SAFETY, OPERATION, MAINTENANCE AND PARTS MANUAL





SEMI-AUTOMATIC STRAPPING MACHINE and P-625E & P-725E Electric Tension versions

4/03/06 S/N 02040170 AND HIGHER

A Samuel Manu-Tech Company

SAFETY INSTRUCTIONS

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

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

OPERATION

- 1. Do not operate the machine with the tabletops or covers removed.
- 2. Make sure the proper voltage is being used to operate the machine.
- 3. Never put any part of your body near, under or into a moving machine.
- 4. Do not operate the machine with any safety devices removed or disabled.
- 5. Follow instructions provided in this manual.
- 6. Only trained people should operate this machine.
- 7. Do not attempt to strap any part of your body.
- 8. Do not overload the machine by exceeding the performance limitations specified in this manual.

MAINTENANCE

- 1. Shut off and lock out all electrical power before performing any maintenance procedure.
- 2. Use the correct tools and parts to repair the machine.
- 3. Only trained people should service the machine.
- 4. Follow instructions provided in this manual.

ADDITIONAL CONSIDERATIONS

- 1.Do not touch the heater and the surrounding area. The heater operates at approximately 608**1**F. (320**1**C). Allow sufficient time for the heater to cool down.
- 2. The machine should be placed on a level floor and the surrounding area should be kept free of debris and discarded strap.
- 3. If you are unsure about the operation or the maintenance of the machine, contact your nearest **Samuel Strapping Systems** office.

This symbol: A is used throughout this manual and in conjunction with one of three words: **CAUTION, WARNING** or **DANGER.** It is used to alert operators and maintenance personnel to a condition that requires special to extreme care to avoid personal injury.

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INTRODUCTION

This manual contains safety, operating and maintenance instruction for the P-625 and P-725 Semi-automatic Power Strapping Machines. These models are designed to strap packages with Polypropylene Strap 1/4" to 5/8" (6mm to 15mm) wide. The strap ends are joined by means of 'Hot-Knife' welding process.

MAJOR COMPONENTS

In figures 1 through 4, the major components of the machine and the strapping head are shown in detail. A detailed description of additional systems and specific components are as follows:

STRAP DISPENSER:

The dispenser supplies strapping material to the strapping head. It is located inside the cabinet on the lower left-hand side. A friction brake is provided to limit over-run of strap.

- GRIP The grip holds the lead end of the strap beneath the anvil while the remainder of the strap is being tensioned around the package.
- STRAP FEED AND TENSION Both feed and tension are achieved by two sets of gear rollers powered by an electric motor by means of a drivebelt and slip-clutch system.

An operator controlled adjustable timer controls the duration of strap feed. When the set time for feed is up, the timer stops feeding strap. If additional feed is required beyond that determined by the timer setting, jog feed will be facilitated by pushing the 'Jog Feed' button on the operator's control panel.

- WELDING AND CUT-OFF Welding of the strap ends and cutting of the strap supply are facilitated in this process.
- PACKAGE RELEASE After a short weld-cool period (necessary to avoid welded ends from popping open) the package is released.

(Note:) The previously mentioned functions of 1, 3 and 4 are driven by a cam shaft coupled to the drive system by means of electromagnetic clutch which turns one full revolution per cycle.

HOT KNIFE. The 'Hot Knife' is centrally located at the front of the strapping head. Movement of the knife is controlled by a cam.

ELECTRICAL SYSTEM. An all new electrical system using solid state technology supplies continual power supply to the electrical components within the machine. Using simple to insert circuit boards provides for safe and fast maintenance free operation.

OPERATOR CONTROLS. The Electrical Control panel consists of the 'Main Power ON-OFF Switch,' 'Feed Length Timer,' 'Reset Switch' and 'Feed Length Switch' (Jog Feed) and Electric Tension Control (on P-625E & P-725E versions).



FIGURE 2. MAJOR COMPONENTS, FRONT VIEW







FIGURE 4. MAJOR COMPONENTS. FRONT VIEW



FIGURE 6. MAJOR COMPONENTS, STRAPPING HEAD

INSTALLATION

Installation requires that the machine be uncrated in its proper position and secured in place with the casters locked. Operation may begin once strap of the proper size is loaded and the power cord plugged into the appropriate electrical outlet.. See pre-assembly instructions on the following page for additional set-up instructions.

One set of tools and spare parts is packed with each machine for use in making adjustments and for replacement of parts as needed. Please compare your supplied tools with the following list:

TOOL PARTS

- 1 Phillips screwdriver (4")
- 2 8mm/10mm open end wrench
- 1 5mm Allen wrench
- 1 4mm Allen wrench
- 1 3mm Allen wrench
- 1 2.5mm Allen wrench

SPARE PARTS

1

1

1

1

- 4-08000-140 Brake rubber (P-625 only)
- 2201109130 Brake spring (P-625 only)
- 4-01000-150 Retainer, top cover holder
- 104G001 Microswitch, heavy (LS-1)
- 1 2201210020 Tension spring, short
- 1 2201011022 Tension spring, long



FIGURE 7. INSTALLATION DIMENSIONS AND CLEARANCES

PREASSEMBLY OF P-625 & P-725 MACHINES

The P-625 and P725 Strapping machines are normally pre-assembled and tested prior to shipping, however if your P-625 is received with the legs disassembled, the following procedure should be followed. Open the top cover of the P-625 and place the machine on a steady working surface. Remove the temporary wooden legs from the machine and install the round machine legs by putting the leg assemblies into the base of the machine with the screw facing up and locking the down with the M12 nuts and washers. Attach the casters to the legs by screwing them into the base of the legs. Once the legs have been installed, the dispenser assembly can be mounted to machine. On the Gear Box, remove the setscrew in the Vent Plug.



FIGURE 8. P-625 LEG ASSEMBLY



FIGURE 9. DISPENSER ASSEMBLY

The dispensers are designed to accept strap core diameters of 8" (200mm), 9" (230mm), and 11" (280mm). Refer to Figure 10 to make the adjustments.

- 1. For an 8" core diameter, position the holes of the Reel Claw (item 6) to the #1 and #3 positions for all three Claws and screw the claw in place with two M6x20 Screws.
- 2. For a 9" core diameter, position the holes of the Reel Claw (item 6) to the #2 and #4 positions for all three Claws and screw the claw in place with two M6x20 Screws.
- 3. For an 11" core diameter, position the holes of the Reel Claw (item 6) to the #3 and #5 positions for all three Claws and screw the claw in place with two M6x20 Screws.



FIGURE 10. DISPENSER CORE REEL CLAWS LOADING STRAP INTO THE MACHINE

On the P-725 machine, open the Dispenser access panel and remove the dispenser assembly as shown on Figure 10.

- 1. Turn the Reel Nut Handwheel to disengage the handwheel from the shaft.
- 2. Remove the Outer Flange from the shaft and set aside.
- 3. Place a coil of strap on the Inner Flange with the strap pay-off going clockwise as shown on Figure 11. Allow the plastic wrap to poke through the shaft. (Note: do not remove the protective plastic wrap from the strap coil)
- 4. Replace the Outer Flange and reinstall the Reel Nut Handwheel.
- 5. Remove the protective plastic wrap from the strap coil at this time.
- 6. Place the dispenser assembly back into the rear-end of the machine. Make sure the assembly is positioned correctly with the Handwheel facing to the right and the ends of the shaft resting in the machine brackets.
- 7. When the dispenser is installed correctly, close the rear panel door.

On the P-625machine the same procedure is followed as in the P-725 machine except, the Inner Flange and Shaft assembly are not removed from the machine and the strap coil is loaded directly onto the machine.

THREADING STRAP THRU MACHINE

The threading process involves routing the strap from the dispenser and up through the strapping head. Refer to Figure 11 for threading the P-725 Machine and Figure 11A for threading the P-625 Machine.

On the P-725 Machines:



FIGURE 11. STRAP THREADING DIAGRAM (P-725)

- 1. Open the right-hand door and pull about 3 feet (1M) of strap from the coil.
- 2. Thread the strap through the lopper (B), pass it under roller (C) and allow it to exit the cabinet. On the P-725, close the right-hand door.
- 3. Pull up on the strap, then insert the lead-end between the guide roller (D).
- 4. Continue to push the strap through the head until it can be seen at point (E).

On the P-625 Machine:

Follow the same procedure except reach in from the front or right of the machine and pull about 3 feet of strap from the coil.



FIGURE 11A. STRAP THREADING DIAGRAM (P-625)

OPERATORS CONTROLS

The P-625 and P-725 controls are identical, however, the mechanical and electrical tension versions are different as follows:

MECHANICAL TENSION VERSION

CONTROL PANEL. The control panel is located on the left-hand side of the front panel of the machine. (See Figure 12)



FIGURE 12. CONTROL PANEL

POWER SWITCH. An Illuminated push button glows when power is turned on. All electrical circuits and the electric motor are then energized. Pushing the "POWER" switch once more cuts off all power supply to the machine.

STRAP FEED LENGTH TIMER. The length of the pre-fed strap can be adjusted to automatically feed from 1" (25mm) to approximately 25 feet (7620mm) using the LENGTH timer.

RESET SWITCH. When pushed, the strapping head cycles to the home position.

FEED LENGTH SWITCH. When pushed, additional strap is fed out into the strap channel. Strap feed will continue as long as the button is depressed.

COOLING TIME - MOTOR SHUT DOWN TIME.

The cooling time and motor shut down can be set by turning the pots shown on the circuit board.(FIGURE 13) Turn the pot CW to increase and CCW to decrease the time settings. **CAUTION**: Be sure to shut power OFF before making any changes on the board.



FIGURE 13. CIRCUIT BOARD MECH TENS.

OPERATORS CONTROLS cont'd

ELECTRIC TENSION VERSION

CONTROL PANEL. The control panel is located on the left-hand side of the front panel of the machine. (See Figure 12A)



FIGURE 12A. CONTROL PANEL

POWER SWITCH.

An Illuminated push button glows "Green" when power is turned on. All electrical circuits and the electric motor are then energized. Pushing the "POWER" switch once more cuts off all power supply to the machine.

STRAP FEED LENGTH TIMER. The length of the pre-fed strap can be adjusted to automatically feed from 1" (25mm) to approximately 25 feet (7620mm) using the LENGTH timer.

TENSION CONTROL. The amount of tension applied to the package can be controlled by turning the control CW for more tension and CCW for less tension.

RESET SWITCH. When pushed, the strapping head cycles to the home position.

FEED LENGTH SWITCH. When pushed, additional strap is fed out into the strap channel. Strap feed will continue as long as the button is depressed.

MOTOR SHUT DOWN DIP-SWITCH.

The dip-switch setting allows the user to adjust the time the machine sits idol before the motor shuts down. Set the dip switches as shown on Figure 13A. **CAUTION**: Be sure to shut power OFF before making any dip switch changes.



FIGURE 13A. COOLING DIP-SWITCH

TENSION TIME AND MINIMUM TENSION The tension time and minimum tension settings can be adjusted on the Circuit Board by adjusting the two pots as shown on FIGURE 13B. The minimum tension (W1) pot controls the lower limit of the tension setting by rotating the pot CW for more tension and CCW for greater tension. The tension time (W2) adjusts the time tension is applied. Turn W2 CW for more time and CCW for less time.

FIGURE 13B. CIRCUIT BOARD ELECT TENS

COOL TIME SETTING

One additional control on the Electrical Tension machine is located on the right side of the electrical enclosure. This is a pot that adjusts



SW1: Motor stop time

the cool delay for the machine. Turn the Pot CW for more cool delay, CCW for less cool delay. The cool delay allows the welded joint to properly set before the strap is released. This adjustment is used if an adequate joint is not achieved by adjusting the Hot Knife temperature control.

STRAPPING CYCLE

The machine is now ready for strapping a package. To operate the machine, proceed as follows:

- 1. Push the power switch to the "ON" position and allow the hot knife 5 seconds to reach operating temperature.
- 2. Place a package on the tabletop, directly above the sealing head. Allow the package to contact the package stop to the right.
- 3. Grasp the end of the strap on the left side and bring it over the package and insert the end into the strap channel on the right side of the package. As the lead-end of the strap closes LS1, the strap will tension, weld and release the package automatically.

CAUTION: Be sure to keep fingers from beneath the strap.

- 4. Remove the strapped package and note the length of the strap fed out for the next cycle. If the strap is too short or too long, adjust the timer as needed.
- Note the condition of the weld and the tension of the strap on the package. If the condition of the weld or the level of tension is unsatisfactory, adjust the hot knife temperature or the tension level as needed. Refer to the OPERATING ADJUSTMENTS section.

OPERATING ADJUSTMENTS

The following adjustments may need to be performed if changes in the package size, tension requirements or change in strap size is needed.

ADJUSTING TENSION

On Mechanical Tension machines, if tension adjustment is required, proceed as follows: Turn the knurled knob located at the rear of the machine, clockwise to increase tension, counterclockwise to decrease tension. On Electric Tension machines, adjust the tension by turning the tension control knob in the front panel.

ADJUSTING HOT-KNIFE TEMPERATURE If the weld does not hold on the package, easily comes apart, or appears to be overheated, an adjustment to the weld temperature may be required. The hot-knife rheostat control is found under the tabletop in a box mounted next to the strapping head. Make corrections in small increments according to the following conditions. RAISING HOT-KNIFE TEMPERATURE - If the weld appears to have insufficient heat to melt the strap, turn the hot-knife rheostat in a clockwise direction.

LOWERING HOT-KNIFE TEMPERATURE - if the condition of the weld appears to be over heated, turn the rheostat counterclockwise.

STRAP GUIDE ADJUSTMENT FOR VARIOUS WIDTHS OF STRAP.

The machine is designed to handle strap widths of 1/4" to 5/8" (6mm to 16mm).

To adjust the Exit Guide for the proper strap, loosen screws (# 5) mounting the adjustable exit guide (# 2) and slide the adjustable guide as wide as possible. Do not loosen or move the lower guide (# 1).

Thread the strap through the machine and have the end extend approximately 6" past the head. With the edge of the strap against the lower exit guide (#1), slide the adjustable guide against the strap then back the guide off approximately 0.004" (1mm). Lock the adjustable guide (# 2) in place with the screws (# 5). Check that the strap is not pinched and that it can easily pass through the guide.

To adjust the Entry Guide loosen the screws (# 8) and place a scrap piece of strap between the upper (# 6) and lower (# 7) guides. Move this assembly so that the scrap piece of strap is in line with the strap exiting the head. Once alignment is made, retighten the mounting screws (# 8).

Apply a few straps on a package. Strap should feed out of the head easily and the weld should not be misaligned. If misalignment occurs, readjust the entry guide.



FIGURE 14. GUIDE LOCATION

PRINCIPAL OF OPERATION

GENERAL

The strapping cycle can be divided into three distinct operations:

- a. Grip and tension
- b. Weld, cut, and release
- c. Feed

The following descriptions refer to Figures 15 through Figure 20. Note that both the mechanical and the control functions of the micro switches are described.

 NEUTRAL POSITION. When the strap is initially threaded through the machine, it enters the head under the strap guide and over roller 'D', between two sets of feed and tension rollers and on through a slot in the end gripper. It then passes beneath the anvil, over the welding clamp and holding gripper and out into the strap channel on the left-hand side of the tabletop where the operator has access to it.



FIGURE 15. NEUTRAL (HOME) POSITION

2. ENCIRCLING PACKAGE; TRIPPING LS1. Grip and tension is initiated by the operator who encircles the package with the strap and inserts the strap end into the slot of the upper strap guide on the right-hand end of the machine. In doing so, the strap is guided between the gripper portion of the end gripper and anvil then into a slot in the anvil where it makes contact with the start switch detector lever. As the lever moves to the left, it trips the cycle start switch, LS1.



FIGURE 16. ENCIRCLING PACKAGE; TRIPPING LS1

PRINCIPAL OF OPERATION cont.

3. TENSION. When LS1 is closed, the electromagnetic clutch energizes and the camshaft rotates approximately 45 degrees. This small amount of shaft rotation is controlled by LS3, mounted at the right-hand end of the camshaft. When LS3 closes it deenergizes the electromagnetic clutch and the end gripper will have been moved upward to contain the upper strap beneath the anvil.

The tension lever pivots and closes the tension rollers. The tension rollers close against the strap, drawing it back through the head, thus tensioning it around the package. When full tension has been drawn, the electronic tension detector reacts at the same time the electromagnetic clutch energizes again.





4. HOLDING GRIPPERS RISES; HOT-KNIFE MOVES INWARD. Momentarily, the electronic tension detector energizes the control circuit to energize the electromagnetic clutch and turn the cam shaft. As the camshaft turns, the holding gripper rises to contain the other end of the strap beneath the anvil. The tension lever is lowered to release tension and the welding clamp begins to rise. It's important to note that all tension to the strap must be released before the strap is cut, otherwise the strap-end could be damaged and feeding reliability will be affected.

The hot-knife moves in between the two layers of strap.

NOTE: TENSION ROLLERS ARE RELEASED AND STRAP IS AT REST.



FIGURE 18. HOLDING GRIPPER AND HOT-KNIFE

PRINCIPAL OF OPERATION cont.

 STRAP IS CUT; WELD IS MADE. The welding clamp cuts the strap during it's upward movement then pushes the upper surface of the lower strap against the lower surface of the hot-knife. It then pushes the hot-knife against the lower surface of the upper strap.



FIGURE 19. STRAP IS CUT AND WELD IS MADE

6. WELD IS RELEASED; HEAD RETURNS TO HOME POSITION.

The hot-knife retracts and the welding clamp pushes the two molten surfaces together, welding the strap.

After this short delay, to ensure that the strap has fused properly, the camshaft again turns and the holding gripper, the welding clamp and the end gripper retract to the neutral position.

The anvil then retracts and the welded strap is released to the lower side of the package

The camshaft returns to the home position and closes LS3 and LS5. The electromagnetic clutch is de-energized by LS3 while LS5 energizes SOL1. As the solenoid pulls down on the tensioning lever, the feed rollers close against the strap, pushing it through the head and out into the strap channel. The feed timer de-energizes and SOL1 is released. Strap feed stops and the machine is ready for the next cycle.

NOTE: SOL1 ENERGIZES TO CLOSE FEED ROLLERS AND FEED STRAP AFTER THE CAM SHAFT REACHES HOME POSITION



FIGURE 20. WELDIED STRAP IS RELEASED; HEAD IS IN HOME POSITION; STRAP FEEDS

SERVICE ADJUSTMENTS AND CLEARANCES

ANVIL: To insure that the anvil operates smoothly, a minimum clearance between the anvil and the left and right guides must be maintained. To adjust, proceed as follows:

- 1. Make sure the right-hand guide is securely mounted.
- 2. Loosen the two left-hand guide mounting screws.
- Insert a shim, 0.002" (.050mm) thick. x .118" (3mm) wide x 5" (130mm) long between the shoulder of the anvil and the left guide.
- 4. Push the left guide against the anvil and tighten the left guide mount screws.
- 5. Remove the shim and check to make sure the anvil moves smoothly.



FIGURE 21. ANVIL CLEARANCE

SWITCH CAM: The switch cam is a two level cam. The inner cam actuates LS5. The outer cam actuates LS3.

To make sure the cams are set properly, proceed as follows:

- 1. Make sure the machine is in the neutral or home position.
- 2. If the micro-switches need adjusting, loosen the mounting screws and set LS5 as shown on Figure 22. When properly set, tighten the mounting screws.



FIGURE 22. LS5

3. Position LS3 as shown in Figure 23. When set, tighten the mounting screws. As the cam rotates clockwise, the transition from B to A starts the cooling time.





WELDING CLAMP AND END GRIPPER: To adjust the clearance between the welding clamp and the end gripper, refer to Figure 24 and proceed as follows:

- 1. Remove the anvil.
- 2. Loosen the two socket head cap screws that secure the "L" shaped adjustment bracket to the casting.
- 3. Push the block left or right to adjust the clearance.
- 4. When set, securely tighten the two mounting screws.



FIGURE 24. WELDING CLAMP AND END GRIPPER

Note: If the cutting surface of the welding clamp becomes dull or chipped, the welding clamp can be turned 180 $^{\circ}$, doubling the life of the part.

TENSION LEVER: Before making any adjustments to the tension lever, check to see if the tension lever is in a level condition. To check and adjust the lever, proceed as follows:

- 1. Manually turn the rotor of the electromagnetic clutch until the key, seen at the end of the camshaft, is positioned as shown on Figure 25.
- 2. Make sure the tension lever bearing is in contact with the surface of the cam.
- 3. If there is no clearance at points A, B, and C then the tension lever is considered to be level.
- 4. If there is clearance at any point, loosen the locknuts 1 and 2 and adjust all clearance out at points A, B, and C.
- 5. When set, tighten the locknuts.



FIGURE 25. ADJUSTING TENSION LEVER

FEED AND TENSION ROLLERS: When the machine is in the neutral position, the feed and tension rollers should not come into contact with the strap. The clearance between the rollers should be 0.040" (1.0mm). To adjust the feed rollers closer together refer to Figure 26 and proceed as follows:

- Loosen the locknuts and turn all 4 nuts upward. This will raise the angle plate, pivoting the feed rollers upward. Make all adjustments in very small increments. When set, insert a 0.020" (0.5mm) shim between the angle plate and the locknut B and tighten locknut A against locknut B.
- 2. Remove the shim and press down on the angle plate. Tighten the locknuts C and D.

To adjust the tension rollers away from the strap, reverse the above procedure.



TENSION ROLLERS

MAINTENANCE

GENERAL. Periodic checks of all drive belts for replacement should be made to prevent worn out or stretched belts, which will affect tensioning.

TENSION TRIP ARM ASSEMBLY SLEEVE. Apply a few drops of light machine oil to the edge of the sleeve so that the oil can penetrate to the shoulder of the screw.

TOP SLIDE, GUIDE PLATES, WELDING CLAMP, END GRIPPER, AND HOLDING GRIPPER. Apply light machine oil to these parts at the point indicated in figure 27



FIGURE 27. LUBRICATION POINTS

LUBRICATION. Make sure the machine is clean before applying lubricants to the points shown in Figure 27. Note: use a brush or compressed air to remove any dirt or debris.

GEAR REDUCER. Replace the oil in the gear reducer once a year in the following manner:

- 1. Remove the OIL FILL plug at the top of the reducer.
- 2. Remove the lower plug and allow the oil to drain from the gear housing.
- 3. Reinstall the lower plug and fill with gear oil.
- 4. Reinstall the upper plug.

Note: The following parts should NEVER be lubricated:

- 1. Electromagnetic clutch
- 2. Roller assemblies
- Belts and pulleys 3.
- 4. Clutch discs.



TROUBLESHOOTING

SYMPTOM	CAUSE	REMEDY
Strap jams in strapping head while feeding	 Debris accumulation in feed/tension roller area. 	 Disassemble the roller assembly and remove debris. See Adjustment Section, Figure 26.
Strap pulls from head before seal and cut-off.	1. Worn gripper.	1. Replace gripper.
Strap will not feed.	1. Solenoid 1 will not activate.	 Adjust the clearance of LS5 in relation to the switch cam. Refer to Figure 22. Replace LS5. Adjust LS3 if needed to insure the head stops in the HOME position.
Strap is not being cut-off at end of strapping cycle.	 LS3 inoperative. LS3 improperly adjusted. Clearance between welding clamp and end gripper too great. Cutting surface on welding clamp dull. 	 Replace and adjust LS3. Refer to Figure 23. Adjust LS3 as required. Adjust the clearance as detailed in the Adjustment and Clearances Section. Turn the welding clamp 180° to get a new cutting surface.
Machine will not complete seal and cut-off.	 The belt that activates the tension trip arm is broken on has come off the pulleys. LS2 Sensor inoperative. 	 Replace the belt, if necessary. Remount the belt if it has come off the pulleys. Check gap between LS2 sensor and Magnet. Replace LS2
Poor strap weld.	 Hot-knife temperature is too high or too low. The F2 circuit breaker has tripped. 	 Adjust the hot-knife temperature as detailed in the Operating Instructions Section. Before resetting the F2 circuit breaker, attempt to identify the cause of the failure and make any

necessary repairs.

PARTS LIST AND EXPLODED VIEW

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1 4-01010 END GRIPPER UNIT 2 4-01020 WELDING CLAMP UNIT 3 1 4-01030 HOLDING GRIPPER UNIT 4 1 4-01030 SEPARATING ARM UNIT 11 1 4-01000-120 Guide plate, left had side 12 1 4-01000-130 Guide plate, left had side 13 1 4-01000-140 Top cover holder 16 1 4-01000-160 Microswitch seat 17 1 4-01000-170 Microswitch seat 18 1 4-01000-200 Guide slot 21 1 4-01000-200 Guide slot 23 4-01000-200 Guide slot 23 24 10400-220 L-type angle plate 23 23 4-01010-260 Spring hook 24 24 10400-200 Guide slot 24 23 4-01010-260 Spring hook 27 24 1 4-01020-270 Welding gripper 28 1	KEY	QTY.	PART NO.	DESCRIPTION
2 1 4-01020 WELDING CLAMP UNIT 3 1 4-01030 HOLDING GRIPPER UNIT 4 1 4-01040 SEPARATING PLATE UNIT 5 1 4-01000-110 Man body block 11 1 4-01000-120 Guide plate, fight had side 13 1 4-01000-160 Retainer, top cover holder 16 1 4-01000-161 Microswitch seat 17 1 4-01000-160 Spring hook 18 1 4-01000-170 Microswitch seat 19 2 4-01000-200 Guide plate 21 1 4-01000-200 Guide plate 22 1 4-01000-200 Litype angle plate 23 1 4-01000-200 Uide slate 24 1 4-01000-200 Uide slate 25 3 4-01010-260 Clevis 26 1 4-01020-270 Welding clamp 28 1 4-01020-270 Welding clamp	1	1	4-01010	END GRIPPER UNIT
3 1 4-01030 HOLDING GRIPPER UNIT 5 1 4-01050 SEPARATING ARM UNIT 11 1 4-01000-120 Guide plate, ight hand side 12 1 4-01000-130 Guide plate, ight hand side 13 1 4-01000-140 Top cover holder 14 1 4-01000-150 Retainer, top cover holder 16 1 4-01000-170 Microswitch spring plate 18 1 4-01000-180 Spring hook 19 2 4-01000-200 Guide slot 21 1 4-01000-200 Guide slot 23 1 4-01000-220 L-type angle plate 24 1 4-0100-220 L-type angle plate 23 1 4-01002-260 Spring hook 24 1 4-01010-260 Spring hook 25 3 4-01010-260 Spring hook 26 1 4-01030-280 Holding gripper 28 1 4-01040-310 Brass bushin	2	1	4-01020	WELDING CLAMP UNIT
4 1 4-01040 SEPARATING PLATE UNIT 5 1 4-01050 SEPARATING ARM UNIT 11 1 4-01000-120 Guide plate, right hand side 12 1 4-01000-130 Guide plate, left had side 13 1 4-01000-150 Retainer, top cover holder 15 1 4-01000-161 Microswitch spring plate 18 1 4-01000-170 Microswitch spring plate 18 1 4-01000-200 Guide plate, left had side 20 1 4-01000-200 Guide plate 21 1 4-01000-200 Guide plate 22 1 4-01000-200 Guide plate 23 1 4-0100-230 Spring hook plate 24 1 4-0100-260 Spring hook 27 1 4-0102-270 Welding clamp 28 1 4-01040-301 Microswitch detector lever (out) 31 1 4-01040-301 Brass bushing 21 4-01050-320	3	1	4-01030	HOLDING GRIPPER UNIT
5 1 4-01000 SEPARATING ARM UNIT 11 1 4-01000-110 Main body block 12 1 4-01000-120 Guide plate, right hand side 13 1 4-01000-140 Top cover holder 14 1 4-01000-161 Microswitch seat 15 1 4-01000-170 Microswitch seat 16 1 4-01000-180 Spring hock 19 2 4-01000-200 Guide slot 21 1 4-01000-210 Guide slot 22 1 4-0100-230 Spring hock plate 23 1 4-01010-260 Spring hock plate 24 1 4-01010-260 Spring hock plate 25 3 4-01010-260 Spring hock 27 1 4-0102-270 Welding clamp 28 1 4-01040-301 Microswitch detector lever (out) 31 1 4-01040-301 Brass bushing 32 1 4-01040-301 Brass bushing	4	1	4-01040	SEPARATING PLATE UNIT
11 1 4-01000-110 Main body block 12 1 4-01000-120 Guide plate, right hand side 13 1 4-01000-130 Guide plate, left had side 14 1 4-01000-130 Retainer, top cover holder 15 1 4-01000-160 Retainer, top cover holder 16 1 4-01000-170 Microswitch seat 17 1 4-01000-200 Guide plate 20 1 4-01000-200 Guide plate 21 1 4-01000-200 Guide plate 22 1 4-01000-200 Guide plate 23 1 4-0100-200 Clevis 24 1 4-0100-230 Spring hook 25 3 4-01010-260 Clevis 26 1 4-01020-270 Welding clamp 28 1 4-01040-290 Separating plate 30 1 4-01040-301 Microswitch detector lever (out) 31 1 4-01040-301 Brass bushing 32 1 4-01040-301 Brass bushing	5	1	4-01050	SEPARATING ARM UNIT
1 4-01000-120 Guide plate, right hand side 13 1 4-01000-130 Guide plate, left had side 14 1 4-01000-140 Top cover holder 15 1 4-01000-161 Microswitch seat 16 1 4-01000-170 Microswitch seat 17 1 4-01000-180 Spring hook 19 2 4-01000-200 Guide slot 21 1 4-01000-210 Guide slot 223 1 4-01000-220 L-type angle plate 23 1 4-0100-230 Spring hook 24 1 4-01010-260 Spring hook 27 1 4-0102-270 Welding clamp 28 1 4-01040-301 Microswitch detector lever (out) 31 1 4-01040-301 Microswitch detector lever (out) 31 1 4-01040-301 Microswitch detector lever (out) 31 1 4-01050-320 Separating arm pin 34 1 4-01050-320	11	1	4-01000-110	Main body block
13 1 4-01000-130 Guide plate, left had side 14 1 4-01000-150 Retainer, top cover holder 15 1 4-01000-150 Retainer, top cover holder 16 1 4-01000-170 Microswitch seat 17 1 4-01000-170 Microswitch spring plate 18 1 4-01000-200 Guide slot 20 1 4-01000-200 Guide plate 22 1 4-01000-200 Guide plate 23 1 4-01000-200 Clevis 24 1 4-0100-200 Clevis 25 3 4-0100-260 Spring hook 27 1 4-0102-270 Welding clamp 28 1 4-01030-280 Holding gripper 29 1 4-01040-290 Separating plate 30 1 4-01040-301 Brass bushing 31 1 4-01040-301 Brass bushing 32 1 4-01040-301 Brass bushing <t< td=""><td>12</td><td>1</td><td>4-01000-120</td><td>Guide plate, right hand side</td></t<>	12	1	4-01000-120	Guide plate, right hand side
14 1 4-01000-140 Top cover holder 15 1 4-01000-150 Retainer, top cover holder 16 1 4-01000-161 Microswitch seat 17 1 4-01000-180 Spring hook 18 1 4-01000-180 Spring hook 19 2 4-01000-210 Guide slot 21 1 4-01000-220 L-type angle plate 23 1 4-01000-230 Spring hook plate 24 1 4-01010-240 End gripper 25 3 4-01010-260 Spring hook 27 1 4-01020-270 Welding clamp 28 1 4-01040-301 Microswitch detector lever (out) 31 1 4-01040-301 Microswitch detector lever (out) 31 1 4-01050-320 Separating arm 33 2 4-01050-330 Sleeve, separating arm pin 34 1 4-01050-320 Socket head cap screw, M5x20 101 7 200A05016 Socket head cap screw, M5x20 102 200A06050 Soc	13	1	4-01000-130	Guide plate, left had side
15 1 4-01000-150 Retainer, top cover holder 16 1 4-01000-170 Microswitch spring plate 17 1 4-01000-180 Spring hook 19 2 4-01000-190 Screw 20 1 4-01000-200 Guide slot 21 1 4-01000-220 L-type angle plate 23 1 4-01000-230 Spring hook plate 24 1 4-0100-250 Clevis 25 3 4-01010-250 Clevis 26 1 4-0102-270 Welding clamp 28 1 4-01040-301 Microswitch detector lever (out) 31 1 4-01050-330 Separating arm 32 1 4-01050-340 Separating arm pin 33 2 4-01050-330 Sleeve, separating arm pin 34 1 4-01050-340 Separating arm pin 34 1 200A05012 Socket head cap screw, M5x16 101 7 200A05025 Socket head cap screw, M5x25 105 1 200A06050 Socket hea	14	1	4-01000-140	Top cover holder
16 1 4-01000-161 Microswitch seat 17 1 4-01000-180 Spring hook 19 2 4-01000-180 Spring hook 20 1 4-01000-200 Guide slot 21 1 4-01000-210 Guide plate 22 1 4-01000-220 L-type angle plate 23 1 4-0100-230 Spring hook plate 24 1 4-01010-260 Glide gripper 25 3 4-01010-260 Spring hook 27 1 4-01020-270 Welding clamp 28 1 4-01040-301 Microswitch detector lever (out) 31 1 4-01040-301 Brass bushing 32 1 4-01050-320 Separating arm pin 34 1 4-01050-330 Sleeve, separating arm pin 101 7 200A05012 Socket head cap screw, M5x16 103 1 200A05025 Socket head cap screw, M5x25 106 2 200A06025 Socket head cap screw, M5x8 107 2 200A06025 Socket	15	1	4-01000-150	Retainer, top cover holder
17 1 4-01000-170 Microswitch spring plate 18 1 4-01000-180 Spring hook 20 1 4-01000-200 Guide slot 21 1 4-01000-210 Guide plate 22 1 4-01000-220 L-type angle plate 23 1 4-01010-240 End gripper 25 3 4-01010-260 Spring hook 26 1 4-0102-270 Welding clamp 28 1 4-01040-301 Microswitch detector lever (out) 31 1 4-01040-301 Brass bushing 32 1 4-01050-330 Sleeve, separating arm pin 33 2 4-01050-330 Sleeve, separating arm pin 34 1 4-01050-340 Separating arm pin 34 1 200A05012 Socket head cap screw, M5x12 102 1 200A05025 Socket head cap screw, M5x25 103 1 200A05025 Socket head cap screw, M5x25 106 2 200A06025 Socket head cap screw, M5x26 107 2	16	1	4-01000-161	Microswitch seat
18 1 4-01000-180 Spring hook 19 2 4-01000-200 Guide slot 20 1 4-01000-200 Guide plate 22 1 4-01000-230 Spring hook plate 23 1 4-0100-230 Spring hook plate 24 1 4-01010-240 End gripper 25 3 4-01010-260 Spring hook 26 1 4-0102-270 Welding clamp 28 1 4-01030-280 Holding gripper 29 1 4-01040-290 Separating plate 30 1 4-01050-320 Separating arm 31 1 4-01050-330 Sleeve, separating arm pin 34 1 4-01050-340 Separating arm pin 101 7 200A05006 Socket head cap screw, M5x6 103 1 200A05025 Socket head cap screw, M5x25 106 2 200A06025 Socket head cap screw, M5x25 107 2 200A06050 Socket h	17	1	4-01000-170	Microswitch spring plate
19 2 4-01000-190 Screw 20 1 4-01000-200 Guide slot 21 1 4-01000-210 Guide plate 22 1 4-01000-230 Spring hook plate 23 1 4-01010-240 End gripper 25 3 4-01010-260 Spring hook 26 1 4-0102-270 Welding clamp 28 1 4-01040-301 Microswitch detector lever (out) 31 1 4-01040-301 Brass bushing 32 1 4-01050-320 Separating arm pin 33 2 4-01050-330 Sleeve, separating arm pin 34 1 4-01050-340 Separating arm pin 34 1 200A05012 Socket head cap screw, M5x6 103 1 200A05020 Socket head cap screw, M5x25 106 2 200A06025 Socket head cap screw, M5x25 107 200A06050 Socket head cap screw, M5x26 108 2 200605008 Socke	18	1	4-01000-180	Spring hook
20 1 4-01000-200 Guide slot 21 1 4-01000-210 Guide plate 23 1 4-01000-230 Spring hook plate 24 1 4-01010-240 End gripper 25 3 4-01010-250 Clevis 26 1 4-0102-270 Welding clamp 28 1 4-01040-290 Separating plate 30 1 4-01040-301 Microswitch detector lever (out) 31 1 4-01050-320 Separating arm pin 32 1 4-01050-330 Sleeve, separating arm pin 33 2 4-01050-340 Separating arm pin 101 7 200A05016 Socket head cap screw, M5x12 102 1 200A05020 Socket head cap screw, M5x20 105 1 200A05025 Socket head cap screw, M5x25 106 2 200A06050 Socket head cap screw, M5x25 107 2 200A06050 Socket head cap screw, M5x26 108 2	19	2	4-01000-190	Screw
21 1 4-01000-210 Guide plate 22 1 4-01000-220 L-type angle plate 23 1 4-01000-230 Spring hook plate 24 1 4-01010-240 End gripper 25 3 4-01010-260 Clevis 26 1 4-01020-270 Welding clamp 28 1 4-01040-301 Microswitch detector lever (out) 31 1 4-01040-310 Brass bushing 32 1 4-01050-320 Separating arm pin 34 1 4-01050-340 Separating arm pin 34 1 4-01050-340 Separating arm pin 34 1 200A05012 Socket head cap screw, M5x12 102 1 200A05025 Socket head cap screw, M5x25 103 1 200A05025 Socket head cap screw, M6x25 106 2 200A06050 Socket head cap screw, M5x86 108 2 200G05008 Socket head cap screw, M6x50 108 2	20	1	4-01000-200	Guide slot
22 1 4-01000-220 L-type angle plate 23 1 4-01010-230 Spring hook plate 24 1 4-01010-240 End gripper 25 3 4-01010-260 Spring hook 27 1 4-0102-270 Welding clamp 28 1 4-01040-290 Separating plate 30 1 4-01040-301 Microswitch detector lever (out) 31 1 4-01050-320 Separating arm pin 34 1 4-01050-330 Sleeve, separating arm pin 34 1 4-01050-340 Separating arm pin 34 1 200A05006 Socket head cap screw, M5x12 102 1 200A05025 Socket head cap screw, M6x25 105 1 200A05025 Socket head cap screw, M4x50 106 2 200A06050 Socket head cap screw, M4x50 107 2 200A06055 Socket head cap screw, M4x50 108 2 200605008 Socket head cap screw, M4x15 110	21	1	4-01000-210	Guide plate
23 1 4-01000-230 Spring hook plate 24 1 4-01010-240 End gripper 25 3 4-01010-250 Clevis 26 1 4-01020-270 Welding clamp 28 1 4-01030-280 Holding gripper 29 1 4-01040-301 Microswitch detector lever (out) 31 1 4-01050-320 Separating arm pin 32 1 4-01050-320 Separating arm pin 33 2 4-01050-340 Separating arm pin 101 7 200A05012 Socket head cap screw, M5x16 102 1 200A05025 Socket head cap screw, M5x20 105 1 200A06025 Socket head cap screw, M6x50 108 2 200A06025 Socket head cap screw, M6x25 107 2 200A06025 Socket head cap screw, M5x26 108 2 200G05008 Socket head cap screw, M5x8 109 1 200E04015 Phillips head machine screw, M3x20 1	22	1	4-01000-220	L-type angle plate
24 1 4-01010-240 End gripper 25 3 4-01010-250 Clevis 26 1 4-01020-270 Welding clamp 28 1 4-01030-280 Holding gripper 29 1 4-01040-290 Separating plate 30 1 4-01040-301 Microswitch detector lever (out) 31 1 4-01050-320 Separating arm 32 1 4-01050-320 Separating arm 33 2 4-01050-340 Separating arm pin 34 1 4-01050-340 Separating arm pin 34 1 200A05006 Socket head cap screw, M5x12 102 1 200A05025 Socket head cap screw, M5x20 105 1 200A06050 Socket head cap screw, M6x25 106 2 200A06050 Socket head cap screw, M6x8 109 1 200E04015 Phillips head machine screw, M4x15 110 1 200F0303 Hex nut, M3 113 201A05	23	1	4-01000-230	Spring hook plate
25 3 4-01010-250 Clevis 26 1 4-01010-260 Spring hook 27 1 4-01020-270 Welding clamp 28 1 4-01040-290 Separating plate 30 1 4-01040-310 Microswitch detector lever (out) 31 1 4-01050-320 Separating arm pin 33 2 4-01050-320 Separating arm pin 34 1 4-01050-340 Separating arm pin 101 7 200A05012 Socket head cap screw, M5x16 103 1 200A05016 Socket head cap screw, M5x16 104 1 200A06025 Socket head cap screw, M5x16 104 1 200A06025 Socket head cap screw, M5x20 105 1 200A06025 Socket head cap screw, M5x25 107 2 200A06050 Socket head cap screw, M5x15 108 2 200G05008 Socket head cap screw, M5x25 107 2 200A06050 Flat head cap screw, M5x45 108 1 200E04015 Phillips head machine screw, M4x15 <t< td=""><td>24</td><td>1</td><td>4-01010-240</td><td>End gripper</td></t<>	24	1	4-01010-240	End gripper
26 1 4-01010-260 Spring hook 27 1 4-01020-270 Welding clamp 28 1 4-01030-280 Holding gripper 29 1 4-01040-301 Microswitch detector lever (out) 31 1 4-01040-310 Brass bushing 32 1 4-01050-320 Separating arm pin 34 1 4-01050-340 Separating arm pin 34 1 4-01050-340 Separating arm pin 101 7 200A05012 Socket head cap screw, M5x12 102 1 200A05026 Socket head cap screw, M5x20 103 1 200A05025 Socket head cap screw, M5x20 105 1 200A06050 Socket head cap screw, M6x50 106 2 200A06050 Socket head cap screw, M6x50 108 2 200G05008 Socket head cap screw, M6x50 108 2 200G05020 Flat head cap screw, M4x15 110 1 200F03020 Flat head cap screw, M4x16	25	3	4-01010-250	Clevis
27 1 4-01020-270 Welding clamp 28 1 4-01030-280 Holding gripper 29 1 4-01040-290 Separating plate 30 1 4-01040-310 Brass bushing 31 1 4-01050-320 Separating arm 33 2 4-01050-330 Sleeve, separating arm pin 101 7 200A05012 Socket head cap screw, M5x12 102 1 200A05025 Socket head cap screw, M5x26 103 1 200A05025 Socket head cap screw, M5x25 104 1 200A06025 Socket head cap screw, M6x25 105 1 200A06025 Socket head cap screw, M6x25 106 2 200A06025 Socket head cap screw, M5x8 108 2 200A06050 Socket head cap screw, M4x15 110 1 200F03020 Flat head cap screw, M5x8 109 1 201A03 Hex nut, M3 113 1 201A04 Hex nut, M4 114 1 201A05 Hek nut, M4 114 1	26	1	4-01010-260	Spring hook
28 1 4-01030-280 Holding gripper 29 1 4-01040-390 Separating plate 30 1 4-01040-310 Brass bushing 31 1 4-01050-320 Separating arm gin 33 2 4-01050-330 Sleeve, separating arm pin 34 1 4-01050-340 Separating arm pin 101 7 200A05012 Socket head cap screw, M5x16 103 1 200A05020 Socket head cap screw, M5x26 104 1 200A05025 Socket head cap screw, M5x25 105 1 200A06025 Socket head cap screw, M5x25 106 2 200A06025 Socket head cap screw, M5x25 107 2 200A06025 Socket head cap screw, M5x3 108 2 200G05008 Socket head cap screw, M5x45 107 2 200A06050 Socket head cap screw, M3x15 110 1 200E04015 Phillips head machine screw, M3x15 111 3 200E03015 Phillips head machine screw	27	1	4-01020-270	Welding clamp
29 1 4-01040-290 Separating plate 30 1 4-01040-301 Microswitch detector lever (out) 31 1 4-01050-320 Separating arm 32 1 4-01050-330 Sleeve, separating arm pin 34 1 4-01050-340 Separating arm pin 34 1 4-01050-340 Separating arm pin 101 7 200A05012 Socket head cap screw, M5x16 102 1 200A05020 Socket head cap screw, M5x25 105 1 200A05025 Socket head cap screw, M6x25 106 2 200A06050 Socket head cap screw, M6x25 107 2 200A06050 Socket head cap screw, M6x25 108 2 200C05008 Socket head cap screw, M6x20 111 3 200E04015 Phillips head machine screw, M3x20 111 3 200E03015 Phillips head machine screw, M3x15 112 4 201A03 Hex nut, M3 113 1 201A04 Hex nut, M5 <td>28</td> <td>1</td> <td>4-01030-280</td> <td>Holding gripper</td>	28	1	4-01030-280	Holding gripper
30 1 4-01040-301 Microswitch detector lever (out) 31 1 4-01040-310 Brass bushing 32 1 4-01050-320 Separating arm 33 2 4-01050-330 Sleeve, separating arm pin 34 1 4-01050-340 Separating arm pin 101 7 200A05012 Socket head cap screw, M5x12 102 1 200A05016 Socket head cap screw, M5x26 103 1 200A05020 Socket head cap screw, M5x25 104 1 200A06025 Socket head cap screw, M5x25 105 1 200A06025 Socket head cap screw, M5x25 106 2 200A06020 Socket head cap screw, M5x8 109 1 200E04015 Phillips head machine screw, M4x15 110 1 200F03020 Flat head cap screw, M3x20 111 3 200E03015 Phillips head machine screw, M4x15 112 4 201A03 Hex nut, M3 113 1 201A04 Hex nut, M3 <	29	1	4-01040-290	Separating plate
31 1 4-01040-310 Brass bushing 32 1 4-01050-320 Separating arm pin 33 2 4-01050-330 Sleeve, separating arm pin 34 1 4-01050-340 Separating arm pin 101 7 200A05012 Socket head cap screw, M5x12 102 1 200A05006 Socket head cap screw, M5x6 103 1 200A05025 Socket head cap screw, M5x20 105 1 200A05025 Socket head cap screw, M6x25 106 2 200A06050 Socket head cap screw, M6x50 108 2 200G05008 Socket head cap screw, M6x50 108 2 200F03015 Phillips head machine screw, M3x15 110 1 200F03015 Phillips head machine screw, M3x20 111 3 200E03015 Phillips head machine screw, M3x15 112 4 201A03 Hex nut, M4 114 1 201A05 Hex nut, M4 114 1 201A05 Lock washer, M3	30	1	4-01040-301	Microswitch detector lever (out)
32 1 4-01050-320 Separating arm 33 2 4-01050-330 Sleeve, separating arm pin 34 1 4-01050-340 Separating arm pin 34 1 4-01050-340 Separating arm pin 101 7 200A05012 Socket head cap screw, M5x12 102 1 200A05016 Socket head cap screw, M5x20 104 1 200A05025 Socket head cap screw, M5x20 105 1 200A06025 Socket head cap screw, M6x55 106 2 200A06050 Socket head cap screw, M5x8 108 2 200G05008 Socket head cap screw, M5x8 109 1 200E04015 Phillips head machine screw, M3x15 110 1 200F03020 Flat head cap screw, M3x20 111 3 200E03015 Phillips head machine screw, M3x15 112 4 201A03 Hex nut, M4 114 1 201A05 Hex nut, M4 114 1 201A05 Lock washer, M4	31	1	4-01040-310	Brass bushing
33 2 4-01050-330 Sleeve, separating arm pin 34 1 4-01050-340 Separating arm pin 101 7 200A05012 Socket head cap screw, M5x12 102 1 200A05006 Socket head cap screw, M5x66 103 1 200A05002 Socket head cap screw, M5x16 104 1 200A05025 Socket head cap screw, M5x25 105 1 200A06025 Socket head cap screw, M5x25 106 2 200A06025 Socket head cap screw, M6x50 107 2 200A06025 Socket head cap screw, M5x8 108 2 200G05008 Socket head cap screw, M6x50 108 2 200G05005 Phillips head machine screw, M3x15 110 1 200F03015 Phillips head machine screw, M3x15 111 3 200E03015 Phillips head machine screw, M3x15 112 4 201A03 Hex nut, M3 113 1 201A05 Hex nut, M4 114 1 201A05 Lock washer,	32	1	4-01050-320	Separating arm
34 1 4-01050-340 Separating arm pin 101 7 200A05012 Socket head cap screw, M5x12 102 1 200A05006 Socket head cap screw, M5x6 103 1 200A05006 Socket head cap screw, M5x16 104 1 200A05020 Socket head cap screw, M5x20 105 1 200A05025 Socket head cap screw, M5x25 106 2 200A06050 Socket head cap screw, M6x25 107 2 200A06050 Socket head cap screw, M5x8 108 2 200G05008 Socket head cap screw, M5x8 109 1 200E04015 Phillips head machine screw, M3x15 110 1 200F03020 Flat head cap screw, M3x20 111 3 200E03015 Phillips head machine screw, M3x15 112 4 201A03 Hex nut, M4 114 1 201A04 Hex nut, M4 114 1 201A05 Hex nut, M4 115 2 201A08 Lock washer, M3	33	2	4-01050-330	Sleeve, separating arm pin
101 7 200A05012 Socket head cap screw, M5x12 102 1 200A05006 Socket head cap screw, M5x6 103 1 200A05016 Socket head cap screw, M5x16 104 1 200A05020 Socket head cap screw, M5x20 105 1 200A05025 Socket head cap screw, M5x25 106 2 200A06050 Socket head cap screw, M6x25 107 2 200A06050 Socket head cap screw, M5x26 108 2 200E04015 Philips head machine screw, M4x15 110 1 200F03020 Flat head cap screw, M3x20 111 3 200E03015 Phillips head machine screw, M3x15 112 4 201A03 Hex nut, M3 113 1 201A04 Hex nut, M4 114 1 201A05 Hex nut, M4 114 1 201A05 Lock washer, M3 115 2 201A08 Hex nut, M8 116 6 202B05 Lock washer, M4 117	34	1	4-01050-340	Separating arm pin
102 1 200A05006 Socket head cap screw, M5x6 103 1 200A05016 Socket head cap screw, M5x16 104 1 200A05020 Socket head cap screw, M5x20 105 1 200A05025 Socket head cap screw, M6x25 106 2 200A06025 Socket head cap screw, M6x25 107 2 200A06025 Socket head cap screw, M6x25 108 2 200G05008 Socket head cap screw, M4x15 109 1 200E04015 Phillips head machine screw, M4x15 110 1 200F03020 Flat head cap screw, M3x20 111 3 200E04015 Phillips head machine screw, M3x15 112 4 201A03 Hex nut, M3 113 1 201A04 Hex nut, M4 114 1 201A05 Hex nut, M4 114 1 201A05 Lock washer, M3 115 2 201A08 Lock washer, M3 116 6 202B03 Lock washer, M4 118	101	7	200A05012	Socket head cap screw, M5x12
103 1 200A05016 Socket head cap screw, M5x16 104 1 200A05020 Socket head cap screw, M5x20 105 1 200A05025 Socket head cap screw, M5x25 106 2 200A06025 Socket head cap screw, M6x50 107 2 200A06050 Socket head cap screw, M6x50 108 2 200G05008 Socket head cap screw, M6x50 109 1 200E04015 Phillips head machine screw, M4x15 110 1 200F03020 Flat head cap screw, M3x20 111 3 200E03015 Phillips head machine screw, M3x15 112 4 201A03 Hex nut, M3 113 1 201A05 Hex nut, M4 114 1 201A05 Hex nut, M8 115 2 201A08 Hex nut, M5 115 2 201A08 Lock washer, M4 118 7 202B04 Lock washer, M6 123 1 200E04008 Phillips head machine screw, M4x16 124 <td>102</td> <td>1</td> <td>200A05006</td> <td>Socket head cap screw, M5x6</td>	102	1	200A05006	Socket head cap screw, M5x6
104 1 200A05020 Socket head cap screw, M5x20 105 1 200A05025 Socket head cap screw, M5x25 106 2 200A06025 Socket head cap screw, M6x25 107 2 200A06050 Socket head cap screw, M5x8 108 2 200G05008 Socket head cap screw, M5x8 109 1 200E04015 Phillips head machine screw, M3x15 110 1 200F03020 Flat head cap screw, M3x20 111 3 200E03015 Phillips head machine screw, M3x15 112 4 201A03 Hex nut, M3 113 1 201A04 Hex nut, M3 114 1 201A05 Hex nut, M4 114 1 201A05 Hex nut, M8 115 2 201A08 Hex nut, M8 116 6 202B03 Lock washer, M4 118 7 202B06 Lock washer, M6 120 5 202B06 Lock washer, M4 121 20021000 Tens	103	1	200A05016	Socket head cap screw, M5x16
105 1 200A05025 Socket head cap screw, M5x25 106 2 200A06025 Socket head cap screw, M6x25 107 2 200A06050 Socket head cap screw, M6x50 108 2 200G05008 Socket head cap screw, M5x8 109 1 200E04015 Phillips head machine screw, M4x15 110 1 200F03020 Flat head cap screw, M3x20 111 3 200E03015 Phillips head machine screw, M3x15 112 4 201A03 Hex nut, M3 113 1 201A04 Hex nut, M4 114 1 201A05 Hex nut, M8 115 2 201A08 Hex nut, M8 116 6 202B03 Lock washer, M3 117 5 202B04 Lock washer, M4 118 7 202B05 Lock washer, M8 120 5 202B06 Lock washer, M4 123 1 200A04016 Socket head cap screw, M4x16 124 3 202A04	104	1	200A05020	Socket head cap screw, M5x20
106 2 200A06025 Socket head cap screw, M6x25 107 2 200A06050 Socket head cap screw, M6x50 108 2 200G05008 Socket head cap screw, M6x50 109 1 200E04015 Phillips head machine screw, M4x15 110 1 200E03015 Phillips head machine screw, M3x20 111 3 200E03015 Phillips head machine screw, M3x15 112 4 201A03 Hex nut, M3 113 1 201A04 Hex nut, M4 114 1 201A05 Hex nut, M4 114 1 201A08 Hex nut, M5 115 2 201A08 Hex nut, M8 116 6 202B03 Lock washer, M3 117 5 202B05 Lock washer, M8 120 5 202B06 Lock washer, M6 123 1 200A04016 Socket head cap screw, M4x16 124 3 202E04008 Phillips head machine screw, M4x8 125 3	105	1	200A05025	Socket head cap screw, M5x25
107 2 200A06050 Socket head cap screw, M6x50 108 2 200G05008 Socket head cap screw, M6x50 109 1 200E04015 Phillips head machine screw, M4x15 110 1 200F03020 Flat head cap screw, M3x20 111 3 200E03015 Phillips head machine screw, M3x15 112 4 201A03 Hex nut, M3 113 1 201A04 Hex nut, M4 114 1 201A05 Hex nut, M4 114 1 201A05 Hex nut, M4 115 2 201A08 Hex nut, M8 116 6 202B03 Lock washer, M3 117 5 202B04 Lock washer, M4 118 7 202B05 Lock washer, M6 123 1 200A04016 Socket head cap screw, M4x16 124 3 200E04008 Phillips head machine screw, M4x8 125 3 202A0410 Plain washer, M4x10 126 3 2212310042 Compression spring 2.3x10x42 127 1 2201210020 <td>106</td> <td>2</td> <td>200A06025</td> <td>Socket head cap screw, M6x25</td>	106	2	200A06025	Socket head cap screw, M6x25
108 2 200G05008 Socket head cap screw, M5x8 109 1 200E04015 Phillips head machine screw, M4x15 110 1 200F03020 Flat head cap screw, M3x20 111 3 200E03015 Phillips head machine screw, M3x15 112 4 201A03 Hex nut, M3 113 1 201A04 Hex nut, M4 114 1 201A05 Hex nut, M5 115 2 201A08 Hex nut, M8 116 6 202B03 Lock washer, M3 117 5 202B05 Lock washer, M4 118 7 202B05 Lock washer, M6 120 5 202B06 Lock washer, M6 123 1 200A04016 Socket head cap screw, M4x16 124 3 200E04008 Phillips head machine screw, M4x8 125 3 202A0410 Plain washer, M4x10 126 3 2212310042 Compression spring 2.3x10x42 127 1 2201210020	107	2	200A06050	Socket head cap screw, M6x50
109 1 200E04015 Phillips head machine screw, M4x15 110 1 200F03020 Flat head cap screw, M3x20 111 3 200E03015 Phillips head machine screw, M3x15 112 4 201A03 Hex nut, M3 113 1 201A04 Hex nut, M3 114 1 201A05 Hex nut, M4 114 1 201A05 Hex nut, M4 114 1 201A05 Hex nut, M4 115 2 201A08 Hex nut, M8 116 6 202B03 Lock washer, M3 117 5 202B05 Lock washer, M4 118 7 202B06 Lock washer, M6 120 5 202B06 Lock washer, M6 123 1 200A04016 Socket head cap screw, M4x16 124 3 200E04008 Phillips head machine screw, M4x8 125 3 202A0410 Plain washer, M4x10 126 3 2212310042 Compression spring 2.3x10x42 127 1 2201210020 Tension spring, long <td>108</td> <td>2</td> <td>200G05008</td> <td>Socket head cap screw, M5x8</td>	108	2	200G05008	Socket head cap screw, M5x8
110 1 200F03020 Flat head cap screw, M3x20 111 3 200E03015 Phillips head machine screw, M3x15 112 4 201A03 Hex nut, M3 113 1 201A04 Hex nut, M4 114 1 201A05 Hex nut, M5 115 2 201A08 Hex nut, M5 116 6 202B03 Lock washer, M3 117 5 202B04 Lock washer, M4 118 7 202B05 Lock washer, M5 119 1 200E06 Lock washer, M6 123 1 200A04016 Socket head cap screw, M4x16 124 3 200E04008 Phillips head machine screw, M4x8 125 3 202A0410 Plain washer, M4x10 126 3 2212310042 Compression spring 2.3x10x42 127 1 220121020 Tension spring, long 128 4 2201011022 Tension spring, long 129 1 104G001 Microswitch, heavy (LS-1) 130 4 210A0635 Ball bearin	109	1	200E04015	Phillips head machine screw, M4x15
111 3 200E03015 Phillips head machine screw, M3x15 112 4 201A03 Hex nut, M3 113 1 201A04 Hex nut, M4 114 1 201A05 Hex nut, M4 114 1 201A05 Hex nut, M5 115 2 201A08 Hex nut, M8 116 6 202B03 Lock washer, M3 117 5 202B04 Lock washer, M4 118 7 202B05 Lock washer, M5 119 1 202B06 Lock washer, M6 123 1 200A04016 Socket head cap screw, M4x16 124 3 200E04008 Phillips head machine screw, M4x8 125 3 202A0410 Plain washer, M4x10 126 3 221310042 Compression spring 2.3x10x42 127 1 2201210020 Tension spring, short 128 4 2201011022 Tension spring, long 129 1 104G001 Microswitch, heavy (LS-1) 130 4 210A0635 Ball bearing, 635ZZ	110	1	200F03020	Flat head cap screw, M3x20
112 4 201A03 Hex nut, M3 113 1 201A04 Hex nut, M4 114 1 201A05 Hex nut, M5 115 2 201A08 Hex nut, M8 116 6 202B03 Lock washer, M3 117 5 202B04 Lock washer, M4 118 7 202B05 Lock washer, M8 120 5 202B06 Lock washer, M6 123 1 200A04016 Socket head cap screw, M4x16 124 3 200E04008 Phillips head machine screw, M4x8 125 3 202A0410 Plain washer, M4x10 126 3 2212310042 Compression spring 2.3x10x42 127 1 2201210020 Tension spring, long 128 4 2201011022 Tension spring, long 129 1 104G001 Microswitch, heavy (LS-1) 130 4 210A0635 Ball bearing, 635ZZ 131 1 211A0514 Spring pin, 5 dia. x 14 132 1 211A0514 Spring pin, 3 dia. x 18	111	3	200E03015	Phillips head machine screw, M3x15
1131201A04Hex nut, M41141201A05Hex nut, M51152201A08Hex nut, M81166202B03Lock washer, M31175202B04Lock washer, M41187202B05Lock washer, M51191202B08Lock washer, M61205202B06Lock washer, M61231200A04016Socket head cap screw, M4x161243200E04008Phillips head machine screw, M4x81253202A0410Plain washer, M4x1012632212310042Compression spring 2.3x10x4212712201210020Tension spring, short12842201011022Tension spring, long1291104G001Microswitch, heavy (LS-1)1304210A0635Ball bearing, 635ZZ1311211A0414Spring pin, 5 dia. x 141321211A0514Spring pin, 5 dia. x 141345211A0318Spring pin, 3 dia. x 18	112	4	201A03	Hex nut. M3
1141201A05Hex nut, M51152201A08Hex nut, M81166202B03Lock washer, M31175202B04Lock washer, M41187202B05Lock washer, M51191202B08Lock washer, M61205202B06Lock washer, M61231200A04016Socket head cap screw, M4x161243200E04008Phillips head machine screw, M4x81253202A0410Plain washer, M4x1012632212310042Compression spring 2.3x10x4212712201210020Tension spring, short12842201011022Tension spring, long1291104G001Microswitch, heavy (LS-1)1304210A0635Ball bearing, 635ZZ1311211A0414Spring pin, 5 dia. x 141321211A0520Spring pin, 5 dia. x 141345211A0318Spring pin, 3 dia. x 18	113	1	201A04	Hex nut. M4
1152201A08Hex nut, M81166202B03Lock washer, M31175202B04Lock washer, M41187202B05Lock washer, M51191202B08Lock washer, M81205202B06Lock washer, M61231200A04016Socket head cap screw, M4x161243200E04008Phillips head machine screw, M4x81253202A0410Plain washer, M4x1012632212310042Compression spring 2.3x10x4212712201210020Tension spring, short12842201011022Tension spring, long1291104G001Microswitch, heavy (LS-1)1304210A0635Ball bearing, 635ZZ1311211A0414Spring pin, 5 dia. x 141321211A0520Spring pin, 5 dia. x 141345211A0318Spring pin, 3 dia. x 18	114	1	201A05	Hex nut. M5
116 6 202B03 Lock washer, M3 117 5 202B04 Lock washer, M4 118 7 202B05 Lock washer, M5 119 1 202B08 Lock washer, M8 120 5 202B06 Lock washer, M6 123 1 200A04016 Socket head cap screw, M4x16 124 3 200E04008 Phillips head machine screw, M4x8 125 3 202A0410 Plain washer, M4x10 126 3 2212310042 Compression spring 2.3x10x42 127 1 2201210020 Tension spring, short 128 4 2201011022 Tension spring, long 129 1 104G001 Microswitch, heavy (LS-1) 130 4 210A0635 Ball bearing, 635ZZ 131 1 211A0414 Spring pin, 5 dia. x 14 132 1 211A0520 Spring pin, 5 dia. x 14 133 3 211A0514 Spring pin, 5 dia. x 14 134 5 211A0318 Spring pin, 3 dia. x 18	115	2	201A08	Hex nut. M8
1175202B04Lock washer, M41187202B05Lock washer, M51191202B08Lock washer, M81205202B06Lock washer, M61231200A04016Socket head cap screw, M4x161243200E04008Phillips head machine screw, M4x81253202A0410Plain washer, M4x1012632212310042Compression spring 2.3x10x4212712201210020Tension spring, short12842201011022Tension spring, long1291104G001Microswitch, heavy (LS-1)1304210A0635Ball bearing, 635ZZ1311211A0414Spring pin, 4 dia. x 141321211A0520Spring pin, 5 dia. x 201333211A0514Spring pin, 5 dia. x 141345211A0318Spring pin, 3 dia. x 18	116	6	202B03	Lock washer. M3
118 7 202B05 Lock washer, M5 119 1 202B08 Lock washer, M8 120 5 202B06 Lock washer, M6 123 1 200A04016 Socket head cap screw, M4x16 124 3 200E04008 Phillips head machine screw, M4x8 125 3 202A0410 Plain washer, M4x10 126 3 2212310042 Compression spring 2.3x10x42 127 1 2201210020 Tension spring, short 128 4 2201011022 Tension spring, long 129 1 104G001 Microswitch, heavy (LS-1) 130 4 210A0635 Ball bearing, 635ZZ 131 1 211A0414 Spring pin, 4 dia. x 14 132 1 211A0520 Spring pin, 5 dia. x 20 133 3 211A0514 Spring pin, 5 dia. x 14 134 5 211A0318 Spring pin, 3 dia. x 18	117	5	202B04	Lock washer, M4
1191202B08Lock washer, M81205202B06Lock washer, M61231200A04016Socket head cap screw, M4x161243200E04008Phillips head machine screw, M4x81253202A0410Plain washer, M4x1012632212310042Compression spring 2.3x10x4212712201210020Tension spring, short12842201011022Tension spring, long1291104G001Microswitch, heavy (LS-1)1304210A0635Ball bearing, 635ZZ1311211A0414Spring pin, 4 dia. x 141321211A0520Spring pin, 5 dia. x 201333211A0514Spring pin, 5 dia. x 141345211A0318Spring pin, 3 dia. x 18	118	7	202B05	Lock washer, M5
1205202B06Lock washer, M61231200A04016Socket head cap screw, M4x161243200E04008Phillips head machine screw, M4x81253202A0410Plain washer, M4x1012632212310042Compression spring 2.3x10x4212712201210020Tension spring, short12842201011022Tension spring, long1291104G001Microswitch, heavy (LS-1)1304210A0635Ball bearing, 635ZZ1311211A0414Spring pin, 4 dia. x 141321211A0520Spring pin, 5 dia. x 201333211A0514Spring pin, 5 dia. x 141345211A0318Spring pin, 3 dia. x 18	119	1	202B08	Lock washer, M8
123 1 200A04016 Socket head cap screw, M4x16 124 3 200E04008 Phillips head machine screw, M4x8 125 3 202A0410 Plain washer, M4x10 126 3 2212310042 Compression spring 2.3x10x42 127 1 2201210020 Tension spring, short 128 4 2201011022 Tension spring, long 129 1 104G001 Microswitch, heavy (LS-1) 130 4 210A0635 Ball bearing, 635ZZ 131 1 211A0414 Spring pin, 4 dia. x 14 132 1 211A0520 Spring pin, 5 dia. x 20 133 3 211A0514 Spring pin, 5 dia. x 14 134 5 211A0318 Spring pin, 3 dia. x 18	120	5	202B06	Lock washer, M6
124 3 200E04008 Phillips head machine screw, M4x8 125 3 202A0410 Plain washer, M4x10 126 3 2212310042 Compression spring 2.3x10x42 127 1 2201210020 Tension spring, short 128 4 2201011022 Tension spring, long 129 1 104G001 Microswitch, heavy (LS-1) 130 4 210A0635 Ball bearing, 635ZZ 131 1 211A0414 Spring pin, 4 dia. x 14 132 1 211A0520 Spring pin, 5 dia. x 20 133 3 211A0514 Spring pin, 5 dia. x 14 134 5 211A0318 Spring pin, 3 dia. x 18	123	1	200A04016	Socket head cap screw, M4x16
125 3 202A0410 Plain washer, M4x10 126 3 2212310042 Compression spring 2.3x10x42 127 1 2201210020 Tension spring, short 128 4 2201011022 Tension spring, long 129 1 104G001 Microswitch, heavy (LS-1) 130 4 210A0635 Ball bearing, 635ZZ 131 1 211A0414 Spring pin, 4 dia. x 14 132 1 211A0520 Spring pin, 5 dia. x 20 133 3 211A0514 Spring pin, 5 dia. x 14 134 5 211A0318 Spring pin, 3 dia. x 18	124	3	200E04008	Phillips head machine screw, M4x8
126 3 2212310042 Compression spring 2.3x10x42 127 1 2201210020 Tension spring, short 128 4 2201011022 Tension spring, long 129 1 104G001 Microswitch, heavy (LS-1) 130 4 210A0635 Ball bearing, 635ZZ 131 1 211A0414 Spring pin, 4 dia. x 14 132 1 211A0520 Spring pin, 5 dia. x 20 133 3 211A0514 Spring pin, 5 dia. x 14 134 5 211A0318 Spring pin, 3 dia. x 18	125	3	202A0410	Plain washer, M4x10
127 1 2201210020 Tension spring, short 128 4 2201011022 Tension spring, long 129 1 104G001 Microswitch, heavy (LS-1) 130 4 210A0635 Ball bearing, 635ZZ 131 1 211A0414 Spring pin, 4 dia. x 14 132 1 211A0520 Spring pin, 5 dia. x 20 133 3 211A0514 Spring pin, 5 dia. x 14 134 5 211A0318 Spring pin, 3 dia. x 18	126	3	2212310042	Compression spring 2.3x10x42
12842201011022Tension spring, long1291104G001Microswitch, heavy (LS-1)1304210A0635Ball bearing, 635ZZ1311211A0414Spring pin, 4 dia. x 141321211A0520Spring pin, 5 dia. x 201333211A0514Spring pin, 5 dia. x 141345211A0318Spring pin, 3 dia. x 18	127	1	2201210020	Tension spring, short
1291104G001Microswitch, heavy (LS-1)1304210A0635Ball bearing, 635ZZ1311211A0414Spring pin, 4 dia. x 141321211A0520Spring pin, 5 dia. x 201333211A0514Spring pin, 5 dia. x 141345211A0318Spring pin, 3 dia. x 18	128	4	2201011022	Tension spring, long
1304210A0635Ball bearing, 635ZZ1311211A0414Spring pin, 4 dia. x 141321211A0520Spring pin, 5 dia. x 201333211A0514Spring pin, 5 dia. x 141345211A0318Spring pin, 3 dia. x 18	129	1	104G001	Microswitch, heavy (LS-1)
131 1 211A0414 Spring pin, 4 dia. x 14 132 1 211A0520 Spring pin, 5 dia. x 20 133 3 211A0514 Spring pin, 5 dia. x 14 134 5 211A0318 Spring pin, 3 dia. x 18	130	4	210A0635	Ball bearing, 635ZZ
132 1 211A0520 Spring pin, 5 dia. x 20 133 3 211A0514 Spring pin, 5 dia. x 14 134 5 211A0318 Spring pin, 3 dia. x 18	131	1	211A0414	Spring pin, 4 dia. x 14
133 3 211A0514 Spring pin, 5 dia. x 14 134 5 211A0318 Spring pin, 3 dia. x 18	132	1	211A0520	Spring pin, 5 dia. x 20
134 5 211A0318 Spring pin, 3 dia. x 18	133	3	211A0514	Spring pin, 5 dia. x 14
	134	5	211A0318	Spring pin, 3 dia. x 18



FIGURE 1. WELDING COMPONENTS

PARTS LIST, FIGURE 2. DRIVE AND CAM ASSEMBLIES

KEY	QTY.	PART NO.	DESCRIPTION
1	1	4-02010	REDUCTION GEAR UNIT
2	1	4-02020	CAM UNIT
11	1	4-02010-110	Pulley
12	1	4-02010-120	Reduction gear
14	1	4-02020-140	Cam shaft
15	1	4-02020-150	Cam
16	1	4-02020-160	Cam
17	1	4-02020-170	Cam
18	1	4-02020-180	Cam
19	1	4-02020-190	Cam
20	1	4-02020-201	Cam
21	1	4-02020-211	Bearing bracket (aluminum)
22	1	4-02020-221	Bearing bracket (aluminum)
23	1	4-02000-230	Motor pullev
24	1	4-02000-240	Motor fan
27	1	4-02000-270	Plate
101	10	200E04008	Phillips head machine screw M4x8
102	10	202804	Lock washer M4
102	2	20101	Hex nut M10
104	1	202B10	Lock washer M10
105	2	201403	Hex nut M3
106	2 1	200006025	Hex halt M6x25
100	т 8	202000020	Plain washer M6x13
107	12	202806	Lock washer M6
100	8	201006	Hex put M6
110	1	201200	Hex halt M6x20
112	+ 1	200000020	Socket head set screw M6x10
112	2	200005012	Socket head set screw, M5x12
11/	2	200A05012	Socket head set screw, M6x72
115	1	200406020	Socket head set screw, M6x20
116	2	200700045	Dhilling head machine screw, M3x30
110	2	200203030	Lock washer M5
110	2 1	202803	Lock washer, M3
120	4	202003	Dian washer, M6x16x2
120	4	2124001020	Ping S-17
121	2	212A317	Clutch hall bearing 620177
122	ے 1	101010201	Motor 1 phase 110V 60 Hz
123	2	21046003	Ball bearing 600377
124	ے 1	210A0003	Spacer 12v16v4
120	1	2026121004	Space $12 \times 10 \times 4$ Shim M12 $\times 17 \times 0.2$
120	1	2020121702	SIIIII WIZZIIZO.2
120	1	213A0505014	K_{OV} 5x5x90
120	ו כ	213A0505060	Key, 5X5X60
129	2	213A0303010	Plastic washer M17x20x6
121	2	202F172900	Plastic washer, M17x29x0
101	2	202F172910	Plastic Washer, M17x29x10
132	∠ 1	202F112912 202C121600	r labuu washer, IVI / XZYX IZ Spacer 12 x 16 x 9
125	1	2020121000	Oil covor
120	1	2201 103	Oli COVEI Bubbor weebor (N 20)
100	1		Numeria duteh CD 5 0 00
137	1		Mieropwitch hogy (LC2 LC5)
130	2	1046012	wicroswitch neavy (LS3, LS5)



FIGURE 2. DRIVE AND CAM ASSEMBLY

PARTS LIST, FIGURE 3-2. STRAP FEED/TENSION ASSEMBLY

KEY	QTY.	PART NO.	DESCRIPTION
1	1	4-03010	BEARING HOUSING, UPPER UNIT
2	1	4-03020	BEARING HOUSING, LOWER UNIT
11	1	4-03010-110	Roller shaft 15x85
12	1	4-03010-120	Roller shaft 15x66
13	1	4-03010-130	Bearing housing, upper
14-1	2	4-03010-140	Steel roller
14-2	2	4-03010-142	Steel roller
15	2	4-03010-150	Nylon gear, 20 teeth
16	1	4-03010-160	Gear
17	2	4-03010-170	Strap guide
18	1	4-03010-180	Strap guide
20	1	4-03020-200	Pin
21	1	4-03020-210	Roller shaft, 10x49
22	1	4-03020-220	Roller shaft, 15x85
23	1	4-03020-231	Tightness adjustment shaft 15x285
24	1	4-03020-240	Bearing housing, lower
25	1	4-03020-250	Nylon gear, 40 teeth
27	1	4-03020-270	Steel gear
28	1	4-03020-280	Plastic roller
29	1	4-03020-290	Strap guide
30	1	4-03020-300	Strap guide
31	1	4-03020-310	Strap guide
32	11	4-03020-320	Strap guide
33	1	4-03020-330	Strap guide
35	1	4-03020-350	Magnet
100	1	200E03016	Phillips head machine screw, M3x16
101	6	200E04008	Phillips head machine screw, M4x8
103	12	200F04008	Flat head cap screw, M4x8
105	1	200A05012	Socket head cap screw, M5x12
106	2	200G05008	Socket head set screw, M5x8
108	4	202B06	Lock washer, M6
109	4	200A06020	Socket head cap screw, M6x20
110	1	104Y002	Magnetic sensor SK3-X
111	7	202B04	Lock washer, M4
112	7	202A0410	Plain washer, M4x10
114	1	202B05	Lock washer, M5
115	1	202A0512	Plain washer, M5x12
116	1	202A062120	Plain washer, M6x21
117	1	200G06008	Socket head set screw, M6x8
119	2	201A04	Hex nut, M4
120	1	200E04020	Phillips head machine screw, M4x20
121	1	202B03	Lock washer, M3
122	1	202A0308	Plain washer, M3x8
123	8	210A6002	Ball bearing, 6002ZZ
124	7	202F152205	Plastic washer, M15x22x5
125	6	202F172910	Plastic washer, M17x29x10
126	10	202F152204	Plastic washer, M15x22x4
127	2	213A0505012	Key, 5x5x12
128	6	213A0505016	Key, 5x5x16
129	1	213A0505030	Key, 5x5x30
130	9	212AS15	Ring, S-15
131	2	212AS10	Ring, S-10
137	1	213A0505010	Key, 5x5x10



FIGURE 3. FEED/TENSION ASSEMBLY

PARTS LIST, FIGURE 4-1. TENSION ADJUSTMENT - STANDARD

KEY	QTY.	PART NO.	DESCRIPTION
1	1	4-04010	TIGHNESS DIRECTOR UNIT
12	2	4-04000-120	Spring guide
13	1	4-04010-130	Tightness adjustment cover
14	1	4-04010-140	Tightness adjustment sleeve
15	1	4-04010-150	Tightness adjustment nut
16	1	4-04010-160	Tightness director
17	1	4-04000-170	Tightening pulley
18	1	4-04000-180	Tightening pulley
19	1	4-04000-190	Tightening pulley
20	2	4-04000-200	Clutch disc
35	1	4-04000-350	Plastic sleeve
101	2	200A06020	Socket head cap screw, M6x20
116	1	202A06120	Plain washer, M6x21x2
118	1	212AR32	Ring, R-32
120	1	2214239052	Compression spring, 4.2x39x52
123	4	210A6002	Ball bearing, 6002ZZ
125	1	210A6000	Ball bearing, 6000ZZ
131	2	200A0508	Socket head cap screw, M5x8

PARTS LIST, FIGURE 4-2. TENSION ADJUSTMENT – Optional Electric Tension

KEY	QTY.	PART NO.	DESCRIPTION
1	1	4-04310	ELECTRON TENSION ADJ.UNIT
12	2	4-04000-120	Spring guide
17	1	4-04000-170	Tightening pulley
38	1	4-04310-380	Adjustment nut
39	1	4-04310-390	Attractive plate
110	1	200G06008	Socket head set screw, M6x8
114	2	202A152105	Plain washer, M15x25x0.5
117	2	202A152110	Plain washer, M15x21x1.0
118	1	212AR32	Ring, R-32
120	1	2213039062	Compression spring, 3.0x39x62
123	4	210A6002	Ball bearing, 6002ZZ
133	1	102J15	Magnet clutch







FIGURE 4-2. TENSION ADJUSTMENT - ELECTRIC TENSION

PARTS LIST, FIGURE 4-3. TRANSMISSION BRACKET ASSEMBLY

KEY	QTY.	PART NO.	DESCRIPTION
3	1	4-04030	TRANSMISSION BRACKET UNIT
27	1	4-04030-270	Transmission bracket pin
28	1	4-04030-281	Transmission bracket shaft 15x123
29	1	4-04030-290	Transmission seat
30	1	4-04030-300	Transmission bracket
31	1	4-04030-311	Pulley
32	1	4-04030-321	Pulley
102	2	200A106016	Socket head cap screw, M6x16
103	1	200C06070	Hex bolt, M6x70
104	2	200G06010	Socket head set screw, M6x10
105	1	200G06006	Socket head set screw, M6x6
106	5	201A06	Hex nut, M6
111	6	202B06	Lock washer, M6
112	7	202A061620	Plain washer, M6x16x2
113	4	202A0613	Plain washer, M6x13
121	2	214AK019	V-Belt, k-19
122	1	214AM030	V-Belt, M30
123	4	210A6002	Ball bearing, 6002ZZ
126	2	212AS15	Ring, S-15



FIGURE 4-3. TRANSMISSION BRACKET ASSEMBLY

PARTS LIST, FIGURE 5. HOT-KNIFE AND TENSION LEVER ASSEMBLIES

KEY	QTY.	PART NO.	DESCRIPTION
1	1	4-05010	HEATER ARM UNIT
2	1	4-05020	HEATER HEAD UNIT
3	1	4-05030	TENSION LEVER UNIT
4	1	4-05040	STRAP GUIDE UNIT, ENTRY
5	1	4-05050	STRAP GUIDE UNIT, EXIT
11	1	4-05010-110	Heater arm side plate
12	1	4-05010-120	Heater arm
13	1	4-05010-130	Heater arm screw
14	1	4-05020-140	Heater blade holder
15	1	4-05020-150	Instant heating heater plate
16	1	4-05030-160	Adjustable nut
17	1	4-05030-170	Tension lever
18	1	4-05000-180	Solenoid shaft assembly
21	4	4-05000-210	Spring cover
22	1	4-05000-220	Bracket
23	1	4-05000-230	Feed back arm screw
26	1	4-05050-260	Strap guide, exit
27	1	4-05050-270	Strap guide adjuster, exit
28	1	4-05050-280	Guide nut. M4
29	1	4-05040-290	Strap guide adjuster, entry
30	1	4-05040-300	Strap guide, entry
31	1	4-05030-310	Cap sleeve
101	1	200C06090	Hex bolt. M6x90
102	1	200C06010	Hex bolt, M6x10
103	1	200A06050	Socket head cap screw, M6x50
104	1	200E04016	Phillips head machine screw, M4x16
105	5	200A05012	Socket head cap screw, M5x12
106	9	202B05	Lock washer, M5
107	2	201A04	Hex nut, M4
108	5	201A05	Hex nut, M5
109	2	202B04	Lock washer, M4
110	13	201A06	Hex nut , M6
111	9	202B06	Lock washer, M6
112	1	201A08	Hex nut, M8
113	2	202B08	Lock washer, M8
114	1	200E04015	Philips head machine screw, M4x15
115	2	200A04025	Socket head cap screw, M4x25
116	8	200C05012	Hex bolt, M5x12
117	9	202A0512	Plain washer, M5x12
118	2	202A0613	Plain washer, M6x13
119	7	202A0409	Plain washer, M4x9
120	4	202A061620	Plain washer, M6x16x2
121	1	202A062120	Plain washer, M6x21x2
122	1	2200505006	Heater spring, 0.5x0.5x6.5
123	1	2201011022	Tension spring, long, 1x10.8x22
124	2	2211012045	Compression spring, 1x12x45
125	2	210A0635	Ball bearing, 635ZZ
126	1	2214024039	Compression spring, 4x24x39
127	1	212AE12	Ring, E-12
129	1	2211610026	Compression spring, 1.6x10x26
130	2	211A0440	Spring pin, 4 dia.x40
131	1	211A0520	Spring pin, 5 dia.x20
132	1	103T024-1	Solenoid, 24V
133	1	227A02016	Rubber washer (N16)
134	4	200C04010	Hex bolt, M4x10
135	4	200M05012	Hex bolt with washer, M5x12



FIGURE 5. HOT-KNIFE AND TENSION LEVER ASSEMBLIES

PARTS LIST, FIGURE 6-1. CABINET COMPONENTS (P-725 MACHINE)

KEY	QTY.	PART NO.	DESCRIPTION
1	1	4-06010	PLASTIC ROLLER BRACKET UNIT
11	1	4-06500-110	Body
12	1	4-06000-120	Door, right hand
13	1	4-06000-130	Door, left hand
14	4	4-06000-140	Door magnet
15	1	4-06000-150	Plastic package stop
16	1	4-06200-161	Stainless steel top cover
17	4	4-06200-170	Wheel, Swivel
18	2	4-06000-180	Door holder
19	1	4-06000-191	Sustaining plate
20	1	4-06000-200	Guide plate
21	1	4-06400-210	Hinge
23	2	4-06000-230	Top cover screw
24	1	4-06010-240	Plastic roller
25	1	4-06010-250	Roller pin
26	1	4-06010-260	Roller frame
101	25	200C06012	Hex bolt, M6x12
102	21	202B06	Lock washer, M6
103	41	202A0613	Plain washer, M6x13
104	16	201A06	Hex nut, M6
105	4	200C06020	Hex bolt, M6x20
107	2	200A06020	Socket head cap screw, M6x20
109	2	200E04012	Phillips head machine screw, M4x12
110	10	202B04	Lock washer, M4
111	2	201A04	Hex nut, M4
112	8	200E04010	Phillips head machine screw, M4x10
113	12	202A0408	Plain washer, M4x8
114	8	202A061620	Plain washer, M6x15x2
117	2	200A06012	Socket head cap screw, M6x12
118	1	118B180-2B1A	Cable
119	1	See Pages 50-51	Electrical controls
121	1	200F06020	Flat head cap screw, M6x20
123	2	201K06	Wing nut, M6



FIGURE 6-1. CABINET COMPONENTS (P-725)

PARTS LIST, FIGURE 6-2. CABINET COMPONENTS (P-625 MACHINE)

KEY	QTY.	PART NO.	DESCRIPTION
1	1	4-06010	PLASTIC ROLLER BRACKET UNIT
11	1	4-06400-110	Body
15	1	4-06000-151	Plastic package stop
16	1	4-06200-161	Stainless steel top cover
17	2	4-06200-170	Wheel swivel 5/8"
17-1	2	4-06200-171	Wheel fixed 5/8"
19	1	4-06000-191	Sustaining plate
20	1	4-06000-200	Guide plate
21	1	4-06400-210	Hinge
23	2	4-06000-230	Top cover screw
24	1	4-06010-240	Plastic roller
25	1	4-06010-250	Roller pin
26	1	4-06010-260	Roller frame
30	4	4-06400-300	Leg, long
31	4	4-06400-310	Screw
32	4	4-06400-320	Plastic leg washer
33	4	4-06200-330	Plastic bracket
101	25	200C06012	Hex bolt, M6x12
102	21	202B06	Lock washer, M6
103	41	202A0613	Plain washer, M6x13
104	16	201A06	Hex nut, M6
105	4	200C06020	Hex bolt, M6x20
107	2	200A06020	Socket head cap screw, M6x20
109	2	200E04012	Phillips head machine screw, M4x12
110	10	202B04	Lock washer, M4
111	2	201A04	Hex nut, M4
113	12	202A0410	Plain washer, M4x10
114	2	202A061620	Plain washer, M6 (16mm O.D.)
117	2	200A06012	Socket head cap screw, M6x12
118	1	118B180-2B1A	Cable
121	1	200F06020	Flat head cap screw, M6x20
122	4	202A122515	Plain washer, M12x25x1.5
123	2	201K06	Wing nut, M6
124	4	201A12	Hex nut, M12
125	4	211A0318	Spring pin 3 dia. x 18
126	4	201A16	Hex nut, M16
127	1	See pages 50-51	Electrical Controls
128	4	4-06400-340	Tightness Screw



FIGURE 6-2. CABINET COMPONENTS (P-625)

PARTS LIST, FIGURE 7-1. DISPENSER ASSEMBLY (P-725 MACHINE)

KEY	QTY.	PART NO.	DESCRIPTION
1	1	4-07000	PLASTIC FLANGE UNIT
11	1	4-07000-110	Plastic flange
12	1	4-07000-120	Plastic flange
13	1	4-07000-130	Reel center claw
14	1	4-07000-140	Reel shaft
15	1	4-07000-150	Y-type washer
16	1	4-07000-160	Plain washer, M40x3
17	1	4-07000-170	Pin
19	1	4-07000-190	Reel nut handwheel
20	1	4-07000-200	Left bracket
21	1	4-07000-210	Right bracket
100	1	212AS25	Ring, R-25
101	4	200A06012	Socket head cap screw, M6x12
102	6	200A06020	Socket head cap screw, M6x20
103	1	212CR8	Spring pin-R

PARTS LIST, FIGURE 8-1. DISPENSER BRAKE ARM (P-725 MACHINE)

<u>KEY</u>	QTY.	PART NO.	DESCRIPTION
1	1	408000	BRAKE UNIT
11	1	408000-110	Pin
12	1	408000-120	Plastic roller
13	1	408000-130	Roller frame
14	1	408000-140	Brake rubber
15	1	408000-150	Angle plate
16	1	408000-160	Brake fixed pin
17	1	408000-170	Brake arm
102	4	202B06	Lock washer M6
104	6	201A06	Hex nut, M6
105	2	200C06020	Hex bolt, M6x20
106	1	2201213047	Brake spring, 1.2x13x47
107	2	200AE04	Ring, E-4
108	3	212AS10	Ring, S-10
109	2	200A06020	Socket head cap screw, M6x20
110	2	202A0613	Plain washer, M6x13



FIGURE 7-1. DISPENSER REEL ASSEMBLY (P-725)



PARTS LIST, FIGURE 8-2. DISPENSER ASSEMBLY (P-625 MACHINE)

KEY	QTY.	PART NO.	DESCRIPTION	
1	1	4-08200 REEL BRAKE UNIT		
11	1	4-08000-110	Pin	
12	1	4-08000-120	08000-120 Plastic roller	
13	1	4-08000-130	Roller frame	
14	1	4-08200-140	Brake belt	
16	1	4-08200-160	Belt pin	
17	1	4-08200-170	Reel brake arm	
18	1	4-08200-180	Belt holder plate	
19	1	4-08200-190	Reel shaft	
20	1	4-07000-110	Plastic flange	
21	1	4-07000-120	Plastic flange	
22	1	4-07000-130	Reel center claw	
23	1	4-07000-150	Y-type washer	
24	1	4-07000-160	Plain washer, M40x3	
25	1	4-07000-170	Pin	
27	1	4-07000-190	Reel nut handwheel	
28	1	4-08200-280	Brake belt tightener	
29	1	4-08200-290	Spring pillar	
30	1	4-08200-300	Reel brake pullev	
31	1	4-08200-310	Plastic cap	
32	1	4-08200-320	Reel brake bracket	
33	1	4-08200-330	Brake shaft	
37	1	4-08500-370	Brake arm fixed shaft	
100	1	202B06	Lock washer. M6	
101	6	200A06020	Socket head cap screw, M6x20	
102	1	212AS25	Ring, S-25	
103	2	200E04020	Phillips head machine screw, M4x20	
104	2	201A04	Hex nut, M4	
105	14	202A0409	Plain washer, M4x9	
106	1	212AE04	Ring, E-4	
107	2	212AS10	Ring, S-10	
108	2	210A6003	Ball bearing, 6003ZZ	
109	1	212AS15	Ring, S-15	
110	3	202A0613	Plain washer, M6x13	
111	1	212CR8	Spring pin, R-8	
113	6	200E04016	Phillips head machine screw, M4x16	
114	3	202B08	Lock washer, M8	
115	1	202A0816	Plain washer, M8x16	
116	3	201A08	Hex nut, M8	
117	1	200A08030	Socket head cap screw, M8x30	
118	1	200A06016	Socket head cap screw, M6x16	
119	5	201A06	Hex nut, M6	
120	8	202B04	Lock washer, M4	
121	4	200C06025	Hex bolt, M6x25	
122	8	202A061620	Plain washer, 6x16x2	
123	2	212AR18	Ring, R-18	
125	1	2201213047	Brake spring, 1.2x13x47	



FIGURE 8-2. DISPENSER BRAKE ARM (P-625)

PARTS LIST, FIGURE 9-1. ELECTRICAL COMPONENTS (P-725 MACHINE)

KEY	QTY.	PART NO.	DESCRIPTION
1	1	4-09010	SMOKE FAN UNIT
2	1	4-09020	INSTANT HEATING TRANSFORMER UNIT
12	3	4-09041-120	Switch holder
13	1	4-09010-132	Fan bracket
14	1	4-09010-143	Protective cover
15	1	4-09010-151	Protective cover bracket
16	2	4-09020-160	Instant heating cable
17	2	4-09020-170	Insulating tube
18	1	4-09020-180	Transformer foot
19	1	4-09000-190	Heating transformer cover
41	3	4-09041-121	Stop leaf
104	6	200F05030	Flat head set screw, M5x30
106	10	202B04	Lock washer, M4
107	10	201A04	Hex nut, M4
108	6	202B05	Lock washer, M5
109	12	201A05	Hex nut, M5
112	10	202A0410	Plain washer, M4x10
113	2	200E04010	Phillips head machine screw, M4x10
114	2	200E04050	Phillips head machine screw, M4x50
115	6	200E04015	Phillips head machine screw, M4x15
116	12	202B04	Lock washer, M4
118	18	201B04	Hex nut, M4
123	6	2210808022	Spring, 0.8x8x22
124	1	116AD024	Smoke fan, 24VDC
125	1	103A1101	Instant heating transformer, 110V-1V
126	3	104Y1638	Cut safety switch, XK-1099
127	1	153K0619R	Knob
128	1	PC-FP-24D03-11060	Heating PC board assembly, FP-24D03 110V/60Hz

For Control Panel and Control Box components, see Pages 50-51



FIGURE 9-1. ELECTRICAL COMPONENTS (P-725)

PARTS LIST, FIGURE 9-2. ELECTRICAL COMPONENTS (P-625 MACHINE)

KEY	QTY.	PART NO.	DESCRIPTION
1	1	4-09010	SMOKE FAN UNIT
2	1	4-09020	INSTANT HEATING TRANSFORMER UNIT
12	3	4-09041-120	Switch holder
13	1	4-09010-132	Fan bracket
14	1	4-09010-143	Protective cover
15	1	4-09010-151	Protective cover bracket
16	2	4-09020-160	Instant heating cable
17	2	4-09020-170	Insulating tube
18	1	4-09020-180	Transformer foot
19	1	4-09000-190	Heating transformer cover
41	3	4-09041-121	Stop leaf
104	6	200F05030	Flat head set screw, M5x30
106	10	202B04	Lock washer, M4
107	10	201A04	Hex nut, M4
108	6	202B05	Lock washer, M5
109	6	201A04	Hex nut, M5
112	10	202A0410	Plain washer, M4x10
113	2	200E04010	Phillips head machine screw, M4x10
114	2	200E04050	Phillips head machine screw, M4x50
115	6	200E04015	Phillips head machine screw, M4x15
116	8	202B04	Lock washer, M4
118	18	201B04	Hex nut, M4
123	6	2201808022	Spring, 0.8x8x22
124	1	116AD024	Smoke fan, 24VDC
125	1	103A1101	Instant heating transformer, 110V-1V
126	3	104Y1638	Cut safety switch, XK-1099
127	1	153K0619R	Knob
128	1	PC-FP-24D03-11060	Heating PC board assembly, FP-24D03 110V/60Hz

For Control Panel and Control Box components, see Pages 50-51



FIGURE 9-2. ELECTRICAL COMPONENTS (P-625)

PARTS LIST, FIGURE 10. CONTROL PANEL AND CONTROL BOX

KEY	QTY.	PART NO.	DESCRIPTION
11	1	4-10100-110	Control box (P-625, P-625E Only)
		4-10200-111	Control box (P-725, P-725E Only)
12	1	4-10100-120	Control box cover (P-625, P-625E Only)
		4-10200-121	Control box cover (P-725, P-725E Only)
17	1	PC-FP-30A01	Control PC board assembly, FP-30A01 (Standard Machine)
	1	PC-FP-30C01	Control PC board assembly, FP-30C01 (Opt. Electric Tension)
19	1	153K0617B	Knob (Standard Machine)
	3	153K0617B	Knob (Opt. Electric Tension)
102	1	103B1122035	Transformer, 110-22V., 35VA
104	1	115C1501	Circuit Protector, ZE800, 15A (FU-1)
105	1	115C0301	Circuit Protector, ZE800, 3A (FU-2)
106	1	115C0201	Circuit Protector, ZE800, 2A (FU-3) (Standard Machine)
		115C0301	Circuit Protector, ZE800, 3A (FU-3) (Opt. Electric Tension)
107	1	108BK500	Potentiometer, 500K (Standard Machine)
	2	108BK500	Potentiometer, 500K (Opt. Electric Tension)
108	4	200E03006	Phillips head machine screw, M3x10
109	4	153AJ002	Speed clamp
112	4	200F03010	Flat head screw, M3x10 (P-725, P-725E Only)
113	8	202B03	Lockwasher, M3 (P-725, P-725E Only)
114	8	201A03	Hex nut, M3 (P-725, P-725E Only)
115	1	PC-FP-30S	Control PC Board assembly, FP-30S (P-725, P-725E Only)
116	1	108BK010	Potentiometer, NR-10KB(24D), (Opt. Electric Tension)
119	1	104A001B	Power switch
121	1	104F001	Reset switch
123	1	104F002	Feed Switch
124	1	254A0010	Label (Standard Machine)
		254A0011	Label (Opt. Electric Tension)



FIGURE 10. CONTROL PANEL AND CONTROL BOX

ELECTRICAL SCHEMATIC, FIGURE 11-1 (Standard Machine)



ELECTRICAL SCHEMATIC, FIGURE 11-2 (Opt. Elect. Tension)



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