



buttonfuse® technology since 1994

Automatic Button Shank Wrapping Machines



buttonfuse® solo S & T versions

Service manual for:

Serial No. BFS 670 onwards

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1 Safety Instructions

1. Do not operate the machine without all safety covers in place.
2. This machine must only be operated by persons who have been fully instructed to do so.
3. This machine must only be used for the purpose it was designed for.
4. When carrying out any maintenance work or exchanging any parts ensure that the electricity and air supply to the machine are disconnected wherever possible. In certain cases it is helpful to check parts or settings with the power on – **TAKE CARE NOT TO BURN YOURSELF ON THE HEATING FORK – IT IS VERY HOT !**



5. Maintenance work must only be carried out by suitably trained and qualified people.

2 Introduction

2.1 Important notes

To avoid any possible damage to the machine or trouble with it, the following instructions must be followed:

- Before connecting the machine to the electrical supply ensure that the supply voltage is single phase between 100 and 240 v.
- Before connecting the machine to the pneumatic supply, ensure that the air is free of excess water and is able to supply at least 1 metre cubed/hour (0.7 cfm) at 5 bar minimum.
- Check that all parts appear to be in good condition.
- Check that all necessary parts are lubricated.

2.2 Routine Maintenance

In order for the machine to work efficiently the heating fork requires regular cleaning. The frequency of this depends upon the number of buttons wrapped per day but as a guide this should be done every 10,000 cycles (approximately once a week). To do this disconnect the power from the machine and remove the front stainless steel cover. The heating fork will still be hot but this will aid the cleaning process - **TAKE CARE NOT TO BURN YOURSELF!** Clean up the front and rear faces of the fork and also the internal faces of the bonding nose. The residue can be scraped off using a metal object such as a small screwdriver.

The only parts that require lubrication are: Linear bearings that carry the heater and the wrapping assembly - Lightly oil once every two months.

The only other routine maintenance that should be required is cleaning. Every 10,000 cycles (or every week) remove the front cover and remove any excess thread waste pieces that may not have been removed by the venturi. At this time clean all working parts and check their condition. Any worn parts should be replaced immediately.

To remove the top cover first take off the front cover then slide the two side covers forward and remove them. The screws securing the top cover can then be accessed (just under the top cover on either side) - loosen these to remove the top cover.

2.3 Installation

The buttonfuse solo is designed to be used either as a freestanding unit or as a tandem installation incorporated next to a button sewing machine.

Freestanding installation – place the machine onto the table in the desired position. The machine can be secured through the fixing holes in the base. Brackets are available from MMS to fit the machine into a table top so that the button entry position is on a level with the sewing position of a button sewing machine. To install the cone holder locate the slot at the rear of the machine. Slide the cone holder into the slot and secure with the screw through the hole in the left side cover.

2.4 Thread type

MMS UK button securing machines have been developed to use heat seal TF elastomeric thread. So that the optimum speed, button security and efficiency is achieved during each cycle it is recommended that the original MMS buttonfuse thread is used. The use of other thread may cause performance problems and damage to components. For these reasons the warranty may be void if non MMS thread is used.

Heat sealed button security

The shank of the button attachment is the most stressed part of the garment and therefore to prevent button loss this shank must be reinforced.

TF (TF = thermofusion) thread is specially designed for button wrapping with securing effect. The unique elastomeric gripping force and the heat sealing are the key to button loss prevention as the thread permanently squeezes the attaching threads. The button is secured and the slim button shank prevents the button holes from bulging and the button has a clean finish and tail free shank.

The MMS buttonfuse thread

Strong heat-sealing layer

Coloured component

Flexible elastane core

- Bonds wrapping threads together
- Eliminates loose ends and tails
- Prevents loosening during use
- Increases overall strength
- No colour fading due to washing
- Extensive colour range
- High flexibility
- Unmatched grip
- Resistant to washing fatigue
- High internal strength
- 430% elasticity

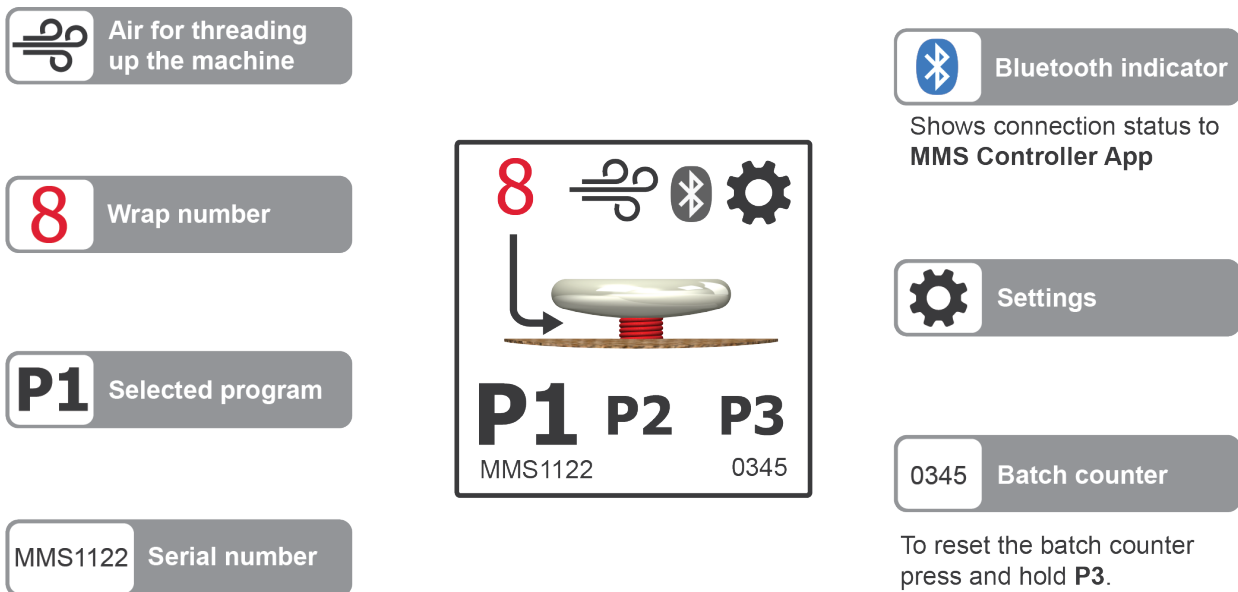
3 Control System

The control system has been specifically designed for the buttonfuse solo and therefore provides a versatile method of selecting the desired variables in order to achieve a perfectly wrapped shank.

3.1 Display

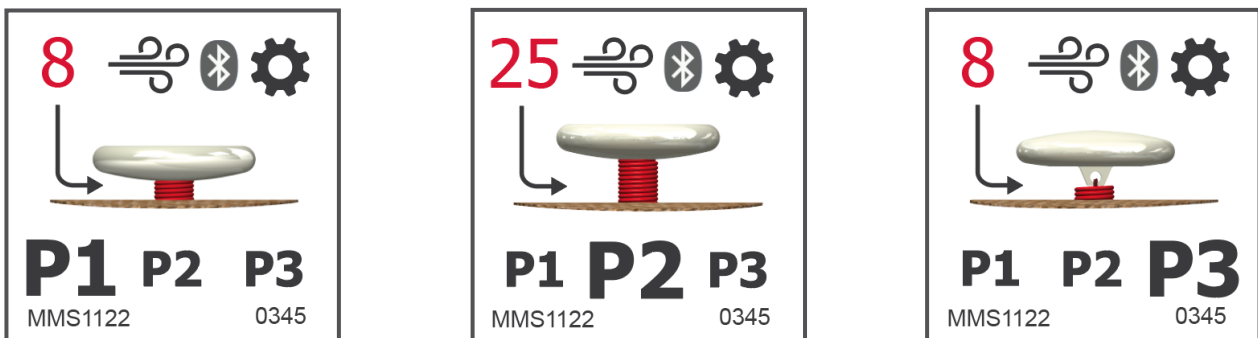
The machine is fitted with a touch screen display which allows the user to change the program type and various settings.

Home Screen:



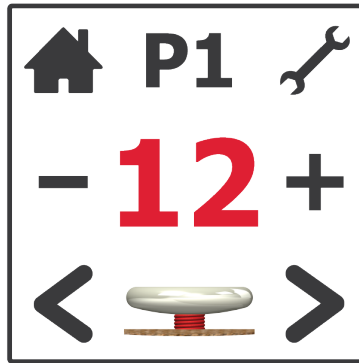
Programs (P1,P2,P3):

It is possible to select between the three programs. The Solo T version supports different button types, whereas the Solo S version is configured for short-shank buttons only.



To change the number of wraps and button type for each program, select the **Settings** icon in the top-right corner.

Program Settings:



Solo T version only

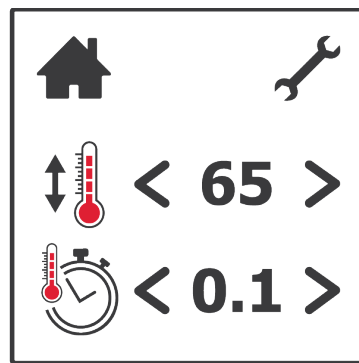
Advanced Settings:

The heating fork temperature is adjustable. The displayed value is a percentage, with 65% recommended.

The fusing time also is adjustable. The recommended setting is 0.1 which equals 0.1 seconds.

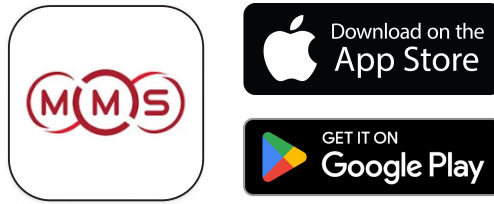


We recommend 65%



0.1 is 0.1 seconds

3.2 App



The machine is capable of connecting to a mobile phone or tablet via a bluetooth connection. To connect first download the **MMS Controller** app from the App Store or Google Play Store onto the device. Once this is loaded turn on the machine and then press the 'connect' button on the app home screen. A list of available bluetooth devices will then be displayed from which the relevant machine should be selected. Each device is identified with a number and the correct one can be selected by matching the last three digits with the number on the label at the back of the machine. The device and machine will then connect automatically and the home screen will be displayed.

On the home screen the following is displayed:

Button – next to this is a number and scrolling either up or down will select a different wrap number.

Temperature gauge – this indicates the current temperature of the heating fork in the machine. Once the needle reaches the green section the machine will run.

Numerical display top left of screen – this is an indication of the cycle time. After a button has been wrapped the actual cycle time will be displayed here. This time will alter depending upon the number of wraps and the heating time.

Numerical display top right of screen – this is the batch counter. It counts every cycle and can be reset simply by touching it.

Buttons 1 to 3 - These buttons are used to select any of the three available preset programs.

Three settings button at top right of screen – pressing this will access the following functions:

Diagnostics

The initial screen shows a graphic of the heating fork mechanism. Touching the screen in the various positions of the cylinders will cause the movement to take place. Swiping the screen across will access other diagnostics pages.

Settings

The last screen shows the following advanced settings:

Heater seal time - this can be varied from 0.1 to 1 second (0.1 is standard)

Lock wraps - ticking this box will lock the machine screen so that it cannot be tampered with.

Counter - this is the total machine cycle counter (non resettable).

Start delay - this is the time between activating the start switch and the wrapping cycle starting (0.0 is standard)

Set temperature - this can be varied from 60% to 100% (65% is standard)

4 Operating Instructions

4.1 Switching on the Machine

To switch on the machine first turn on the air supply switch. This is the blue headed twist switch mounted on the right hand side machine.

The power should then be switched on by pressing the switch that is mounted on the back face of the machine. The machine will then be in warm up mode and the display will light up green to indicate that the warming up process is taking place (App will show the temperature gauge needle moving).

The machine will not run until it has warmed up to the required running temperature. For maintenance purposes the machine can be run before the optimum temperature is reached by pressing the display button.

4.2 Threading Procedure

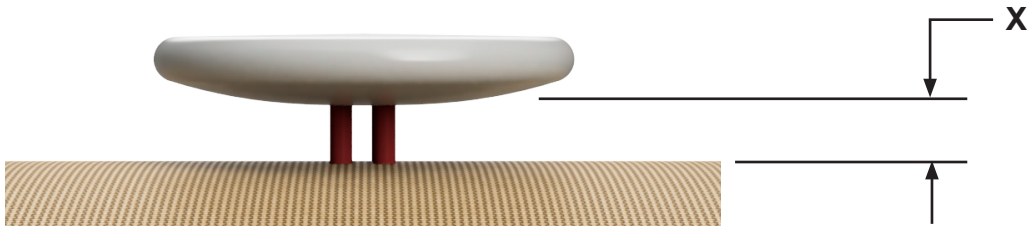
Before wrapping a button shank for the first time it is necessary to check that the machine is correctly threaded up and also that the desired wrap number is selected.

Insert the cone of thread on the holder and pass the end of the thread through the tensioning device. Take the end of the thread and hold it with enough spare between the hand and the end to comfortably pass from the back of the machine to the front. Press the display switch and hold this down whilst at the same time floating the end of the thread over the thread entry nipple. Allow the thread to be sucked into the machine until your hand reaches the top of the machine then catch hold of the thread which is blowing out of the front of the machine, release the button then break off the excess thread (being careful not to actuate the start switch)..

To change the thread take hold of the thread where it enter the entry nipple and then press and hold down the display button. Pull the thread out.

4.3 Shank Length

In order to achieve a consistently high standard of button shank wrapping it is essential that the shank length is of sufficient length as failure to achieve this will reduce the yield per cone and render the wrapping less effective in securing the button. This is a simple setting on most button attaching machines.



With reference to the above diagram the minimum shank lengths before wrapping are as follows:

Shirt, blouse	2.5mm
Casual trousers, trouser, jacket front	3mm
Coat	4mm

4.4 Number of wraps

The number of wraps is a variable that can be adjusted to suit the design of the garment or personal taste. The fewer the wraps the slimmer the shank and the more wraps the thicker the shank. There are two methods of changing the wrap number.

Changing wrap number on the machine:

The display on the machine shows the current setting of the number of wraps in the currently selected program. To change this value power off the machine then hold the screen down and switch the power back on. Release the screen. Press the start switch lever until the button with a question mark is displayed on the screen then press the screen. Press the screen repeatedly to increase the wrap number and to reduce the number hold the start switch whilst pressing the screen. When the desired number of wraps has been set either hold the start switch for 3 seconds or power off the machine to save the value.

Changing the wrap number from the APP:

With a phone or tablet paired with the machine the wrap number can be changed by sliding up or down on the number which is displayed on the home screen. The preset values of the three programs can be set through the program tab. Once the values as set in the programs, pressing P1, P2 or P3 on the home screen will select the different wrap value.

Garment Type	Shank Length (before wrapping)	Number of Wraps	Button Type
Shirt, blouse	2.5mm	7 - 10	
Trouser, jacket	3mm	14 - 18	
Coat	4mm	20 - 30	

4.5 Wrapping a shank

Once the machine has been threaded and the number of wraps has been selected a button can be wrapped. Lower the button into the machine behind the slot whilst ensuring that the fabric is touching the whipping plate so as to allow the maximum loose shank hanging inside the machine to facilitate the wrapping. Lower the button until the machine starts the wrapping cycle. The wrapping cycle is short but wait until this has finished completely before lifting out the button.

5 Settings

5.1 Removing the covers

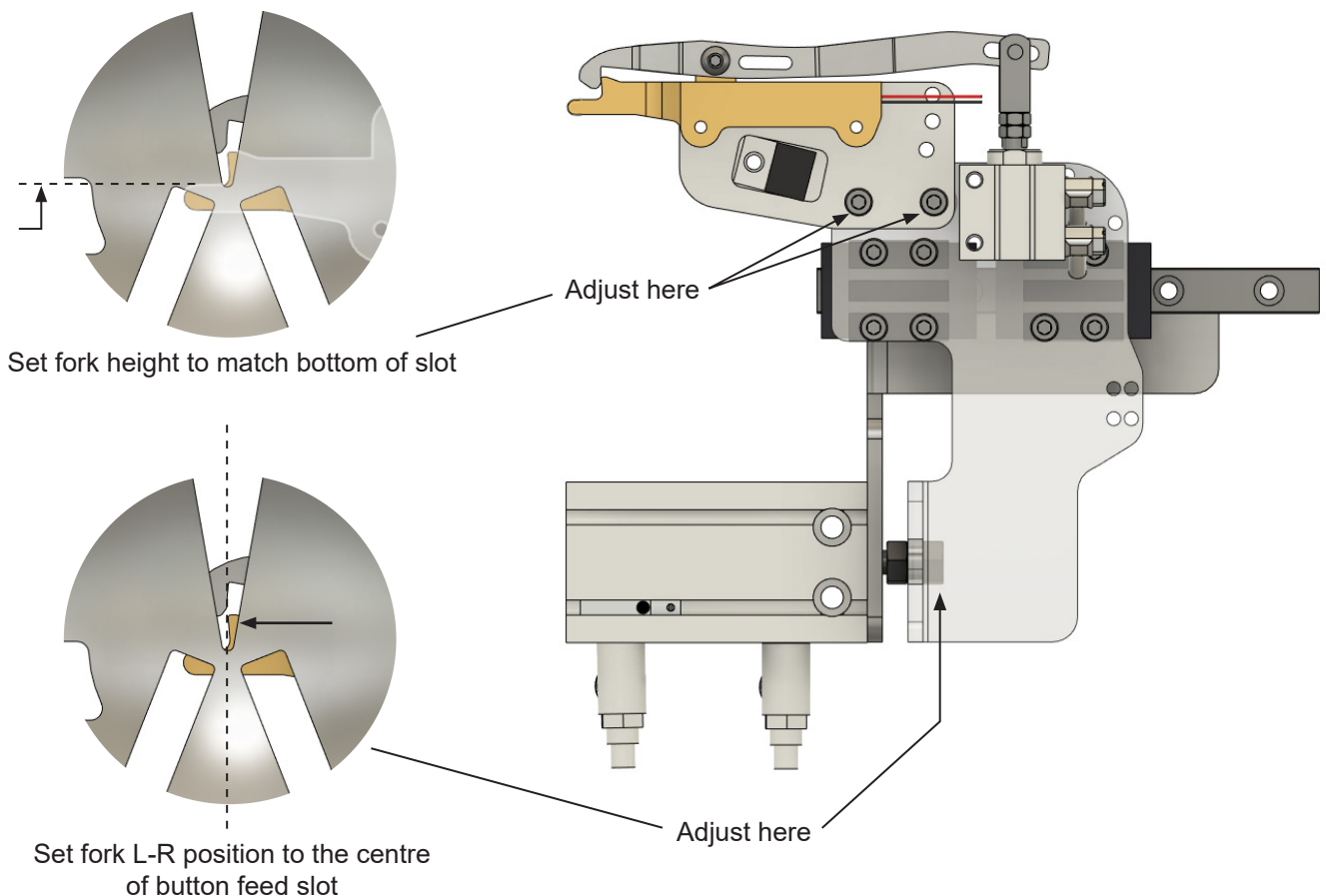
For some of the maintenance tasks it is necessary to remove one or more of the main machine covers. Before this is done the power should be disconnected from the machine and it should be left for at least 10 minutes for the heater to cool down. First loosen the front cover screws and take remove. Then slide the side covers forward to remove these. To remove the top cover loosen the 2 screws on each side of the machine just under the red cover.

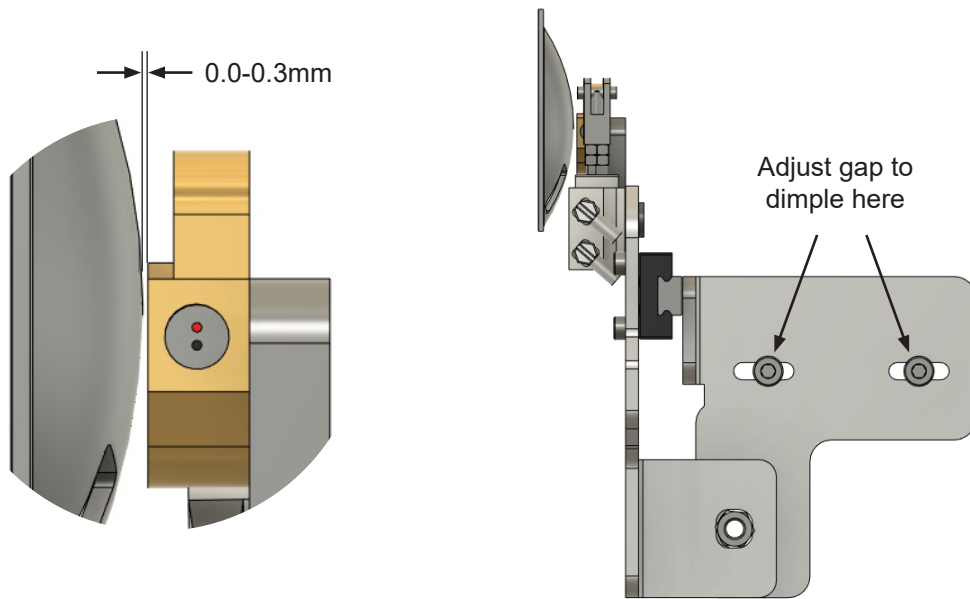
Caution - some settings need to be with the power on – take care as the heating fork is very hot!



The easiest way to check the machine settings is by turning the air and power off and moving the components into their second position by hand. The main machine settings are explained below.

5.2 Heater





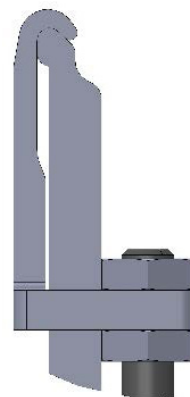
Once the heating fork position has been set the operation can be checked using the manual override buttons on the pneumatic valves.

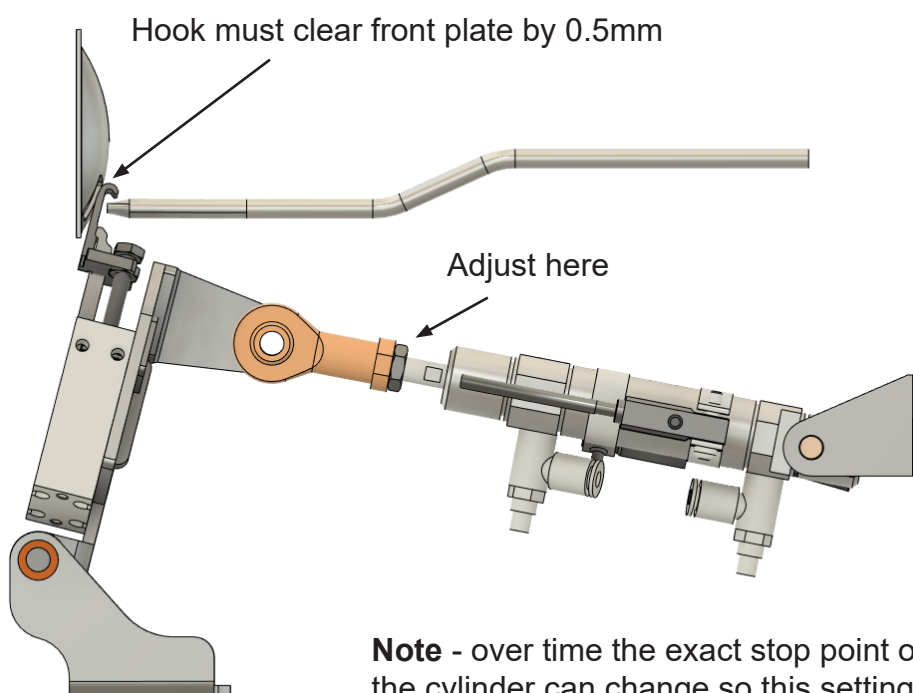
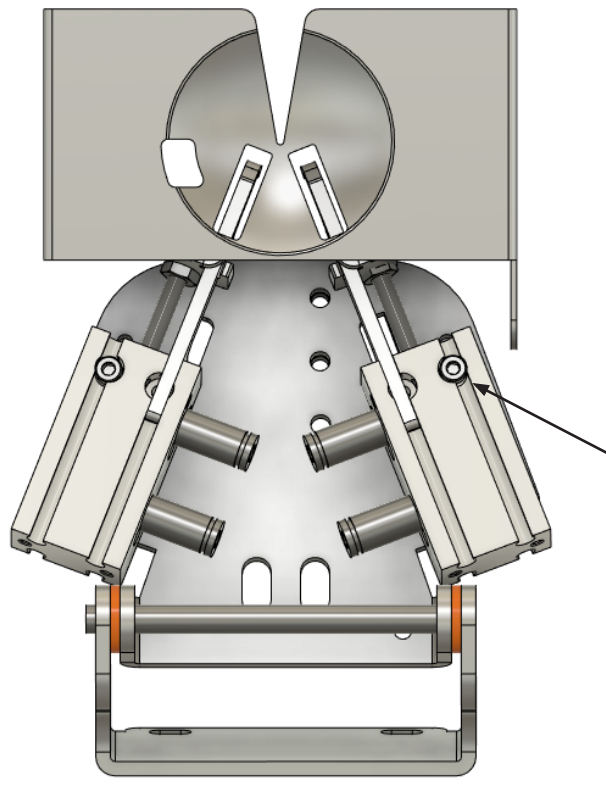
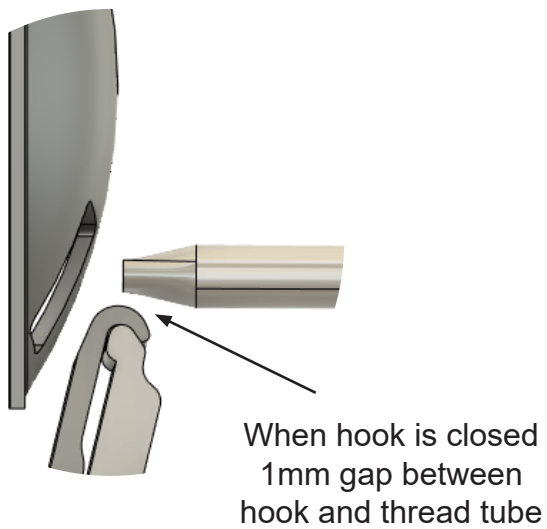
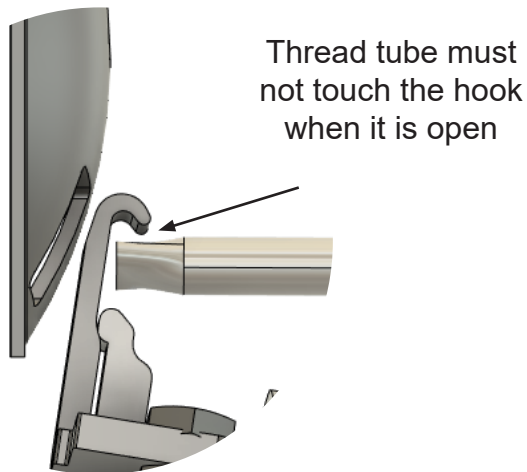
5.3 Hooks

In order for the catcher hooks to work efficiently they must be in perfect condition, free from any sharp edges and be set so that they make a good clamping contact with the stop post. The hooks must be highly polished. If the hooks are damaged and a good clamping contact on the thread cannot be achieved then they must be replaced.

The two lock nuts on the hook cylinder piston clamp the hook. These must be adjusted together to ensure that when they are clamped onto the hook the cylinder movement is stopped 1mm short of the end of its 'in' stroke. This will ensure that the thread is clamped against the post.

To check that the hook is working perfectly place a piece of thread in it and close it against the stop (by hand with the air off). The thread should be 100% clamped and not slip when pulled. If it does slip then try readjusting it or replacing it.





Note - over time the exact stop point of the cylinder can change so this setting needs checking periodically.

5.4 Flag

In order for the machine to be able to count the number of wraps and stop in the correct position, it is fitted with a photocell and flag to provide rotational information to the controller. This flag must be set correctly so that the machine hooks can catch the thread reliably.

To check the correct stopping position press and hold the display button to initiate the threading up function. The thread tub should stop at 12 O'clock, aligned centrally to the 'V'-shaped slot in the whipping plate. If the thread tube is off centre then remove the top cover and locate the aluminium flag which is mounted on the centre tube. Loosen the grub screw and then hold the flag in place whilst carefully rotating the centre tube. Double check that the flag is pressing the bearing and the centre tube is pushed back against its collar (to prevent axial movement of the centre tube) and then tighten the grub screw. Repeat the threading up process and make small adjustments as needed to achieve perfect alignment at 12 O'clock. Replace the cover and run the machine to confirm the correct stopping position.

5.5 Motor/Gearhead/Encoder

The motor, gearhead and encoder should give reliable service if all conditions are correct. Should any part become faulty then the complete motor unit including the bracket and pulley must be replaced. To do this first remove the top cover then undo the two screws which hold the motor bracket to the whipping carriage. Unplug the motor and encoder wires from the circuit board and remove the motor assembly. Reverse this procedure in order to fit the new motor/gearhead assembly. After reassembly of the machine check that the motor is rotating the correct way. When viewed from the front of the machine the thread tube should rotate clockwise. If it does not then reverse the motor wires where they connect to the circuit board.

Note: From 2025 onwards, all buttonfuse Solo models are equipped with a larger 20-tooth pulley wheel (P20). Earlier models use a 15-tooth pulley wheel (P15). The machine must be set to match the correct motor pulley size. You can adjust this setting in the machine's settings menu.

5.6 Belt Tension

The drive belt should be tensioned so that it has a between 2 and 5mm of free play at mid distance between the two pulleys. Adjustment can be made by loosening the two 4mm screws that hold the motor bracket in place and rotating it in its slot.

5.7 Tension Device

The tension device fitted to the Solo is a robust unit that should give trouble free service. To ensure this good service the parts of the assembly must be kept clean and free from any rough edges or faces.

Tension Adjustment

The tension adjustment is very sensitive and should only be adjusted a small amount each time. Testing the tension should be done by wrapping a button shank as the tension is slightly different at full wrapping speed.

Note – too much tension will result in thread breakage.

5.8 Thread Load Venturi

The venturi is mounted on the back of the whipping carriage its purpose being to blow the thread through the thread tube when threading the machine up. To work efficiently it must be clean and free from any sharp edges inside.

Occasionally the venturi or thread tube may become clogged with thread (especially if the machine is run with thread in but no button). To clear it out remove the rear cover and locate the venturi which is fastened by 3 screws behind the centre tube. Loosen these 3 screws and remove the venturi for cleaning.

5.9 Waste Ejection Vacuum

The machine is fitted with two vacuum tubes that eject the waste thread out of the back of the machine. Each vacuum tube should be positioned just behind the hooks level with the closed position within 2mm of the hook. Check that when the hook opens it does not touch the thread tube.

5.91 Thread Tube

The thread tube must be in good condition without bends and set the correct distance from the front dimple plate and the hooks. If it is bent out of shape it may be possible to bend it to its original shape. If it is beyond repair then it must be replaced. To achieve the correct distance from the hook set the hooks to their up position and rotate the thread tube until it is in-between the hook and the stop post. The end of the thread tube must be just clear of the face of the hook (1mm gap). If adjustment is required then loosen the thread tube clamp screw and move the tube.

6 Pneumatic

The machine is equipped with state of the art pneumatics which should prove to be extremely reliable under normal conditions. To achieve this reliability the supply to the machine should be a minimum of 5 bar. and a maximum of 10 bar. This air supply should be relatively free of moisture. A filter regulator is mounted inside the machine which will drain off a certain amount of excess moisture. **Note – the filter cannot drain large amounts of water and using air supply that is too wet will damage the machine.**

6.1 Valves

The Solo is equipped with either six or eight 24V spring solenoid valves, depending on the model (S or T). These valves are mounted internally on the right-hand side of the machine. When viewed from the front, the valve functions are as follows:

Valve 8 (Solo T version)	=	Button support - forward/back
Valve 7 (Solo T version)	=	Carriage - forward/back
Valve 6	=	Hook - left
Valve 5	=	Hook - right
Valve 4	=	Hook holder - up/down
Valve 3	=	Threading up blower
Valve 2	=	Heating fork - in/out
Valve 1 (closest to the front of the machine)	=	Heating fork clamp

Each valve can be manually overridden by switching the plastic cover on the valve to the left to reveal A B then pressing the blue button on the specific valve (ensure that the electrical power is switched off when carrying out this test).

6.2 Air Pressure Control

The main air pressure is pre-set in the factory to 5 bar. This can be checked by viewing the pressure gauge on the back of the machine. If it is incorrect then first turn off the electrical power to the machine and leave it until the heating element has cooled down. Remove the top machine cover and locate the pressure regulator. Lift up the black plastic knob and turn it until the 5 bar is showing on the gauge.

7 Electrics

7.1 Supply Voltage

The supply voltage should be between 100 and 240 volts (50-60Hz) single phase. The machine is equipped with a high quality in line filter to reduce any effect from electrical spikes. This filter however cannot cope with extreme surges therefore the supply to the machine should be relatively “clean”. It is also important that the ground is connected.

7.2 Seal Cylinder Reed Switch

So that the thread is bonded for the exact amount of time that is programmed, a reed switch is fitted to the seal cylinder. This switch should be positioned on the cylinder so that it switches at the end of its stroke (red LED lit).

7.3 Down Reed Switch

A reed switch is fitted at the lower end of the pneumatic cylinder which moves the hook holder up and down. This switch gives the signal to the controller to open the hooks so that the thread is ejected. It should be mounted so that the red LED lights when the hooks reach the bottom position.

7.4 Up Reed Switch

A reed switch is fitted at the upper end of the pneumatic cylinder which moves the hook holder up and down. The switch should be mounted onto the cylinder so that the red LED lights up when the hooks are in the top position.

7.5 Fuse

The main voltage fuse is situated under a flap in the filter (where the power lead plugs into the machine). The rating of this fuse is 2 amp.

7.6 Heating Element

The heating element has a life of approximately one year. This can be less if the machine is run for 2 or 3 shifts per day or the power is left on overnight. To change the element turn off the power to the machine and allow it to cool (10 minutes). Remove the machine covers to gain access to the element. Loosen the screws in the terminal block that hold the element harness and cut of the tie wraps that secure it. With all of the securing tie wraps removed slide out the heating element. Reverse this procedure to fit a new element.

7.7 Thermal Sensor

A thermal sensor is fastened to the insulated heating fork holder. This sensor is constantly checked by the control system to ensure that the temperature of the heating element remains above the recommended sealing temperature. If it requires changing then first turn off the power and wait for the element to cool for at least 10 minutes. Then remove the right hand front cover to gain access to the fork assembly. Loosen the screws in the terminal block that hold the switch harness and cut of the tie wraps that secure it. Unscrew the sensor from the insulator and remove it. Replace it with a new assembly and reverse the procedure for reassembly.

7.8 Installing New Software

New versions of software are developed to provide improvements to existing features, new features or correction of software errors. Software can be uploaded by a specialist MMS technician or by the exchange of the circuit board.

8 Trouble Digest

Fault	Cause	Solution
Machine is not running when start switch is pressed	No electrical power to machine. Faulty power supply. Faulty start switch. Faulty motor or motor supply. Jammed gearbox, belt etc. Faulty photocell.	Check supply and main fuse. Check 24v power supply. Check start switch via. Input check. Check 24v motor supply and then motor. Check for free spinning of mechanism Check photocell and its connections.
Hooks are not catching thread	Motor stopping position incorrect Hooks damaged or set incorrectly.	Check flag settings (section 5) Check hook settings (section 5)
Thread breaks during wrapping.	Thread supply not free. Sharp edges on the tube rim, tension cap or hooks.	Check cone and routing of thread. Remove any sharp edges and polish.
Thread not caught by the hooks at the end of the cycle	Stopping position of thread tube incorrect. Hooks not clamping the thread correctly. Waste thread not ejecting	Adjust the flag (section 5) Check hook condition and setting (section 5) Clean hooks, check down switch position and venturi performance / setting (section 5)

Fault	Cause	Solution
Thread not bonding.	Heating fork setting incorrect.	Check setting and readjust (section 5).
	Heating fork dirty or worn.	Clean fork/replace if worn.
	Final wraps not next to the whipping plate (only possible in variable long shank program).	Adjust the number of wraps or the return position in the program (section 4).
	Hook assembly travelling down too quickly.	Readjust (section 5).
Thread wrapping tension not satisfactory.	Tension device set incorrectly.	Check condition of tension device and reset it (section 5).
	Thread supply not free.	Check cone and routing of thread.
Tails left on the shank	Hook not clamping thread effectively.	Reset or replace hook. (section 5).
	Fork temperature set too low	Reset or replace hook. (section 5).
	Heating fork not set correctly	Reset the fork (section 5.2)
	Fork temperature set too low	Increase temperature
	Hook assembly down speed incorrect.	Adjust flow controls.

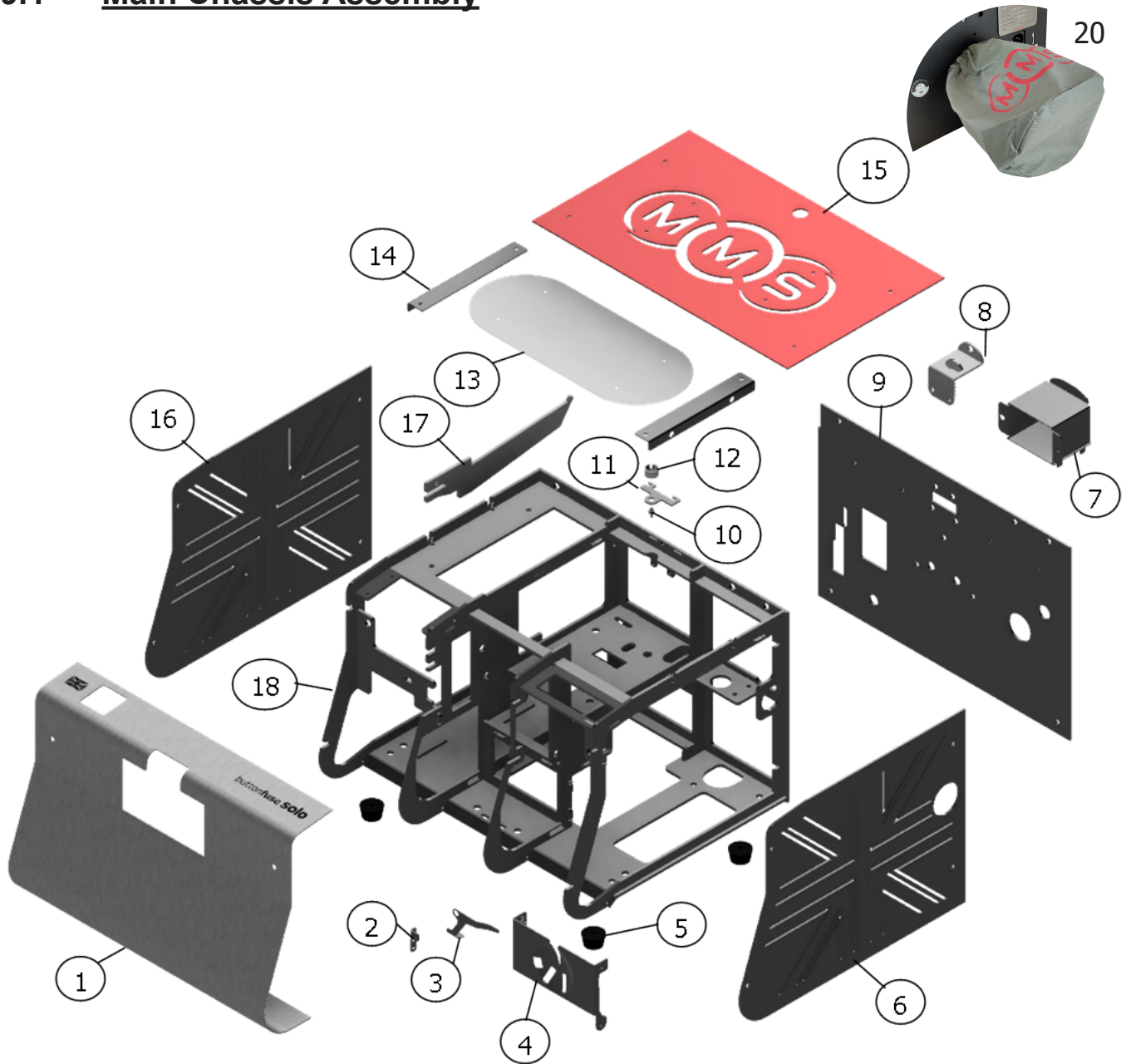
8.1 Error Messages

Error No.	Cause	Parts or settings to check
1	No signal is coming from the photocell	Check that the wires into the plug on the circuit board are making good connections. If they are good then in the system test check if the photocell is working. If the photocell is working then the fault must be that flag is not turning which could be due to a faulty motor or the centre tube being jammed.
2	No signal from temperature sensor	Check the sensor wiring at the circuit board. If this is correct then replace the temperature sensor.
3	No signal from the hook up reed switch	When the heating fork moves towards the button the reed switch on the cylinder should light up 2mm before the fork touches the button shank. In order to check this though the light does need to come on therefore check the wiring at the circuit board plug. If this is correct then replace the reed switch. If the reed switch is working and in the correct position then check the free movement of the fork mechanism, the air supply and the relevant pneumatic valve.
4	No signal from the hook up reed switch	First check the position of the reed switch at top of the hook up cylinder. The light should come on 2mm before the end of the cylinder stroke. In order to check this though the light does need to come on therefore check the wiring at the circuit board plug. If the reed switch is working and in the correct position then check the free movement of the hook mechanism, the air supply and the relevant pneumatic valve.
6	Not receiving the hook holder down signal	First check the position of the reed switch at bottom of the hook up cylinder. The light should come on 2mm before the end of the cylinder stroke. In order to check this though the light does need to come on therefore check the wiring at the circuit board plug. If the reed switch is working and in the correct position then check the free movement of the hook mechanism, the air supply and the relevant pneumatic valve.
7	The hook assembly down reed switch is on when it should not be	Check the position of the reed switch on the hook up / down cylinder. This should be set towards the bottom of the cylinder so that it comes on 2mm before the cylinder reaches the bottom of its stroke. If this is correct check the wiring of the reed switch, the free movement of the assembly, the air supply and the relevant pneumatic valve..
8	The seal cylinder switch is on when it should be off	First check the position of the reed switch at towards the end of the fork cylinder. The light should come on 2mm before the end of the cylinder stroke. In order to check this though the light does need to come on therefore check the wiring at the circuit board plug. If the reed switch is working and in the correct position then check the free movement of the fork mechanism, the air supply and the relevant pneumatic valve.
9	Thread tube not reaching it's rest position.	Check that the thread is running freely into the machine and also free movement of the thread tube, motor and wiring, pulley wheels and belt.
10	Touch screen fault	Make sure nothing is touching the screen which may hold it down. Also check the wiring. If these are correct then it could be a screen or circuit board fault
11	Start lever jammed down	Ensure that the start switch is completely free to move up and down. In the rest position the start switch should not be activated. If this is correct then check the start switch or its wiring.
17	Motor jammed during first revolution	Ensure that the centre tube can rotate freely without the tension device touching anything. If this is correct then ensure the belt is in good condition and the pulleys and the flag are secure. If these are correct then the fault will lie with the motor or circuit board.

buttonfuse® solo

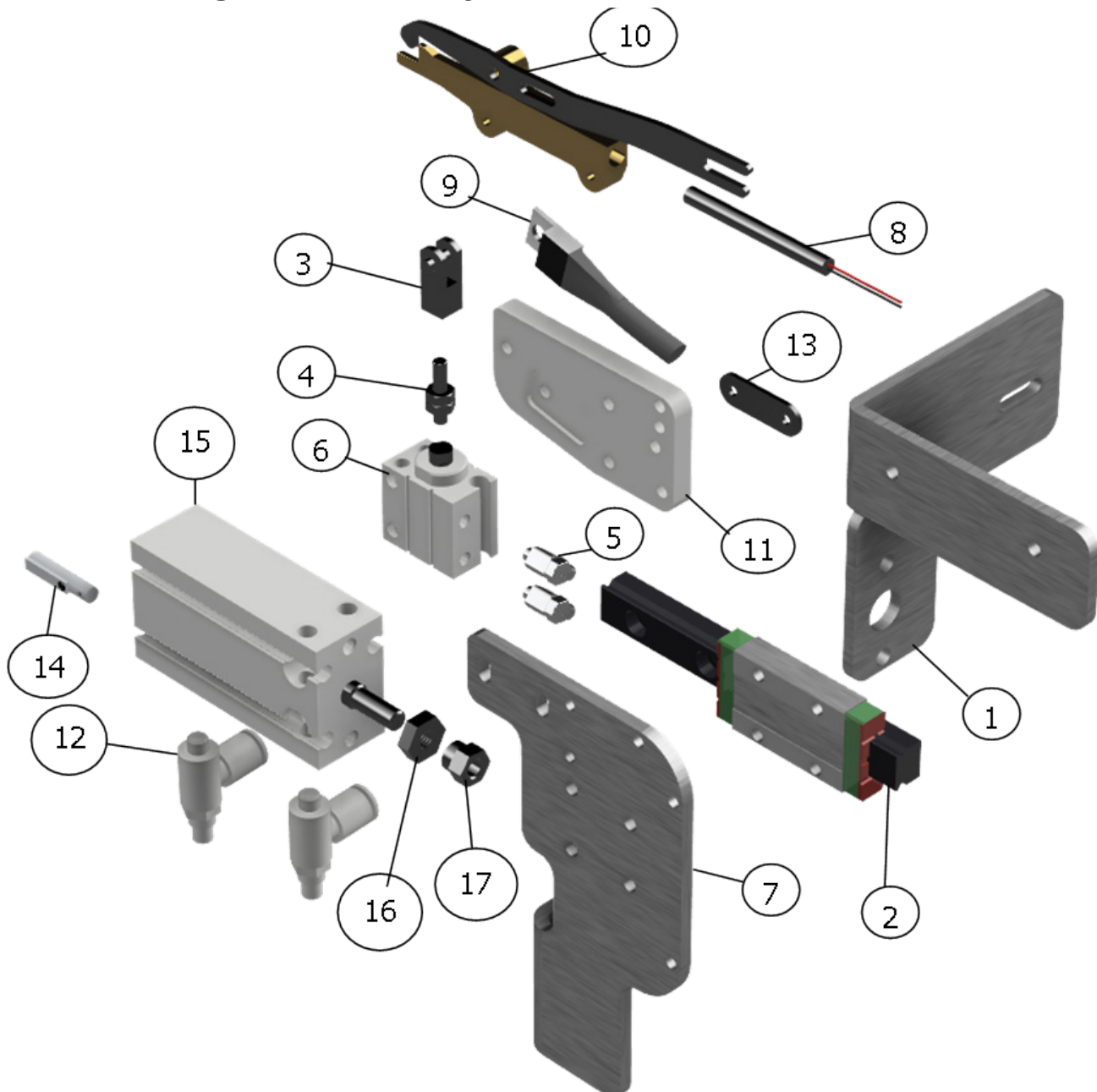
Error No.	Cause	Parts or settings to check
19	Motor jam while wrapping short shank	Ensure that the centre tube can rotate freely without the tension device touching anything. If this is correct then ensure that the belt is in good condition and the pulleys and the flag are secure. If these are correct then the fault will lie with the circuit board or motor.
20	Motor jam while decelerating	Ensure that the centre tube can rotate freely without the tension device touching anything. If this is correct then ensure that the belt is in good condition and the pulleys and the flag are secure. If these are correct then the fault will lie with the circuit board or motor.
21	Motor jam when either hook is set	Ensure that the thread tube or tension device is not touching the hooks when they are out. The hooks may be loose or their top position may be too low. Thread tube may have become distorted and may need bending back to shape.
22	Motor jammed at the time the heating fork moves to button	Free running of the centre shaft. Check that the hooks do not touch the thread tube. Check that the speed restrictors are present in the air tubes to the heating fork cylinder.
23	Motor jammed	Check that the centre tube revolves freely. Ensure tension device or thread tube are not touching anything. Motor should be free.

9.1 Main Chassis Assembly



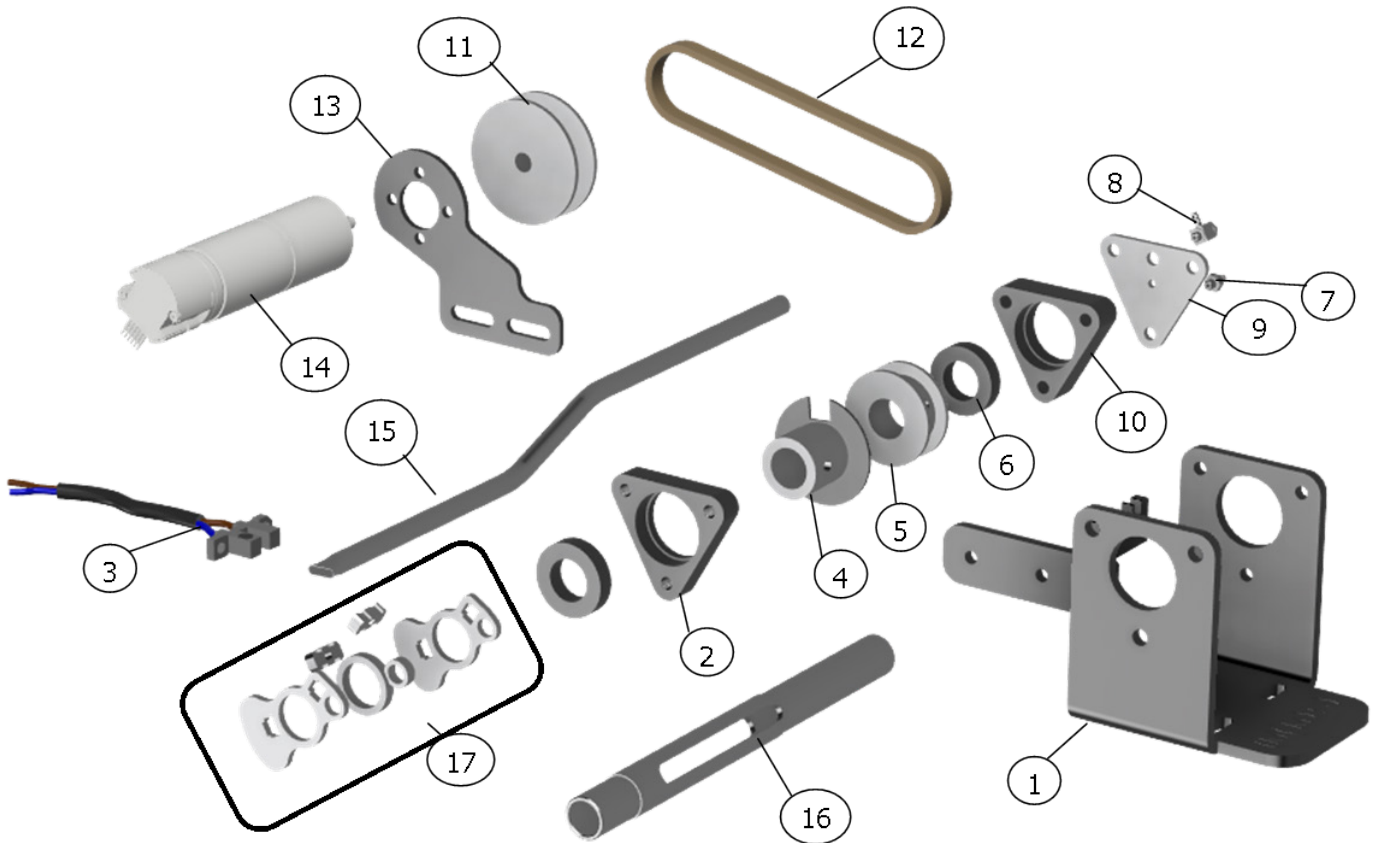
ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	134187	Front cover	1	11	102155	Straight barb fitting	1
2	134633	Start switch bracket	1	12	102150	Thread entry nipple	1
3	133652	Start switch	3	13	134141	Nipple bracket	1
4	133651	Whipping plate - S Type	1	14	134601	Top cover plate	1
5	134628	Whipping plate - T Type	1	15	134611	Top cover bracket	1
6	109870	Foot	4	16	134600	Top cover	1
7	133201	Cover RH	1	17	133202	Cover LH	4
8	133048	Waste Chute	1	18	135761	Cone holder	1
9	134612	Tension Device	1	19	134130	Solo Frame	1
10	133712	Rear Cover	1	20	133049	Waste bag	1

9.3 Heating Fork Assembly



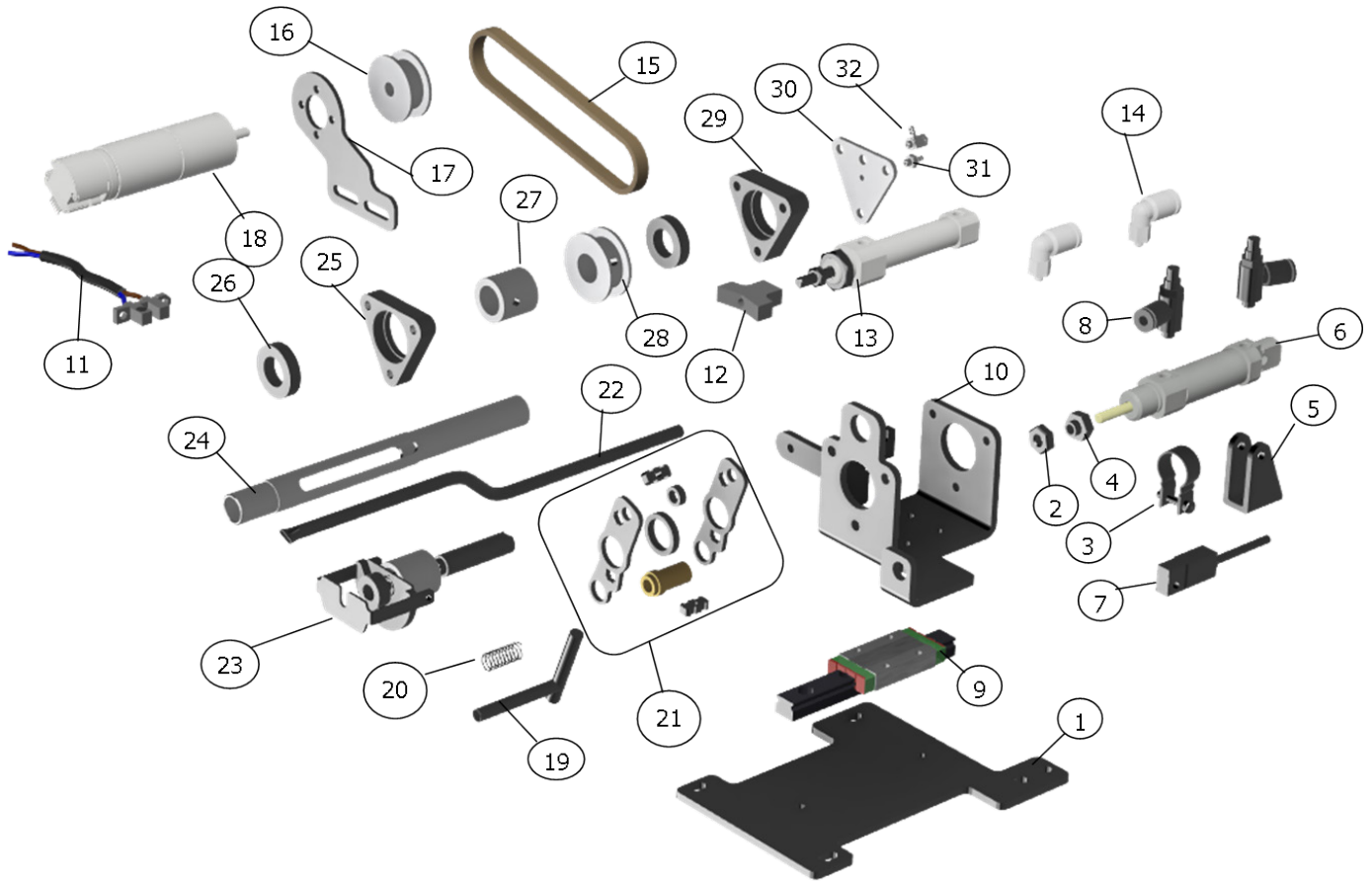
ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	134615	Fork main bracket	1	10	134619	Heating fork asm - standard	1
2	134520	Linear bearing - double	1		134625	Heating fork asm - narrow	
3	109815	Clevis assembly	1		134623	Heating fork asm - wide	
4	133107	Threaded stud	2	11	133558	Insulator	1
5	109729	Elbow barb fitting	1	12	10025	Flow control	2
6	133535	Thread clamp cylinder	1	13	133191	Fork nut clamp	1
7	134616	Heater moving bracket	1	14	134205	Reed switch	1
8	135776	Heating element harness	1	15	133525	Fork cylinder	1
9	135777	Temperature sensor harness	1	16	133169	Nut - 5	1
			1	17	133178	Shoulder nut -5	1

9.4 Wrapping Head Assembly - solo S type



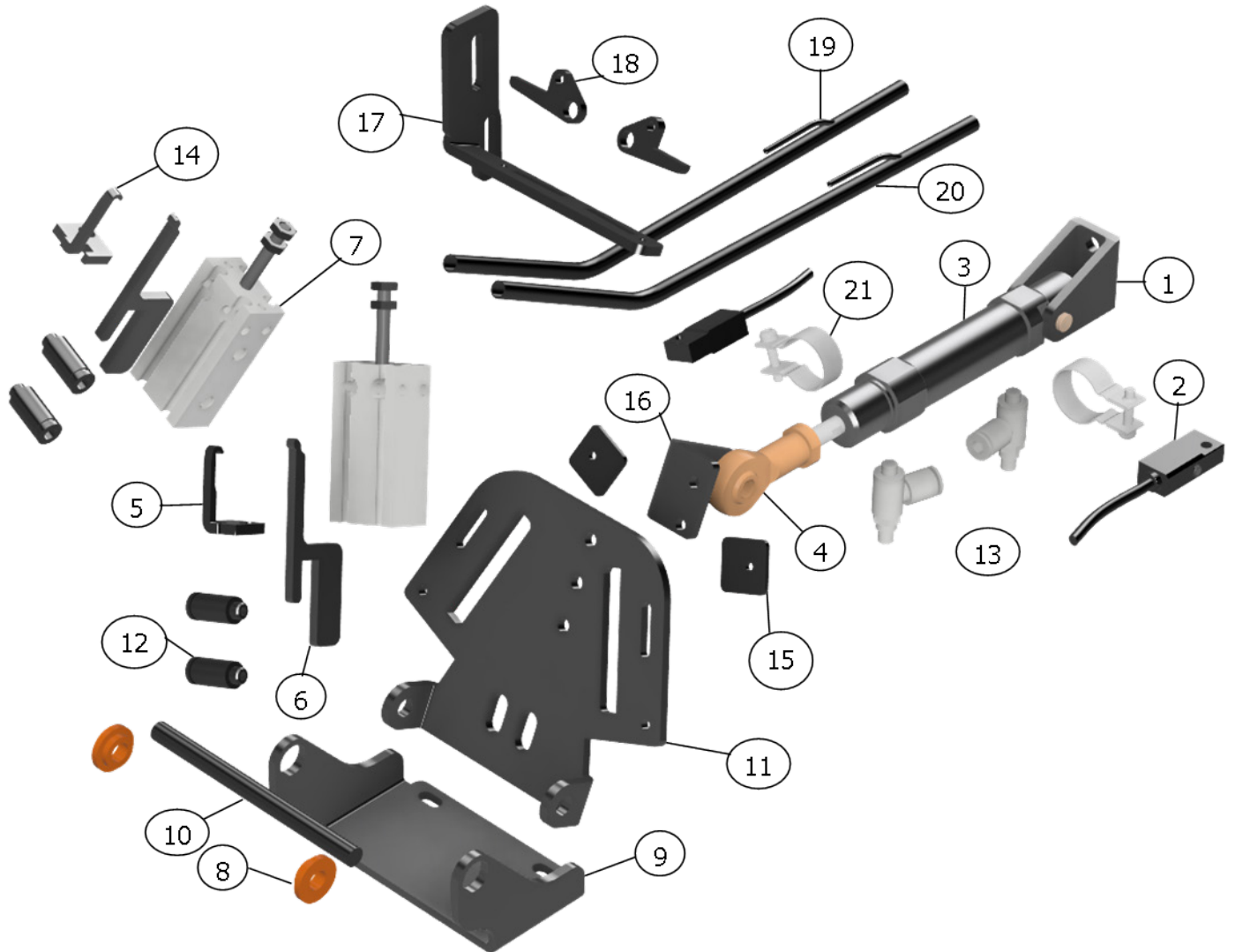
ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	134407	Carriage bracket – S Type	1	11	109541	Venturi spacer	1
2	109543	Venturi bearing housing	1	12	109543	Venturi bearing housing	1
3	102350	Photocell	1	13	109721	Motor pulley (L)	1
4	109544	Bearing securing plate	1		109720	Motor pulley (S)	1
5	109618	Flag	1	14	134414	Belt	1
6	101750	Pulley wheel	1	15	134415	Motor bracket (M)	1
7	109617	Bearing	2	16	109646	Motor (M)	1
8	102155	Straight barb fitting	1	17	134580	Thread tube - S Type	1
9	109729	Elbow barb fitting	1	18	134263	Centre tube	1
10	109540	Venturi back plate	1	19	133516	Thread tube clamp – S Type	

9.4 Wrapping Head Assembly - solo T type



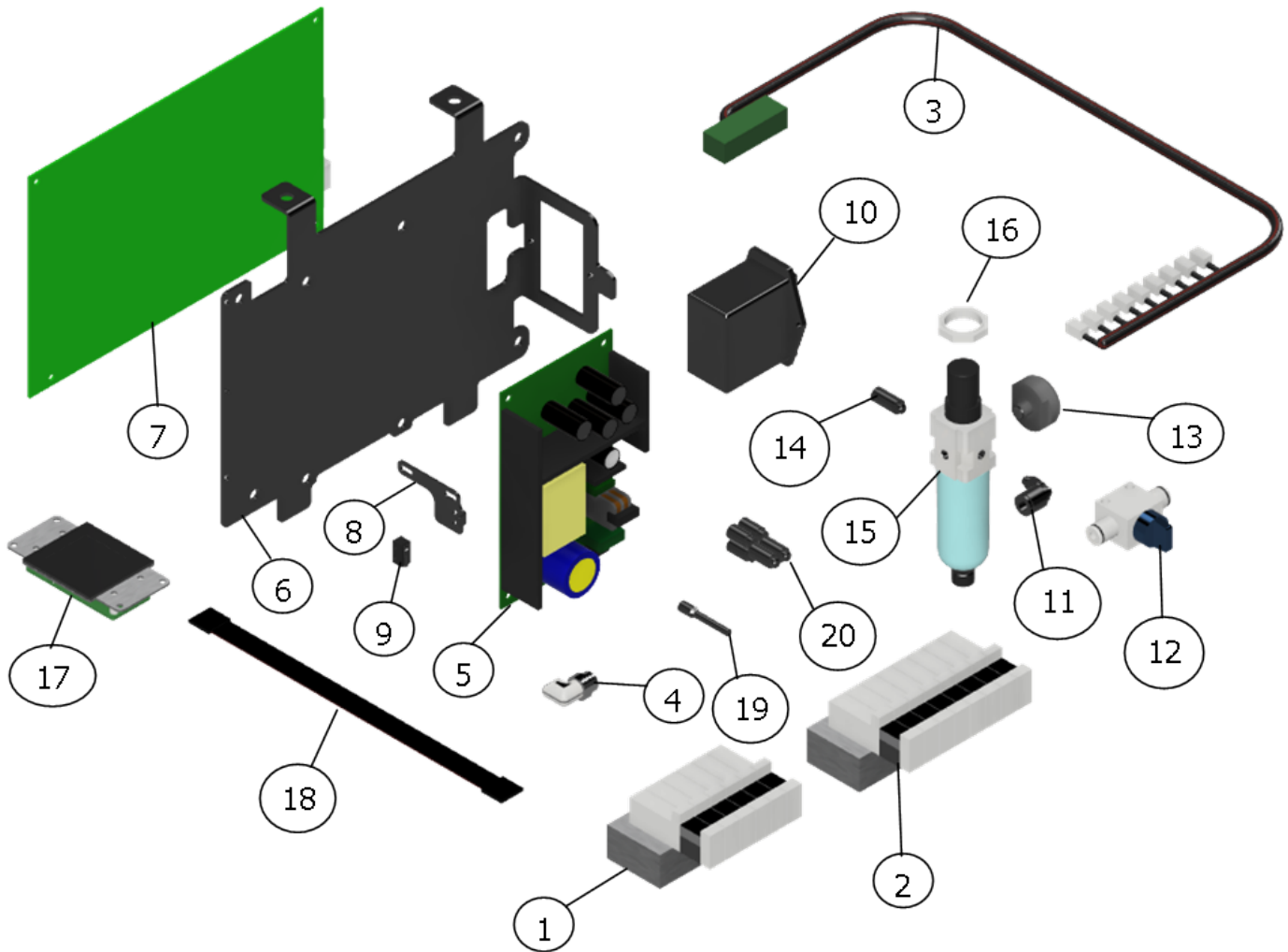
ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	134412	Carriage mount plate	1	18	109646	Motor (M)	1
2	134171	Nut - 4	1	19	103660	Pusher	1
3	102030	Switch band - 10	1	20	103653	Spring - pusher	1
4	134170	Shoulder nut - 4	1	21	134041	Thread tube clamp - T type	1
5	109710	Trunnion - 10	1	22	134581	Thread - T type	1
6	102025	Wrap variation cylinder	1	23	134510	Button support asm	1
7	102035	Reed switch	1	24	134263	Centre tube	1
8	10025	Flow control - out	2	25	109543	Venturi bearing housing	2
9	134520	Linear bearing - double	1	26	109544	Bearing securing plate	1
10	134411	Carriage bracket - T type	1	27	109617	Bearing	1
11	102350	Photocell	1	28	109618	Flag	1
12	103670	Nylon pusher	1	29	101750	Pulley wheel	1
13	10187	Cylinder	1	30	109541	Venturi space	1
14	10010	Elbow fitting	1	31	109540	Venturi back plate	1
15	134414	Belt	1	32	109729	Elbow barb fitting	1
16	109720	Motor pulley (M)	1	33	102155	Straight barb fitting	1
17	134415	Motor bracket (M)	1	34	10010	Elbow fitting	2

9.5 Hook Assembly



ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	109790	Trunnion	1	12	10000	Straight fitting	4
2	102035	Reed switch	2	13	10025	Flow control - out	2
3	109768	Cylinder	1	14	134518	Hook LH	1
4	102327	Rod end bearing - 6	1	15	133521	Nut plate	2
5	134519	Hook RH	1	16	133527	Rod end bracket	1
6	133653	Hook post	2	17	133536	Venturi bracket	1
7	134676	Hook cylinder	2	18	133556	Venturi tube clamp	2
8	102370	Bronze bush bearing	2	19	134629	Venturi tube LH	1
9	134608	Bearing bracket	1	20	134621	Venturi tube RH	1
10	134622	Pivot rod	1	21	102220	Switch band - 16	2
11	133524	Cylinder moving bracket	1				

9.6 Electronic and Pneumatic Components



ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	109919	Air manifold asm 6 stn - S type	1	8	103917	Switch unit - mains	1
	109920	Air manifold asm 8 stn - T Type	1		103916	Fusa 2A	1
	109921	End block	1	9	10011	Elbow fitting	1
	109922	End block - D connector	1	10	10056	Finger valve	1
	109923	Exhaust block	6 or 8	11	10100	Air pressure guage	1
	109924	Solenoid valve	1	12	10013	Straight fitting	1
	109925	Din rail	1	13	10095	Filter regulator	1
2	102452	Power supply	1	14	10096	Nut - filter regulator	1
3	134135	Board mount plate	1	15	134201	Display Spacer	4
4	134161	Control board	1	16	134501	Switch display v2	1
5	133714	Cover switch bracket	1	17	133654	Switch display harness	1
6	109882	Switch harness	1	18	109728	Plug	1
7	134197	Manifold harness	1	19	109726	Plug Y connector	2



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