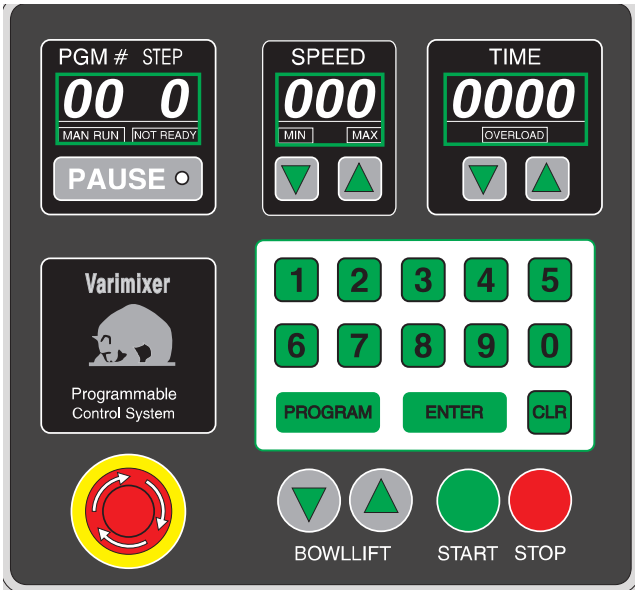
Varimixer

User's Manual
Krispy Kreme

THE PROGRAMMABLE CONTROL SYSTEM
MK-IV



CONTENTS

SPECIAL STARTING PROCEDURE TO BE USED AFTER:

1. **STOP WHEN USING THE EMERGENCY STOP SWITCH.**
2. **STOP DUE TO OVERLOADING.**
3. **STOP DUE TO OPENING OF SAFETY GUARD WHEN THE MIXER IS RUNNING..**

The bowl must be removed from the mixer before starting the mixer again. The mixing speed must be reduced to low speed before the bowl is placed in the mixer.

If the mixer is started without removing the bowl, it must be possible for the mixer to obtain approx. 75% of the minimum speed. If this is possible, the mixer will automatically return to lowest speed and stop. After pressing **"START"** the operation can be continued in the normal way. If the mixer cannot achieve approx. 75% of the minimum speed due to continued overloading, the error code **E501** will appear. The bowl is now to be removed from the mixer. After a pause of **2 minutes**, **"START"** can be pushed again, and the process can be continued.

THE SPEED SYSTEM:

THE SPEED REGULATION OF THE CONTROL PANEL IS A FEEDBACK-SERVO-SYSTEM. This means that a pick-up (magnetic sensor) is constantly supervising the speed of the main shaft, and reports back to the control panel.

The actual speed of the tool is constantly compared with the required speed, and the computer of the control panel will send a signal to the servo motor in order to adjust the speed if the comparison is showing a greater difference than **+/- 10 RPM.**

GENERAL DESCRIPTION OF MODES:

The system contains six different modes:

1. **MANUEL MODE:** The mode when the mixer is operated like a manual controlled mixer. Instead of executing a programmed recipe, the mixer is started and operated until it is manually shut off.
2. **PROGRAMMING MODE:** The mode where all programming and editing takes place.
3. **PROGRAM MODE:** The mode where all programmed recipes are executed.
4. **FIXED MODE:** A pure executional mode, mixer will only run the programmed recipes. Neither editing or speed/time overwriting can take place. Manual mode is void.
5. **RPM MODE:** Computer displays the speed in actual R.P.M.
6. **SPEED MODE:** Computer dispalys the speed. (Speed 1,2,3 and 4).

OVERLOADING:

Sticky and heavy doughs may reduce the performance of the mixer. The performance is further reduced if the speed of the mixing tool is increased beyond the recommended values or if a wrong mixing tool is used. Large lumps of fat or cooled ingredients must be cut into small parts before they are placed in the bowl.

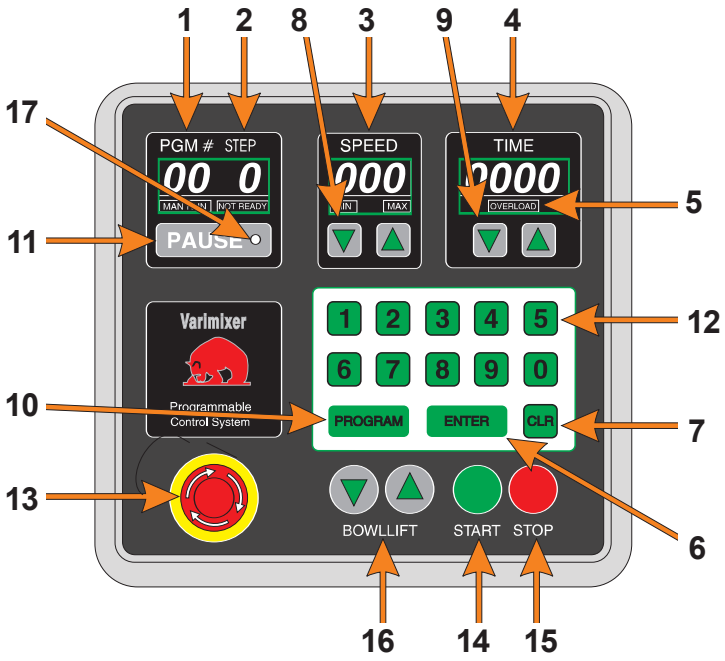
THE SPEED SYSTEM CONTAINS AN AUTOMATIC PROTECTION SYSTEM AGAINST OVERLOADING OF THE MIXER. The computer of the control panel will always try to keep the mixing speed at the same level as the keyed in speed. If the mixer cannot run with the required speed due to overloading, the computer will reduce the mixing speed to a value corresponding the loading capacity of the mixer.

IN CASE OF OVERLOADING THE FOLLOWING WILL HAPPEN: The speed keyed in by the operator on the control panel will, depending on the loading, be reduced by up to **20%**. This speed reduction can occur several times after each other until the speed corresponds the loading capacity of the mixer. If this happens, the operator must reduce the speed on the control panel or reduce the amount of dough.

Prolonged overload will make the mixer's motor protection disconnect the mixer. Leave the mixer for approx. **3 minutes** whereafter the mixer can be restarted.

KEYPAD:

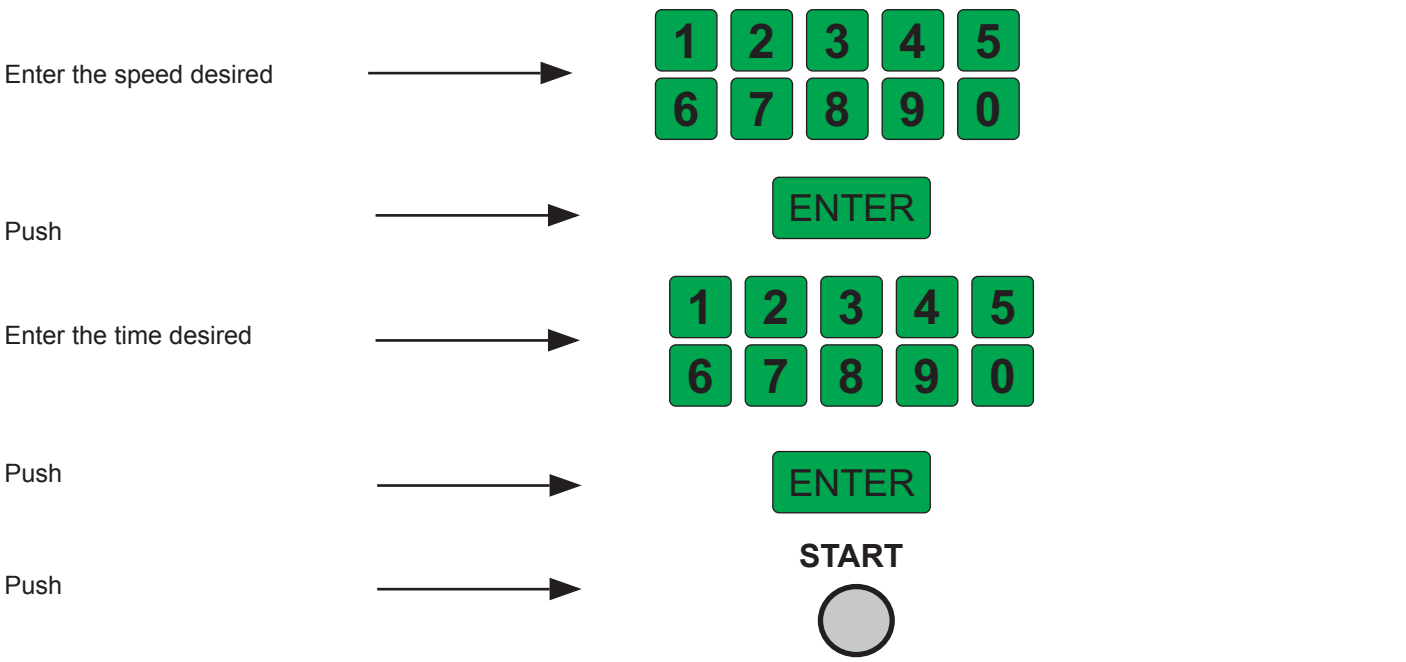
The keypad is used for entering data to the system and for general operation of the mixer.



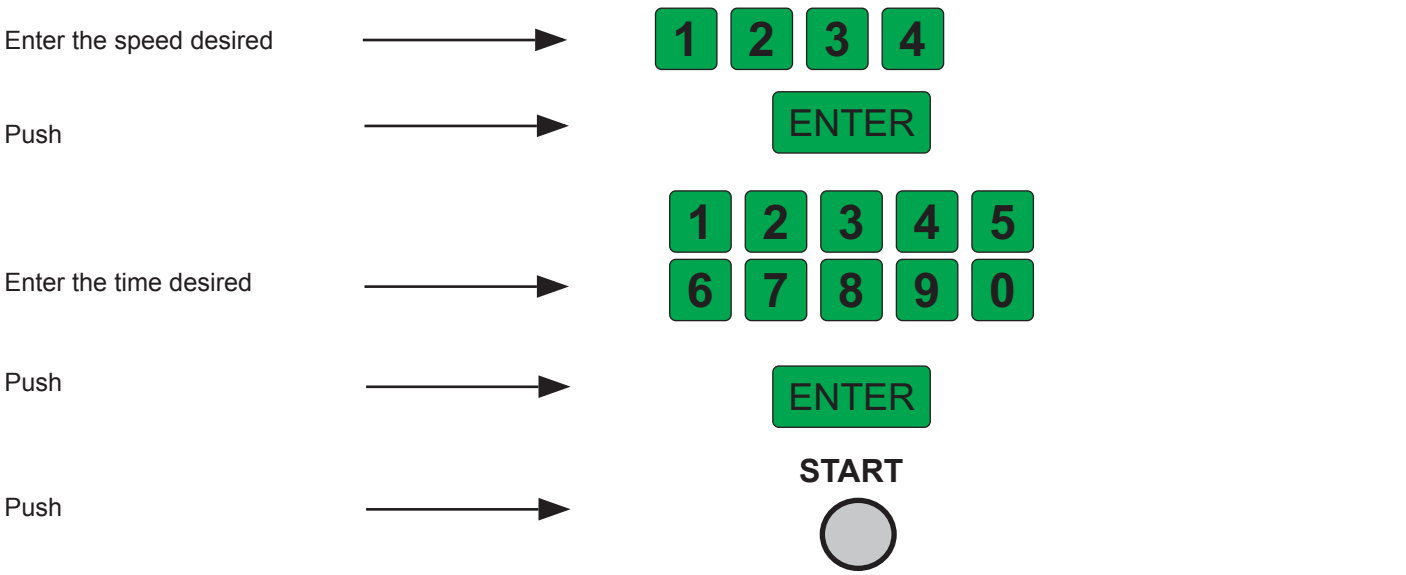
ITEM	FUNCTION	EXPLANATION
1.	Program no.	Displays the program number being executed
2.	STEP	Displays the step number being executed
3.	SPEED	Displays the set-speed
4.	TIME	Displays the elapsed time since start *or* displays the remaining time to shut down
5.	Text area	**OVERLOAD:** The mixer can not reach the chosen speed. The speed will be reduced in steps of 20% **MIN. SPEED:** The mixer is running at absolute minimum speed. **MAX. SPEED:** The mixer is running at absolute maximum speed. **READY:** The mixer is ready to start.
6.	ENTER	Used for stepping through a program.
7.	CLR	Clears a flashing display.
8.	Speed up/down arrows	Used for adjusting the speed while the mixer is running.
9.	Time up/down arrows	Used for adjusting the time.
10.	Program (PROG)	Used to enter/exit program-programming mode.
11.	PAUSE	Pauses the mixer without losing recipe.
12.	Numeric keys	Used for setting time and speed
13.	Emergency Stop	Stops the mixer instantly.
14.	START	Starts the mixer.
15.	STOP	Stop and reset key - reduces the speed to minimum and stops the mixer.
16.	BOWL LIFT	If available, used for raising and lowering the mixing bowl.
17.	Green L.E.D.	Lights up when the mixer is paused.

How to run the mixer manually:

R.P.M. mode



SPEED mode



How to input a program:

A flashing display indicates that it is expecting the operator to key in a value.

A step is always a combination of speed and time.

An examlpe is 100 R.P.M for 5:00 minutes or 0 R.P.M for 15 seconds (which is a 15 second pause). Please note that the mixer will not start automatically after a pause, the start button must be pushed to proceed to the next step.

Up to 25 programs, each consisting of 9 step, can be stored in memory.

A sample program:

Program number	Step	Speed	Time
1	1	60	1:00
	2	200	5:00
	3	0	0:20
	4	110	4:00
	5	180	2:00
	6	0	0:00

"0" Speed and "0:00" Time in the last step is mandatory. The control system will read it as a "end of program" mark.

How to program a recipe:

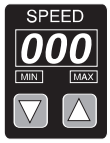
Push → PROG

"HOLD FOR 3 SECONDS"

Push → ENTER

Push → ENTER

Enter the speed desired → 1 2 3 4 5 / 6 7 8 9 0



Push → ENTER

Enter the time desired → 1 2 3 4 5 / 6 7 8 9 0

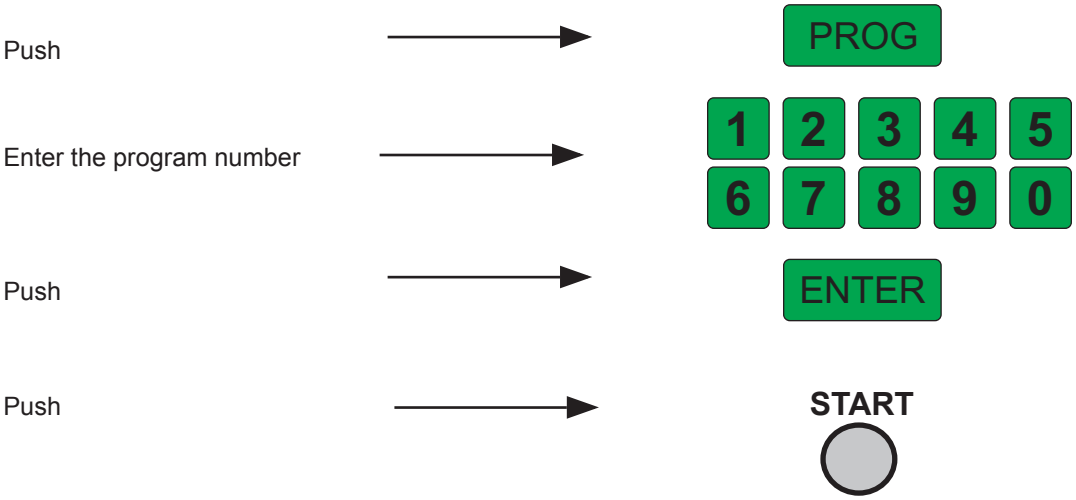
Repeat this process for as many as 9 steps per program, after the 9th step, the next program number will display, ready to enter a new recipe. This will continue up to 25 programs.

Example:

To edit a recipe or to correct mistakes, press **"PROG"** and hold it for 3 seconds to enter the programming mode, then push **"ENTER"** to reach the program/step that you wish to edit.

To delete a recipe, use the same step above to enter the programming mode, then push **"ENTER"** to reach the program/step that you wish to erase. Enter **"0"** in speed and **"0"** in time in all steps.

How to run a programmed recipe:



After the **"ENTER"** key has been pushed, the data in step 1 will be displayed along with the program number.

After the last program step has been executed, the mixer will slow to minimum speed and shut off.

The mixer can be stopped at any time during a recipe by using the **"PAUSE"** button, the mixer will slow to stop and the recipe will not be lost. To continue on with the same recipe, push **"START"**.

Fixed Mode:

Fixed mode is basically designed for users who operate the same recipes over and over again without frequent updating.

The maximum numbers of programs available in fixed mode is reduced from 25 to 10.

Fixed mode is a purely executional mode, its not possible to adjust the speed or time while in this mode.

The mixer will only run recipes that are programmed.

The advantage to this mode is that no one can "cheat" the programmed recipe.

The only applicable keys are **"START", "STOP", "PAUSE", "BOWL LIFT"**, Emergency stop and numeric keys.

RECIPES FOR MIXERS 40QT 50HZ - 60 QT 50/60 HZ - 100QT 50/60 HZ

	STEP	RPM	MINUTES	TOOL
PROGRAM # 1	1	60	1:00	**Dough Hook**
Yeast Raised	2	150	11:00	

	STEP	RPM	MINUTES	TOOL
PROGRAM # 2	1	60	1:00	**Dough Hook**
Yeast Raised	2	150	12:00	

	STEP	RPM	TIME	TOOL
PROGRAM # 3	1	60	4:00	**Dough Hook**
Yeast Raised	2	150	13:00	

	STEP	RPM	TIME	TOOL
PROGRAM # 4	1	60	1:00	**Paddle w/Sweep**
Cake / Cruller	2	120	3:00	

	STEP	RPM	TIME	TOOL
PROGRAM # 5	1	60	1:00	**Paddle w/Sweep**
Old Fashioned Cake	2	120	3:00	

	STEP	RPM	TIME	TOOL
PROGRAM # 6	1	60	1:00	**Wire Beater w/Sweep**
Clace	2	120	3:00	**(Pause mixer after Step 2. add syrup)**
	3	PAUSE (0)	0:15	
	4	95	6:00	

	STEP	RPM	TIME	TOOL
PROGRAM # 7	1	60	2:00	**Paddle w/Sweep**
Chocolate / Vanilla Icing	2	120	8:00	

	STEP	RPM	TIME	TOOL
PROGRAM # 8	1	60	1:00	**Paddle w/Sweep**
Vanilla Crème Filling	2	150	7:00	**(Pause mixer after Step 2. add ice)**
	3	PAUSE (0)	0:15	
	4	150	7:00	

PROGRAM 26 FOR MIXERS 40QT 50HZ - 60 QT 50/60 HZ - 100QT 50 HZ

STEP	VALUE 40QT, 50 HZ	VALUE 60QT, 50HZ	VALUE 60QT, 60HZ	VALUE 100QT, 50HZ	VALUE 100QT, 60HZ
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	40	60	60	100	100
8	0	0	0	0	0
9	345	350	360	425	422

How to enter "FIXED MODE":

Push → PROG

"HOLD FOR 3 SECONDS"

Push "9 9" →

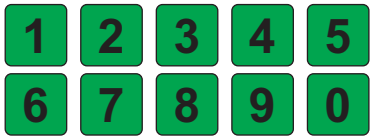
Push → ENTER

Push "1 2 3 4" →

Push → ENTER

How to run a program in "FIXED MODE":

Push the program number →



Push →

How to exit "FIXED MODE":

Push → PROG

" *HOLD FOR 3 SECONDS"*

Push "1 2 3 4" →

Push → ENTER

MANUAL SPEED OPERATION:

IF THE ELECTRONICS IN THE CONTROL BOX FAILS, THE MIXER CAN BE OPERATED MANUALLY.

1. Turn off the main switch at the point of connection.
2. Open the mixer's lid and toggle the switch which is placed on the rear of the control box to **"MAN"** position.
3. Dismount the servo motor from the arm by removing the pin **(T)**. Tie the servo motor shaft firmly so that it cannot touch the special V-belt when the mixer is started.
4. Remove the cover on the right side of the mixer and place the speed selector lever **(R)** in the slotted shaft. The speed selector lever was included with the mixer either separately or in the mixer.
5. Close the mixer's lid and turn on the main switch.
6. Start the mixer by pressing **START**
7. The speed can be changed on the speed selector lever **(R).**
8. Stop the mixer by using the **EMERGENCY STOP SWITCH** instead of the normal stop key.

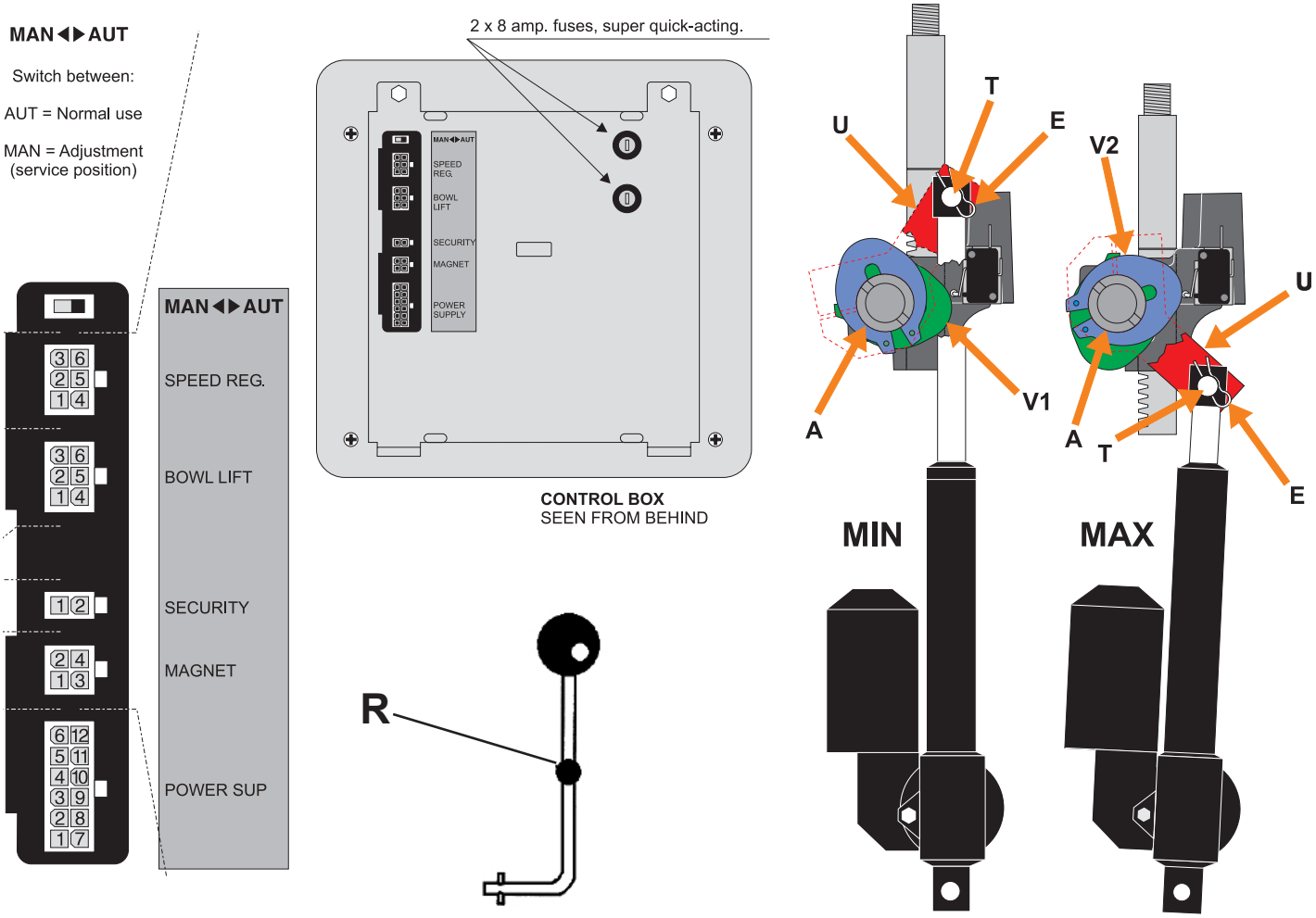
WARNING: In this working position the security systems of the mixer are out of function. This means that the mixer can be running with the bowl lowered and the safety guard and the cover open.

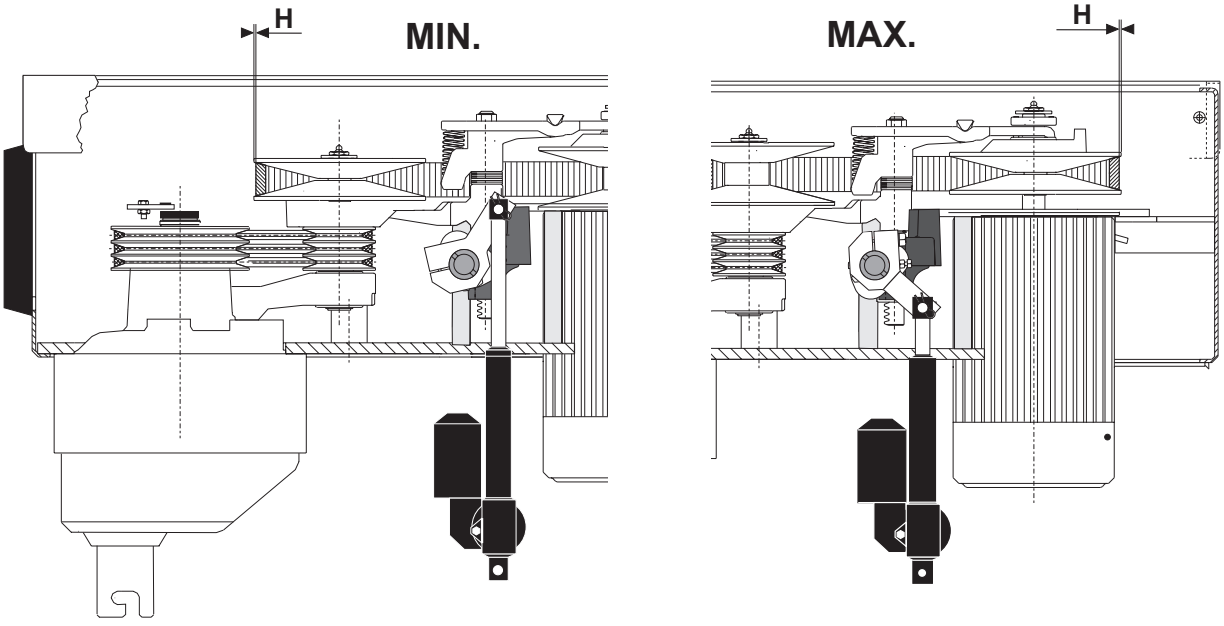
ADJUSTMENTS OF SPEED (LOW AND HIGH SPEED CAM DISKS):

1. Prior to any adjustment the mixer must be at minimum speed, the bowl must be in **"UP"** position and the safety guard, if equipped, must be closed.
2. Press the emergency stop switch.
3. The cable to the servo motor must be disconnected at the rear of the control box. The socket is marked ***"SPEED REG"***.
4. The slide switch on the rear of the control box must be in the ***"MAN"*** position.
5. The arm **(U)** is released from the servo motor shaft by removing the cotter pin **(E)** and the pin **(T)**. The arm (U) must not be loosened from the shaft **(V)**.
6. The manual speed selector lever **(R)** included with the mixer is placed in the shaft **(A)** so that it points upwards and forwards. (Remove the cover from the side of the mixer).
7. Release the emergency stop switch and start the mixer, increase the speed with the selector lever until the distance **(H)** on the rear pulley is 0-3 mm: ***"HIGH SPEED"***.
8. Stop the mixer by pressing the emergency stop switch on the control box.
9. Adjust the high speed cam disk **(V2)** so that it is activating the micro switch. ***"MAX light should be on".***
10. Release the emergency stop switch and restart the mixer, with the manual speed selector lever, lower the speed until the distance **(H)** is 0-3 mm on the front pulley set: ***"LOW SPEED"***.
11. Stop the mixer by pressing the emergency stop switch on the control box.
12. Adjust the low speed cam disk **(V1)** so that it is activating the micro switch: ***"MIN light should be on"***.
13. Reconnect the cable from the servo motor to the control box. The socket is marked ***"SPEED REG"***.
14. Move the switch on the rear of the control box to ***"AUTO"***.
15. Remove the speed selector **(R)** and replace the cover on the side of the mixer.
16. Mount the pin **(T)** and the cotter pin **(E)** which connects the arm **(U)** to the servo motor shaft.

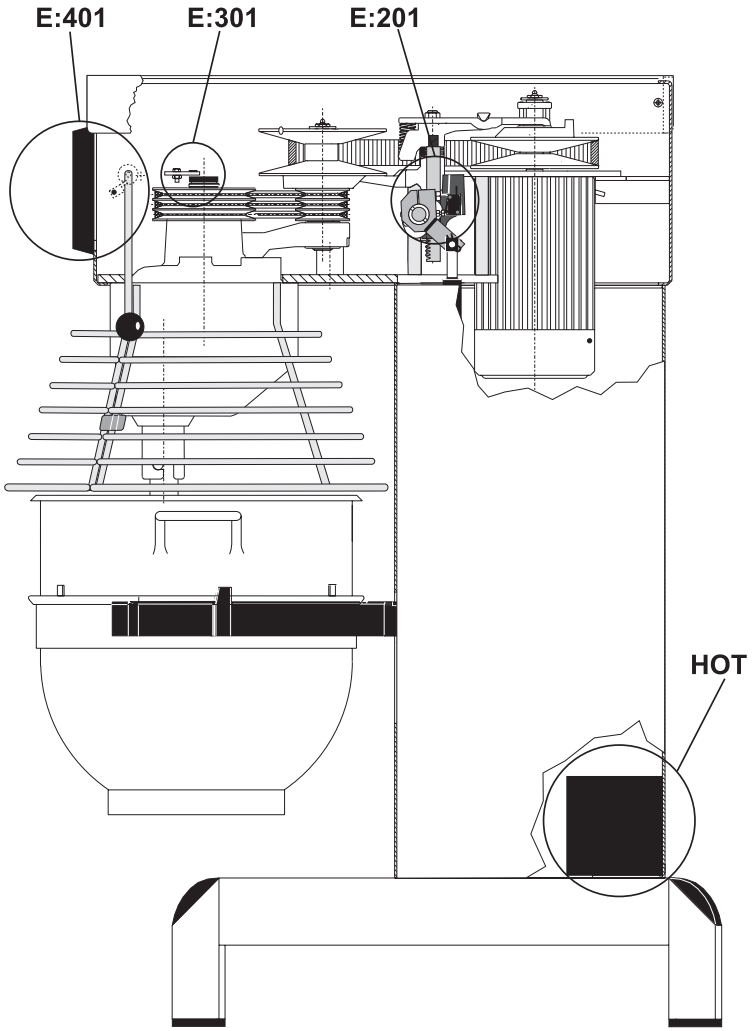
BE AWARE THAT THE SERVO MOTOR SHAFT MUST NOT TOUCH THE SHAFT (A) IN MAXIMUM SPEED.

17. Release the emergency stop switch.
18. Install the top lid.


MAN ◀▶ AUT
Switch between:
AUT = Normal use
MAN = Adjustment (service position)
2 x 8 amp. fuses, super quick-acting.
MAN ◀▶ AUT
SPEED REG.
BOWL LIFT
SECURITY
MAGNET
POWER SUPPLY
CONTROL BOX
SEEN FROM BEHIND
R
U
T
E
V2
A
V1
MIN
MAX


H
MIN.
MAX.

ERROR CODES:



An error in the mixer will trigger an **ERROR** code in the time display. See the below mentioned explanation of error codes and the procedure for correcting them.

E:201 The servo motor block actuator **(B)** did not contact the minimum speed micro switch **(A)** after the stop button was pushed or the programmed recipe completed.

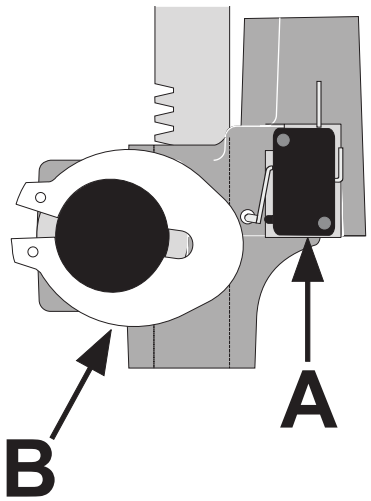
The computer is programmed to slow the mixer down to low speed before shutting off. It will not do this unless the micro switch is contacted by the block mounted on the speed adjustment shaft.

To correct this error:

1) Check the micro switch **(A)** to see if it is working by manually pushing it, when pushed, the **"MIN"** light should light up on the control panel. If it does not, the micro switch is faulty.

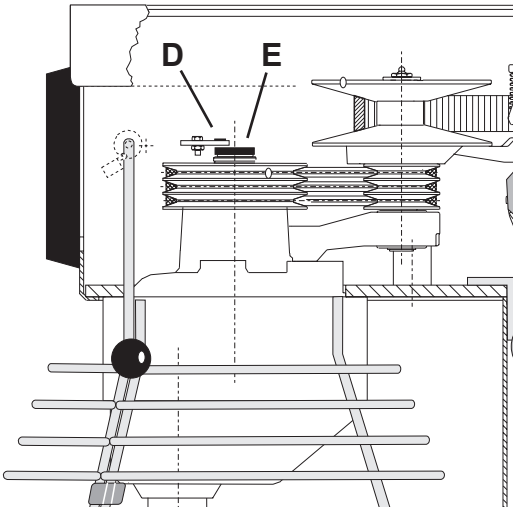
2) The cam disk **(B)** is not contacting the switch, adjust the switch up.

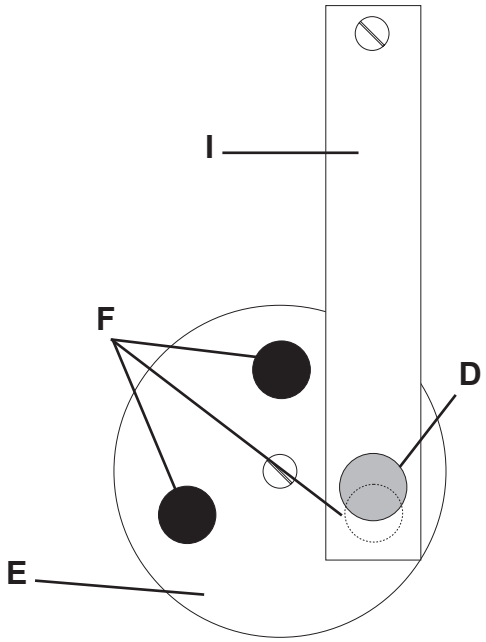
3) The servo motor is not moving at all. Check the fuses in the rear of the control, if blown, replace, if not blown, check the voltage (31 VDC) at the servo motor while the mixer is running. If voltage is present, the servo is faulty.



E:301 There is no signal from the speed pickup (hall effect sensor).

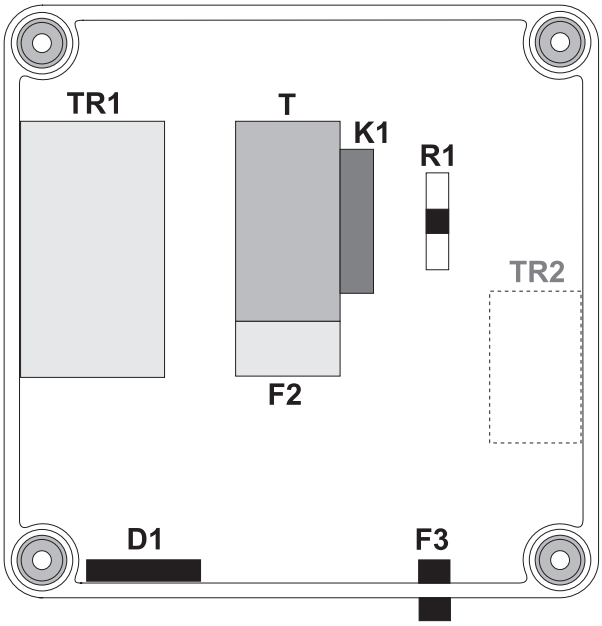
To correct this error:
1) Check that the sensor **(D)** is centered directly above the track of the 3 magnets **(F)** on the pulley and the gap between the sensor and magnets is 1/16". If not, bend and / or move the bracket (I) holding the sensor.
2) Inspect the three wires between the sensor and the plug. Replace the sensor if wires are broken.
3) Insure the aluminium disc **(E)** is tight on the pulley.





HOT The thermal overload **F2** has tripped because of excessive amp draw or heat.
The overload will automatically reset after it has cooled. This function is to protect the mixer.

To correct this error:
1) Have a service technician inspect all wiring, contactor and overload for faults.
2) Monitor the amp draw while the unit is operating. If excessive, the drive motor may be failing.



TR1.....Transformator
TR2....."Step down" Transformator
T .....Relay for motor
F2 .....Thermal cut-out
K1.....Locking contact
R1.....Coil for starting relay
D1.....Rectifier
F3 .....Fuse 1,5 A, slow

E:401 The values in program 26 steps 7,8 and 9 are missing or incorrect.

To correct this error, run program 26, see page 14

CONTROL DATA FOR PROGRAM 26:

Program 26 contains the control data required by the computer to operate. This data differs from model to model

Push → PROG

"HOLD FOR 3 SECONDS"

Push "2 6" → 1 2 3 4 5 / 6 7 8 9 0

Push → ENTER

Push "1 2 3 4" → 1 2 3 4 5 / 6 7 8 9 0

Push → ENTER

Push → ENTER until you reach step 7

In the following chart you find the value that matches the mixer model and enter it in step 7. Repeat for step 8 and 9:

Step 7		Step 8		Step 9	
Mixer model	Values	Mode	Value	Mixer model	Value 50/60 Hz
W30	30	"RPM" MODE"	:00	W30	369
W40	40	(Speeds RPM)		W40	390
W60	60	OR		W60	375
W80	80	"SPEED MODE"	:02	W80	422
W100	100	(Speeds 1-4)		W100	422
W150	150			W150	422
Krispy Kreme 40, 50 Hz	40			Krispy Kreme 40, 50 Hz	345
Krispy Kreme 60, 50 Hz	60			Krispy Kreme 60, 50 Hz	350
Krispy Kreme 60, 60 Hz	60			Krispy Kreme 60, 60 Hz	360
Krispy Kreme 100, 50 Hz	100			Krispy Kreme 100, 50 Hz	425
Krispy Kreme 100, 60 Hz	100			Krispy Kreme 100, 60 Hz	422

Push → ENTER

Push → PROG

Now run program 30, see page 15

OVERLOAD: light: When activated, mixer will lower speed 20% until it can maintain a steady speed.

1. Too much dough in the bowl (overloading) or speed set too high. Lower dough amount and speed.
2. V-belt is slipping: tighten belt or replace as needed.
3. Drive pin in motor pulley sheared, replace.
4. Hall effect sensor out of adjustment or magnet disc loose. **(See E:301)**

INSTRUCTIONS FOR RUNNING-IN OF MK-III PANEL (PROGRAM 30):

Start with running program 26, see page 14.

Push → PROG

"HOLD FOR 3 SECONDS"

Push "3 0" → 1 2 3 4 5 / 6 7 8 9 0

Push → ENTER

Push "1 2 3 4" → 1 2 3 4 5 / 6 7 8 9 0

Push → ENTER

Push → START

The actual RPM of the mixer is shown in the **"SPEED"** display.

The required minimum RPM of the mixer is shown in the **"TIME"** display.

Push ▲ or ▼ below the **"SPEED"** display until the RPM in the **"SPEED"** display is equal to the RPM in the **"TIME"** display.

Turn the cam disk **(see page 20 and 21)** for activation of micro switch for minimum speed (closest to V-belt) so that the **"MIN"** display only just lights up.

The cam disk has been adjusted to minimum speed when the **"MIN"** display only just lights up at minimum RPM.

Push **"CLR"**.

The required maximum speed of the mixer is shown in the **"TIME"** display.

Push ▲ or ▼ below the **"SPEED"** display until the RPM in the **"SPEED"** display is equal to the RPM in the **"TIME"** display.

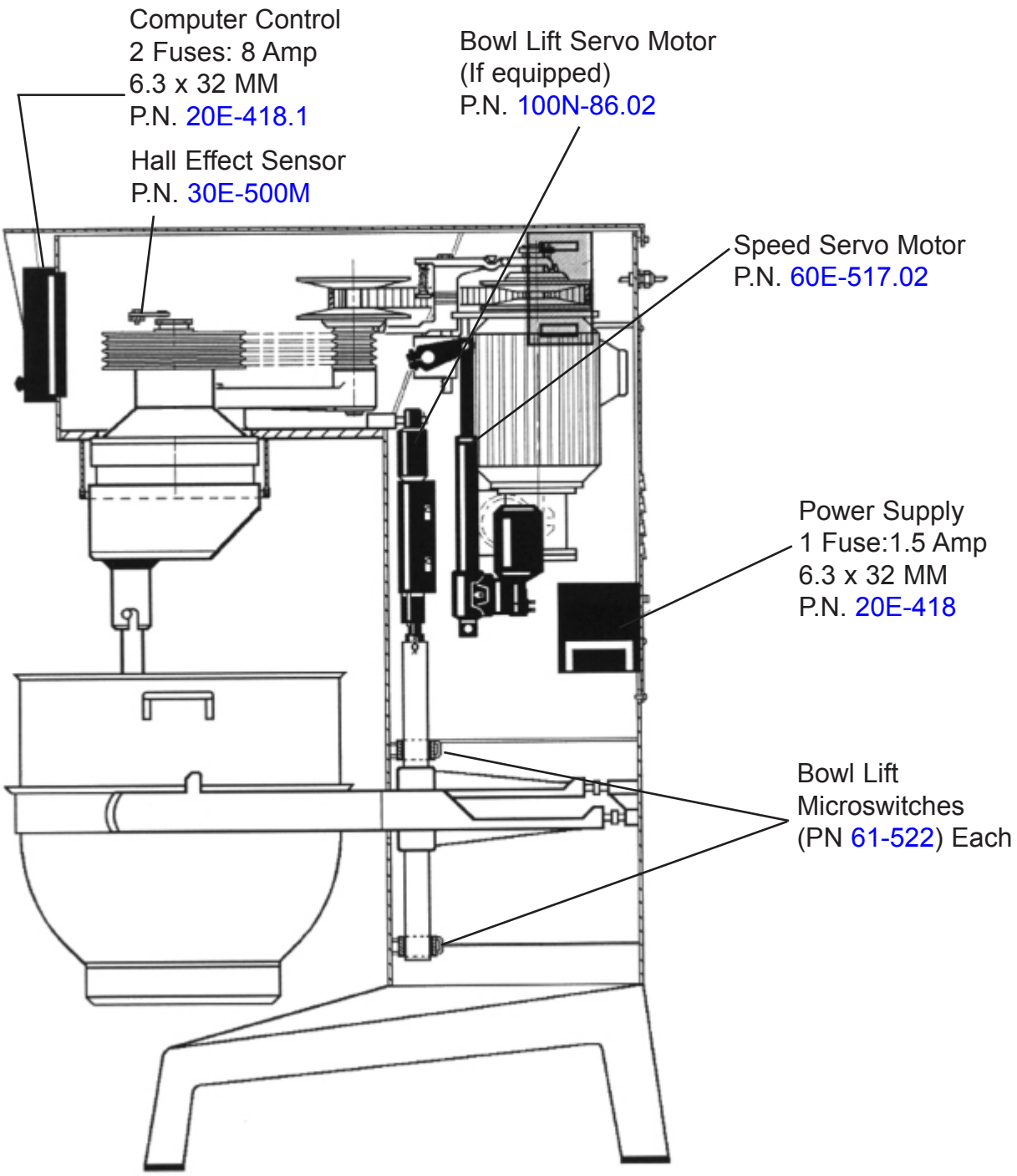
Turn the cam disk for activation of micro switch for maximum speed (remotest from V-belt) so that the **"MAX"** display only just lights up.

The cam disk has been adjusted to maximum speed when the **"MAX"** display only just lights up at maximum RPM.

Push **"STOP"**

The mixer is ready for use.

Fuse data and component location



LUBRICATION

On normal use of the mixer the infinitely variable gear must be lubricated regularly, i.e. a lubrication interval of approx. 60 hours of operation.

Lubrication of infinitely variable gear:

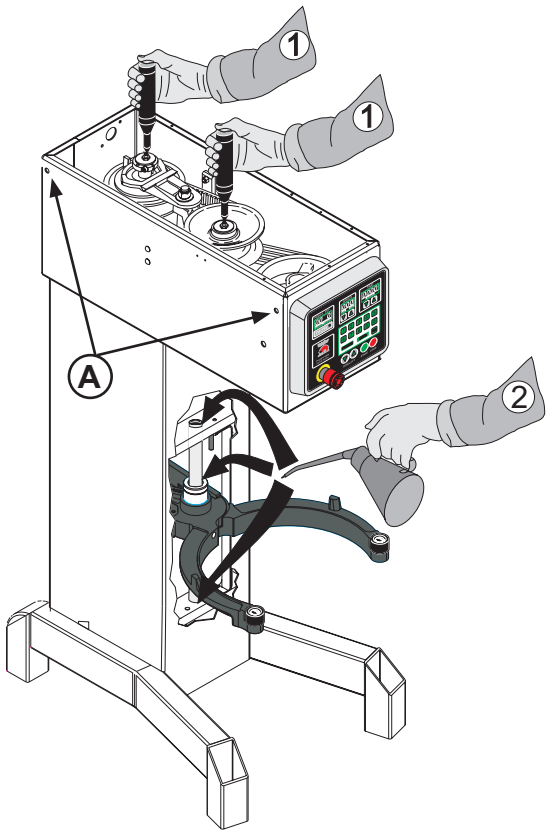
OBS. Special grease !! (Use the grease gun delivered together with the mixer).

Start the mixer and increase the speed to approx. 50%. Stop the mixer (use the emergency stop) and open the lid on the top of the mixer by removing the four screws **(A)**

At the top of each of the two pulley set shafts there is a grease nipple **(fig. 1 point 1)**. Press grease through the grease nipples until the grease gun feels hard to press or until grease comes out between the shaft and the pulleys.

The mixer must not be started until the screws (A) which hold the lid are inserted.

Start the mixer, and set the speed back to low speed.
Stop the mixer and fill the grease gun with new grease so that it is ready for next time.



Lubrication of other movable parts:

On normal use of the mixer the movable parts of the bowl arms and the shaft must must be lubricated regularly , i.e. a lubrication interval of approx. 60 hours of operation.

Remove the rear plate. pour a litle oil on the movable parts **(fig.1 pkt.2)**, especially the two bearings for the shaft of the bowl arms and move the bowl arms up and down a couble of times, so that the oil can spread.

GREASE TYPES:

Grease for the pulley set shafts:

White Lithium Grease (IE Lubriplate).

On repair of the planetary head the toothed wheel and the toothed rim shal be lubricated with the grease type:

Fluorocarbon Gel 868VH
Order from authorized service agent - Part number: White Grease

The needle bearings in the planetary head must not be lubricated with this type of grease. Do not use any another type of grease than the one stated here.

On repair of the attachment drive: Fill the attachment drive with 0.35 L **STATOIL GreaseWay LiCa 80.**

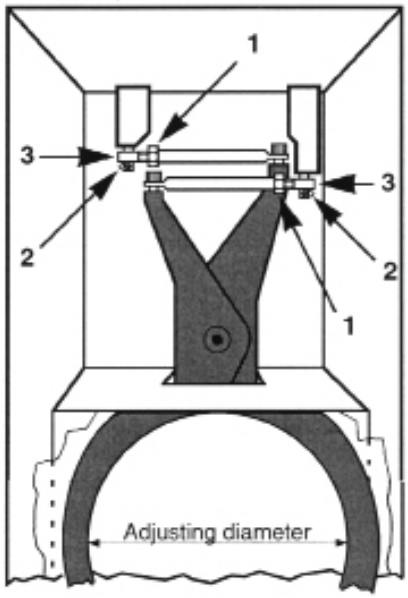
BOWL ADJUSTMENTS - MODELS W30, W40, W40P, W60,W60P

ADJUSTMENT OF BOWL CLAMPING:

The bowl arms must be raised to normal working position. Loosen the counter nuts **(1)** and remove the cotterpins **(2)**. Turn the bolts **(3)** until correct fixing of the bowl is achieved. By turning the bolts **out** of the extension tube the fixing is increased. Start by turning one of the bolts half a revolution.

The arms should be adjusted so that the bowl cannot be moved in any direction whatsoever.

fig.6 Adjustment of bowl fixing and bowl centering:



ADJUSTMENT OF BOWL CENTERING:

Loosen the counter nuts **(1)** and remove the cotterpins **(2)**. Turn the bolts **(3)** until the bowl is in the centre of the mixer. In order not to alter the fixing of the bowl, one of the bolts must be turned **out** of the extension tube and the other **into** the extension tube. Use the flat beater to check that the bowl is correctly centered and turn the planetary head with your hand before the voltage is connected.

ADJUSTMENT OF BOWL HEIGHT:

The distance **(X)** is measured from the bottom side of the bayonet hole to the surface on the bowl arms on which the bowl rests **(fig.7a).** The bowl arms must be lifted to normal working position.

(X): W30 = 6 3/8”
W40 = 6 3/8”
W60 = 7”

Lower the bowl arms down on a wooden block so that the weight of the bowl arms are not loading the lifting system. Loosen the counter nut **(1), (fig.7b)**. Take out the cutter pin **(2).** Take out the lifting rod **(3).** The lifting bolt **(4)** is now loose and can be turned out or into the lifting nut **(5)**, until the correct height of the bowl arms has been reached.

fig.7a Measuring of bowl height:

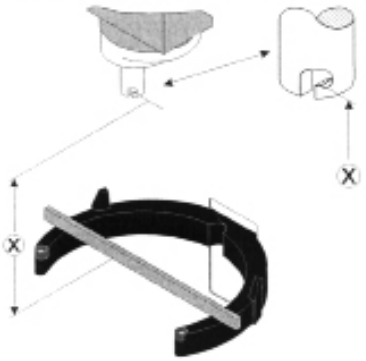
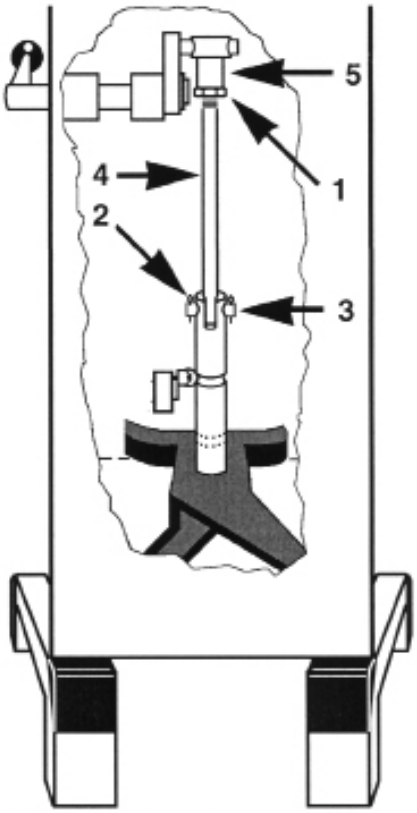


fig.7b Adjustment of bowl height:



BOWL ADJUSTMENTS - MODELS W80, W100, W150N

ADJUSTMENT OF BOWL CENTERING:

First find the present bowl centering: mount the beater and the bowl, then raise the bowl arms up to normal working position. With your hand turn the beater, and then measure the distance between beater and bowl edge. By removing the rear covering, the bowl arm guide plate is now accessible **(E)**. Loosen the screws **(D)** and move the bowl arm guide plate in the required direction. Again turn the beater and measure the distance between beater and bowl. When the bowl has been centred, fasten the bowl arm guide plate in the new position and screw on the rear covering.

ADJUSTMENT OF BOWL FIXING:

The bowl arms must be raised to normal working position.

The arms should be adjusted so that the bowl cannot be moved in any direction whatsoever.

In case the bowl fastening is too loose, remove the lock ring **(B)** and draw the bearing **(A)** from the shaft **(C)**. The bearing should be turned 180° and be mounted on the shaft again. It might be necessary to turn both bearings. At last check the bowl centering and if necessary, adjust.

fig.6 Adjustment of bowl fixing and bowl centering:

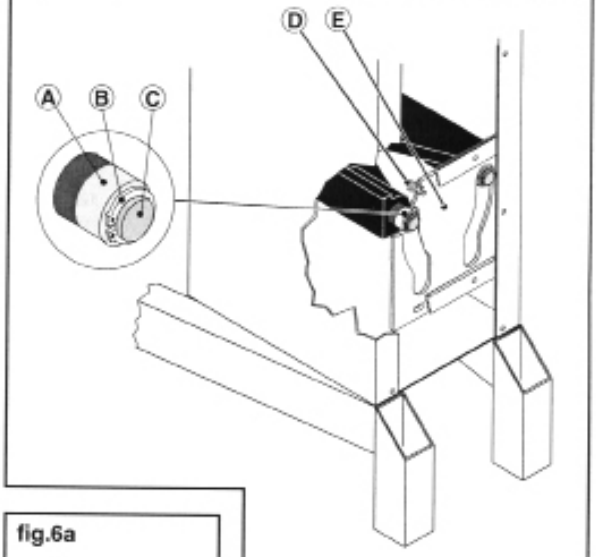
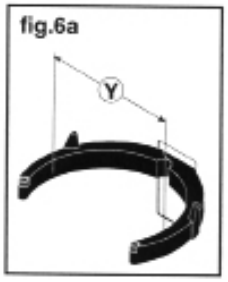


fig.6a



The bearing (A) has two diameters. As standard the mixer is delivered with the bearings mounted so that the smallest diameter points away from the bowl arms, which means the loosest bowl clamping.

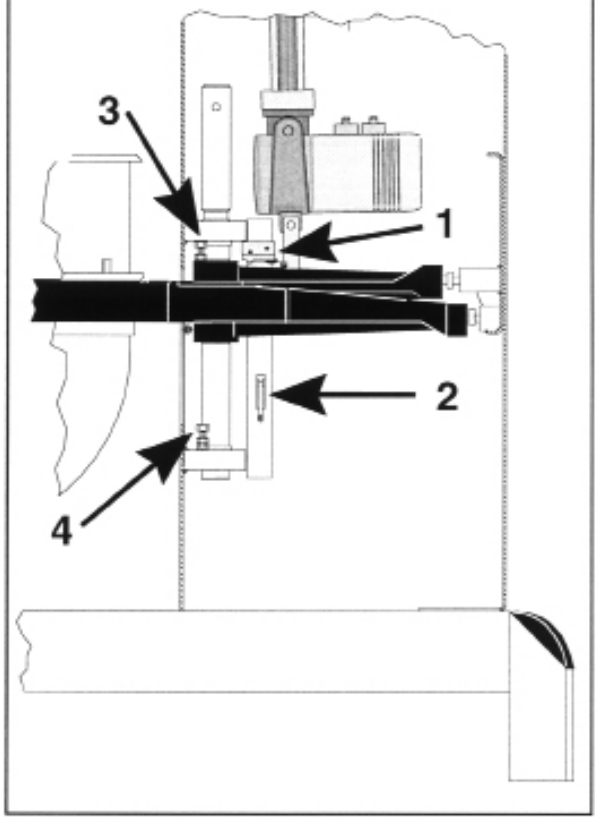
ADJUSTMENT OF BOWL HEIGHT:

The distance **(X)** is measured from the bottom side of the bayonet hole to the surface on the bowl arms on which the bowl rests **(fig.7a)**. The bowl arms must be lifted to normal working position.

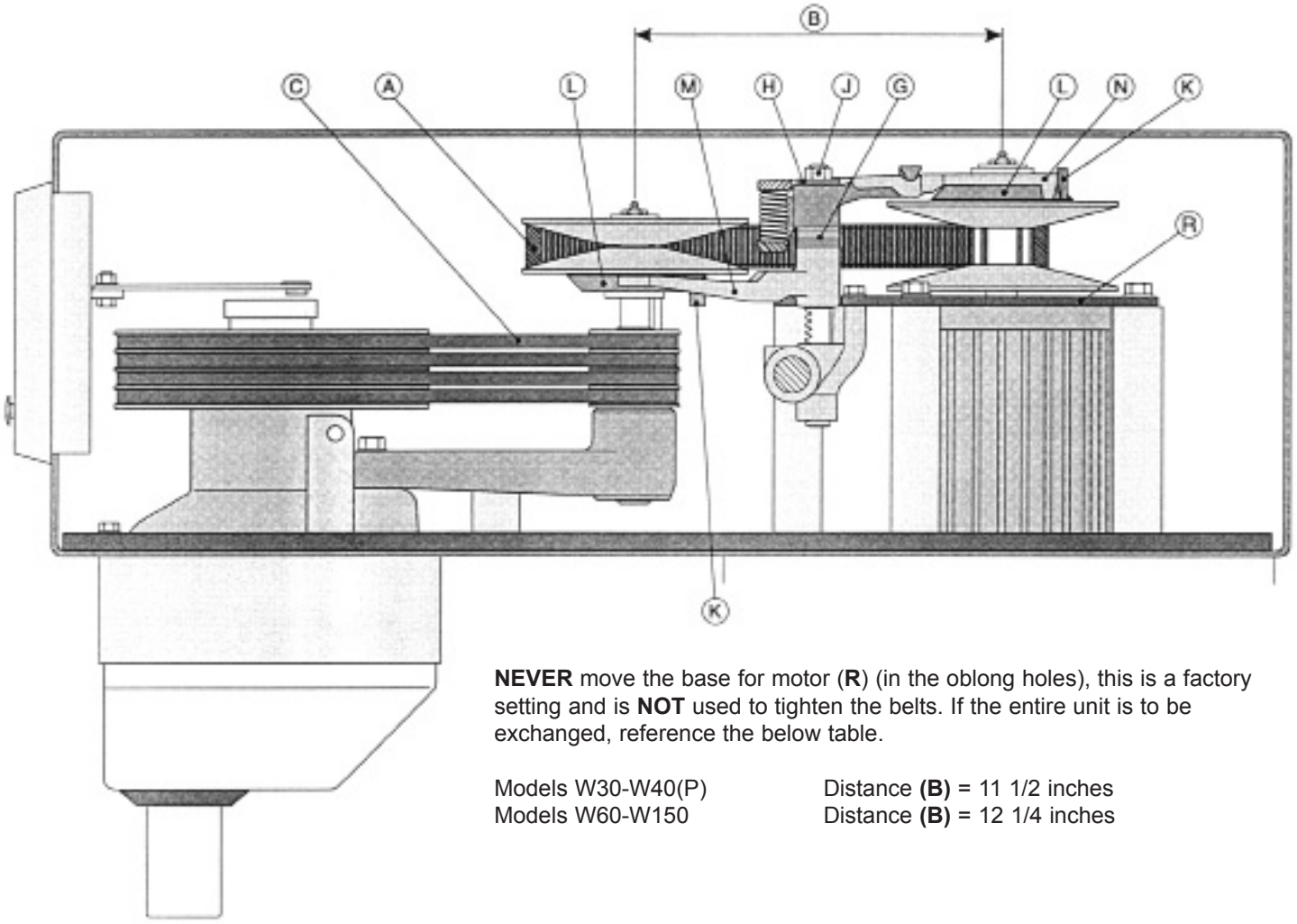
(X):
W80 = 9 1/8”
W100 = 11 5/8”
W150 = 11 7/8”

The upper and lower position of the bowl is determined by micro switch **(1)** and **(2)**, **(fig. 7b)**. The two mechanical stops consisting of the bolts **(3)** and **(4)** are adjusted so that they will be hit approx. 1 mm after the micro switch, in case the micro switch should fail. The upper position of the bowl arms is adjusted by bending the spring arm of the micro switch **(2)** either forwards or backwards; it is of utmost importance that the stop screw **(3)** is re-adjusted afterwards. In the same way the lower position is adjusted by bending the spring arm of the micro switch **(2)**. **NB:** The spring arm must not be bent so far backwards that the bowl arms do not hit it. Thereafter the mechanical stop **(4)** is adjusted.

fig.7b Ajustment of bowl height:

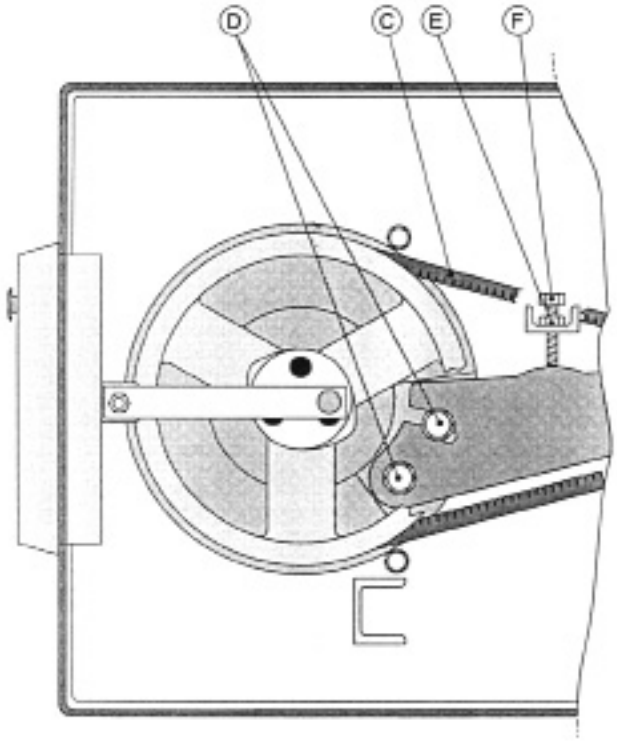


BELT ADJUSTMENTS



NEVER move the base for motor (**R**) (in the oblong holes), this is a factory setting and is **NOT** used to tighten the belts. If the entire unit is to be exchanged, reference the below table.

Models W30-W40(P)	Distance **(B)** = 11 1/2 inches
Models W60-W150	Distance **(B)** = 12 1/4 inches



1. Start by tightening the V-belts **(C)** -

1a. Loosen the bolts **(D)** and the jam nut **(E)**.

1b. Tighten the bolt **(F)** until the V-belts are tight, tighten the the 2 bolts **(D)**.

1c. Back bolt **(F)** out away from arm.

DO NOT LEAVE AGAINST ARM

2. If the main vari belt **(A)** appears loose when the unit is running -

2a. Remove nut **(J)** and washers **(H)**.

2b. Pry upper spring fork assembly **(N)** off of shaft. **2c.** Remove 1 or 2 washers from **(G)**.

2d. Reinstall spring fork assembly **(N)**, washers **(H)** and nut. **(J).**

DO NOT TIGHTEN NUT.

2e. Start the mixer and tighten nut **(J)** until snug.

3. Now turn to Page xx and follow the instructions “Adjustment of low (min) and high (max) speed microswitches”.

Belt Exchange

1. Loosen Bolt **(J)** and remove washers **(H)**.
2. Remove cotterpin **(T)** and dowel pin **(E)** from servo linkage.
3. Remove vari drive belt **(A)** from pulleys.
4. Remove Hall Effect sensor **(X)** from the rear of the computer.
5. Loosen bolts **(D)** and remove the front V-belts **(C)** by tilting the center pulley assembly **(L)** forward and rolling the belts **(C)** off the front pulley one at a time. The belts can now be threaded between the lower fork **(M)** and the lower movable pulley.

Installing and tightening of V-belts

6. Install the V-belts **(C)** on the center pulley assembly and front pulley.
7. Tighten the two bolts **(D)**.
8. Tighten the bolt **(F)** until the V-belts are tight, then tighten the the 2 bolts **(D)**.Back bolt **(F)** out away from arm.

DO NOT LEAVE AGAINST ARM

9. Install the Hall Effect sensor **(X)** onto the computer and align (See page xx).
10. Measure the distance **(B)** to insure it is within tolerance.

Models W30-W40(P) Distance (B) 11 1/2 inches

Models W60-W150 Distance (B) 12 1/4 inches.

11. If the measurement is out of spec, the motor assembly should be moved by loosening the four bolts **(P)** on the motor mount plate, sliding the motor until it is within the proper distance, and retighten bolts **(P)**.
12. Install the vari drive belt **(A)**.
13. Install fork assembly
14. Install washers **(G)** and nut. **(J)**

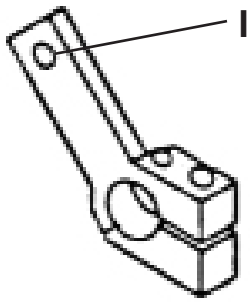
DO NOT TIGHTEN NUT

15. Start the mixer and tighten nut. **(J)**
16. Follow the instructions on Page 10,“Adjustment of min and max speed microswitches”.

SPEED SERVO SYSTEM

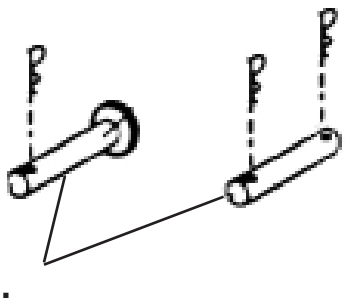
Figure Number	Description	W30, W40 , W40P	W80, W100 , W150
1	Sensor	30E-500M	30E-500M
2	Bolt M6	STA 5432	STA 5432
3	Magnets	30E-515M	30E-515M
4	Screw	STA 5011	STA 5011
5	Speed Microswitch	30E-507	30E-507
5A	Speed Micro w/roller	30E-508	30E-508
7	Shaft	30E-47M	60E-47M
8	Snap Ring	STA 3414	STA 3414
9	Bushing	20-310	20-310
10	Screw	STA 5636	STA 5636
11	Bolt	STA 5432	STA 5432
12	Nut	STA 5819	STA 5819
13	Servo Arm 12MM I.D.	30E-543	60E-543
13	Servo Arm 1/2” I.D.	30E-543	60E-543.1

ITEM 13



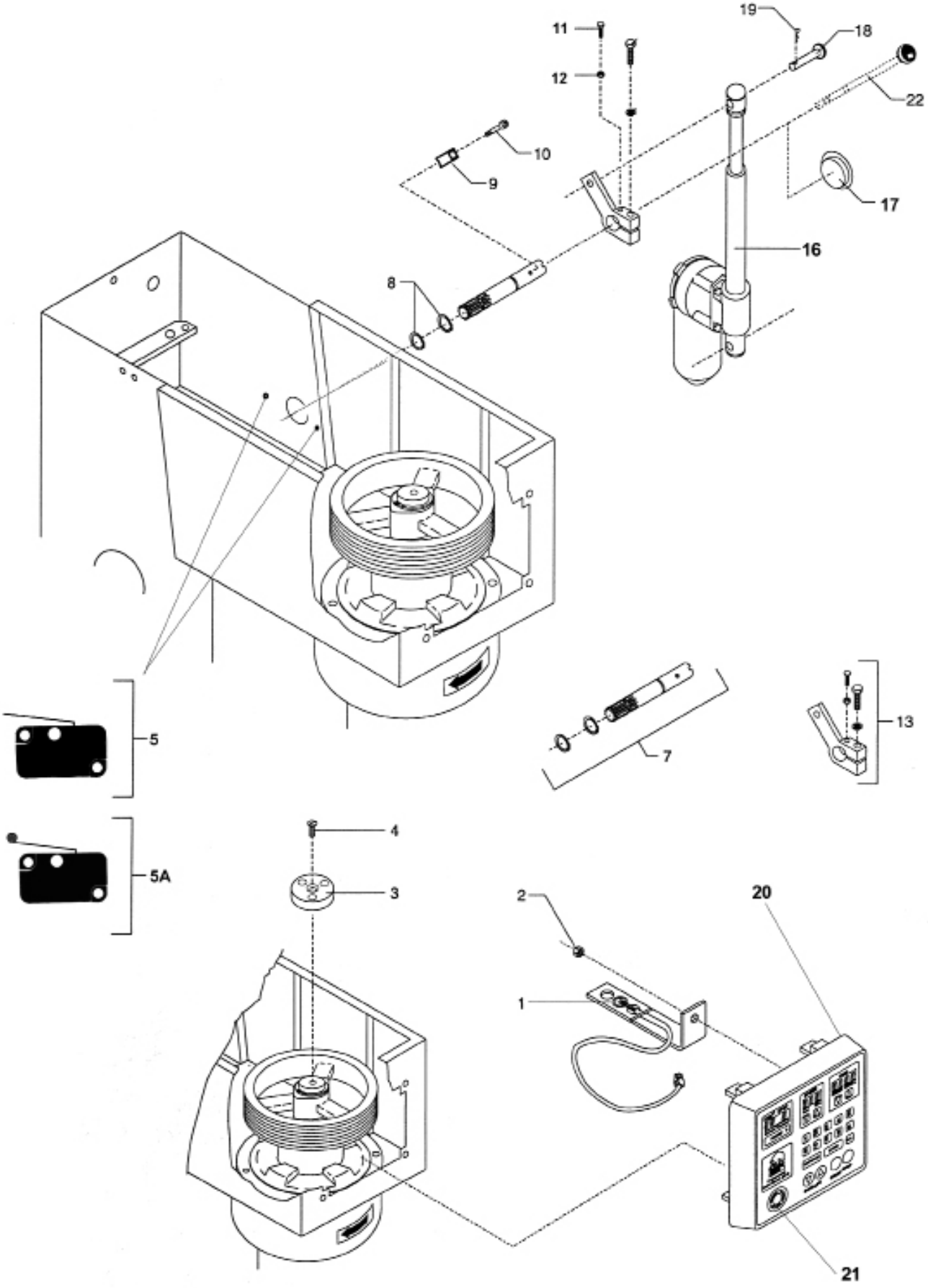
Measure I.D. of hole OR O.D. of Pin.to determine correct part number.

ITEM 18



17	Plug Button	30E-47.12	30E-47.12
16	Speed Servo Motor	60E-517.02	60E-517.02
18	Servo Pin 12MM O.D.	60E-70	60E-70
18	Servo Pin.1/2” O.D.	60E-70.2	60E-70.2
19	Cotter Pin	STA 6205	STA 6205
20	Control Assembly	20E-604M	20E-604M
21	Emergency Stop	20E-615M	20E-615M
22	Retrofit Handle	20E-47.1M	20E-47.1M

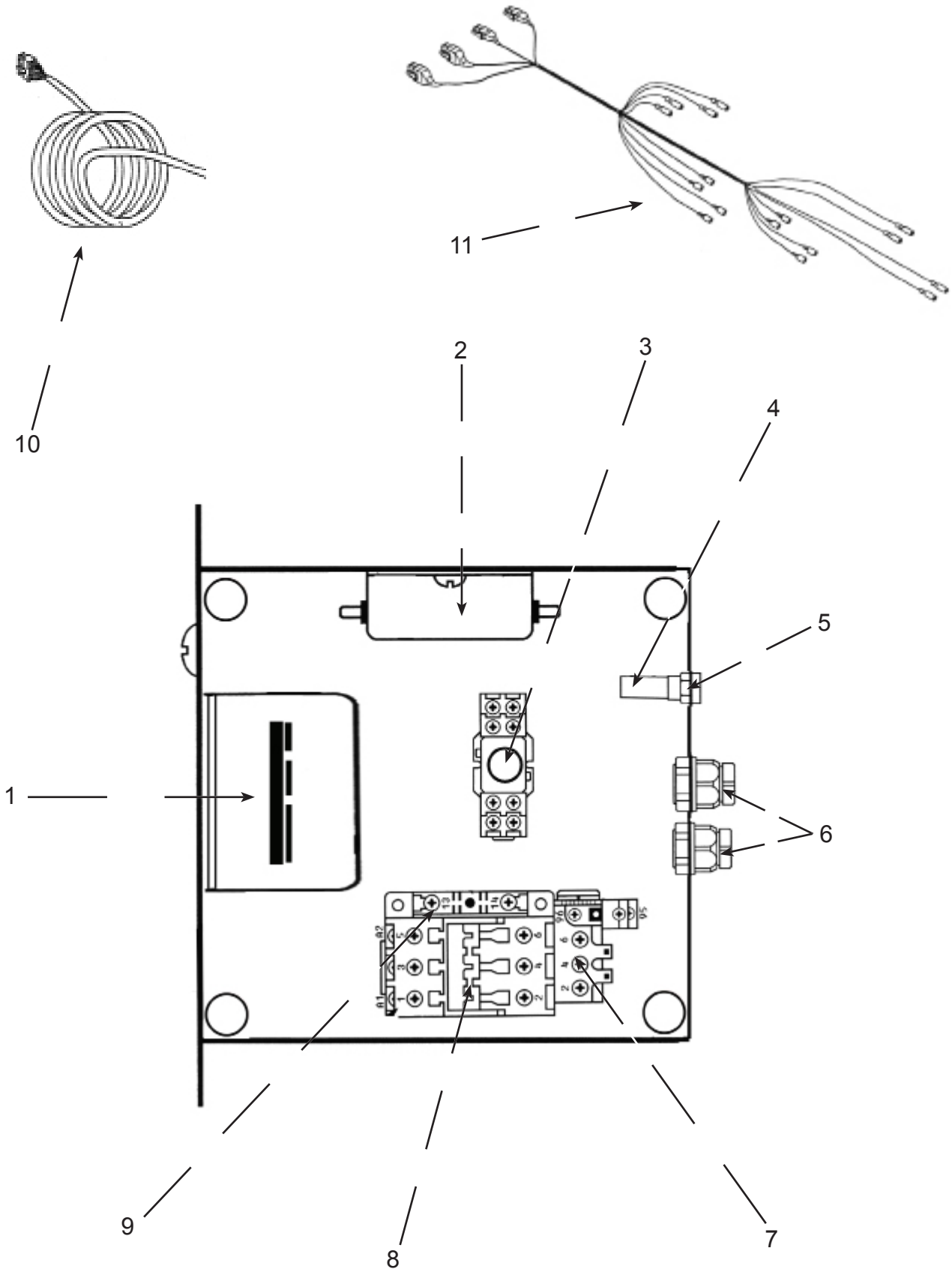
SPEED SERVO SYSTEM



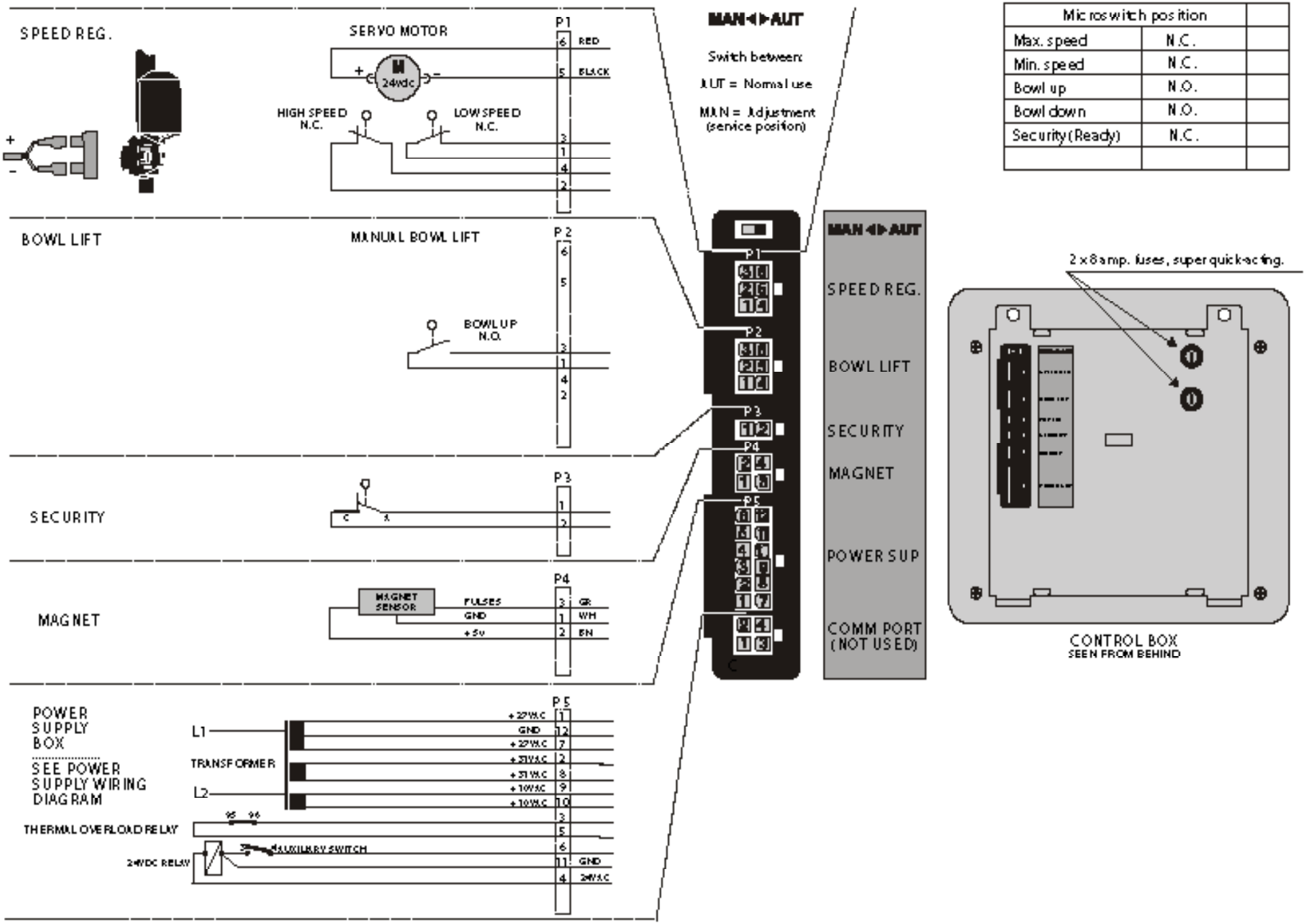
POWER SUPPLY

Figure Number	Description	All Models
1	Transformer	60E-430
2	Filter	20E-419
3	Relay 24VDC	140E-420
4	Fuse Holder	20E-416.1
5	Fuse	20E-418
6	Compression Fittings	STA 3000
7	Thermal Overload	20-88.24
8	Contactor	100-88.5
9	Auxilliary Switch	20-88.47
10	Grey Harness	60E-428
11	Computer Harness	60E-542.1

POWER SUPPLY

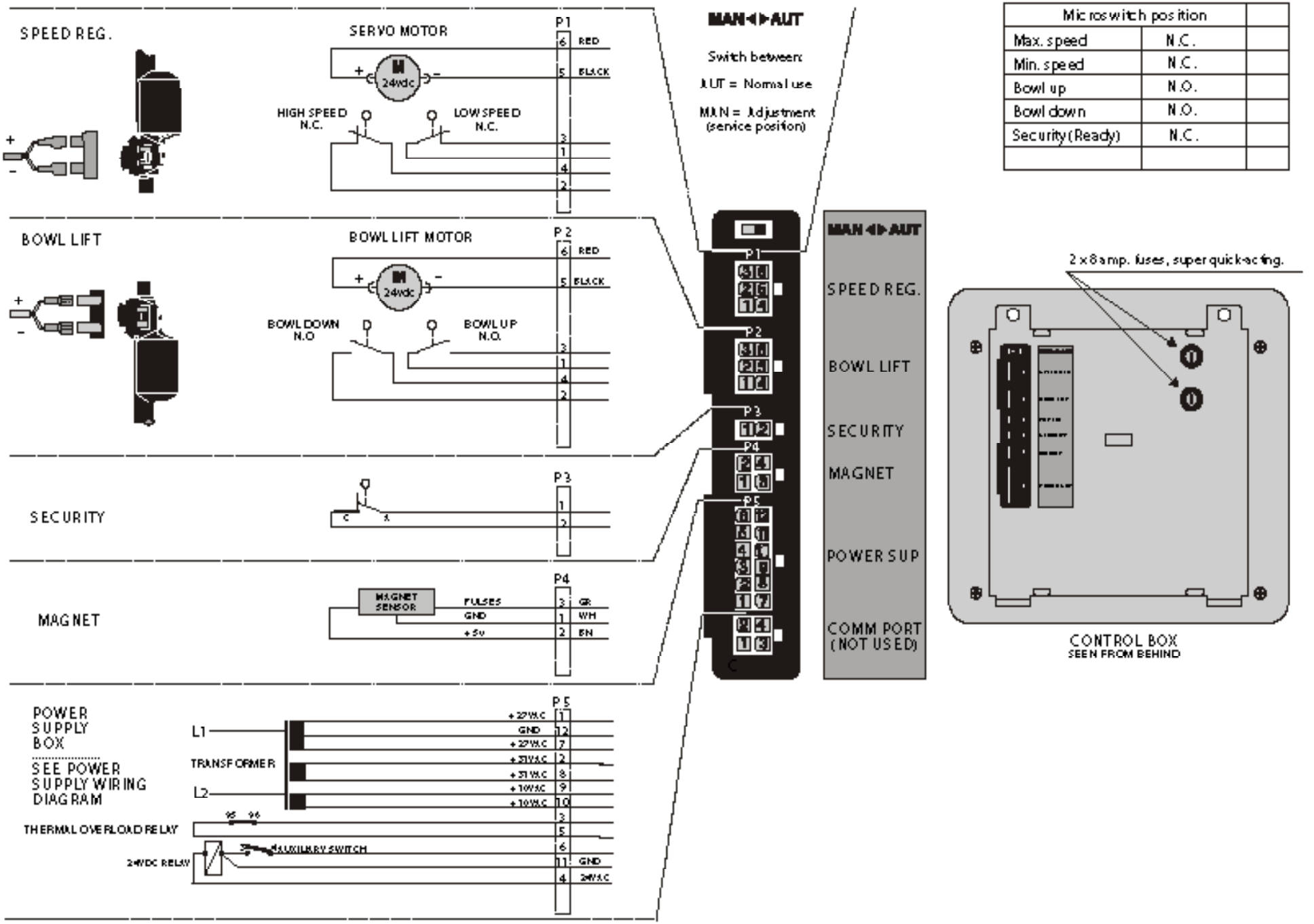


Manual Bowl Lift



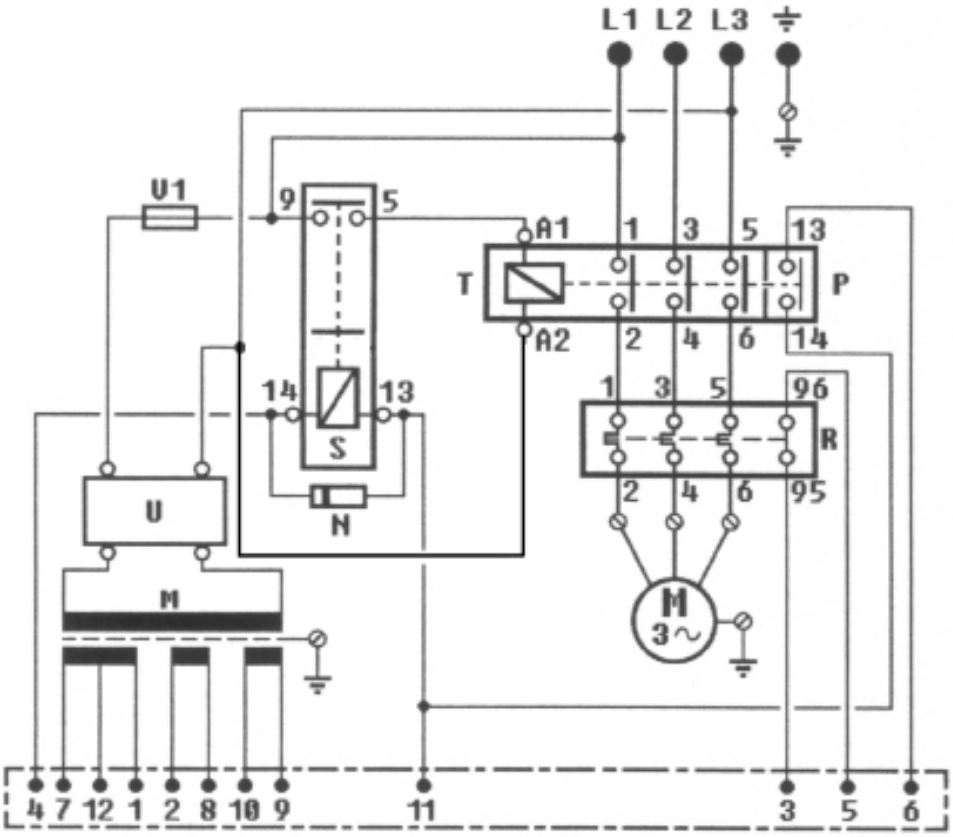
Microswitch position		
Max. speed	N.C.	
Min. speed	N.C.	
Bowl up	N.O.	
Bowl down	N.O.	
Security (Ready)	N.C.	

Power Bowl Lift

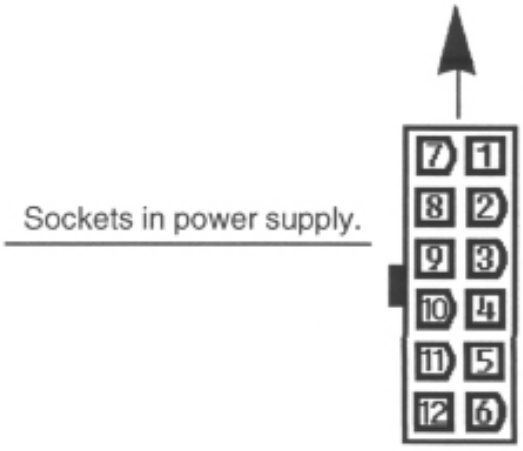


Microswitch position		
Max. speed	N.C.	
Min. speed	N.C.	
Bowl up	N.O.	
Bowl down	N.O.	
Security (Ready)	N.C.	

POWER SUPPLY WIRING DIAGRAM



To control box



M .... Transformer
N..... Diode 1N4003
P ..... Auxiliary switch
R..... Thermal overload relay
S ..... Relay 24v**dc**
T ..... Relay for motor
U..... Filter
V1 ... Fuse 1.5 Amp
W .... Rectifier