

metos

Mixer
Metos Marine SP-200X
220-230/1/60 Hz
fixed bowl guard

Instruction manual



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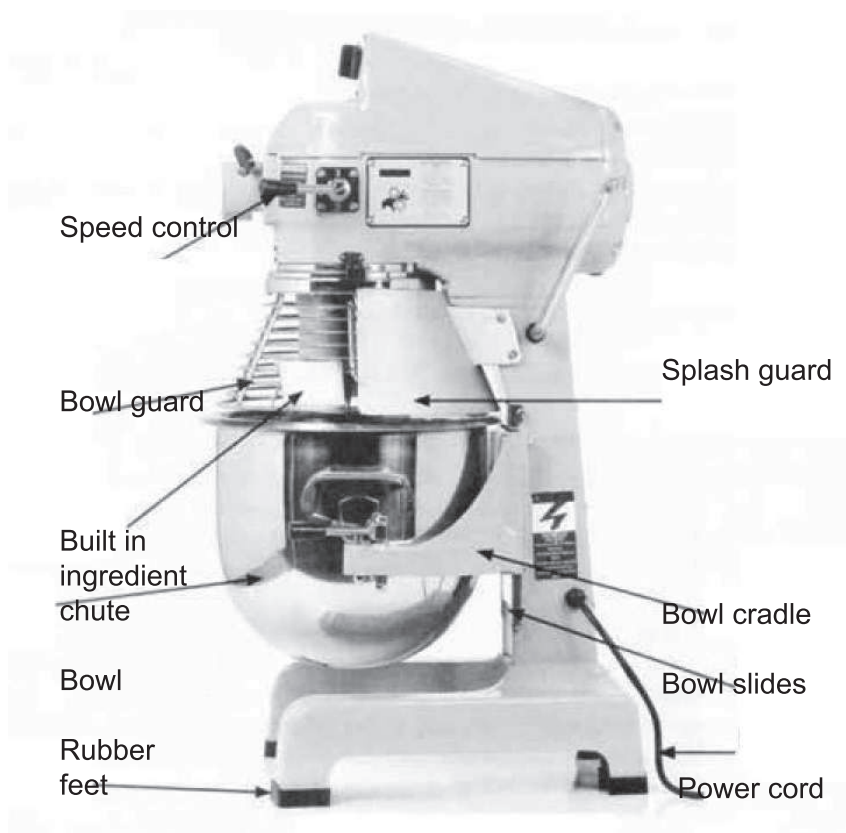
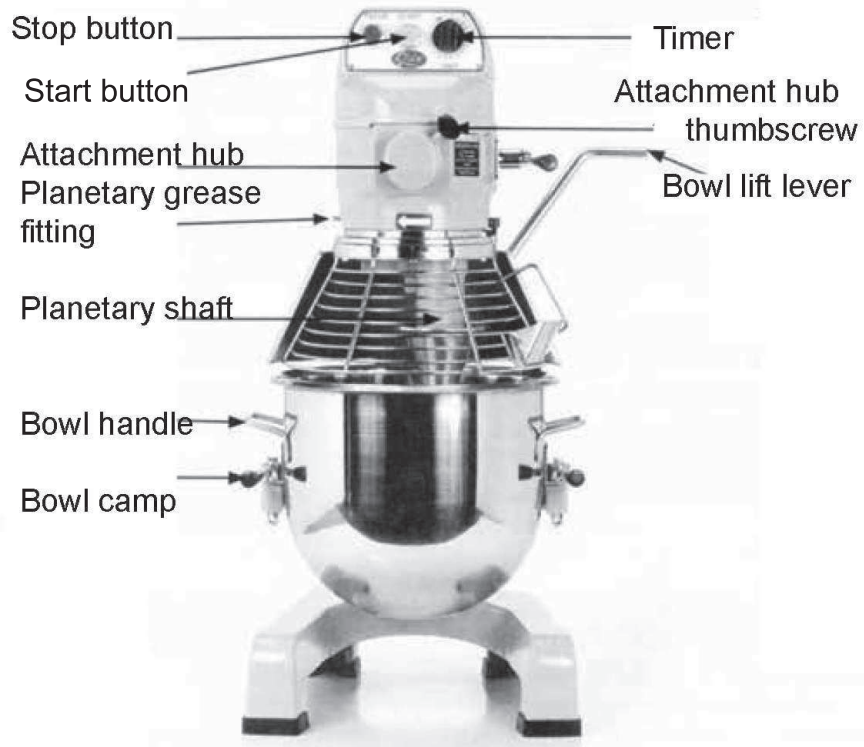
CAUTION**Read before you operate the machine**

It is important to read this manual before operating the machine. This mixer is designed as a safe and efficient food processing appliance as long as it is used in accordance with the instructions in this manual and is properly maintained.

Take the following precautions in order to operate the mixer safely.

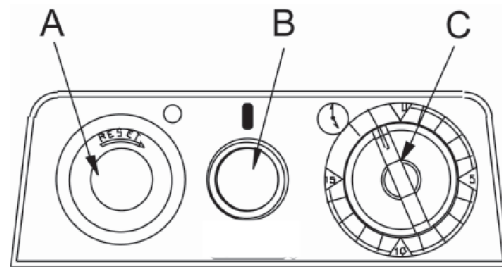
- **All operators should be at least 18 years old and adequately trained and supervised. Also, they should read and fully understand the instructions in this manual.**
- **Owner should not let customers, visitors or other unauthorized people come in contact with this machine.**
- **Do not wear loose clothes or rings while operating, and keep hands, hair and clothing away from the moving parts.**
- **NEVER use an extension cord to connect electrical power.**
- **Make sure the safety guard is closed and the bowl is lifted to the right position before operating.**
- **NEVER reach into the bowl when the mixer is running.**
- **NEVER place your hand or any kitchen utensil in the bowl whilst the mixer is in operation.**
- **When mixing product always follow the recommended agitator and speed settings according to the capacity chart.**
- **STOP the mixer before changing speed.**
- **STOP the mixer before removing or installing attachments into the hub.**
- **NEVER put your hand and finger into the feed chute when using any mixer attachment, including VH-12 Meat Mincer and V99S Vegetable Slicer. Always use the pusher plate with attachment.**
- **Always UNPLUG before cleaning or doing any maintenance operations.**
- **DO NOT hose down or pressure wash any part of the mixer.**
- **NEVER bypass, alter or modify this machine. Doing so may create hazard and will void warranty.**

Overall View of the Mixer



Control panel

- A Emergency Stop
- B Start
- C Timer



Installation

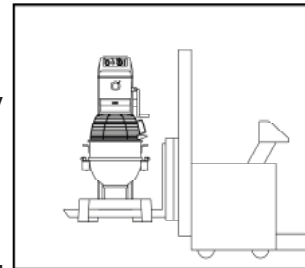
The machine is supplied factory lubricated and ready to run. It should be positioned on any solid, level and non-skid work surface that is nonflammable. Install in work area with adequate light and space.

For SP- 200HI or Smaller Capacity Model, you may place the mixer on bench which is capable of supporting a load of mixer's weight. For safety, the mixer should be BOLTED in position using all four holes located in the legs.

DO NOT attempt to lift the mixer alone.

Clean the mixer before use. It is normal for the factory to apply a generous amount of grease in and on the machine before initial use.

During the transportation or fitting, please do not lean over 35 degree to avoid the gear oil leaking from the gear oil container. Please use forklift to transporting.



Electrical connection

CAUTION: NEVER USE EXTENSION CORD. Low amp supply could damage the mixer or cause a fire.

Before connecting this machine to the electrical supply, check that the details on the rating plate (located on the rear of the machine) correspond to the details of your electrical connection.

The mixer is supplied with a trailing lead fitted with a molded plug. If the style of plug is unsuitable for the socket you plan to use, the plug must be cut off and replaced with an appropriate plug.

Machines are fitted with a cable with 3 wires: Brown: Live, Blue: Neutral, Green/Yellow: Earth/Ground

Installation

The mixer should be plugged into a switched socket which isolates all poles and has a minimum contact clearance of 3mm and located close to the mixer for use in an emergency and to facilitate servicing.

The machine must be incorporated into a potential equalization system.

The leakage current for this appliance is no greater than 1 mA/KW.

If the electrical supply cable to the machine becomes damaged, it must be replaced by a specification or higher and suitable for the Mixer's motor load.

The ground wire is fixed to the machine and this connection must be kept intact.

CAUTION: The mixer MUST be grounded.

The minimum requirement for all electrical equipment is correct operation between air temperature of +5 °C and +40°C.

Electrical equipment is capable of operating correctly when the relative humidity does not

exceeding 95% at a maximum temperature of +40°C.

Electrical equipment is capable of operating correctly at altitude up to 1000m.

Electrical equipment is designed to withstand to protected against the effects of transportation, and storage temperature within a range of -25°C to +55°C and for short periods not exceeding 24h at up to +70°C.

Protection class IP54.

Operating instructions

Before using the mixer

Before using the mixer, ensure that all users are familiar with the correct operation of the machine. In particular, care should be taken to ensure that the bowl and mixing tools are correctly fitted and that the bowl guard is in position prior to starting the machine.

Safety at work

NEVER place your hand or any kitchen utensil in the bowl whilst the mixer is in operation.

Keep hands, hair and clothing away from moving parts.

Isolate the machine from the electrical supply by removing the plug from the socket before cleaning, servicing or adjusting any parts or attachments.

Certain operator notice advising about the safe use of this mixer is attached to the machine.

Correct use of the mixer

It is the responsibility of the operators to use the mixer correctly within the recommended limitations. Always follow the instructions on the side of the machine when changing gear. If the motor labors, please stop the machine and reduce the size of the mix immediately. Damage resulting from improper use is will void the warranty. For operator safety, the machine is fitted with a bowl guard which is electrically interlocked to ensure that the mixer cannot operate unless the guard is correctly positioned and the bowl is raised. Excessive force used to open and close the bowl guard may damage the electrically interlocker, and will void the warranty.

For additional safety, the mixer has a no volt release feature which means that in the event of a power failure, the machine will only restart after the control button has been pressed again. This arrangement ensures that when the supply is restored, the machine cannot restart on its own.

Careful handling of bagged products by minimizing the height above the bowl base from which they are poured.

Careful slitting of bags in the lower part of the bowl to allow dust free discharge of flour. Use temporary bowl covers to minimize openings through which flour may escape.



Tool selection

	Beater	Hook	Whisk
Beater:	Firm mixes such as light pastry, cakes, biscuits, icings, fillings etc.		
Dough	Hook: Heavy mixes such as dough, pie pastry etc.		
Whisk:	Light mixes such as whipped cream, mayonnaise, egg whites etc.		

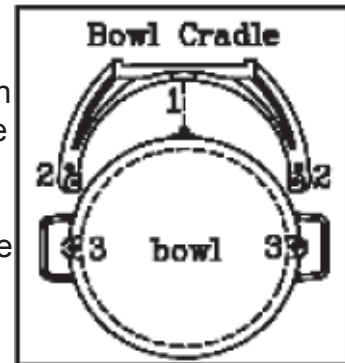
The beater, whisk and spiral dough hook are tools for the work implied by their names. Do not use the beater for dough making or the whisk for anything other than whisking, aerating or mixing light mixtures.

NOTE: Always wash agitator with mild soap and apply light quantity of mineral oil to planetary shaft after cleaning.

Fitting the bowl

With the bowl cradle lowered, place the chosen mixing tool in the bowl and position the bowl on the cradle. There are three location points when fitting the bowl. Please refer to **Figure 2**:

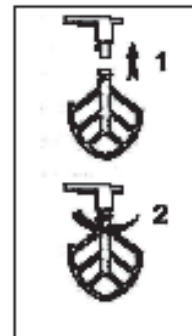
- (1) The locking pin at the rear of the bowl should locate in the hole of the cradle.
- (2) The two holes in the bowl handles must engage on the pins located on the cradle.
- (3) Please ensure that the bowl is seated correctly on the cradle before securing the bowl locking latches prior to use.



Operating

Fitting the mixing tool

Slide the bayonet fitting of the agitator onto the drive shaft and twist clockwise to secure it in position. To remove the agitator, slide the tool up the shaft slightly and twist counter clockwise. Please refer to Figure 3.



NOTE: Install the bowl BEFORE inserting agitators.

NOTE: Agitators should always rotate in a clockwise direction around bowl. If agitators move counterclockwise, please contact licensed electrician immediately to remedy incorrect wiring.

Bowl lift & bowl guard

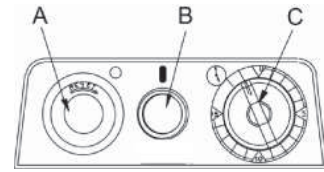
The bowl cradle and bowl guard are electrically interlocked so that the machine will only operate with the bowl cradle at the raised position. In addition to this, the bowl guard must be locked into place by sliding it into position across the top of the bowl to the point where it will slide no further.

NOTE: Only once the bowl is raised and the bowl guard locked, the machine can operate. Thus ensuring total user safety at all times. Once the guard has been opened or the bowl lowered, the machine will stop immediately. The Mixer can only be restarted by pressing the start button again.

During the mixing process, additional ingredients can be added by the chute located on the right hand side of the bowl guard

Controls

The Timer (C) is arranged to automatically stop the machine after the selected interval. An untimed position is provided for manually controlled mixing cycles.



Before starting the mixer it is necessary to set the mixing duration or select the manual position – the mixer will not operate in the 0 position.

Timed operation

For timed operation turn the Timer Knob (C) to the desired time (duration is marked from 1 to 15 in graduations of one minute) and then press the Green Start Button (B) to start the mixer. After the timed period you set, the mixer will stop automatically. If it is necessary to stop the mixer before the end of the timed period, press the Red Stop Button (A).

Untimed operation

If you wish to manually control a mix, select the untimed mode by moving the Timer Knob anti-clockwise until it stops.

Speed selection

Before changing speeds, the mixer must always be STOPPED first. The necessary speed can then be selected before restarting the machine by pressing the Green Start Button.

Recommended speed			
	1 st Speed	2 nd Speed	3 rd Speed
Whisk	→		
Beater		→	
Hook		→	

The speed selected depends largely on the quantity and consistency of the product. It is recommended that mixing is always started at the lowest speed and

progressively increased to the desired setting. In an emergency situation always use the Red Emergency Stop Button to stop the machine.

IMPORTANT: When mixing products always follow the recommended agitator and speed setting.

The mixer is equipped with a motor overload protection. If the mixer shuts off during operation, reduce the batch size and **wait 2 minutes. Press the stop button then press the start button.**

For heavier loads, the mixer should not run longer than 15 minutes without pausing for a cool down period of at least 15 minutes or more before resuming mixer. For lighter loads the mixer should not run longer than 30 minutes without pausing for a cool down period of at least 30 minutes or more before resuming mixer.

Attachments

The ranges of attachments that can be operated from the Attachment Hub are listed below. When using an attachment, lubricate the **Drive Stud (D)** using a food quality grease or oil. To fix to the mixer refer to **Figure 4**. Release the **Thumbscrew (G)** and slide the shaft of the attachment into the hub ensuring that the **Drive Stud (D)** engages in the socket within the hub. Rotate the attachment to line up the **Location Peg (E)** with its mating hole in the hub and push firmly home. Tighten thumbscrew to secure.

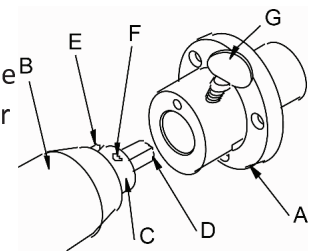
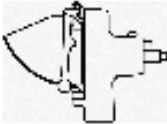
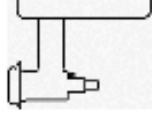


Figure 4

Recommended speed			
	1 st gear	2 nd gear	3 rd gear
V99S Veg. Prep.	→	→	
VH-12 Mincer	→	→	
	V99S Vegetable Preparation With a range of 7 plates to slice, grate or shred all types of vegetable and fruit from nuts and cabbage to carrots and cheese.		
	VH-12 Mincer A no.12 mincing attachment which works wonders with meat, fish and vegetables alike.		

CAUTION: Only fit attachments when the mixer is stationary and never when it is operating. Do not use attachments when mixing.

The recommended speed range for the attachments available is shown in table below.

NOTE: Make sure the bowl is up and the bowl guard is closed, otherwise the mixer will not function.

Cleaning Instructions

Care of the mixer

CAUTION: ALWAYS DISCONNECT OR UNPLUG THE ELECTRICAL POWER FROM THE MIXER BEFORE CLEANING.

The mixer is designed for simple maintenance carried out by operators. It may be necessary from time to time to apply a little Vaseline and oil to the rods on which the bowl cradle slides. If so, use a little food quality lubricant, ensuring that there is no excess oil that could contaminate the food mix.

Clean the mixer thoroughly after use. After isolating the machine from the electricity supply, the body should be wiped down with a damp cloth. **Do not spray the machine with or immerse it in water.** Do not forget to clean the rear of the machine and **do not allow the rear vents to become blocked as this may result in overheating.**

Pay particular attention to the bowl pins and any surrounding areas of the cradle to prevent the accumulation of mix, as this could prevent correct location of the bowl. For the same reason ensure that the beater shaft and each of the sockets on the tools are cleaned thoroughly. The bowl and tools should be washed in hot soapy water, rinsed and dried before being put into storage. **Do not wash the agitators in a dishwasher, as the polished finish will be adversely affected by the dishwashing chemicals.**

Maintenance

It is recommended that any service or maintenance work must be carried out by a trained technician or electrician.

CAUTION: ALWAYS DISCONNECT OR UNPLUG THE ELECTRICAL POWER FROM THE MIXER BEFORE DOING MAINTENANCE.

Regular maintenance is necessary on all machines if they are to remain in good working condition. It is strongly recommended that all maintenance must be carried out by trained technicians from an appointed distributor.

On regular bases

Clean the machine thoroughly after use and lubricate the rods with Vaseline or lubrication oil which the bowl cradle slides. After cleaning the beater shaft, please wipe and lightly lubricate the beater shaft with Vaseline to prevent rusting. (SEE CARE ON YOUR MIXER)

On an annual bases

- Check that all bolts are tight and bowl guard secure.
- Carry out on a more frequent basis if machine is arduously used.
- After replacing the parts by technicians, please screw back tightly with anti-leaking coat to avoid the gear oil leaking after replacement.
- Do not insert any object into the air vent of motor or into the bowl.
- Please unplug while not using the mixer.

Gear oil renewal

Please unscrew and leak the oil from the indicated oil-leaking hole. After finishing the leaking, re-screw back tightly with the anti-leaking coat on the screw. Fill the gear oil to the indicated re-fill oil hole. We recommended that this service or maintenance work must be carried out by trained technicians.

Gearbox lubricant

In terms of the rest model from SP-100 to SP-60HI, please refill the lubricant inside the gearbox every 5 years. We recommended that this servicing or maintenance work must be carried out by trained technicians.

CAUTION: Please use either Mobil lubricant "XHP 222" or Brugarolas "GRASA AGUILA PLEX 2-BOLSA"

Planetary unit lubricant

Please add **only** 2 pumps of grease to the planetary grease fitting once a year. In case there is a strange noise coming from the planetary unit, please reapply grease to the planetary unit by using the grease gun. We recommended that this servicing or maintenance work must be carried out by trained technicians.

CAUTION: Please use TACBECON grease "GL-210" to lubricate the planetary unit.

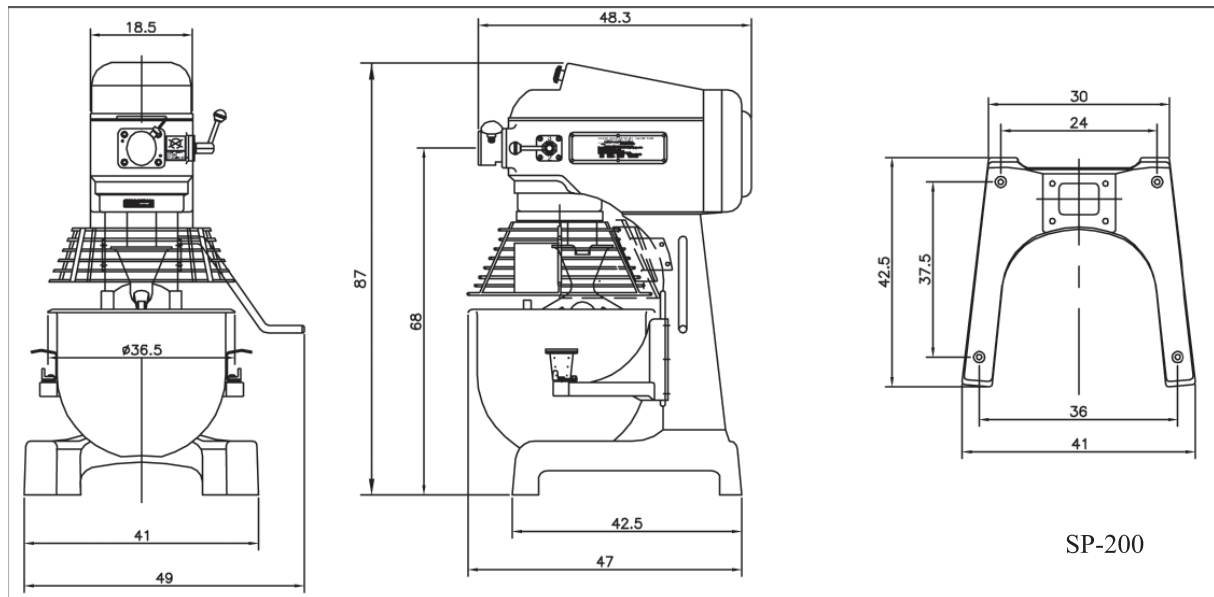
Troubleshooting

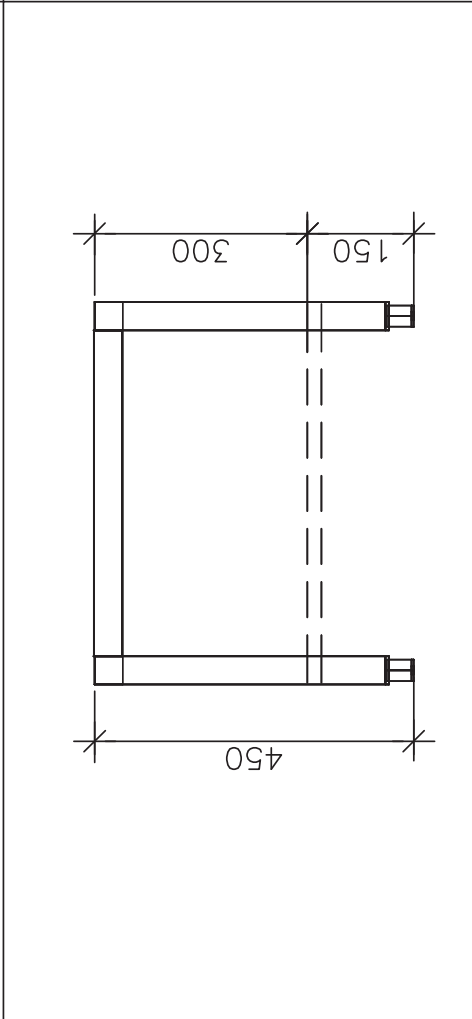
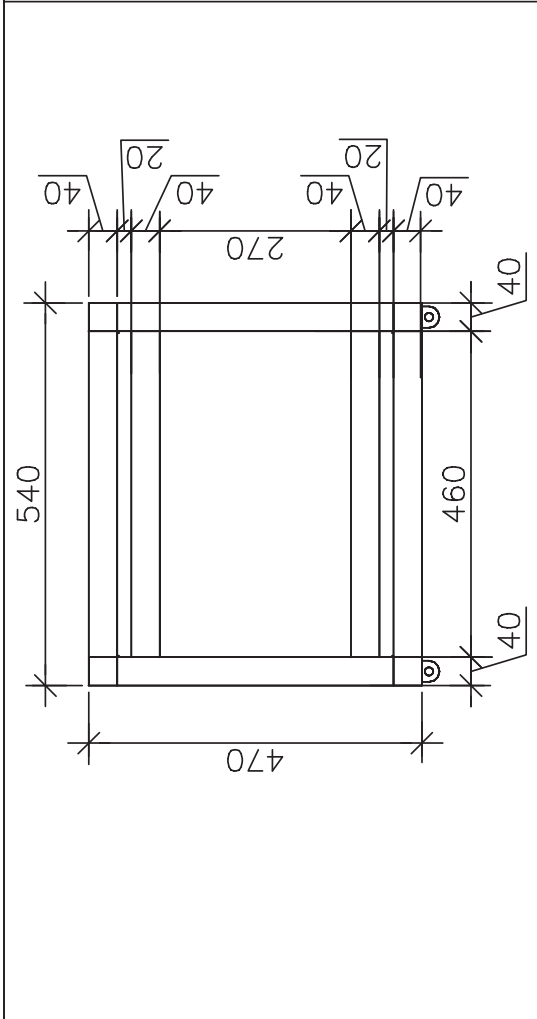
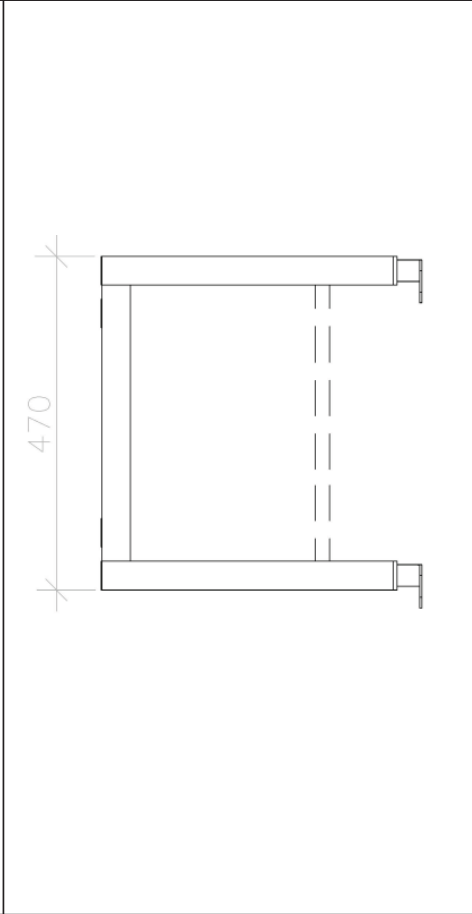
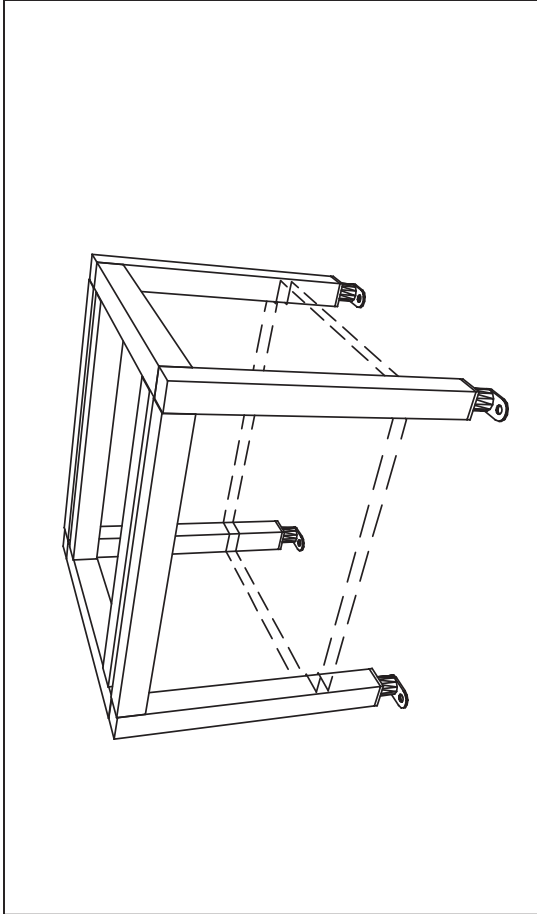
Fault finding

Fault	Check	Possible reson and action required
No power to the mixer	<ol style="list-style-type: none"> 1. Check plug socket 2. Check wiring plug 3. Check fuse in plug 4. Check or change cable 5. Check microswitch 6. Check overload 	<p>Mixer not plugged into alive or not switched on</p> <p>Plug incorrectly wired - rewire correctly</p> <p>Possible faulty fuse - replace fuse</p> <p>Cable damaged or split - replace cable</p> <p>Limit switch damaged or faulty - replace switch</p> <p>Reduce load, wait 2 minutes and restart</p>
Mixer falls to operate	<ol style="list-style-type: none"> 1. Check bowl guard/lift 2. Check timer position 3. Check gear change lever 	<p>Mixer will not operate with guard open</p> <p>Mixer will operate on timer or manual position only</p> <p>Mixer will not operate if out of gear-put in gear</p>
Mixer becomes noisy	<ol style="list-style-type: none"> 1. Check bowl and tools 2. Check work surface 3. Check bearing for wear 4. Check gearbox 5. Check planetary unit 	<p>Ensure that bowl and tool are correctly seated</p> <p>Uneven surfaces create excessive resonance</p> <p>Worn bearings - replace bearings</p> <p>Damaged or faulty gearbox - replace gearbox</p> <p>Reapply high-pressure grease</p>
Mixer loses power	<ol style="list-style-type: none"> 1. Check capacity 2. Check transmission gear 3. Check shaft bias 	<p>Overload - reduce the load</p> <p>Gear damaged or worn gearbox</p> <p>Damaged or faulty gearbox - replace shaft bias</p>
Motor overheating	<ol style="list-style-type: none"> 1. Check capacity/speed 2. Check voltage 	<p>Refer to table 2 and 3 for details</p> <p>Voltage should relate to rating plate</p>
Oil on planetary shaft	Check oil seal	Worn oil seal - change oil seal
Mixing tool stuck on planetary shaft	Check planetary shaft bent, unclean or rusted	<p>Planetary shaft twisted or bent - change the shaft</p> <p>Planetary shaft rusted - clean with descaler for derusting</p> <p>Turn planetary shaft anti-clockwise to meet square groove, gently knock down mixing tools</p>

Teknical spesifications

Dimentionions

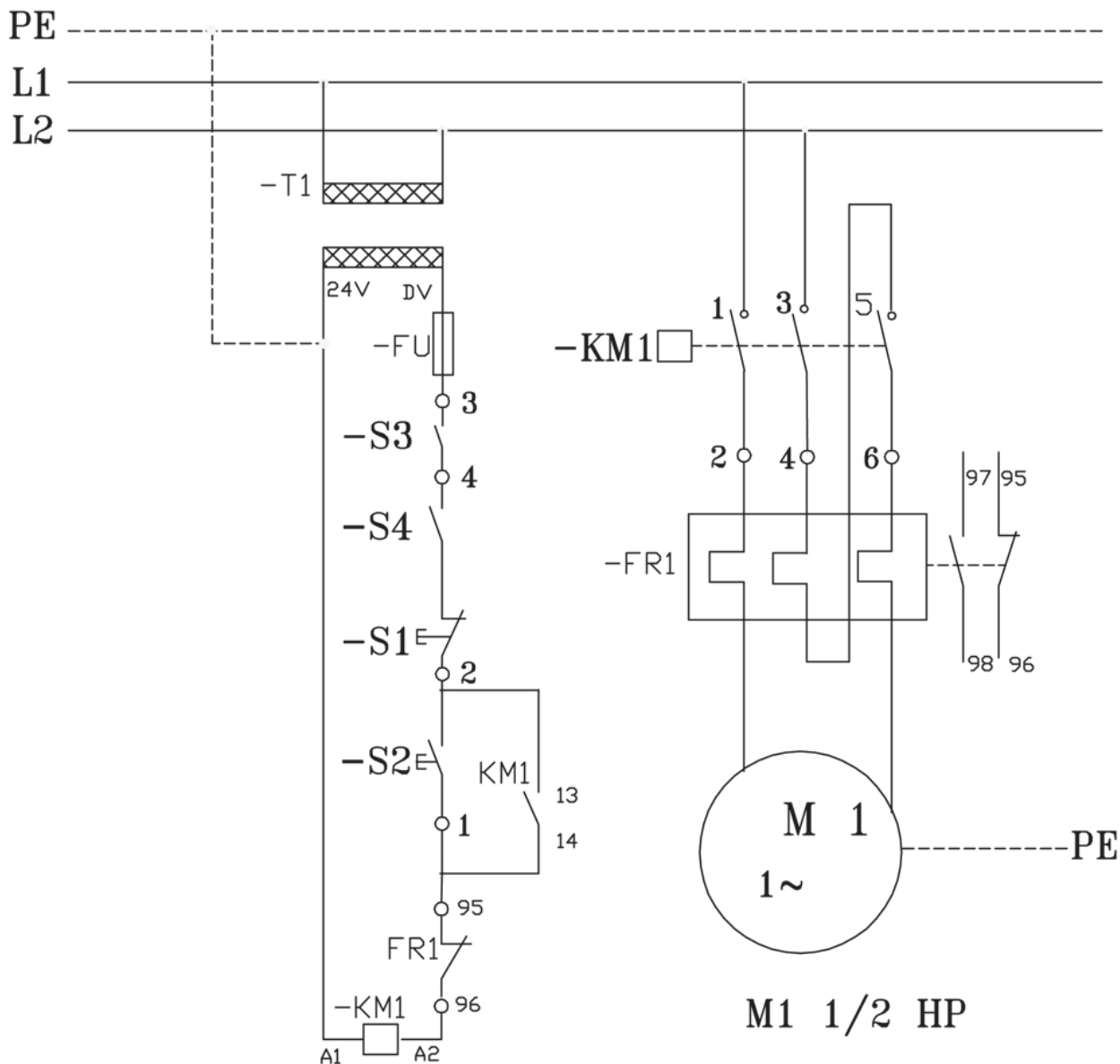




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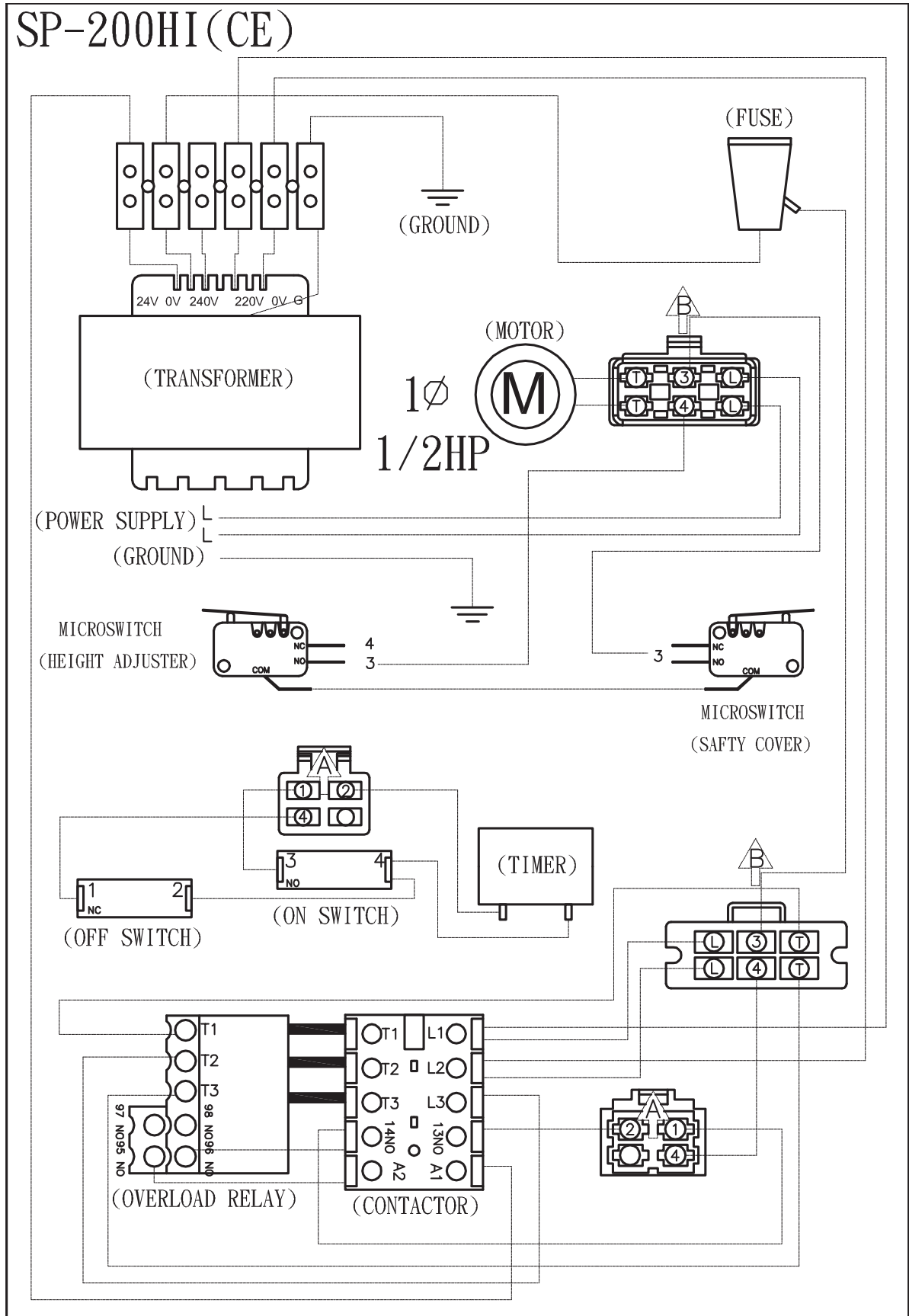
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Electrical Diagram—SP—200 PLANETARY MIXER 230V Single Phase supply

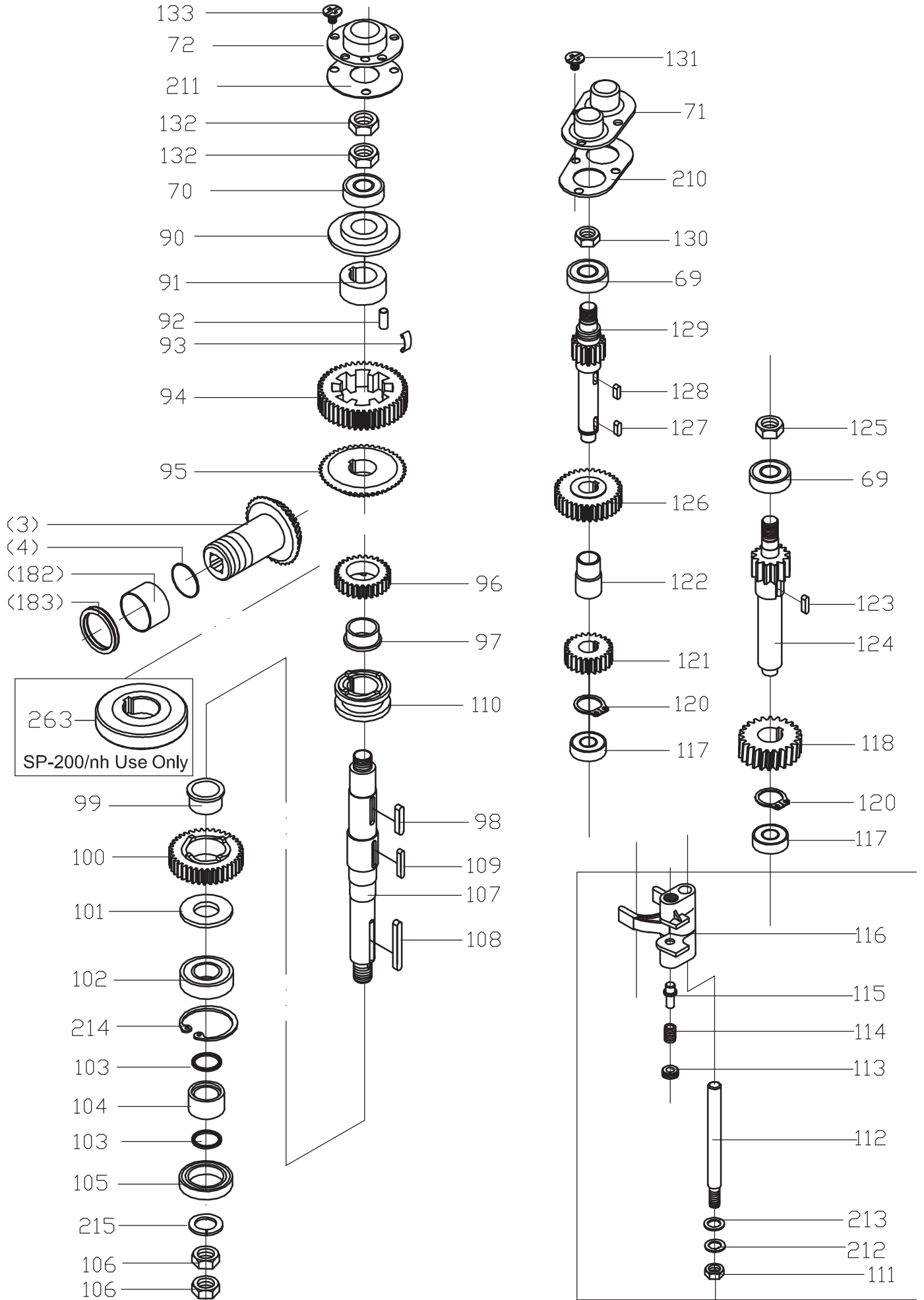


Item Description	Qty	Rem.
S1 EMERGENCY STOP BUTTON	1	
S2 START BUTTON	1	
S3 MICROSWITCH (interlock guard)	1	
S4 MICROSWITCH (height adjuster)	1	
KM1 CONTACTOR COIL OF 220V 50hz 24v	1	
FR1 OVERLOAD RELAY	1	
M1 MOTOR 1/2HP SINGLE PHASE 230V	1	
T1 TRANSFORMER AC 24V	1	
FU FUSE FIXTURE+FUSE 1A(5X20)	1	

Wiring Diagram



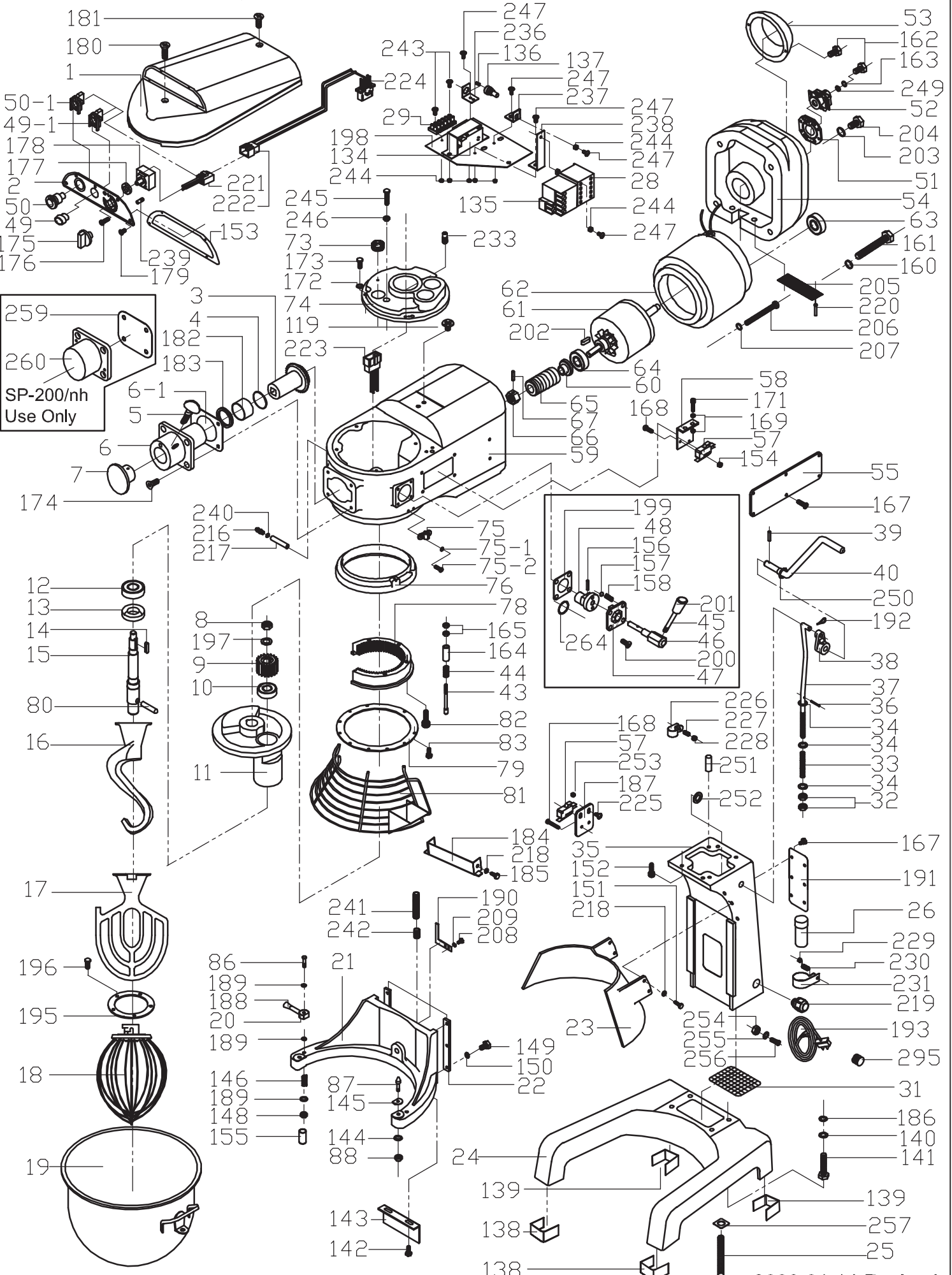
SP-200 & SP-200/nh Schematic Parts List



Spare Parts

Item	Part	Description	Qty	Item	Part	Description	Qty
3		level drive	1	116		yoke-shifter	1
4		gear:35T washer-thrust	2	117		ball bearing:#6201	2
69		ball	2	118		worm wheel 50HZ	1
70		bearing:#6201Z ball	1	118		worm wheel 60HZ	1
71		bearing:#6203Z retainer-twin	1	119		as item 117	
72		bearing cap-bearing	1	120		c-ring:stw-19	2
90		retainer lead-in oil pad	1	121		gear:24T	1
91		to guard gainst	1	122		spacer-busk	1
92		busk roll pillar	8	123		level key:5x5x15	1
93		spring slice	8	124		shaft-master:15T	1
94		gear-slow	1	125		nut-stop	1
95		speed:46T gear-bevel:46T	1	126		gear:32T	1
96		gear-clutch:29T	1	127		level key:5x5x10	1
97	5510035	busk-clutch	1	128		level key:5x5x10	1
98		level key:6x6x27	1	129		sheft-transmission:15T	1
99		busk-clutch	1	130		nut-stop	1
100		gear-clutch:38T	1	131		screws	6
101		heel	1	132		nut-stop	2
102		ball	1	133		screws	3
103		bearing:#6205Z oil ring:28x22x3	2	182		ball bearing	1
104		guard-oil busk	1	183		oil seal	1
105	5510075	seal-oil:TC	1	210		anti-oil spacer	1
106		35x52x10 nut-stop	2	211		anti-oil spacer	1
107		shaft-driven	1	212		spring washer	1
108		level key:6x6x45	1	213		washer	1
109		level key:5x5x27	2	214		c-ring	1
110		sleeve-clutch	1	215		spring washer	1
	5510038	yoke-shifter assy. incl. 111-116, 212- 213	1	263		spacer	1
111		nut-stop	1				
112		rod-shifter guide	1				
113		retainer-spring	2				
114		spring-shifter yoke	2				
115		plunger-shifter yoke	2				

SP-200 & SP-200/nh Schematic Parts List



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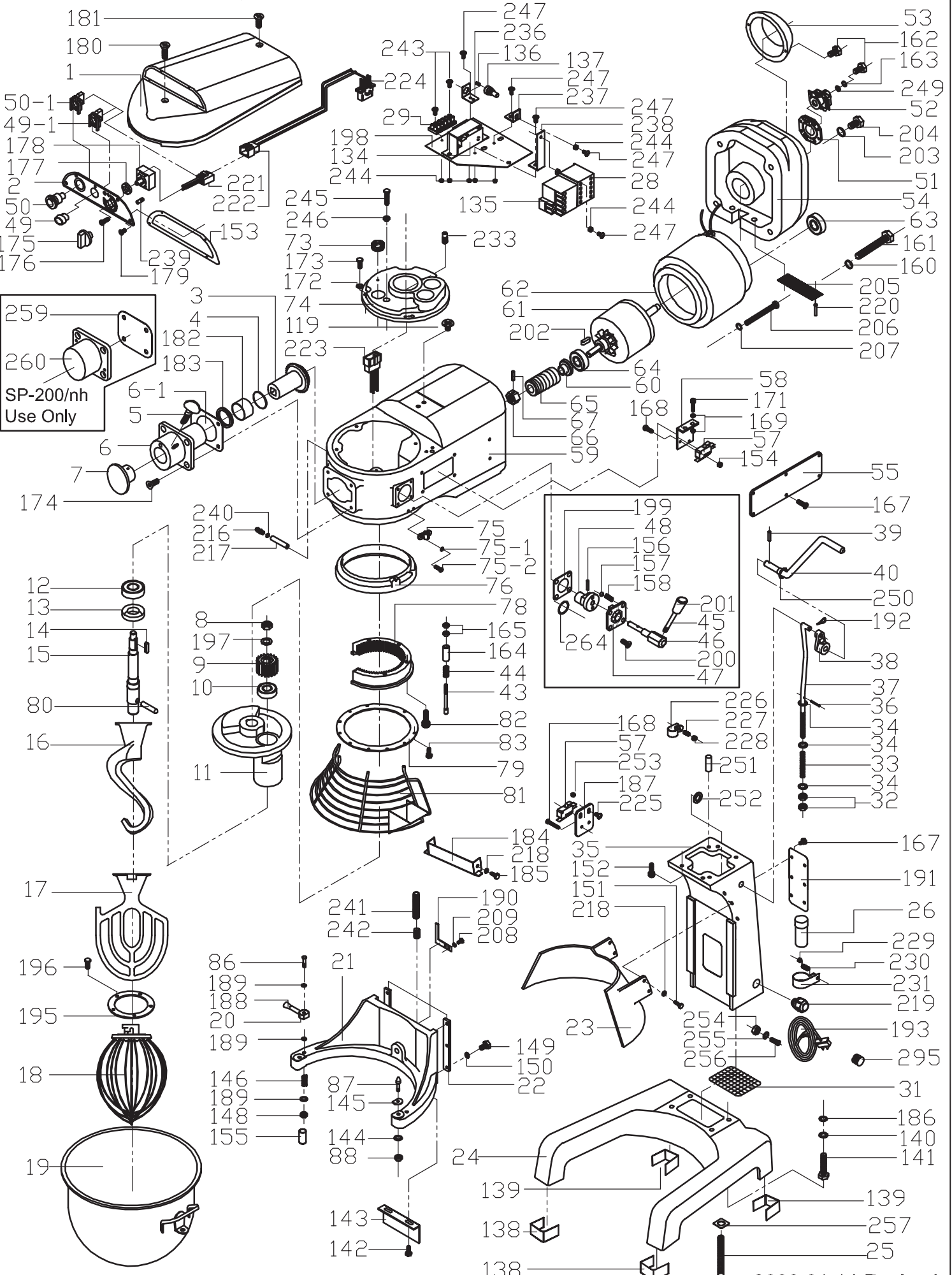
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Spare parts

Item	Part	Description	Qty	Item	Part	Description	Qty
1		cover-transmission	1	40		height adjuster	1
2		control panel	1	43		touch shaft	1
3		evel drive gear:35T	1	44		spring	1
4		washer-thrust	2	45-48	5510010	Gear shift level assembly	1
5		thumb screw	1	45		wrench	1
6		hub-attachment	1	46		shaft-wrench	1
6_1		anti-oil spacer	1	47		cover-transmission	1
7		plug-attachemnt hole	1	48		shaft-bias	1
8		nut-stop	1		5510038	york shifter assembly	1
9		pinion-beater:19T	1	49-49_1	5510020	start button, green, assy	1
10		ball bearing:#6203Z	1	50-50_1	5510025	emergency stop button assy	1
11		planetary hole	1	51	5510030	platinium switch	1
12		ball bearing: #6204Z	1	52	5510034	clutch	1
13		seal-oil:TC 25x47x10	1	53		cover	1
14		level key:5x5x20	1	54		behind cover-transmission	1
15		shaft-planetary	1	55		engrave plate	1
20		steady hook	2	57	5510056	micro switch	2
21		bowl cradle	1	58		fixed seat	1
22		escort plank	2	59		case transmission	1
23		behind interlock guarding	1	60		spring shock absorber	1
24		base	1		200062H-B	motor compl. 230/1/50Hz	1
25		screws	4		200062H-X	motor compl. 230/1/60Hz	1
26		Capacitor 230/1/50 Hz	1	61		motor shaft **	1
26	5510002	Capacitor 230/1/60 Hz	1	62		motor coil **	1
28	5510005	Contactora (Ue230-380-440)	1	63		ball bearing #6203Z	1
29		wire connector	1	64		ball bearing #6203Z	1
31		net	1	65		worm **	1
32		nut-stop	2	66		nut-stop	1
33		sring	1	67		pin-spring	1
34		washer	3	73		oil-plug	1
35		pillar-middle	1	74		above cover	1
36		pin-spring (3MM)	1	75		safety guard spring lock	1
		Bowl lift rod assy:		75_1		washer	2
37		rod-bowl lift	1	75_2		screws	2
38		arm-bowl lift	1	76		plastic slide sheath	1
39		pin:5x30	1	78		planetary internal gear:63T	1

** voltage to be indicated when ordering

SP-200 & SP-200/nh Schematic Parts List



259
260
SP-200/nh
Use Only

199
48
156
157
158
201
45
46
200
47

Spare parts

Item	Part	Description	Qty	Item	Part	Description	Qty
79		fixed slice	1	161		nut	4
80		pin	1	162		nut	2
81		front interlock guarding	1	163		spring washer	1
82		screws	6	164		plastic tube	1
83		screws	6	165		nut	2
85	5510056	micro switch	1	167		screws	12
86		screws	2	168		screws	4
87		dowel screw	2	169		nut	4
88		nut-stop	2	171		screws	2
119		ball bearing #6201Z	1	172		spring washer	4
134	5510065	transformer 24V 60 Hz	1	173		screws	4
134		transformer **	1	174		screws	4
135	5510070	overload relay 60 Hz	1		5510052	timer assy.w/knob 60 Hz	1
135		overload relay **	1			incl. 175,176,177,178	
136	3434278	fuse 1A	1	175		timer **	1
137		fuse fixture	1	176		screws	4
138		front feet rubber mats	2	177		spacer	1
139		back feet rubber mats	2	178		connection	1
140		spring washer	4	179		screws	4
141		screws	4	180		screws	1
142		screws	2	181		screws	1
143		cover for cradle	1	182		ball bearing	1
144		washer	2	183		oil seal	1
145		washer	2	184		upper cover for column	1
146		spring	2	185		screws	2
148		nut	2	186		washer	4
149		screws	6	187		barcket for micro switch	1
150		spring washer	6	188		knob for bowl clamp	2
151		screws	4	189		washer	8
152		screws	4	190		touch mass (L type)	1
153		anti-water spacer	1	191		cover plate	1
154		nut	4	192		bowl lift cam	1
155		sleeve	2	193		power line	1
156		pin	1	195		circular washer /whip	1
157		S/S ball	2	196		screws	5
158		spring	2	197		spring washer	1
160		spring washer	4	198		mounting plate	1

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Spare parts

Item	Part	Description	Qty	Item	Part	Description	Qty
199		anti-oil spacer	1	244		nut	8
200		screws	4	245		screws	1
201		knob for gear shift level	2	246		nut	1
202		level key	2	247		screws	9
203		spring washer	2	249		washer	1...5
204		screws	2	250		rubber o-ring	2
205		net	1	251		pin	2
206		screws	4	252		washer	1...5
207		spring washer	4	253		nut	2
208		nut	2	254		nut	1
209		washer	2	255		washer	1
216		grease fitting	1	256		screws	1
217		grease tube	1	257		tetragon washer	4
218		washer	4	259		anti-oil spacer	1
219		strain relief	1	260		cover	1
220		nail	2	264		rubber o-ring	1
221		cable line	1				
222		cable line	1				
223		cable line	1				
224		cable line	1				
225		nut	2				
226		strain relief	2				
227		screws	3				
228		nut	2				
229		nut	1				
230		screws	1				
231		fixture for capacitor	1				
233		pin	2				
236		fixure	1				
237		fixure	1				
238		fixure	1				
239		pin	1				
240		plastic washer	1				
241		screws	1				
242		screws	1				
243		screws	2				

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