Estella EQUIPMENT

SERVICE MANUAL

SPIRAL DOUGH MIXERS WITH GUARDS

#348SM80 • 80 Qt. **#348SM100** • 100 Qt.

NOTICE:

This manual is for a certified service technician and should not be used by those who are not properly trained. This manual cannot cover all possible conditions that may occur and is not intended to be all encompassing. You should read this manual in its entirety and the specific repair you wish to do prior to starting the repair. This will allow you to determine if you have the correct tools, instruments, and skills to perform the procedure.

INDEX

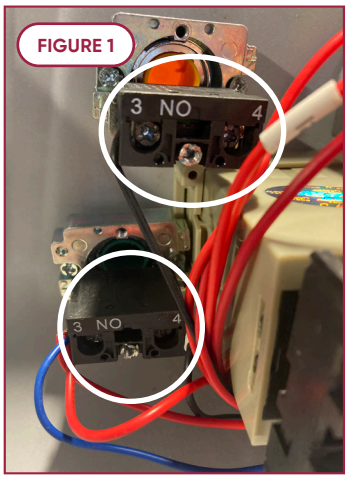
TROUBLESHOOTING

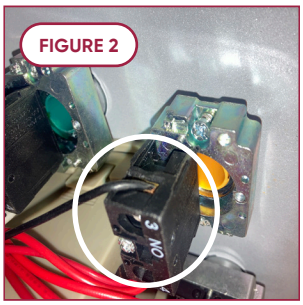
PROBLEM	POSSIBLE SOLUTION
Auger does not spin	1. Ensure power supply is 'ON' 2. Ensure unit is plugged into the correct power supply 3. Check emergency stop button is released and working 4. Check voltage at the overload protector, reset if necessary 5. Ensure bowl guard switch is working 6. Ensure the product has the correct absorption ratio 7. Check 'LOW' and/or 'HIGH' speed button 8. Check belt is not slipping or damaged or worn 9. Check the timers, low & high 10. Check contactors 11. Check motor
Bowl does not spin	1. Ensure unit has the correct power 2. Ensure unit is plugged into the correct power supply 3. Check emergency stop button is released and working 4. Check voltage at the overload protector, reset if necessary 5. Ensure the bowl guard switch is working 6. Check belt is not slipping, damaged, or worn 7. Check timers, low & high 8. Check contactors 9. Check motor
Timer is not working	1. Ensure power supply is 'ON' 2. Ensure unit is plugged into the correct power supply 3. Check emergency stop button is released and working 4. Check set time adjustment on timer 5. Check bowl guard safety switch 6. Check timer
Cannot change speeds	1. Unit can only changed speeds when auger and bowl are not spinning 2. Ensure power supply is 'ON' 3. Ensure unit is plugged into the correct power supply 4. Check emergency stop button is released and working 5. Check 'LOW' and/or 'HIGH' speed button 6. Check contactors

PART TESTING

LOW, HIGH, & REVERSE SPEED BUTTON

1. Check for continuity. Ensure unit is turned 'OFF' and disconnected from the power supply. Disconnect the wire connections and note their locations.
   - Continuity should be found between 3 & 4 when depressing button. (Fig. 1)
   - Continuity should NOT be found between 3 & 4 without depressing the button. (Fig. 1)
2. With unit connected to the power supply, check for 120 volts from #3 terminal on the buttons to the terminal on the thermal protector. (Fig. 3)
   - Bowl guard must be down
3. Check for any discoloration or deformations of electrical connections. If any are found, replace connections.
4. If any tests above fail, replace button.



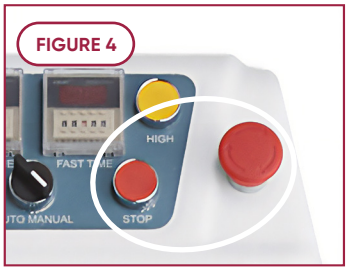


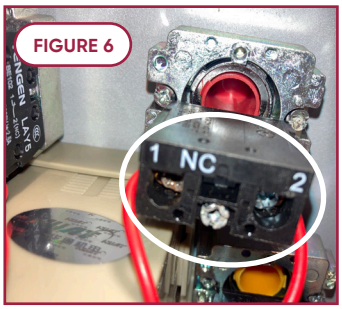
STOP & EMERGENCY STOP BUTTON

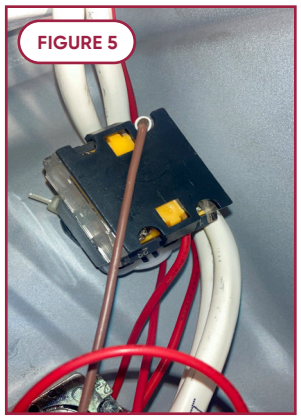
1. Check for continuity. Ensure unit is turned 'OFF' and disconnected from the power supply. Disconnect the wire connections and note their locations.

   STOP BUTTON
   - Continuity should be found between 1 & 2 without the depressing button. (Fig. 6)
   - Continuity should NOT be found between 1 & 2 when depressing the button. (Fig. 6)

   EMERGENCY STOP BUTTON
   - Continuity should be found between 11 & 12 without the depressing button. (Fig. 5)
   - Continuity should NOT be found between 11 & 12 when depressing the button. (Fig. 5)
2. With unit connected to the power supply, check for 120 volts from #2 terminal and/or #1 on the "STOP" button to the terminal on the thermal protector. (Fig. 3) The bowl guard must be down.
3. Check for any discoloration or deformations of electrical connections. If any are found, replace connections.
4. If any tests above fail, replace button.





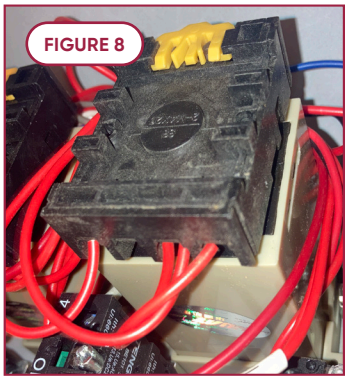


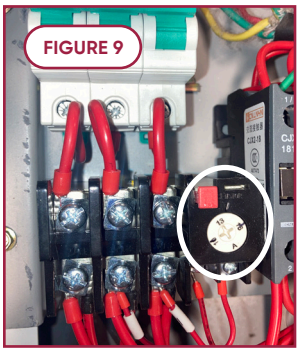
TIMER

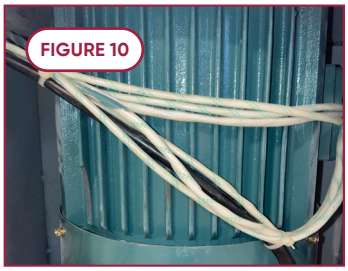
1. With unit turned 'OFF' and disconnected from the power supply, check for continuity between terminals #5 & #8. (Fig. 8)
2. With unit connected to the power supply, check for 120 volts between #5 and/or #8 terminal on the timer and the terminal on the thermal protector. (Fig. 8 & 9)
3. Check for any discoloration or deformations of electrical connections. If any are found, replace connections.
4. If any tests above fail, replace timer.

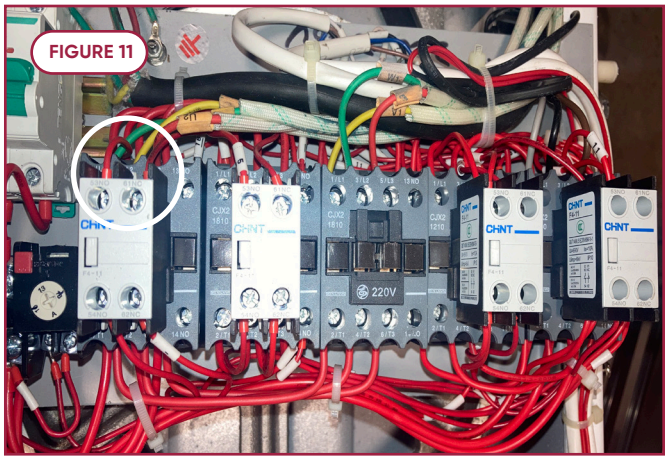
AUGER MOTOR

1. Check for resistance. Ensure unit is turned 'OFF' and disconnected from the power supply. Disconnect the wire connections and note their locations.
    - Resistance should be 1.6 Ω +/-10% across the wire connections, T1, T2, & T3 or the green, yellow, & red wires from the motor. (Fig. 11)
2. Check for amperage, with the unit connected to the power supply, push the 'LOW' speed button, amps should be:
    - 5.2 amps +/-10% on the red wire
    - 5.3 amps +/-10% on the yellow wire
    - 5.3 amps +/-10% on the green wire
3. Check for amperage. With the unit connected to the power supply, push the 'HIGH' speed button. Amps should be:
    - 2.1 amps +/-10% on the red wire
    - 6.0 amps +/-10% on the yellow wire
    - 1.7 amps +/-10% on the green wire
4. Check for any discoloration or deformations of electrical connections. If any are found, replace connections.
5. If any tests above fail, replace motor.





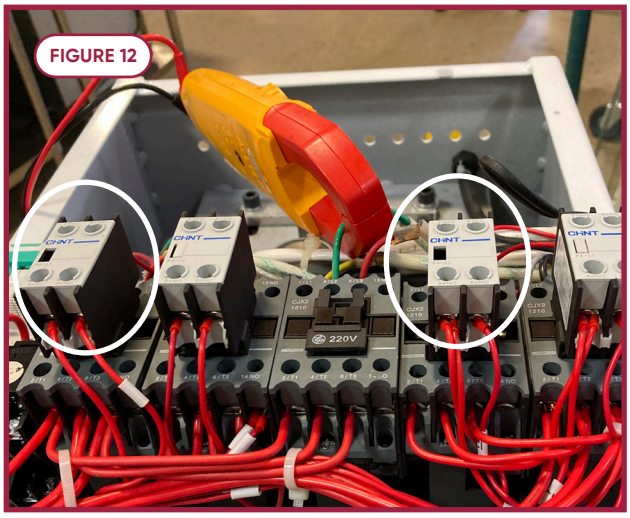




MOTOR CONTACTORS

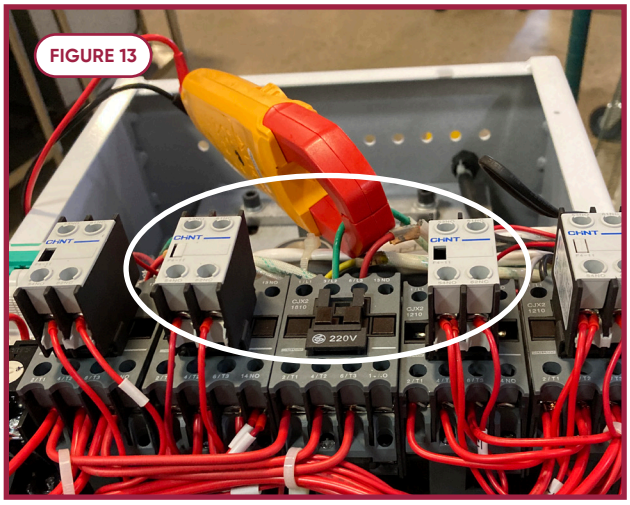
LOW SPEED

1. Check for continuity. Ensure unit is turned 'OFF' and disconnected from the power supply. Disconnect the wire connections and note their locations.
    - Continuity should be found across L1 & T1, L2 & T2, & L3 & T3 when the center section is pressed. (Fig. 12)
    - Continuity should NOT be found across L1 & T1, L2 & T2, & L3 & T3, when the center section is not pressed. (Fig. 12)
2. Check for any discoloration or deformations of electrical connections or on the contactors. If any are found, replace connections.
3. If any tests above fail, replace contactors.



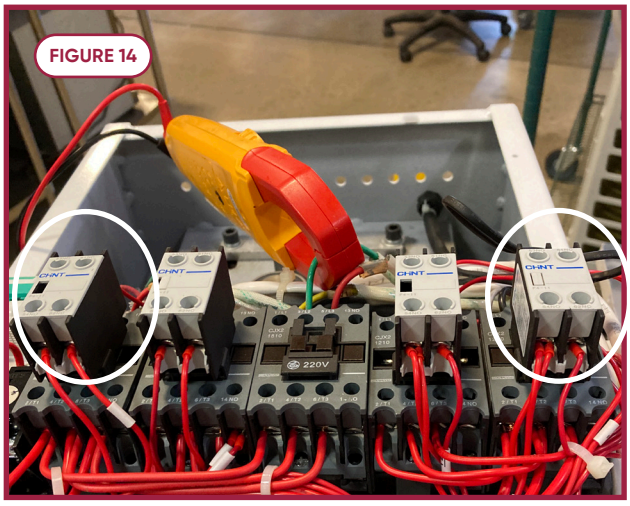
HIGH SPEED

1. Check for continuity. Ensure unit is turned 'OFF' and disconnected from the power supply. Disconnect the wire connections and note their locations.
    - Continuity should be found across L1 & T1, L2 & T2, & L3 & T3 when the center section is pressed. (Fig. 13)
    - Continuity should NOT be found across L1 & T1, L2 & T2, & L3 & T3 when the center section is not pressed. (Fig. 13)
2. Check for any discoloration or deformations of electrical connections or on the contactors. If any are found, replace connections.
3. If any tests above fail, replace contactors.



REVERSE

1. Check for continuity. Ensure unit is turned 'OFF' and disconnected from the power supply, disconnect the wire connections and note their locations.
    - Continuity should be found across L1 & T1, L2 & T2, & L3 & T3 when the center section is pressed. (Fig. 14)
    - Continuity should NOT be found across L1 & T1, L2 & T2, & L3 & T3 when the center section is not pressed. (Fig. 14)
2. Check for any discoloration or deformations of electrical connections or on the contactors. If any are found, replace connections.
3. If any tests above fail, replace contactors.



INTERNAL BREAKER

1. Check for continuity. Ensure unit is turned 'OFF' and disconnected from the power supply. Disconnect the wire connections and note their locations.
   - Continuity should be found across 1 & T2, 3 & 4, 5 & 6 when the lever is 'UP' and showing 'RED'. (Fig. 15)
   - Continuity should NOT be found across 1 & 2, 3 & 4, 5 & 6, when the lever is 'DOWN' and showing 'GREEN'. (Fig. 15)
2. Check for any discoloration or deformations of electrical connections or on the contactors. If any are found, replace connections.
3. If any tests above fail, replace breaker.

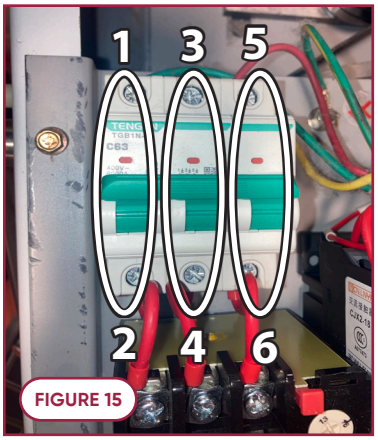


FIGURE 15

BOWL MOTOR

1. Check for resistance. Ensure unit is turned 'OFF' and disconnected from the power supply. Disconnect the wire connections and note their locations. Resistance should be 11.5 Ω +/-10% across the wire connections, T1, T2, & T3 or the green, yellow, & red wires from the motor. (Fig. 17)
2. Check for amperage. With the unit connected to the power supply, push the 'LOW' or 'HIGH' speed button. Amps should be
   - 0.5 amps +/-10% on the gray wire
   - 1.1 amps +/-10% on the black wire
   - 0.8 amps +/-10% on the brown wire
3. Check for any discoloration or deformations of electrical connections. If any are found, replace connections.
4. If any tests above fail, replace motor.


FIGURE 16

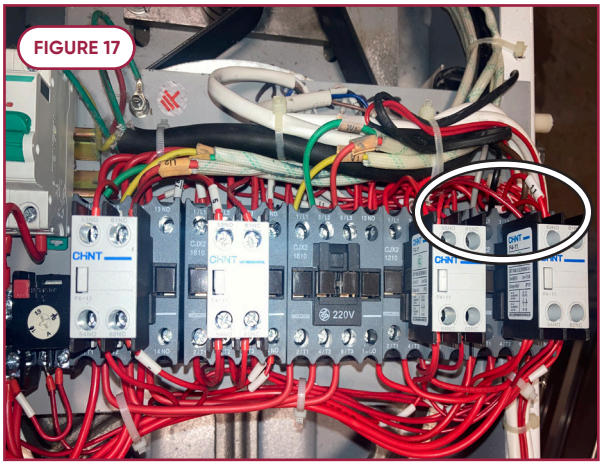


FIGURE 17

PART REPLACEMENT

PRE-MAINTENANCE

FOR BOWL AND AUGER MOTORS

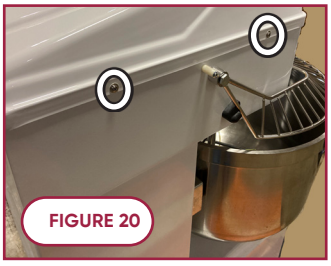
1. Disconnect from the power supply. (Fig. 18)
2. Remove the hex head screws holding the rear panel on with an 8 mm socket or wrench. (Fig. 19)

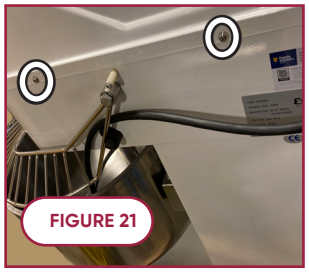
FOR CONTACTORS, PULLEYS, TIMERS, E-STOP

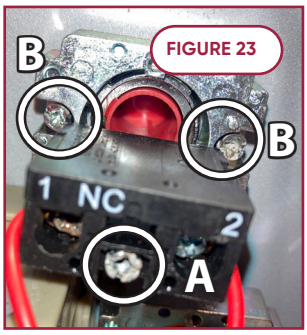
3. Disconnect from the power supply. (Fig. 18)
4. Remove the Phillips screws holding the top cover in place. (Fig. 20 & 21)

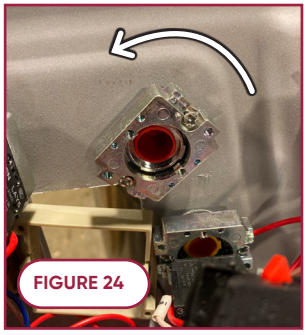
LOW, HIGH, STOP, & REVERSE BUTTONS

1. Follow pre-maintenance steps above.
2. With the lid flipped over, locate the button you need to remove.
3. Remove wire terminals from the rear of the button and note their locations for the new installation.
4. Remove the rear section of the button by moving screw with a Phillips or flat head screw driver. (Fig. 23 - A)
5. Remove the front portion of the button by loosening the two screws holding it to the lid and then turning the collar counterclockwise. (Fig. 23 - B & 24)
6. Installation is reverse of removal.









TIMERS

1. Follow pre-maintenance steps.
2. With the lid flipped over, locate the timer.
3. Remove the wire terminals from the timer. Note their locations for new install. (Fig. 26)
4. Gently pry out the two side clips on the timer and push the timer from the back side out the front of the cover to remove it from the mount. (Fig. 26 & 27)
5. Installation is the reverse of the removal.

EMERGENCY STOP BUTTON

1. Follow pre-maintenance steps above.
2. Remove wire terminals from the rear of the button and note their locations for the new installation.
3. Remove the rear section of the button by gently prying the two clips and pulling up on the rear of the button. (Fig. 29)
4. Remove the front portion of the button by turning the base of the button counterclockwise. (Fig. 29)
5. Installation is reverse of removal.

DRIVE PULLEYS (AUGER)

1. Follow pre-maintenance steps.
2. With the lid flipped over, locate pulley you want to replace.
3. Remove the belt by loosening the socket head cap screws with a 8 mm and 6 mm hex key. (Fig. 30)
4. Remove snap ring from upper large pulley and auger drive shaft with a snap ring pliers. (Fig. 31)
5. With the belt removed from above.
6. Remove snap ring from upper large pulley and auger drive shaft with a snap ring pliers. (Fig. 32)
7. Installation is the reverse of the removal.
8. Ensure belt is tensioned correctly.

FIGURE 25

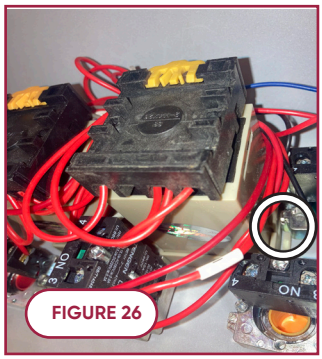


FIGURE 26

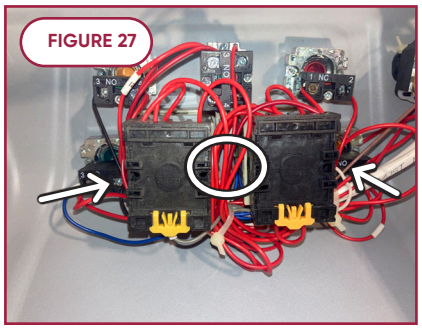


FIGURE 27


FIGURE 28

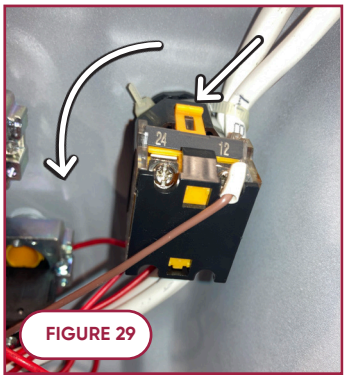


FIGURE 29

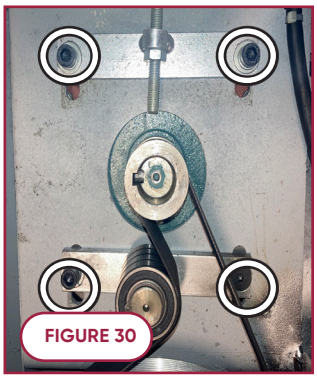


FIGURE 30

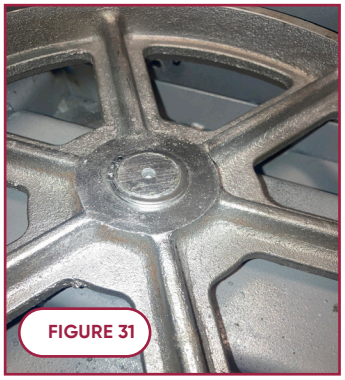


FIGURE 31

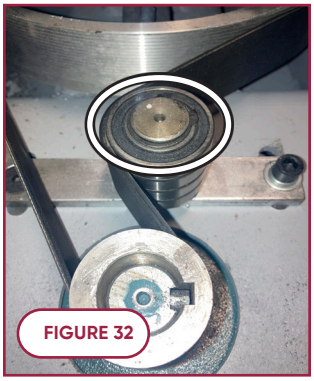


FIGURE 32

DRIVE PULLEYS (BOWL)

1. Follow pre-maintenance steps.
2. Gain access to the lower pulleys by flipping the entire mixer on its back. Use caution as the mixer is very heavy and will require two people.
3. Remove the belts by loosening the hex nuts holding the motor in place with a 17 mm socket. (Fig. 33)
4. Loosen tensioning rod nut with a 17 mm wrench until the belts can be removed. (Fig. 34 - A)
5. Remove motor pulley by first removing the holding nut and washer with a 14 mm socket or wrench. (Fig. 34 - B)
6. Use a gear puller to pull the pulley straight off the motor shaft. (Fig. 34)
7. Remove bowl pulley by first removing the snap ring with snap ring pliers. (Fig. 35)
8. Use a gear puller to pull the pulley straight off the bowl shaft.
9. Installation is the reverse of the removal.
10. Ensure belts and are tensioned correctly and are not slipping during operation.

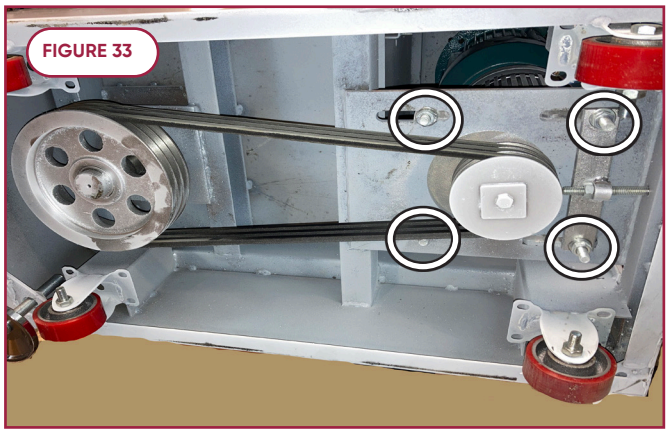


FIGURE 33

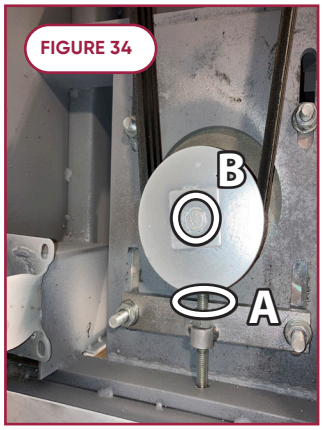


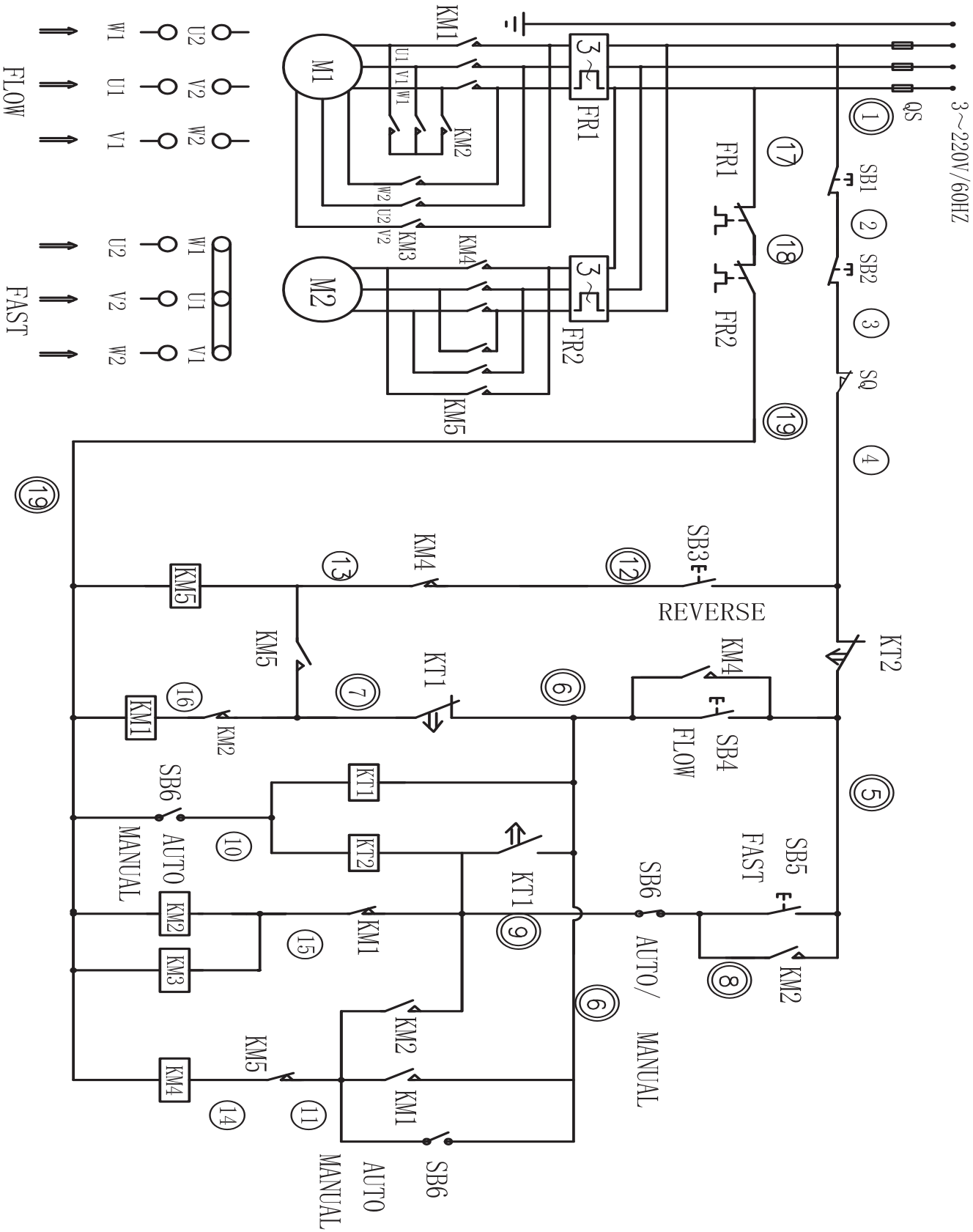
FIGURE 34


FIGURE 35

WIRING DIAGRAM

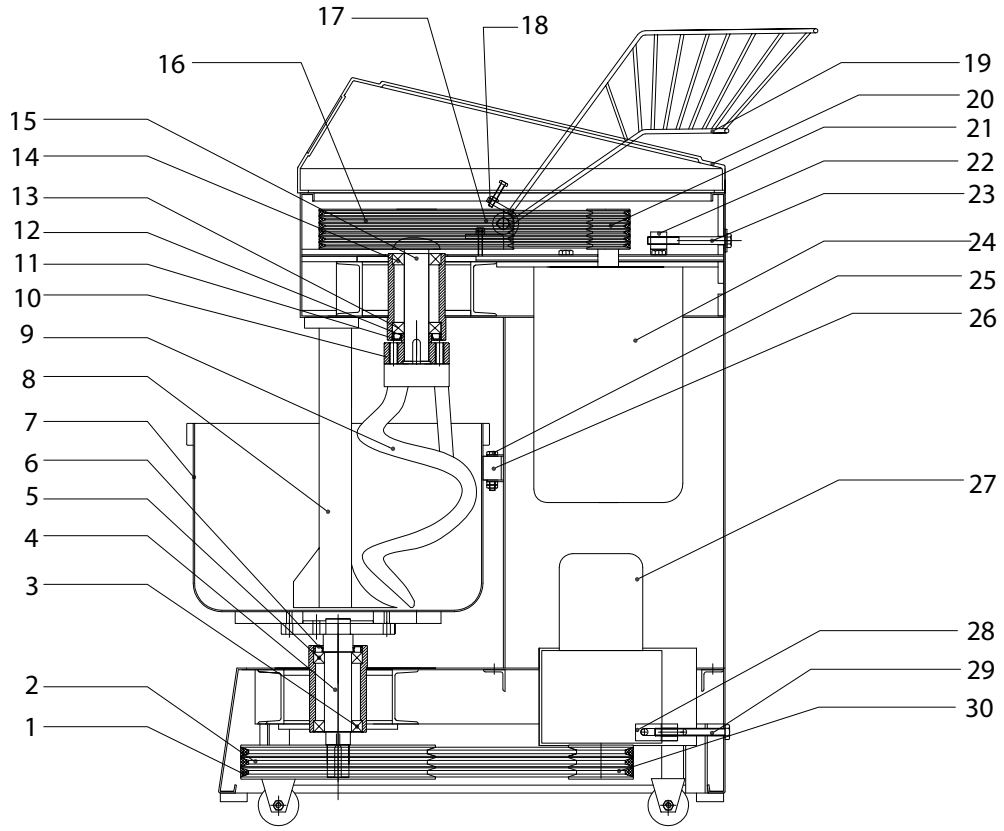
CODE	DESCRIPTION	CODE	DESCRIPTION
SB1	Emergency Stop Button	KT2	Timer
SB2	Stop Button	KM1	Contactor - Low Speed, Auger
SB3	Reverse Speed Button	KM2	Contactor - Reverse, Auger
SB4	Low Speed Button	KM3	Contactor - High Speed, Auger
SB5	High Speed Button	KM4	Contactor - Low Speed, Bowl
SB6	Auto / Manual Switch	KM5	Contactor - High Speed, Bowl
SQ	Bowl Guard Safety	M1	Motor - Auger
KT1	Timer	M2	Motor - Bowl

Note: Wiring Diagram found on page 11.


3~220V/60HZ
QS
SB1
SB2
SQ
FR1
FR2
KM1
KM2
KM3
KM4
KM5
M1
M2
SB3
REVERSE
SB4
FLOW
SB5
FAST
SB6
AUTO
MANUAL
KT1
KT2
U1 V1 W1
U2 V2 W2
FLOW
FAST

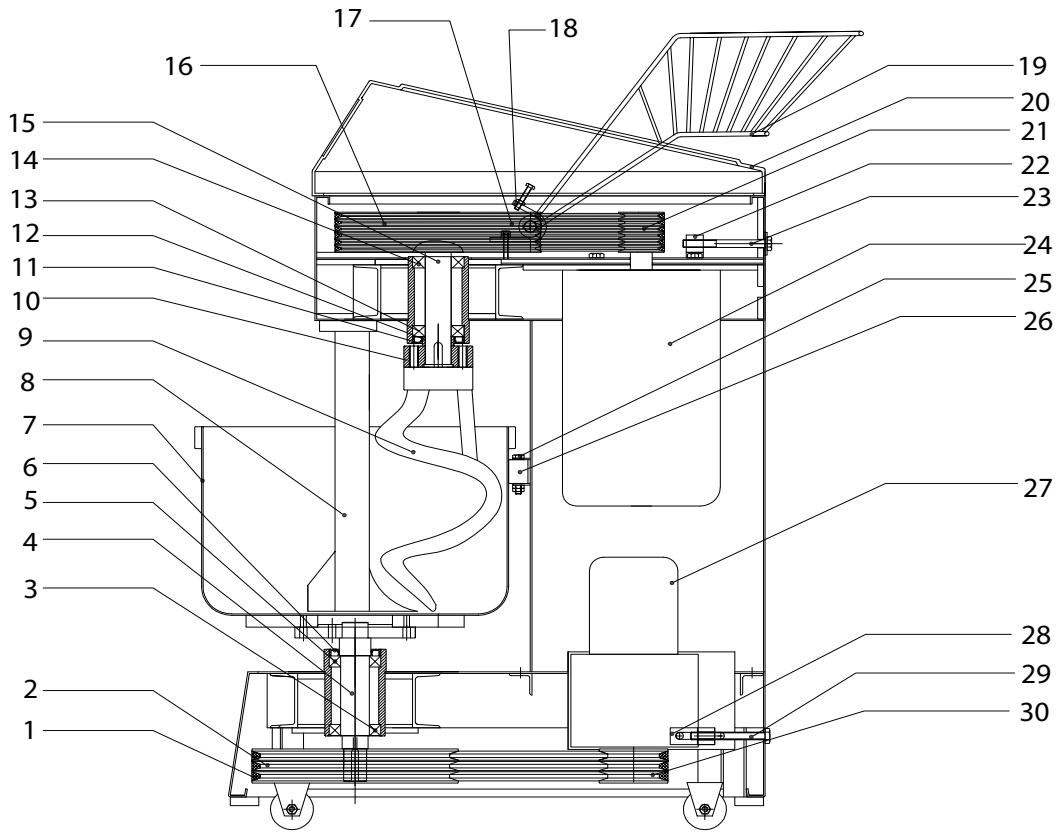
PARTS DIAGRAM

348SM80



ITEM #	DESCRIPTION	PART #	ITEM #	DESCRIPTION	PART #
1	Lower belt	348PSM80LBLT	16	Large auger pulley	348PSM80UWHL
2	Large bowl pulley	348PSM80LWHL	17	Upper belt	348PSM80BELT
3	Bearing	348PSM80BEAR	18	Bowl safety switch	348PSM81GDSW
4	Bowl drive shaft	348PSM80BSFT	19	Bowl guard	Call manufacturer
5	Bearing	348PSM80BEAR	20	Lid	Call manufacturer
6	Oil seal	348PSM80SEAL	21	Small auger pulley	
7	Bowl	Call manufacturer	22	Tensioner - auger belt	Call manufacturer
8	Auxiliary post		23	Adjuster bolt - upper	Call manufacturer
9	Dough Hook (auger)	348PSM80HOOK	24	Motor - auger	348PSM80HMTR
10	Auger flange	348PSM80FLNG	25	Bowl guide shaft	
11	Oil seal	348PSM80SEAL	26	Bowl guide wheel	
12	Oil seal spacer	348PSM80SLEV	27	Motor - bowl	348PSM80BMTR
13	Bearing	348PSM80BEAR	28	Tensioner - bowl belt	Call manufacturer
14	Bearing	348PSM80BEAR	29	Adjuster bolt - lower	Call manufacturer
15	Hook (auger) shaft	348PSM80HOOK	30	Small bowl pulley	

348SM100



ITEM #	DESCRIPTION	PART #	ITEM #	DESCRIPTION	PART #
1	Lower belt	348PSM10LBLT	16	Large auger pulley	348PSM10UWHL
2	Large bowl pulley	348PSM10LWHL	17	Upper belt	348PSM10BELT
3	Bearing	348PSM10BEAR	18	Bowl safety switch	348PSM81GDSW
4	Bowl drive shaft	348PSM10BSFT	19	Bowl guard	Call manufacturer
5	Bearing	348PSM10BEAR	20	Lid	Call manufacturer
6	Oil seal	348PSM10SEAL	21	Small auger pulley	
7	Bowl	Call manufacturer	22	Tensioner - auger belt	Call manufacturer
8	Auxiliary post		23	Adjuster bolt - upper	Call manufacturer
9	Hook (auger)	348PSM10HOOK	24	Motor - auger	348PSM10HMTR
10	Auger flange	348PSM10FLNG	25	Bowl guide shaft	
11	Oil seal	348PSM10SEAL	26	Bowl guide wheel	
12	Oil seal spacer	348PSM10SLEV	27	Motor - bowl	348PSM10BMTR
13	Bearing	348PSM10BEAR	28	Tensioner - bowl belt	Call manufacturer
14	Bearing	348PSM10BEAR	29	Adjuster bolt - lower	Call manufacturer
15	Hook (auger) shaft	348PSM10HOOK	30	Small bowl pulley	