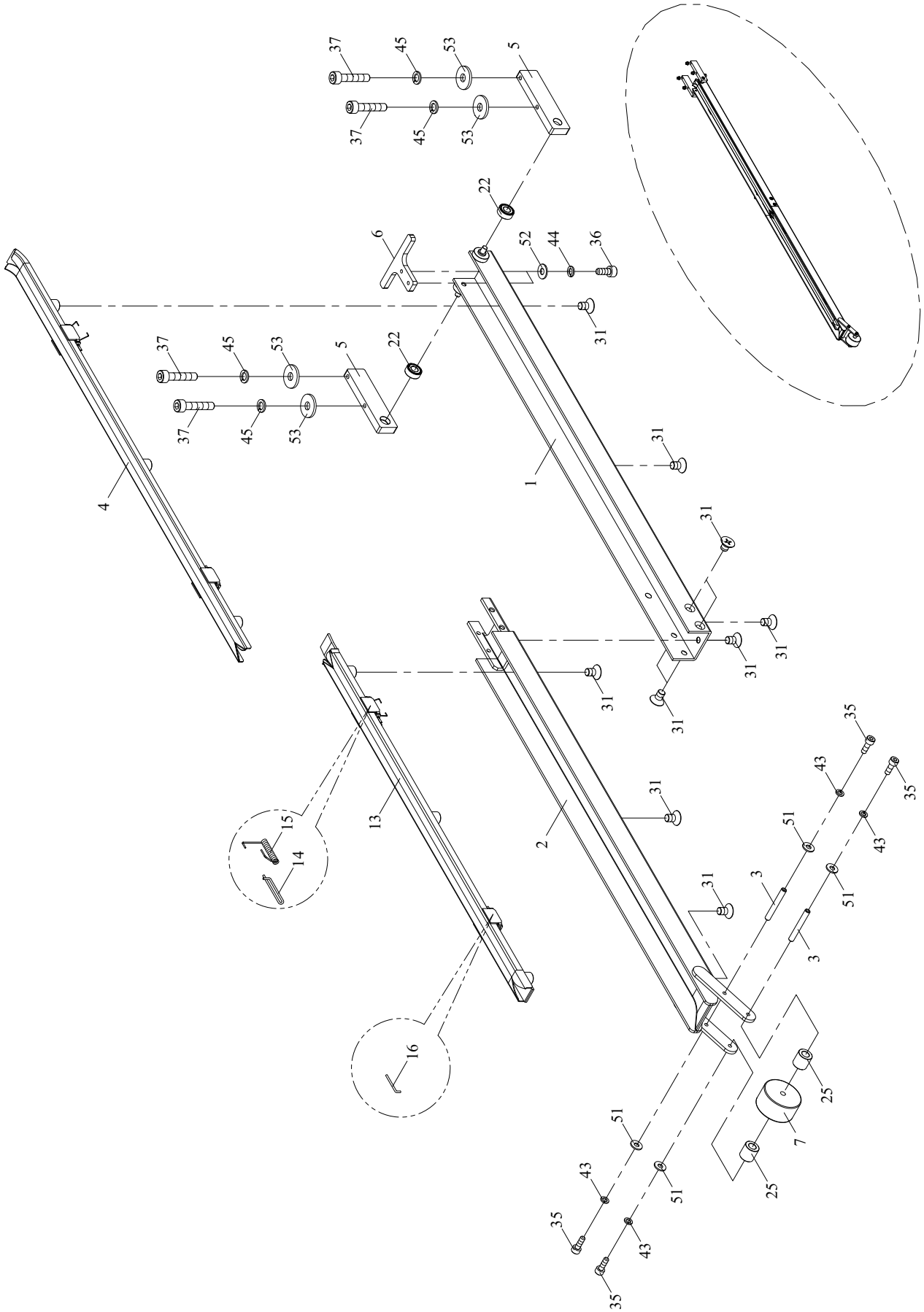
2 **BANDWAY UNIT** **5MV-2-900000**
5MV-2-900010



2 BANDWAY UNIT 5MV-2-900000 5MV-2-900010

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
	5MV-2-900000	Bandway Unit (For 9mm)	1	
	5MV-2-900010	Bandway Unit (For 12mm)	1	
	5MV-2-900020	Bandway Unit (For 15mm)	1	
1	5MV-2-100000	Sword Group	1	SEE PAGE C35
2	5MV-2-200000	Bandway Group (For 9mm)	1	SEE PAGE C37
	5MV-2-200010	Bandway Group (For 12mm)	1	
	5MV-2-200020	Bandway Group (For 15mm)	1	

2-1 SWORD GROUP 5MV-2-100000

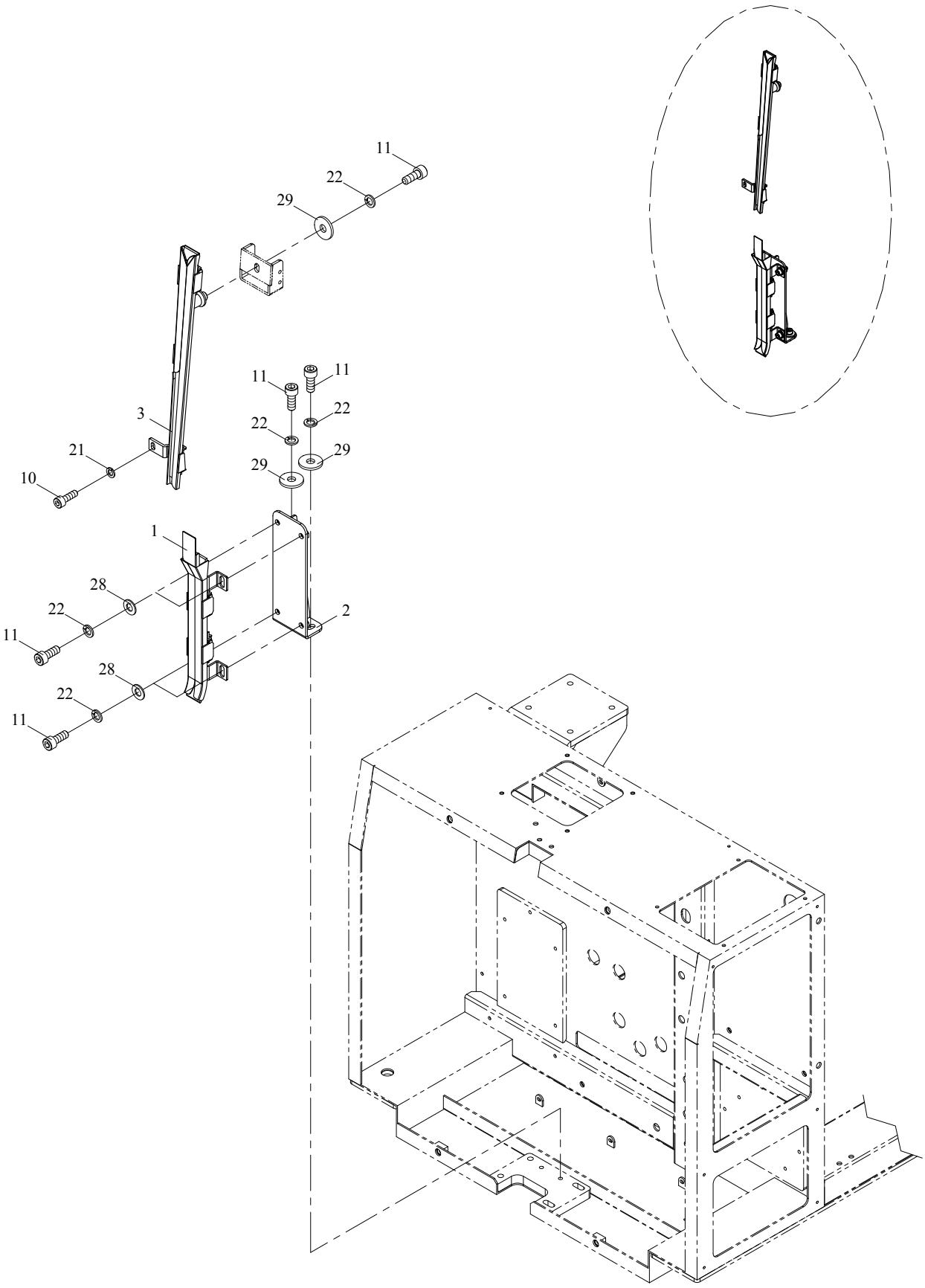


2-1 SWORD GROUP 5MV-2-100000

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	5MV-2-100100	Rear Bandway Rack	1	
2	5MV-2-100200	Front Bandway Rack	1	
3	5MV-2-100300	Shaft	2	
4	5MV-2-100400	RH Bandway Ass'y	1	
5	5MV-2-100500	Bracket	2	
6	5MV-2-100600	Bandway Ass'y Support	1	
7	5MV-2-100700	Wheel	1	
13	T2-2-10100	LH Bandway Ass'y	1	
14	T6-2-11140	RH Bandway Flap Pin (Rear)	4	
15	T6-2-11150	RH Bandway Flap Spring	4	
16	T6-2-11160	RH Bandway Flap Pin (Front)	4	
22	BR686ZZ	Bearing, 686ZZ	2	
25	MCO-A-0651200	Spacer	2	
31	FMS0610	FMS, M6×10	11	
35	HBS0412N	HBS, M4×12 (N)	4	
36	HBS0512N	HBS, M5×12 (N)	2	
37	HBS0630N	HBS, M6×30 (N)	4	
43	SW04	SW, M4	4	
44	SW05	SW, M5	2	
45	SW06	SW, M6	4	
51	PW04	PW, M4	4	
52	PW05	PW, M5	2	
53	PW06C	PW, M6 (C)	4	

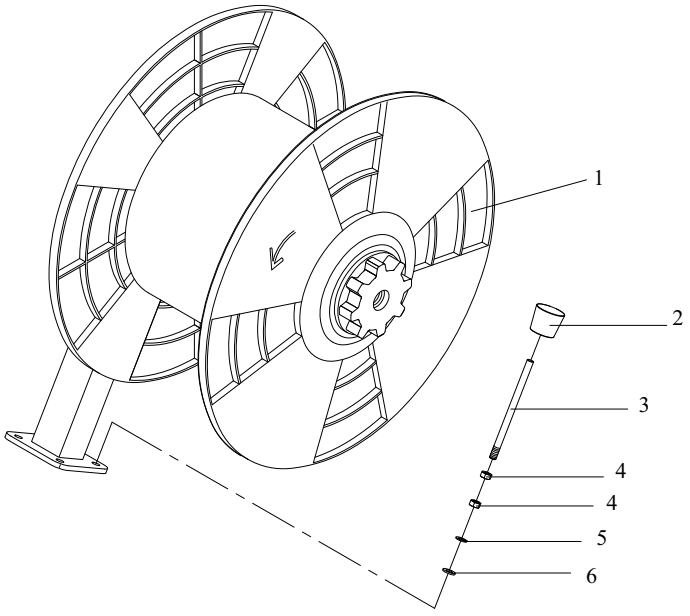
2-2 BANDWAY GROUP

5MV-2-200000
5MV-2-200010



2-2 BANDWAY GROUP 5MV-2-200000 5MV-2-200010

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
	5MV-2-200000	Bandway Group (For 9 mm)	1	
	5MV-2-200010	Bandway Group (For 12 mm)	1	
	5MV-2-200020	Bandway Group (For 15.5 mm)	1	
1	5MV-2-200100	LH Bandway Ass'y	1	
2	5MV-2-200200	LH Bandway Plate	1	
3	5MV-2-200301	RH Bandway Ass'y (For 9 mm)	1	
	5MV-2-200311	RH Bandway Ass'y (For 12 mm)	1	
	5MV-2-200321	RH Bandway Ass'y (For 15.5 mm)	1	
10	HBS0516N	HBS, M5×16 (N)	1	
11	HBS0616N	HBS, M6×16 (N)	7	
21	SW05	SW, M5	1	
22	SW06	SW, M6	7	
28	PW06A	PW, M6 (A)	4	
29	PW06C	PW, M6 (C)	3	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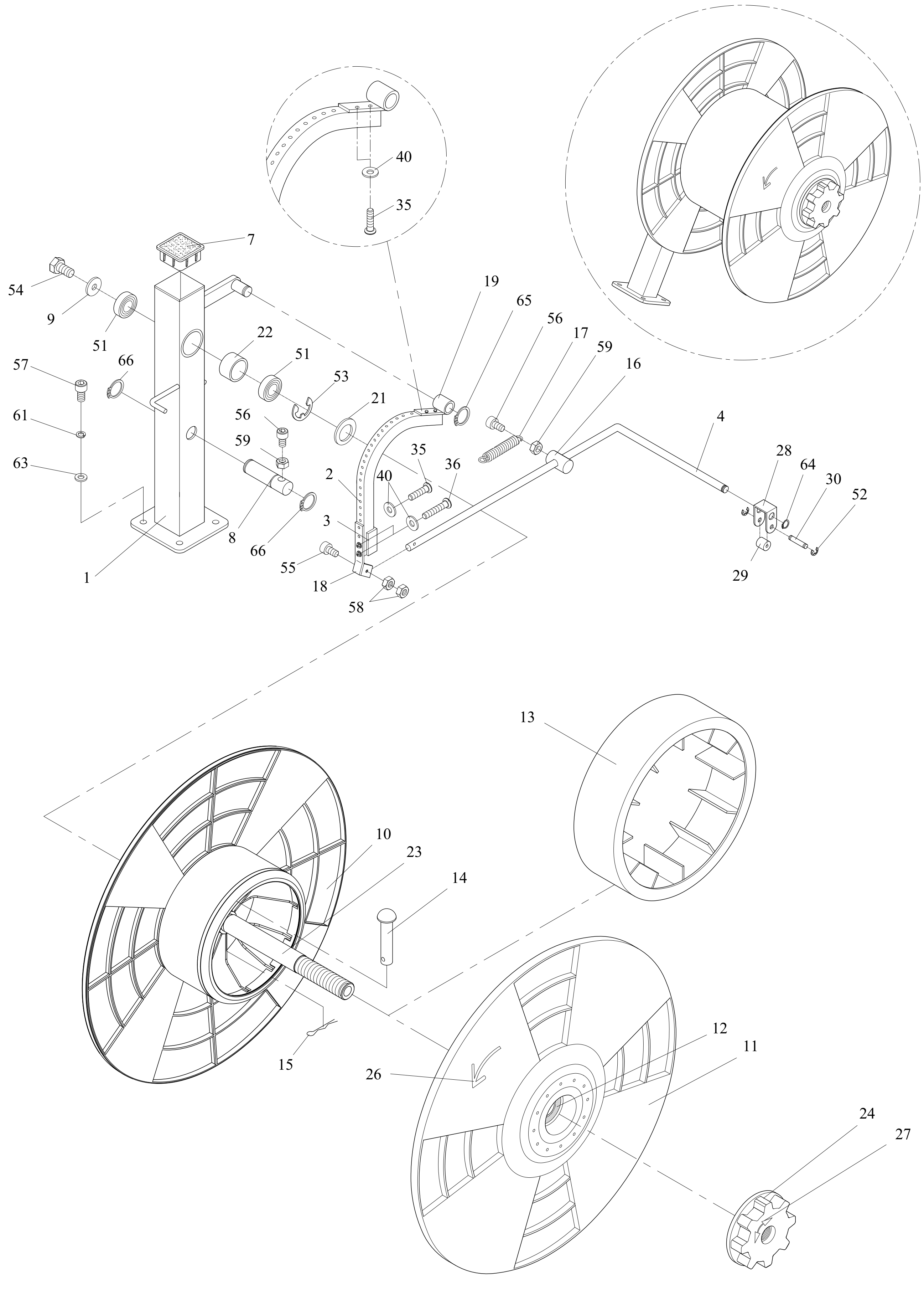
3 REEL UNIT T2-4-90002

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	T6-4-20002	Reel Control Group (For 200mm)	1	SEE PAGE C41
2	TL-023	Stopper	1	
3	TL-024	Bolt	1	
4	HN08	HN, M8	2	
5	SW08	SW, M8	1	
6	PW08C	PW, M8(C)	1	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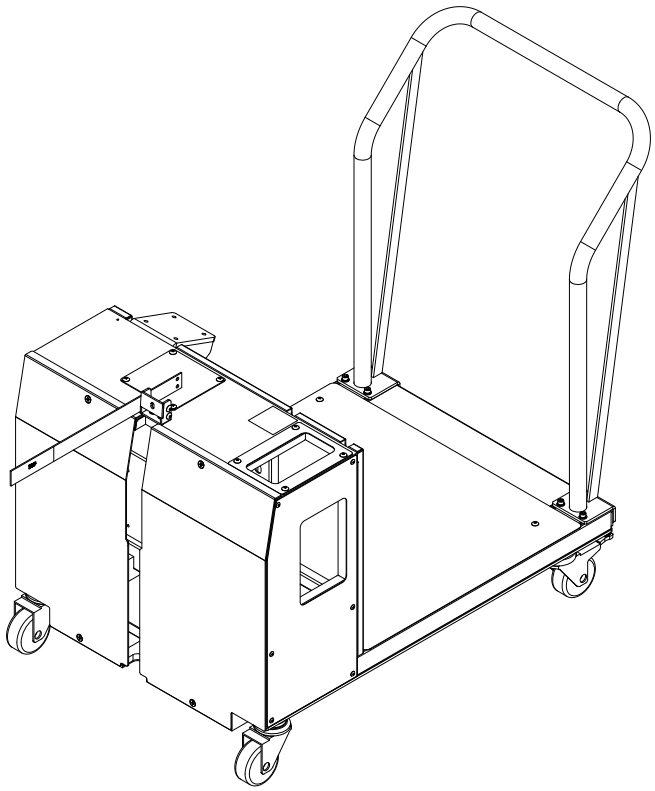
3-1 REEL CONTROL GROUP T6-4-20002

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	T6-4-20011	Reel Support	1	
2	T6-4-20029	Brake Belt	1	
3	T6-4-20031	Lining Fixed Bracket	1	
4	T6-4-20024	Brake Arm	1	
7	TC-005	Lid	1	
8	TC-009	Brake Shaft	1	
9	TC-011	Washer	1	
10	T6-4-10570	Inner Flange	1	
11	TC-014	Outer Flange	1	
12	TC-015	Protector	1	
13	TC-075	Center Drum (For 280mm)(Option)	1	
14	TC-020	Pin	1	
15	TC-021	Split Pin	1	
16	TC-024	Brake Adjuster	1	
17	TC-025	Spring	1	
18	TC-045-1	Fixing Brake Lining Bracket	1	
19	TC-050	Lining Holder	1	
21	TC-076	Washer	1	
22	TC-094	Spacer	1	
23	TD-003	Reel Shaft (LH)	1	
24	TD-016	Reel Nut Handle (LH)	1	
26	LA-30200	Label	1	
27	LA-30210	Label	1	
28	TE-027	Roller Holder	1	
29	T6-4-20320	Roller	1	
30	TE-029	Pin	1	
35	PMS0415	PMS, M4×15	3	
36	PMS0420	PMS, M4×20	2	
40	PW04	PW, M4	5	
51	BR6003ZZ	Bearing, 6003ZZ	2	
52	ER04	Snap Ring, E-4	2	
53	ER19	Snap Ring, E-19	1	
54	HB0816	HB, M8x16	1	
55	HBS0525HN	HBS, M5x25 (H)(N)	1	
56	HBS0616N	HBS, M6x16 (N)	2	

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
57	HBS0825N	HBS, M8x25 (N)	3	
58	HN05	HN, M5	2	
59	HN06	HN, M6	2	
61	SW08	SW, M8	3	
63	PW08C	PW, M8 (C)	3	
64	SR10	Snap Ring, S-10	1	
65	SR15	Snap Ring, S-15	1	
66	SR20	Snap Ring, S-20	2	

4 BODY FRAME GROUP

5MV-4-100001
5MV-4-100011

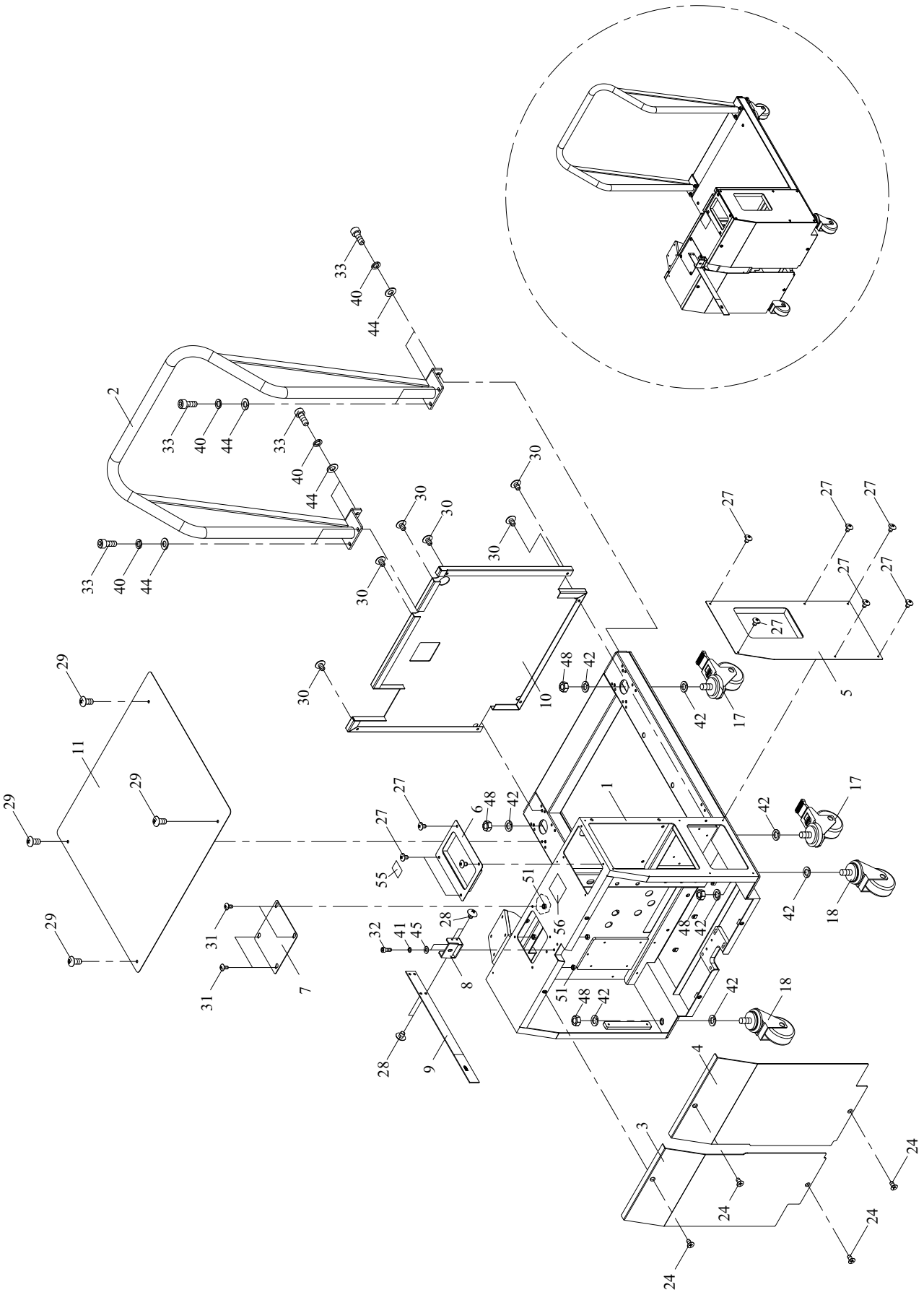


4 BODY FRAME GROUP 5MV-4-100001 5MV-4-100011

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
	5MV-4-100001	Body Frame Group (For TP-502MV)	1	
	5MV-4-100011	Body Frame Group (For TP-502MVB)	1	

4-1 BODY FRAME GROUP

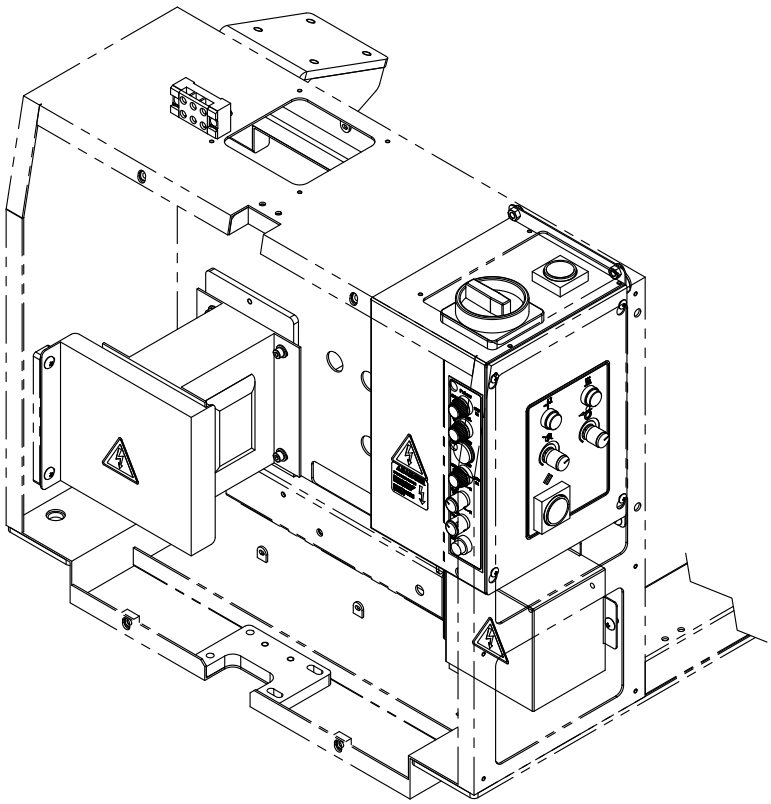
5MV-4-100001
5MV-4-100011

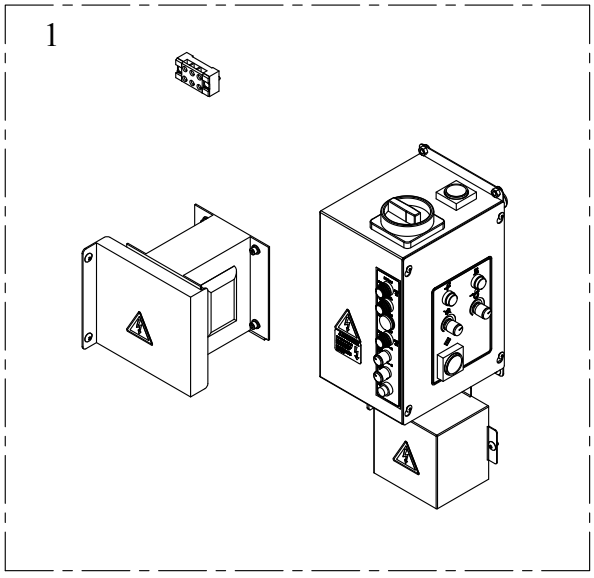


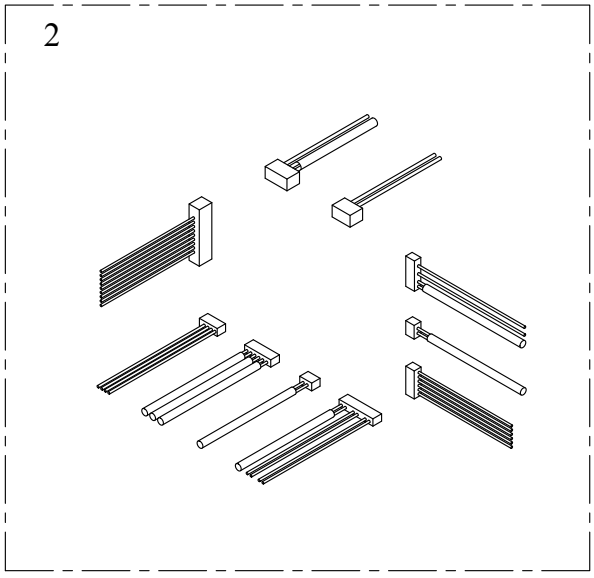
4-1 BODY FRAME GROUP 5MV-4-100001 5MV-4-100011

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
	5MV-4-100001	Body Frame Group (For TP-502MV)	1	
	5MV-4-100011	Body Frame Group (For TP-502MVB)	1	
1	5MV-4-100101	Body Frame	1	
2	5MV-4-100200	Handle	1	
3	5MV-4-100300	Front Plate (LH)	1	
4	5MV-4-100400	Front Plate (RH)	1	
5	5MV-4-100500	Plate (RH)	1	
6	5MV-4-100600	Plate	1	
7	5MV-4-100700	Plate	1	
8	5MV-4-100800	Velcro Bracket	1	
9	5MV-4-100900	Velcro	1	
10	5MV-4-101000	Body Frame Cover (Rear)(Only TP-502MV)	1	
11	5MV-4-101100	Body Frame Cover (Under)(Only TP-502MV)	1	
17	T7-5-10170	Caster (Brake)	2	
18	T7-5-10180	Caster (Free)	2	
24	FMS0612N	FMS, M6×12 (N)	4	
27	TMS0406N	TMS, M4×6 (N)	10	
28	TMS0506N	TMS, M5×6 (N)	4	
29	TMS0612N	TMS, M6×12 (N)(Only TP-502MV)	4	
30	TMS0508N	TMS, M5×8 (N)(Only TP-502MV)	6	
31	TMS0412N	TMS, M4×12 (N)	4	
32	HBS0516N	HBS, M5×16 (N)	2	
33	HBS0616N	HBS, M6×16 (N)	8	
40	SW06	SW, M6	8	
41	SW05	SW, M5	2	
42	SW16	SW, M16	8	
44	PW06C	PW, M6 (C)	8	
48	HN5/8	HN, 5/8"	4	
51	NTE04	NTE, M4	4	
55	LA-10550	Label	1	
56	LA-30360	Label	1	

5 ELECTRIC CONTROL UNIT 5MV-5-900001 5MV-5-900011



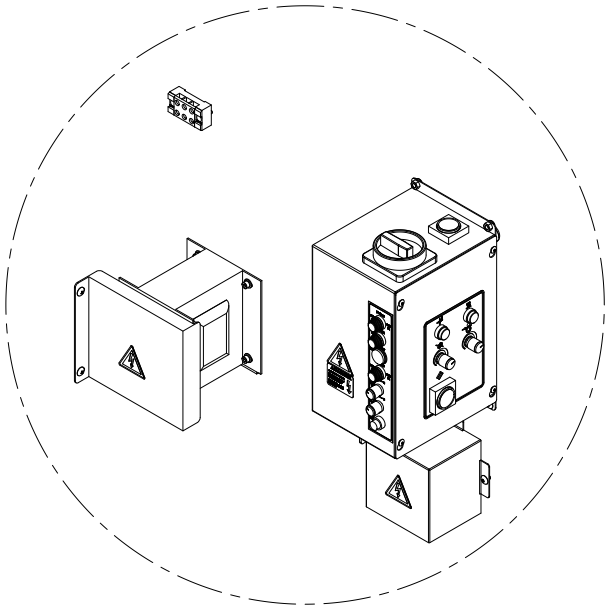


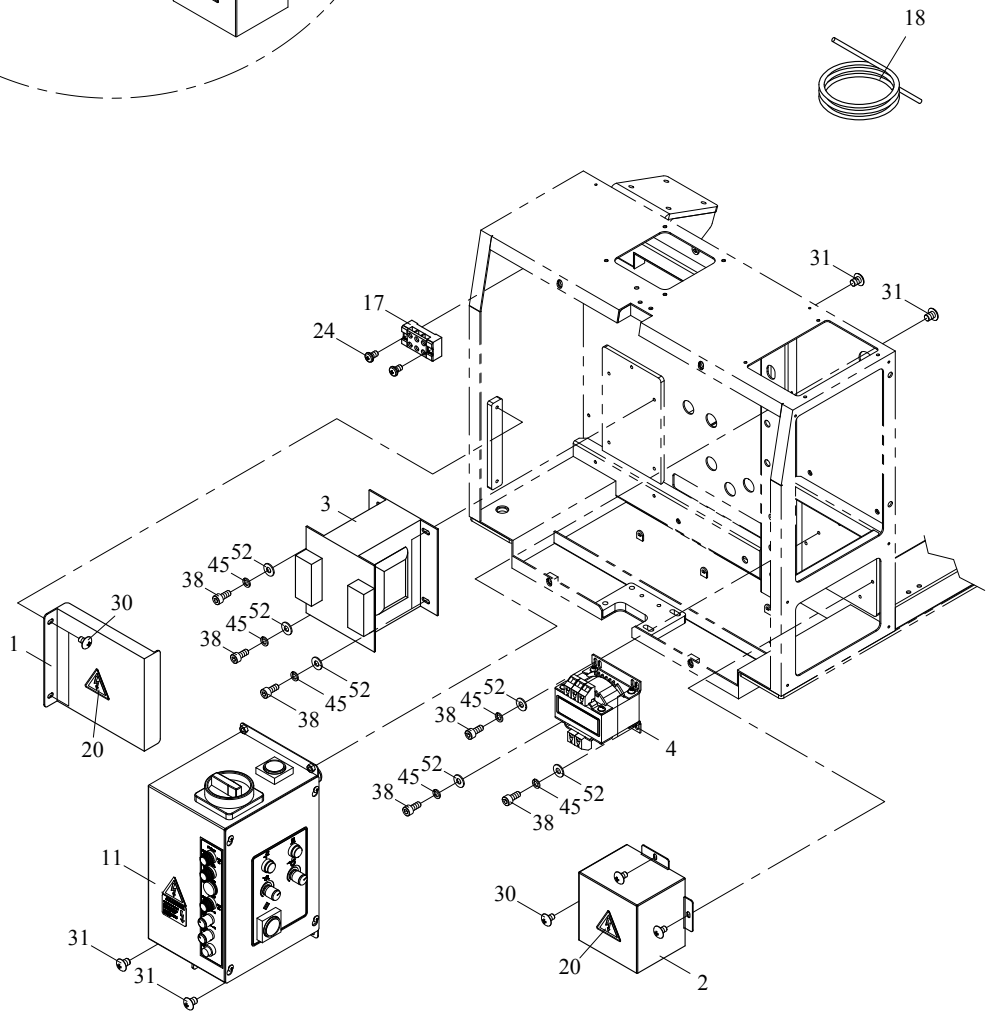


5 ELECTRIC CONTROL UNIT 5MV-5-900001 5MV-5-900011

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
	5MV-5-900001	Electric Control Unit (For 220V~240V)	1	
	5MV-5-900011	Electric Control Unit (For 110V)	1	
1	5MV-5-100001	Electric Control Group (For 220V~240V)	1	SEE PAGE C51
	5MV-5-100011	Electric Control Group (For 110V)	1	
2	5MV-5-200000	Wires Group	1	SEE PAGE C55

5-1 ELECTRIC CONTROL GROUP 5MV-5-100001 5MV-5-100011

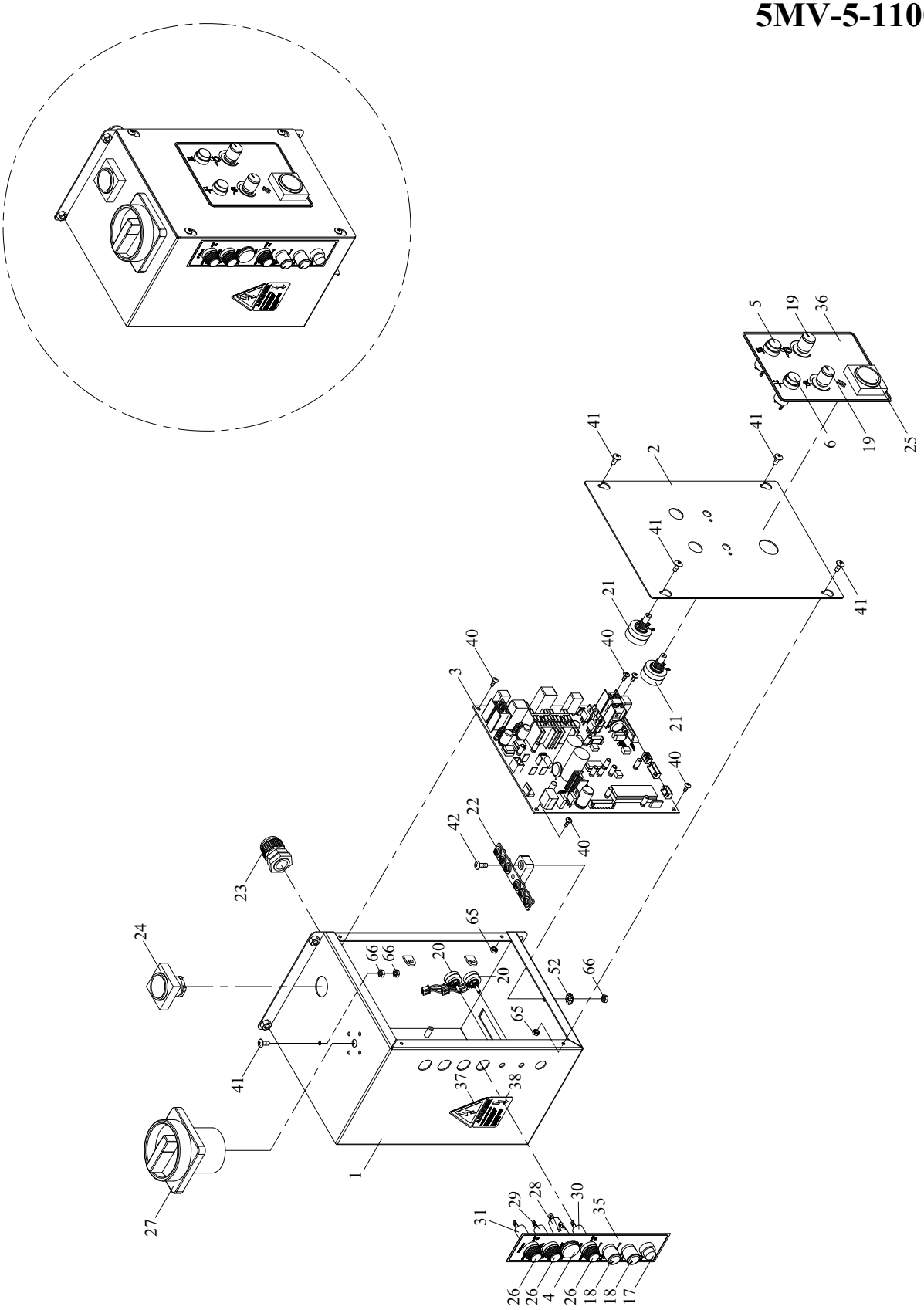




5-1 ELECTRIC CONTROL GROUP 5MV-5-100001 5MV-5-100011

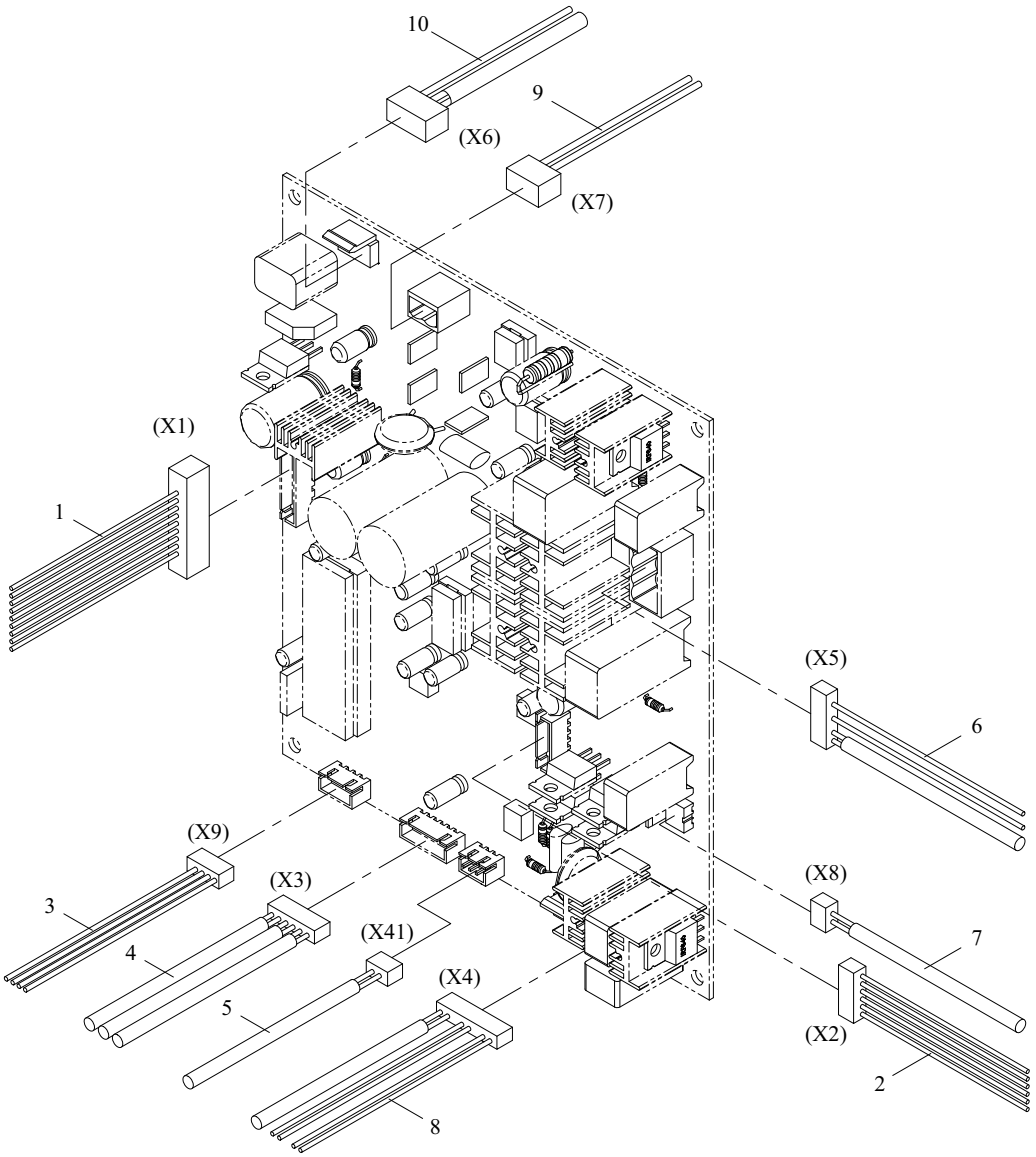
REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
	5MV-5-100001	Electric Control Group (For 220V~240V)	1	
	5MV-5-100011	Electric Control Group (For 110V)	1	
1	5MV-5-100310	Transformer Cover	1	
2	5MH-5-100200	Transformer Cover	1	
3	5MH-5-100300	Transformer (For 220V~240V)	1	
	5MH-5-100310	Transformer (For 110V)	1	
4	5MH-5-100400	Heater Transformer (For 220V~240V)	1	
	5MH-5-100410	Heater Transformer (For 110V)	1	
11	5MV-5-110001	Electrical Box Ass'y (For 220V~240V)	1	SEE PAGE C53
	5MV-5-110011	Electrical Box Ass'y (For 110V)	1	
17	T6-6-10320	Heater Terminal	1	
18	MV-6-10060	Power Cord (Europe Plug)	1	
	MV-6-10061	Power Cord (America Plug)	1	
20	LA-40001	Label	2	
24	PMS0508	PMS, M5×8	2	
30	TMS0508N	TMS, M5×8 (N)	5	
31	TMS0608N	TMS, M6×8 (N)	4	
38	HBS0510N	HBS, M5×10 (N)	8	
45	SW05	SW, M5	8	
52	PW05	PW, M5	8	

5-1-1 **ELECTRICAL BOX ASS'Y** **5MV-5-110001**
5MV-5-110011



5-1-1 ELECTRICAL BOX ASS'Y 5MV-5-110001 5MV-5-110011

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
	5MV-5-110001	Electrical Box Ass'y (For 220V~240V)	1	
	5MV-5-110011	Electrical Box Ass'y (For 110V)	1	
1	5MV-5-100100	Electrical Box	1	
2	5MV-5-100200	Electrical Box Cover	1	
3	5MV-5-110300	Main P.C.B	1	
4	5MH-5-110400	Fuse Holder (30mm)(20A)	1	
5	5MH-5-120300	Green Lamp Indicator	1	
6	5MH-5-120400	Amber Lamp Indicator	1	
17	T5-4-10210	Jog Switch	1	
18	T5-4-10221	Knob (Hole φ3.2)	2	
19	T5-4-10222	Knob (Hole φ6.0)	2	
20	T5-4-10231	Variable Resistor (5K) (φ3.2)	2	
21	T5-4-10232	Variable Resistor (5K)(φ6.0)	2	
22	T6-6-10250	Earth Plate	1	
23	T6-6-10980	Cable Gland (PG11)	1	
24	TG-004	Reset Push Button Switch	1	
25	TG-005	Feed Push Button Switch	1	
26	TG-013	Fuse Holder	3	
27	TK-001	Main Power Switch	1	
28	FU32200	Fuse (20A) 32L	1	
29	FU32010	Fuse (1A) 32L	1	
30	FU32010	Fuse (1A) 32L (For 220V~240V)	1	
	FU32020	Fuse (2A) 32L (For 110V)	1	
31	FU30040	Fuse (4A) 30L (For 220V~240V)	1	
	FU32070	Fuse (7A) 32L (For 110V)	1	
35	LA-20100	Label	1	
36	LA-10560	Label	1	
37	LA-40001	Label	1	
38	LA-40003	Label	1	
40	TMS0308N	TMS, M3×8 (N)	5	
41	TMS0410N	TMS, M4×10 (N)	5	
42	TMS0412N	TMS, M4×12 (N)	1	
53	TW05	TW, M5	1	
65	NTE04	NTE, M4	4	
66	HN04	HN, M4	3	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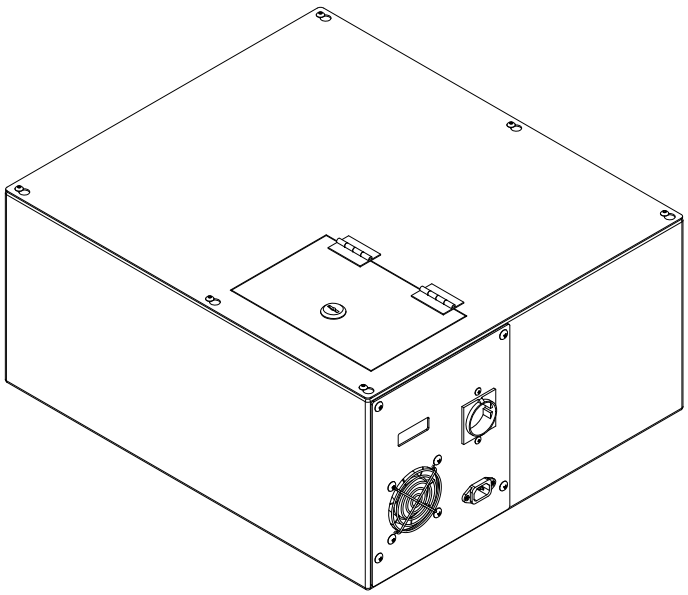
REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	EW52V0000X01	Wire Ass'y X1 (For Control Panel Ass'y)	1	
2	EW52V0000X02	Wire Ass'y X2 (For Electrical Box Control Panel)	1	
3	EW52V0000X09	Wire Ass'y X9 (For LED Indicator)	1	
4	EW52V0000X03	Wire Ass'y X3 (For SQ1/SQ2/SQ3)	1	
5	EW52V0000X41	Wire Ass'y X41 (For SQ4)	1	
6	EW52V0000X05	Wire Ass'y X5 (For M1/M2)	1	
7	EW52V0000X08	Wire Ass'y X8 (For M5)	1	
8	EW52V0000X04	Wire Ass'y X4 (For Heater)	1	
9	EW52V0000X07	Wire Ass'y X7 (For Transformer 28V Output)	1	
10	EW52V0000X06	Wire Ass'y X6 (For Transformer 10V Output)	1	

6 BATTERY GROUP (For TP-502MVB)

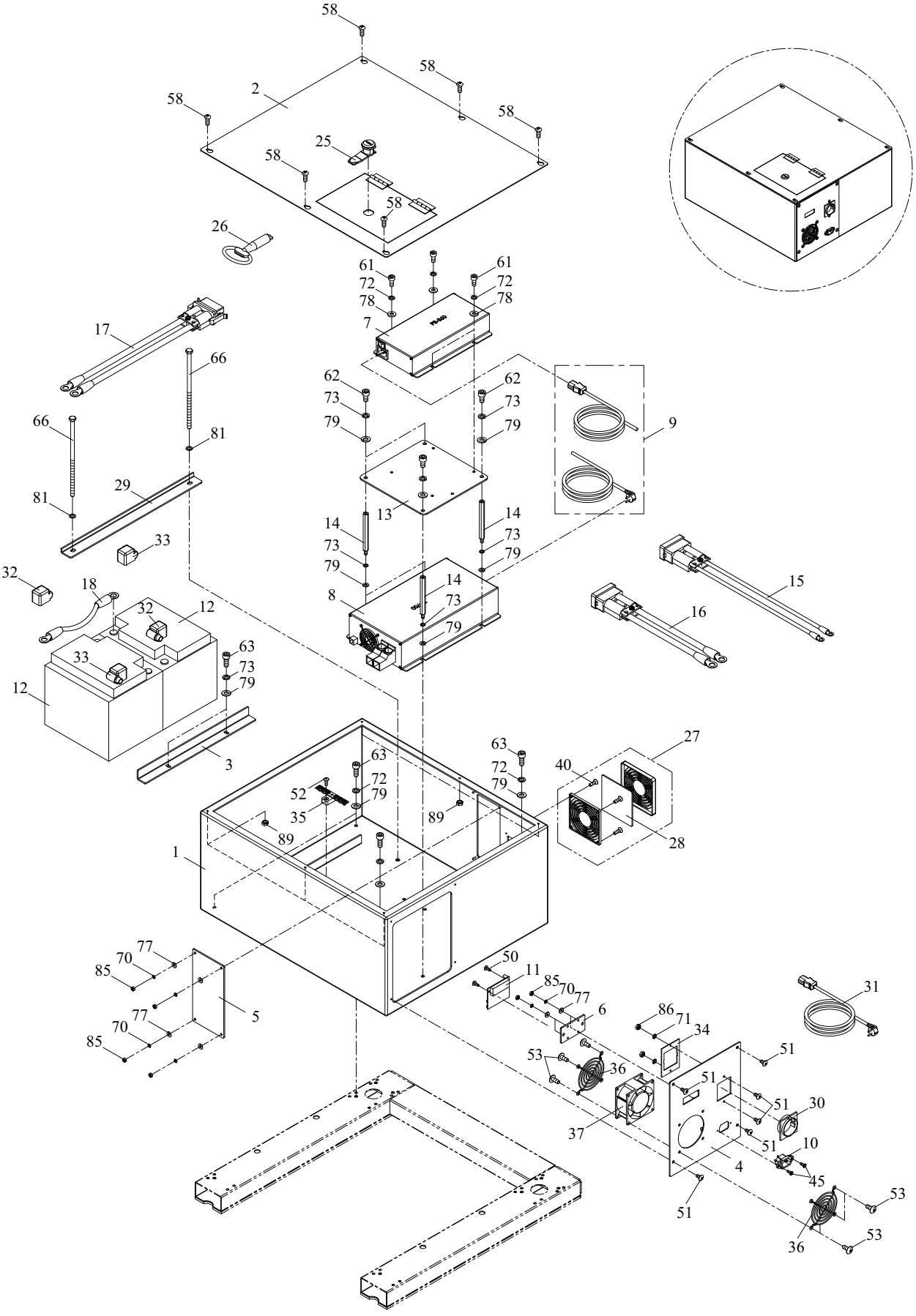
5MV-6-100000
5MV-6-100010



6 BATTERY GROUP (For TP-502MVB) 5MV-6-100000 5MV-6-100010

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
	5MV-6-100000	Battery Group (For 220V/230V/240V)	1	
	5MV-6-100010	Battery Group (For 110V)	1	

6-1 BATTERY GROUP (For TP-502MVB) 5MV-6-100000 5MV-6-100010



6-1 BATTERY GROUP (For TP-502MVB) 5MV-6-100000 5MV-6-100010

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
	5MV-6-100000	Battery Group (For 220V/230V/240V)	1	
	5MV-6-100010	Battery Group (For 110V)	1	
1	5MV-6-100100	Battery Box	1	
2	5MV-6-100200	Battery Box Cover	1	
3	5MV-6-100300	Battery Presser	1	
4	5MH-6-100200	Cover	1	
5	5MH-6-100300	Windows (Big)	1	
6	5MH-6-100400	Windows (Small)	1	
7	5MH-6-100900	Power Supply	1	
8	5MH-6-101000	Inverter (For 220V/230V/240V)	1	
	5MH-6-101010	Inverter (For 110V)	1	
9	5MH-6-101100	Charger Power Cord (Europe)(For 220V/230V/240V)	1	
	5MH-6-101110	Charger Power Cord (America)(For 110V)	1	
10	5MH-6-101200	Socket Inlet	1	
11	5MH-6-101300	Battery Voltage Indicator	1	
12	5MH-6-101400	Battery	2	
13	5MH-6-101500	Power Supply Fixing Plate	1	
14	5MH-6-101600	Support Rod	4	
15	5MH-6-101700	Charger Wire Connector	1	
16	5MH-6-101800	Inverter Wire Connector	1	
17	5MH-6-101900	Batter Wire Connector	1	
18	T2-6-30270	Battery Connector	1	
25	M7-5-206901	Lock	1	
26	M7-5-206930	Key	1	
27	M7-6-200100	Filter Set	1	
28	M7-6-201800	Filter	1	
29	T2-6-30131	Battery Presser	1	
30	T2-6-30230	UPS Outlet (Europe)	1	
	T2-6-30231	UPS Outlet (America)	1	
31	T2-6-30240	UPS Cable (Europe)	1	
	T2-6-30241	UPS Cable (America)	1	
32	T2-6-30331	Battery Contact Insulation Sheath (Positive)	2	
33	T2-6-30341	Battery Contact Insulation Sheath (Negative)	2	
34	T2-6-30380	Plate (Europe UPS Outlet)	1	
	T2-6-30351	Plate (America UPS Outlet)	1	
35	T6-6-10250	Earth Plate	1	
36	T7-6-10930	Fan Cover	2	
37	TF-021-1B	Fan (For 220V/230V/240V)	1	
	TF-021-B	Fan (For 110V)	1	
40	FMS0412N	FMS, M4×12 (N)	4	

6-1 BATTERY GROUP (For TP-502MVB) 5MV-6-100000 5MV-6-100010

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
45	FMS0306	FMS, M3×6	2	
50	TMS0308N	TMS, M3×8 (N)	2	
51	TMS0408N	TMS, M4×8 (N)	6	
52	TMS0410N	TMS, M4×10 (N)	1	
53	TMS0508N	TMS, M5×8 (N)	8	
58	THS0512N	THS, M5×12 (N)	6	
61	HBS0512N	HBS, M5×12 (N)	4	
62	HBS0612N	HBS, M6×12 (N)	4	
63	HBS0616N	HBS, M6×16 (N)	6	
66	HB08200	HB, M8×200	2	
70	SW03	SW, M3	8	
71	SW04	SW, M4	2	
72	SW05	SW, M5	4	
73	SW06	SW, M6	14	
77	PW03	PW, M3	8	
78	PW05	PW, M5	4	
79	PW06A	PW, M6 (A)	14	
81	PW08A	PW, M8 (A)	2	
85	HN03	HN, M3	8	
86	HN04	HN, M4	2	
89	NTE05	NTE, M5	6	