

Ovation

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THE ENVELOPENER

MODEL 106 & 202 SERIES

MACHINE MAINTENANCE AND SERVICE MANUAL

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ENVELOPENER 106/202 SERIES
MAINTENANCE RECOMMENDATIONS

INTRODUCTION

Although this manual is intended primarily for OMATION's sales and service representatives, copies are made available to customers, when requested. A copy accompanies each machine.

PERIODIC SERVICE AND CLEANING

For light usage - 8,000 to 10,000 envelopes a day or less - maintenance should be performed every 3 to 4 months. For heavier usage, it should be carried out every 2 to 3 months.

1. Machine Preparation

- 1.1 Unplug the power cord.
- 1.2 Remove the back cover by removing the Phillips screws - handle with care.
- 1.3 Lift the orange hold-down assembly and turn it right to the rest position.
- 1.4 Pull down the dust or cleaning tray beneath the transport surface.

2. Machine Cleaning

The best procedure is to use a vacuum cleaner with a crevice tool for removing paper particles and dust from the back and front of the machine. Clean thoroughly including spaces in the motors. An air blower is also effective but not as neat. Be careful with electronic circuitry.

3. Machine Maintenance

- 3.1 Inspect the drive belt, the feed belts, and the narrow flat transport belt. Replace them as required. There are separate instructions in the following pages dealing with the replacement of these belts.
- 3.2 Inspect the hold-down rollers on the orange hold-down assembly. They should be evenly worn. Replace only after uneven or extensive wear. If these rollers are noisy, very lightly oil them with light duty oil.
- 3.3 DO NOT LUBRICATE THE BEARINGS IN THE ROLLERS SUPPORTING THE TRANSPORT BELT.

ANNUALLY

The Model 202 motors (not including conveyor-stacker) are permanently lubricated and require no additional oiling. The same is true of the Model 106 main motor made by LEESON. Lubricate other electric motors with 3-in-1 or SAE-30 oil; three or four drops will do. Each motor has oiling holes above the bearings. A wire oil guide may have to be used on the smaller motor. NOTE: The main motor may not have been rotated (on earlier machines) so that the oiling holes are on top. If so, loosen the screws holding the clamps on either end of the motor and turn the motor housing in the rubber mounts until the oil holes are approximately on top - then tighten the clamps. Be careful not to strain or damage the wire conductors during this procedure.

Clean out paper particles from the Model 106 conveyor-stacker, as follows:

1. Lower the output hopper at the left by removing the small flat head screw holding the upper tab on the hopper behind the machine frame and loosening the two Phillips head screws at the bottom of the hopper.
2. Remove the end cover at the right end of the conveyor. It is held with two Phillips head screws from the bottom. An offset Phillips screw driver is very helpful for this operation.
3. Vacuum particles of paper from both ends or blow particles out with an air blower.

Clean out paper particles from the Model 202 conveyor-stacker, as follows:

1. Unplug the conveyor-stacker.
2. Remove the front cover from the power conveyor-stacker by removing the two Phillips screws on the bottom of the machine and sliding the cover off.
3. Vacuum the paper particles, and reattach the cover when finished.

AFTER EVERY SERVICE OPERATION

1. Be sure that there are no obstructions in the envelope path, such as:
 - 1.1 No protruding flat head screws in the transport plate surface.
 - 1.2 No protruding of the tang at the right hand portion of the transport surface above and to the right of the cutter anvils.
 - 1.3 No rise of the anvils above the flat plate just to the left of the anvils. (This precaution must be taken whenever a cutter is replaced, after sharpening for example. If the anvils rise slightly above the plate, place a paper shim under the right end of the plate to raise it very slightly above the anvils.)
2. Be sure that the conveyor switch lever is free in its slot.
3. See that the separator stones are set properly and do not rub on the feed belts. They should not rub on the forward part of the feeder hopper - the holders can be twisted slightly to correct this.
4. Assure that all fasteners removed and later replaced are secure.
5. Run the machine and assure that the belts and rollers run freely and that there are no unusual or excessive noises.

ENVELOPENER 106/202 SERIES
FEED BELT REPLACEMENT

INTRODUCTION

The main wearing and replacement parts are the two feed belts. The replacement rate depends upon the volume and type of mail opened. Typically replacement is infrequent, once or twice a year. But replace them when a surface about 3/16 inch has been worn on the belts for good feeding and especially for good counting.

REPLACEMENT PROCEDURE

1. Disconnect the power cord.
2. Rotate the orange hold-down cover to the right until it comes to rest.
3. Remove the main transport surface plate by removing the five flat head screws. Then lift the plate up carefully to clear the feed and transport belts, and slide it gently forward free of the machine.
4. Swing down the dust tray below the feed belts.
5. Remove the two feed belts from their rollers.
6. Install two new feed belts. The installation of the front one is quite obvious and simple. The rear belt is a bit more difficult to install over the right roller. Put it on the right roller first, stretching and rolling it into place. Do not use sharp objects to push it into place.
7. Replace the main transport surface plate. Replace the five flat head screws - be sure that they do not protrude above the surface.
8. Replace the feeder ramp and secure the thumbscrew.
9. Close the orange hold-down cover and dust tray.

ENVELOPENER 106/202 SERIES
DRIVE BELT REPLACEMENT

INTRODUCTION: MODEL 106

The drive belt transmits power from the main motor to the cutter and envelope transport shafts. The cutter shaft is parallel to the motor shaft but the transport is at right angles to the motor shaft. Consequently it is necessary for the drive belt to "go around corners". This is accomplished by means of two fairlead pulleys attached to the cutting mechanism.

REPLACEMENT PROCEDURE

1. Unplug the power cord from the power source.
2. Remove the rear cover from the machine. It is held with Phillips screws. Use care removing the cover.
3. Observe how the drive belt runs around the motor pulley, the fairlead pulleys, and the large transport pulley. Note the position of the tension arm and pulley forward of the belt. The drive belt can go on only one way for correct operation.
4. Grasp the tension arm and drive belt and slip the tension pulley forward past the drive belt so as to release the tension arm.
5. Now, note how the drive belt is directed over the pulleys and between the two fairleads around the corner. Remove the belt from the motor pulley. (If the belt is a bit tight, turn the pulley while removing the belt.)
6. Remove the belt from the other pulleys and the drive system.
7. Place the new belt under the upper fairlead pulley (and hold it there), thread it over and around the large transport pulley, over the cutter pulley, then over the lower fairlead pulley, and finally around the motor pulley. It may be necessary to turn the motor pulley to get the belt around it. Pull the tension arm and pulley toward you past the belt, then place the belt on the pulley.
8. Turn the motor pulley by hand to assure that the power train turns freely without obstruction.

9. The drive belt should be taut but not tight. If necessary, adjust the spring tension arm affixed to the tension arm and secure the screw holding it so it will not slip.
10. Replace the machine cover and tighten the Phillips screws.
11. Plug the power cord into the power source and operate the machine.

IT IS ESSENTIAL THAT THE DRIVE BELT ENTER AND LEAVE EACH PULLEY WITHOUT RUBBING AGAINST THE SIDES OF THE FLANGES ON THE PULLEYS, OTHERWISE THE DRIVE BELT WILL WEAR ABNORMALLY. REPOSITION THE LARGE PULLEY ON TRANSPORT SHAFT IF NECESSARY.

INTRODUCTION: MODEL 202

The V-drive belts used to drive the cutter and transport are the same size and are easily replaced. Only the back cover needs to be removed for access to the belts.

REPLACEMENT PROCEDURE

1. Unplug the machine from the power source.
2. Remove the back cover by removing the Phillips screws.
3. Find the tensioner pulley and pull it away from the belt using one hand. With the other hand, remove the belt from the pulleys. On the cutter it may be easier to remove the belt by turning the pulley while removing the belt.
4. After installing a new belt, turn the motor pulley by hand to see if it turns freely.
5. Replace the back cover, plug in the machine, and run the machine to be sure it runs properly.

ENVELOPENER 106/202 SERIES
TRANSPORT BELT REPLACEMENT

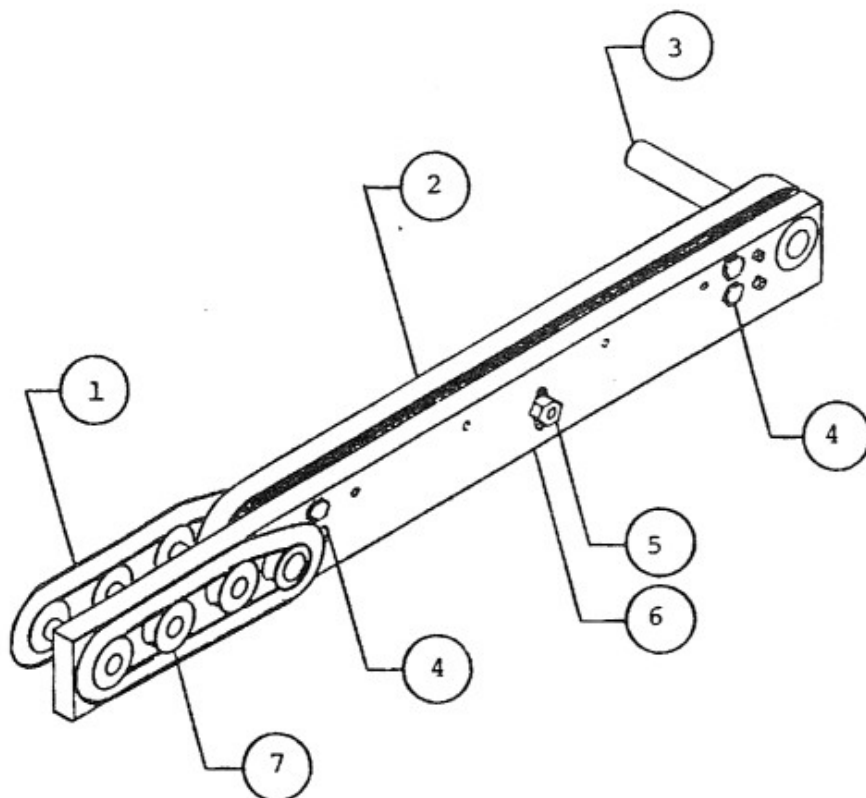
INTRODUCTION

The flat transport belt moves envelopes from the feeder past the cutting mechanism and discharges them into the conveyor-stacker. This belt is called the "poly-v" belt.

REPLACEMENT PROCEDURE Refer to the drawing on the next page.

1. Disconnect the power cord.
2. Open and remove the orange hold down cover.
3. Remove the five Phillips flat head screws holding the transport surface and remove the transport surface. (The feed ramp can remain attached to the surface.)
4. Swing down the dust tray under the transport.
5. Remove the rear cover of the machine.
6. Using a 5/32 Allen hex key, loosen the 3" diameter transport pulley on the back of the machine.
7. Remove the four hex head screws from the front of transport and pull the whole assembly off the machine. Using a 3/16 Allen hex key to hold tensioner assembly, loosen the tensioner but do not remove it. Use 1/8 hex key to adjust the set screw on bottom of transport.
8. Remove the poly-v belt from the left (feed) end pulley first, then from the right end pulley.
9. Reverse the steps for installing a replacement belt.
10. A properly tensioned belt will deflect 1/2 inch in the center of the span with about 5 pounds pull. An over tensioned belt may lead to premature bearing failure.

----- FEED & TRANSPORT BELT SYSTEM -----



ITEM	DESCRIPTION	PART NO.
1	FEED BELT	10395
2	TRANSPORT BELT (POLY-V)	10411
3	DRIVE SHAFT	12000
4	1/4-20 X 1 HEX HEAD SCREW	
5	TENSIONER NUT 5/16 (3/8 ON OLDER MACHINES)	
6	TENSIONER ADJUSTING SET SCREW 1/4-20	
7	FEED ROLLER	10832

ENVELOPENER 106/202 SERIES
CUTTER MECHANISM REPLACEMENT

INTRODUCTION

The ENVELOPENER uses a unique precision edge removal mechanism that has long life. Sharpening and conditioning are done as an assembly and only by the factory. Cutter mechanisms or cutter wheel sub-assemblies in the field will be replaced on a scheduled basis with substitute ones that may be either new or reconditioned. (See price list.) CUTTERS CANNOT BE SHARPENED IN THE FIELD. No attempt to sharpen or recondition a cutter should ever be made in the field - special equipment is needed. Cutter wheel sub-assemblies damaged because of attempts to disassemble them will be subject to an extra charge.

CUTTER REMOVAL

The cutter assembly is attached to the machine frame with two socket type button head screws located in the front face of the frame. To remove it, do the following:

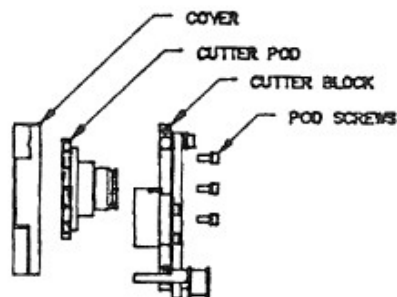
1. Unplug the power cord.
2. Rotate the orange hold-down section to the right to its rest position.
3. Remove the back cover from the machine.
4. Remove the drive belt.
5. Loosen the clamp on the plastic discharge tube and lower it away from the cutter block.
6. Remove the lower of the two socket button head screws holding the cutter.
7. Remove the remaining screw (upper).
8. From the back of the machine push the cutter block against the machine frame (to compress the compression spring in the block), push down until the block clears the machine parts, then extract the block.

Note: Only the cutter wheel pod need be returned for an exchange unit.

REMOVAL OF CUTTER WHEEL POD

1. Remove the cover plate covering the cutter wheel by removing the four screws holding it to the cutter block.
2. From the pulley side, remove the three #10 screws spaced 120 degrees around the bearing holder.
3. Slide out the cutter wheel pod subassembly.
4. Wipe the cutter block and the pod clean.
5. Return the pod to Ovation.

----- CUTTER POD ASSEMBLY -----



POD REPLACEMENT

1. Insert the replacement pod into the cutter block carefully to avoid hitting the anvils with the cutter wheel.
NOTE: PLACE THE CUTOUT IN THE FLANGE OF THE POD AT THE BOTTOM OF THE CUTTER BLOCK TO CLEAR PROTRUDING SCREW.
2. Secure the pod with three screws tightly.
3. Replace the cover plate and secure it.
4. Check the anvil setting as described in the next section of this manual. This must be done before replacing the cutter in the machine.

CUTTER REPLACEMENT

1. Be sure that the compression spring is in the face of the cutter block.
2. Locate the block properly in the frame cut-out and press it against the frame (to compress the spring), then push the block up so that it clears the machine parts until the upper holes line up. (The square anvils affixed to the cutter block are brittle and should clear parts during the procedure.)

3. When aligned, insert the upper socket button head screw and turn it 2 or 3 turns to hold up the cutter block.
4. Insert the lower socket button head screw and tighten it securely. Do not crossthead.
5. Turn the cutter pulley by hand to assure clearance of the cutter wheel in the frame slot. If there is any rubbing, slight adjustment of the cutter position should suffice.

Be sure the anvils do not stick up in the envelope path - they should be very slightly below the plate at the left (as viewed from front of machine).
6. Replace the drive belt and set the tension arm.
7. Reposition the discharge tube. It should enclose the discharge port in the block.
8. Turn the motor pulley by hand to assure turning freedom.
9. Turn the power on and check the depth of cut with a hand held envelope. The normal setting for thin mail is .010 to .015 inch. The depth can be set with the upper socket button head screw. Tightening this screw pulls the cutter in toward the frame and deepens the cut. Loosening it decreases the depth of cut.
10. Return the orange hold-down section to its operating position.
11. Run some envelopes to be opened and make a final setting of the depth of cut best suited for the mail, but use the minimum possible depth of cut.

ENVELOPENER SERIES 106/202
CHANGE/ADJUSTMENT OF CUTTER ANVILS

INTRODUCTION

Poor cutting can result from:

1. A worn or chipped anvil.
2. An anvil not close enough to the cutter wheel.
3. The anvil cutting edge not parallel to the cutting edges of the cutter wheel.
4. A dull cutter wheel - but this takes tens of millions of envelopes.

CAUTION: IN ADJUSTING OR REPLACING AN ANVIL, NEVER LET THE CUTTER WHEEL HIT AN ANVIL. THE CUTTER CAN CHIP AN ANVIL.

ANVIL ADJUSTMENT OR REMOVAL

Each anvil has four useable cutting edges and can readily be rotated. To remove and replace or adjust an anvil:

1. Remove the cutter block from the machine (see CUTTER MECHANISM REPLACEMENT). Take care not to lose the compression spring.
2. If necessary, for a good Allen head wrench or Phillips screwdriver fit, use a pin to pick out paper dust from the screws holding the anvils.
3. Loosen the flat head screw and turn the anvil to a new position. Press the anvil against the shoulder on the holder and securely tighten the screw.
4. To replace an anvil, follow the same procedure as above except remove the flat head screw and the old anvil and replace it with a new anvil.
5. Turn the cutter wheel slowly to check clearance but DO NOT ALLOW CUTTER WHEEL TO HIT AN ANVIL WITH ANY FORCE. For the setting procedure, see below.

TO SET AN ANVIL RELATIVE TO CUTTER WHEEL

1. THE MAIN FORWARD ANVIL MUST BE AS CLOSE TO CUTTER WHEEL AS POSSIBLE WITHOUT TOUCHING AND MUST ALSO BE PARALLEL TO THE EDGES OF CUTTER TEETH. (THE SIDE ANVIL IS NOT AS CRITICAL.)
2. All cutters are factory set and tested so that field adjustments, when required, will be minimal.
3. FOR ASSISTANCE IN FOLLOWING INSTRUCTIONS, SEE THE DRAWING ON PAGE 16.
4. In setting the anvil correctly, trial and error is required. Allow about 15 minutes for the job.

1. In carrying out Step 5 above, clearance between the anvil and cutter wheel will be determined. If the cutter wheel touches the anvil, which can be felt or heard, do the following:
 - 1.1 Be sure that the Anvil Holder Clamping Screws are tight.
 - 1.2 Set the cutter wheel so that its teeth straddle the anvil.
 - 1.3 Tap the lower end of the anvil holder below the pivot pin with a brass rod (to avoid marring holder) in order to move the main anvil away from the wheel until the wheel clears the anvil. (Keeping the clamping screws tight permits only a small movement and maintains the setting.)
2. Where cutter wheel clears the main anvil, test for proper setting:
 - 2.1 Insert .001 inch feeler stock between the anvil and outer tips of several cutter teeth as you turn cutter wheel slowly. FOR A CORRECT SETTING THE SHIM SHOULD STOP ALL TEETH FROM PASSING.
 - 2.2 If all teeth pass, the anvil should be closer, so tap the anvil holder above the pivot pin to move the anvil closer to the cutter wheel.
 - 2.3 Repeat the test for clearance as set forth in 2.1 above.
3. IF ONE ROW OF THE STAGGERED CUTTER TEETH DOES NOT PASS THE SHIM BUT THE OTHER ROW PASSES, THE ANVIL IS NOT PARALLEL. TO CORRECT THIS:
 - 3.1 Be sure that the cutter teeth straddle the anvil.
 - 3.2 Be sure that the clamping screws are tight.
 - 3.3 With a .050 Allen hex key, adjust the No. 4 set screws to turn the main anvil parallel.
 - 3.4 Check setting as described above.
 - 3.5 At the final setting be sure that all the screws are very tight.

ADJUSTMENT OF SIDE ANVIL

The side anvil is used to prevent the occurrence of long continuous cuttings instead of the usual 1/4 inch long cuttings. It must be set close to the side of the cutter.

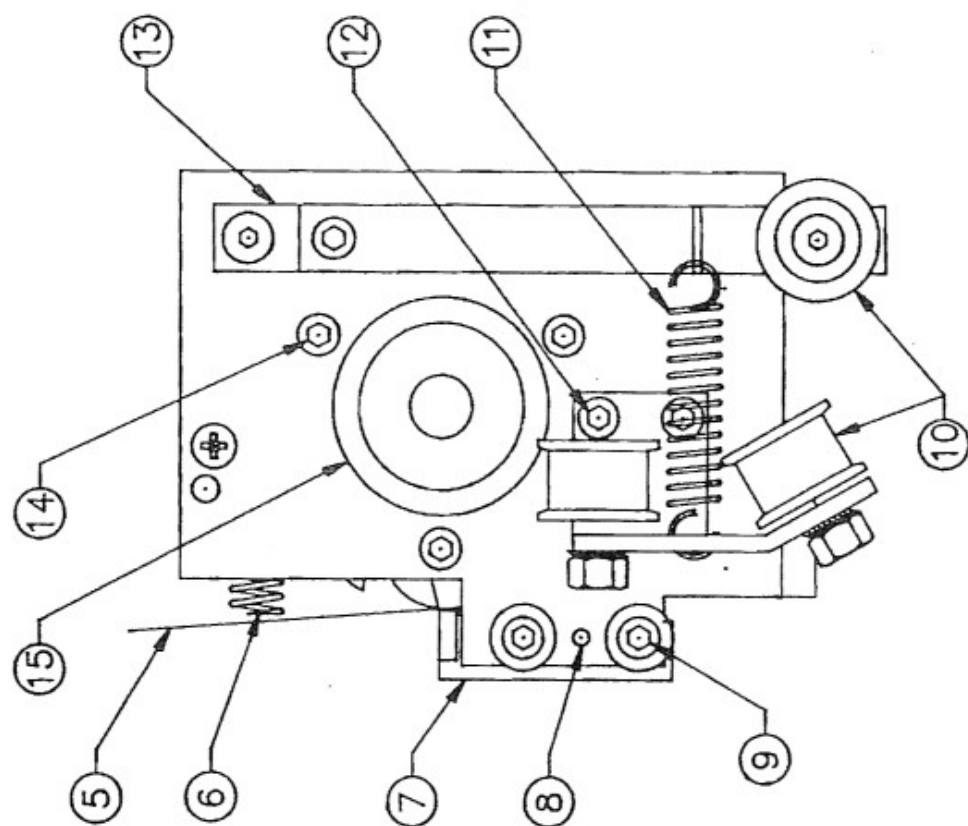
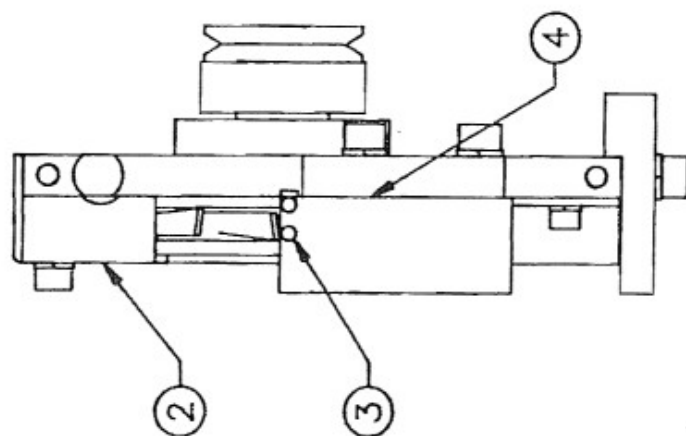
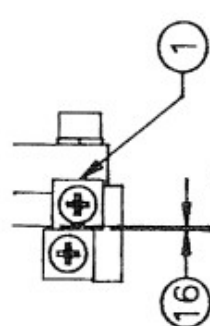
Brass shims (.005 inch thick) are used to space the anvil holder out from the cutter block. Add or remove these as needed to get the side anvil within .010 inch of the side of the cutter teeth. See Item 4 and distance 16 on the CUTTER MECHANISM drawing. By removing the anvil holder screws the anvil holder can be slid off the pivot pin and shims inserted or removed as needed.

----- KEY TO DRAWING NEXT PAGE -----

CUTTER MECHANISM PARTS

ITEM	DESCRIPTION	PART NUMBER	
		106	202
1	Anvil (3/8 Inch Square)	*	*
2	Cutter Cover	11755	11095
3	Set Screw, Anvil Aligning, 4-40 x 1/8		
4	Shim for Anvil Side Clearance	12294	11354
5	.001 Thick Shim Stock, Not Supplied		
6	Compression Spring	10137	10137
7	Anvil Holder	12290	12291
8	Pivot Pin	008-009	008-009
9	Anvil Holder Screws, 10-24 X 3/4. Socket Cap Type		
10	Fairlead Pulley	11661	11395
11	Tension Spring	10138	10138
12	Align Cutout in Bearing Mounting Flange to Clear this Screw		
13	Tensioner Arm	10125	10125
14	Cutter Pod Screws, 10-24 x 3/8 Socket Cap Type		
15	Cutter Pod	10407	10407
16	Side Clearance: Anvil to Cutter Should be less than .010.		

* Refer to Parts Price List By Model for Serial Numbers.



MODEL 106 CUTTER MECHANISM (MODEL 202 SIMILAR)

ENVELOPENER 106/202 SERIES
ADJUSTMENT AND REPLACEMENT
OF HOLD-DOWN ROLLERS & ASSEMBLIES

INTRODUCTION

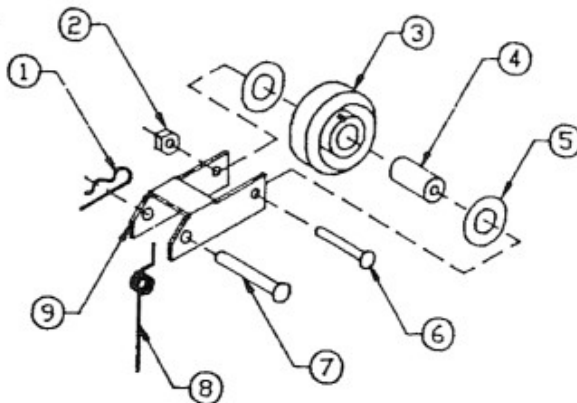
The hold-down rollers apply just enough pressure to pull the envelopes past the cutter and under the hold-down spring just ahead of the anvil. This pressure is light and should not be made heavy because improper cutting will result (paper chunks instead of neat, thin snips).

REPLACEMENT

1. The plastic rollers should be replaced if worn down to a small diameter or if unevenly worn. A smooth roller is still satisfactory. Replace rollers as follows:
 - 1.1 Unscrew the pan head No.6 screw from the axle.
 - 1.2 Remove the roller/axle/felt washer and replace parts as needed. Clean dirt off the arm and add a drop of oil (not grease) before assembly.
 - 1.3 To replace the torsion spring, remove the hitch-pin from the clevis pin and remove the clevis pin. To install a new spring, put the clevis pin half way in, put the spring on the clevis pin and push the pin all the way in.

----- DRAWING OF HOLD-DOWN ROLLER ASSEMBLY -----

ITEM	DESCRIPTION	PART NO.
1	Hitch Pin	027-021
2	Hex Nut, 6-32	
3	Hold-Down Roller	11352
4	Axle (for Roller)	10392
5	Felt Washer	10502
6	Screw, 6-32 x 7/8 Pan Head	
7	Clevis Pin	258-001
8	Torsion Spring	11387
9	Arm	10867



COMMENTS

Remember that once the envelope is firmly back against the wear strip it must slip sideways relative to the transport belt and hold-down rollers as it moves past the cutter. If the envelope is clamped too tightly between the belt and the rollers, it may be forced too hard against the wear strip and will tend to curl up or "climb" the wear strip. When this happens, the cutter may take a deep cut or "chunk" off the envelope edge.

Another cause of "climbing" or cutting chunks may be that the flat blade (P/N 11790), which flattens the envelope as it gets cut, may have worked its way away from the wear strip so that the envelope edge can climb between the wear strip and the flat blade. Also, the pressure of the spring should be adequate to hold the envelope down during the operation.

Thus, it is important not to adjust the hold-down roller springs to apply more force. The factory setting usually enough. Sometimes, with light weight envelopes, reducing the downward force may be necessary to avoid cutting chunks out of such envelopes.

ENVELOPENER 106/202 SERIES
CONVEYOR-STACKER

INTRODUCTION: MODEL 106

The conveyor-stacker is direct driven from the gearmotor and controlled by the lever actuated switch beneath the transport filler plate. When envelopes move through the machine, they depress the switch, causing the conveyor belt to move. The conveyor drive roller uses a hollow shaft, which slips over the gearmotor shaft and is secured with a set screw.

This device is trouble-free. Conveyor belts have rarely been replaced. The shafts use ball bearings. Switches are occasionally replaced.

SWITCH REPLACEMENT

1. UNPLUG THE MACHINE.
2. Remove the machine rear cover.
3. Remove the connectors from the switch.
4. Remove the switch. Note how the insulator plate is used between the switch and frame. Install a new switch.

CONVEYOR BELT ADJUSTMENT

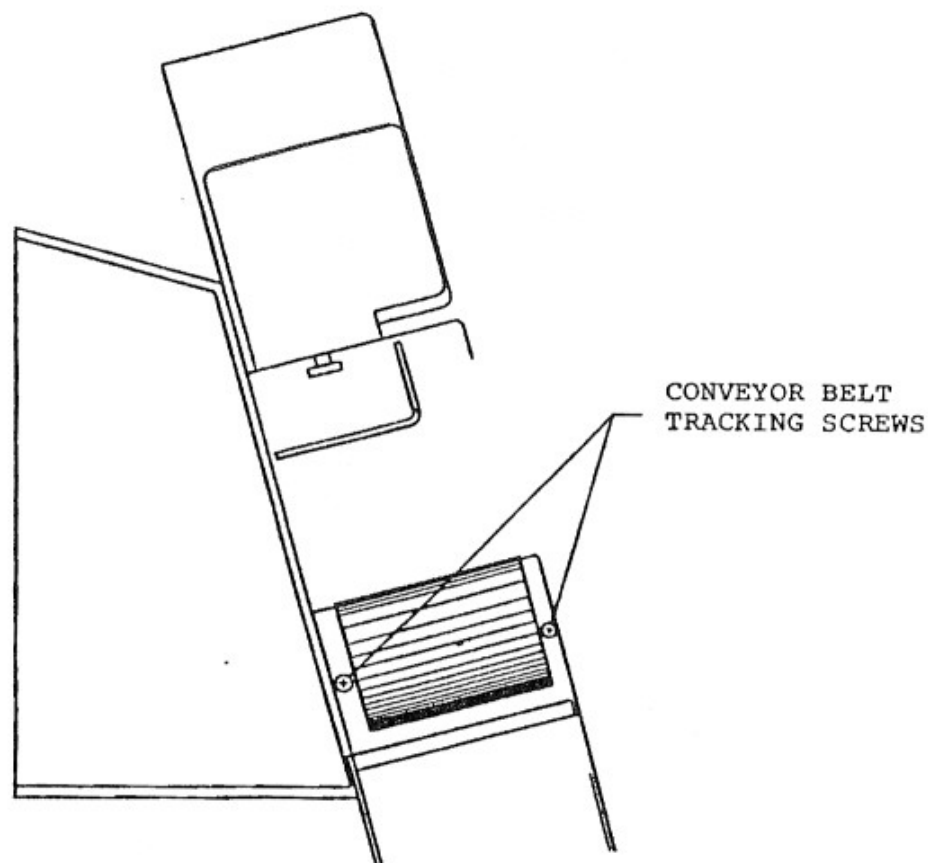
The conveyor belt rides a driver and driven pulley, both crowned. Belt tracking is controlled by pulley position.

To adjust belt tracking: (see Drawing next page)

1. Loosen the two Phillips 1/4-20NC screws holding lower part of the output hopper.
2. Remove the small flat head screw holding up the top part of the output hopper.
3. Lower the hopper. This exposes two adjustment screws threaded into the driven roller shaft. Tightening (or loosening) these screws adjusts the belt tracking.
4. Run the conveyor by depressing the switch and adjust the screws for proper tracking, letting the conveyor run long enough to stabilize itself.

NOTE: The drive shaft at the right end of the conveyor is adjustable but is rarely done. Removing the end plate exposes the outboard bearing bracket, secured with two #10 hex nuts. The bracket can be slightly moved at the lower end.

----- MODEL 106 CONVEYOR TRACKING -----



CONVEYOR BELT REPLACEMENT

This belt is hardly ever replaced during the life of the machine unless damaged. Only one or two have been replaced in a five year period. Contact Omaton for replacement procedure.

INTRODUCTION: MODEDL 202 POWER CONVEYOR-STACKER

The conveyor belt is timing-belt driven from the gearmotor located at the left (power cord) end of the conveyor-stacker. The motor is controlled by a low voltage signal from the ENVELOPENER through a solid state relay mounted in the conveyor-stacker. The control cable between the opener and the conveyor-stacker is a standard modular telephone cable.

With the PULSE-OFF-ON switch in the ON position the conveyor should run continuously. In the PULSE position it should run only whenever an envelope passes through the opener and stop running when there are no envelopes in the opener.

PULSE-OFF-ON SWITCH REPLACEMENT

1. Unplug the conveyor-stacker.
2. Remove the front cover by removing the two screws on the bottom of the machine.
3. Label the wires on the switch so that you remember which way they are connected, then disconnect them.
4. Squeeze the tabs on the switch and slide it out of the frame.
5. Snap in a new switch, hook up the wires, and install the front cover.
6. Test the new switch.

CONVEYOR BELT ADJUSTMENT

To adjust belt tracking:

1. Remove the output hopper - this exposes two flat head screws. Turn on the machine. By turning one screw one-half turn counter-clockwise (loosening), the belt should move toward that screw. Allow two complete revolutions of the belt (about 20 seconds) before adjusting the screws further. At the power cord end of the machine there is one adjusting screw, which can also be adjusted to move the belt one way or another. A good test is to force the belt off track while it is running to see if it returns to the correct path.
2. Replace the output hopper.

To adjust belt tension, use the above procedure but maintain belt tracking.

CONVEYOR BELT REPLACEMENT

1. Remove the three flat head screws that adjust belt tracking. Push the rollers toward the center of the machine to relax belt tension.

2. Remove the Phillips head screws on the bottom of the machine that hold the front and rear covers, and remove the covers.
3. Remove the eight flat head screws holding the belt support plate (seven have hex nuts, one a captive nut). Remove the one screw holding the vertical guide rail.
4. Pull up the belt support surface and slide it out from under the belt.
5. Pulleys can now be removed by twisting them so one end of the axle is at one end of its slot and the other end is at the opposite end of its slot. Pop one end toward the inside of the machine. Remove the belt.
6. Be careful not to break the plastic motor cooling fan.
7. Installation is the reverse of removal.
8. Tension the belt just enough so that you can stall the motor by stopping the belt with your hand.
9. Adjust the belt for tracking as described above.

TIMING BELT REPLACEMENT AND ADJUSTMENT

1. Remove the conveyor belt as described above.
2. Remove the three flat head screws holding the motor assembly to the frame.
3. Replace the timing belt.
4. Install the motor assembly but do not tighten screws.
5. Install the conveyor belt.
6. Tension the timing belt by pressing against the motor mounting bracket at the half-inch hole in the frame and tighten the screws. The belt should be tight enough so it does not slip when you stall the conveyor belt with the motor running.
7. Track the conveyor belt and replace the covers.

MOTOR REPLACEMENT

1. Remove the conveyor belt as described in CONVEYOR BELT REPLACEMENT.
2. Remove the screw holding the cable clamp that holds the motor wires.
3. Remove the three flat head screws holding the motor bracket to the frame, and lift out the motor assembly.
4. Remove the timing belt pulley, fan, and motor bracket from the motor.
5. Installation is the reverse of removal.
6. Tension the timing belt and track the conveyor belt as described above.

TROUBLE SHOOTING THE MODEL 202 CONVEYOR-STACKER

PROBLEM: CONVEYOR RUNS IN "ON" POSITION BUT NOT IN "PULSE"

1. See that the control cable is plugged into both machines.
2. With the conveyor plugged in and the switch set to "PULSE", open the orange cover and press the conveyor switch lever down. If the conveyor runs, the switch arm needs adjustment for envelope actuation. If not:
 - 2.1 Unplug the control cable at the conveyor and short the connection in the jack. If the conveyor runs, check the control cable for continuity. If the cable is OK, check the switch in the opener. If the problem is in the conveyor, see 2.3 below.
 - 2.2 To check the switch in the opener, remove the back cover, remove the connectors from the switch, and check for continuity. Replace a defective switch.
 - 2.3 Test for voltage at the jack on the conveyor. Touch the probes of a DC voltmeter to the outside leads in the jack. If the reading is 10-20 VDC, the relay may be defective, and if zero, the transformer may be defective. Be sure the probes clear each other.
 - 2.4 Check the relay by removing the conveyor covers and, with power on, the switch in "PULSE", check for 10-20 volts at the DC terminals (Nos. 3 & 4) of the relay. Access is difficult and removal of the belt may be necessary. WARNING: THE AC SIDE OF THE RELAY, TERMINALS 1 & 2, HAS 110 VAC WHEN POWERED UP. If you get 10-20 VDC, the AC side may be defective. With a jumper across the AC terminals, the motor should run - if not, the relay is defective. If you do not get 10-20 VDC at the relay, the transformer or circuit board is defective.
 - 2.5 The transformer output should be 10-20 VAC. The circuit board should rectify it to DC.
 - 2.6 The PULSE-OFF-ON switch may be defective. Check it.

PROBLEM: CONVEYOR NOT RUN WHEN SWITCH IS "ON" OR "PULSE"

1. Be sure the machine is plugged in.
2. Check to see if the circuit breaker has popped.
3. The PULSE-OFF-ON switch may be defective.
4. The motor may be defective.

PROBLEM: THE MOTOR RUNS BUT THE BELT DOES NOT MOVE

1. The pulley may be loose on the motor shaft. Tighten it.
2. Timing belt is too loose. Tension it as explained above.

PROBLEM: LOUD NOISE INSIDE THE CONVEYOR

1. The fan may be hitting the belt or support surface.
2. The timing belt tension is too low.

ENVELOPENER 106/202 SERIES
INFRARED PHOTOELECTRIC COUNTER

FIELD SERVICE - PHOTOELECTRIC COUNTER

Each envelope causes a count if there is a break between envelopes to re-establish the invisible infrared beam. The solid state infrared light emitting diode (LED) is located below the surface on which the envelopes travel. The beam is directed upward through a hole in the transport surface to a solid state sensor located above the envelope path. The LED has long life and is not subject to vibration; thus while you can't see it, the probability of emitter failure is remote.

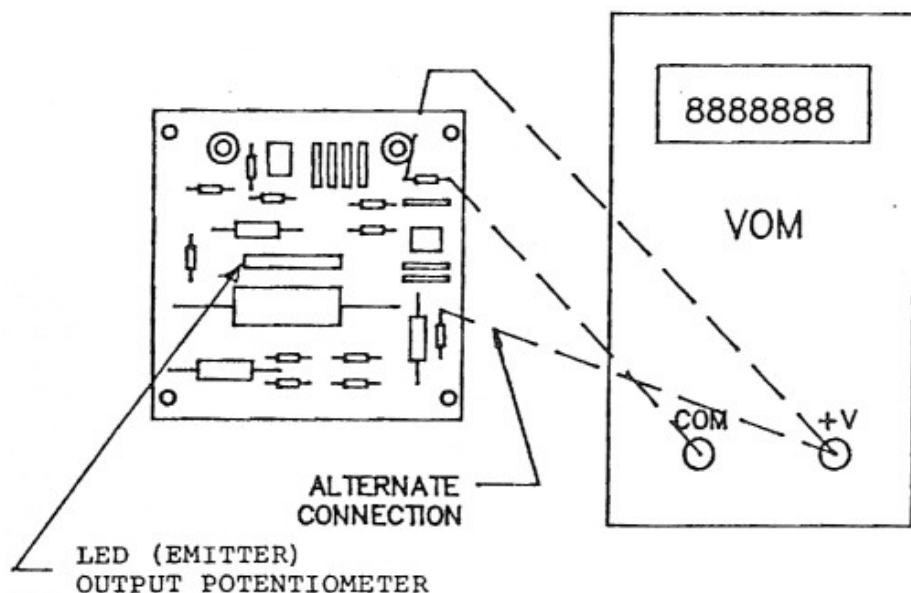
The sensor signal is amplified and processed by the printed circuit board which pulses the electromechanical counter. This circuit is made of trouble free solid state components. The electromechanical display unit is resettable to zero manually.

SERVICE REQUIREMENTS

1. The only field adjustment that may have to be performed is alignment of the LED and sensor for optimum signal.
2. Repair the electronics by replacing the whole electronic unit including the electromechanical counter. However, if the latter is operating incorrectly (i.e. won't reset to zero, displays half units, etc.) have a local Authorized Durant Counter Repair Shop repair it or replace the unit from Durant or Omaton.
3. Rough check the electronics by exposing the sensor to a nearby lamp (e.g. a flash light) and alternately shading the sensor to see if a count is obtained.
4. Alignment of the sensor and LED (emitter) are optimized as follows:
 - 4.1 Connect a voltmeter (20,000 ohms/volt minimum resistance) across the 100,000 ohm resistor next to the sensor input receptacle in order to measure the alignment voltage. (See diagram, next page.)
 - 4.2 Loosen the screw holding the sensor assembly and move it about until it can be tightened with as high a voltage as possible on the voltmeter.
 - 4.3 The LED, factory cemented into place, is fixed.
 - 4.4 The alignment voltage must be a minimum of 8 volts and is typically above 9 volts.

5. Check the LED output. Since the system works on infrared light, you cannot see if the LED is producing a beam. Check it by observing the alignment voltage when the beam is broken. The alignment voltage will drop to about 2 volts. Another way is to place a milliammeter in series with the LED. A zero reading indicates either a careless test setup, an open emitter circuit, or a defective LED.
6. To remove the electronics, unplug the machine, remove each counter lead from the terminal block in the 110 volt lines. Disconnect both the sensor and emitter plugs and remove the two hex nuts holding the counter assembly to the machine frame. The whole unit is now free to be removed. Replacement is the reverse.
7. Operator Caution: The operator must be careful in feeding envelopes in openers equipped with counters to avoid two envelopes passing through without a break between them. The proper separator stone adjustment is described elsewhere in the manual.

----- EMITTER-SENSOR TEST CIRCUIT SETUP -----



ENVELOPENER 106/202 SERIES
BATCHER SYSTEM
TROUBLE SHOOTING GUIDE

These instructions assume that no oscilloscope or pulse detecting equipment is available. A multimeter (with a minimum impedance of 15,000 ohms per volt) is required. The circuit boards are plug replaceable and are not field repairable. These instructions are useable for machines with serial numbers above 1955. Circuit boards with part numbers 11292 and 12142 may be used interchangeably.

GENERAL PROCEDURE

1. Determine whether the counter or batcher is faulty.
2. Check the power supply.
3. Inspect the wiring for obvious problems.
4. Check signals on the boards from the switches.
5. Replace boards. This is done last because the preceding items are more likely causes of malfunctions.

DETAILED PROCEDURES

1. Attach the negative lead from the multimeter to the ground end of the large orange capacitor on the batcher board. Connect the positive lead to pin 1 of IC-U1. The voltage should be below 2 volts DC when an envelope is breaking the emitter-to-sensor beam and above 8 volts DC when the beam is not broken.

If the above is true, then the counter board and the interconnecting cable are good. If not, test for the same signal at the center terminal of the audio-type receptacle on the counter board, which provides the count signal from the counter unit to the batcher board. This receptacle is the one close to the negative end of the large orange capacitor on the counter board. If there is not a signal at this point, the trouble is on the counter board; thus use the service instructions presented earlier for the ENVELOPENER counter.

2. Test the batcher power supply by putting the negative lead of the multimeter on the negative end of the orange capacitor on the batcher board. Place the positive lead on the positive end of the large orange capacitor. The voltage there should be between 13 and 24 volts DC, depending on the immediate lamp and solenoid load. If this is not correct, test for 14 to 16 volts AC from the transformer. The easiest test points for these two transformer leads are the negative ends of CR1 and CR2 (the negative ends have the band around the diode and a square solder pad on the PCB). If there is no AC voltage there, the transformer or the leads to or from the transformer are faulty. Be sure that the leads to the primary side of the transformer are attached to the AC power supply module.

3. Check the wiring from the switches to the boards as follows:

WHITE (BATCHER ZERO): Pin #13 on U4 should be 12 VDC when this switch is up and Zero VDC when the switch is down. Pin #8 on this IC should be just the opposite. The lamp should be lit when the voltage at Pin #10 on U7 on the batcher board is above 10 VDC and off when this point is below 2 VDC. This lamp can be lit for tests by momentarily touching a grounded lead to Pin #14 on U1.

GREEN (BATCHER ON): Pin #3 on U1 should be at 12 VDC when this switch is up and at Zero VDC when this switch is down. THE BATCHER WILL NOT OPERATE IF THE LAMP IN THIS SWITCH IS BURNT OUT.

YELLOW (AUTOMATIC RESTART): Pin #8 on U7 should be 12 VDC when this switch is down and the lamp is lit. With the switch up the voltage should be at Zero. THE AUTOMATIC RESTART FEATURE WILL NOT OPERATE IF THE LAMP IN THIS SWITCH IS BURNT OUT.

NOTE: The switches used in the batcher system have terminals #1 and #2 normally closed and terminals #3 and #4 normally open. The BATCHER ON and the AUTO ON switches are the pushon/pushoff type and the BATCHER ZERO is the momentary type.

4. The digital switches used for setting the batch size are checked best by measuring the voltage to ground on the pins of the integrated circuits listed on the following page under Connector J1. When the number in the square brackets [] is set into the batch size switch, the pin in the parentheses () should be at +12 volts DC and all other pins in the list should be at Zero volts. Note that there is a pattern to these pins and switch settings. Other circuit conditions are shown under CONNECTOR J2 and J3.

5. If the above procedures do not locate the cause of the problem, then replace the batcher circuit board. The boards are repairable by the factory. Be sure to check the connectors, switches and the wiring well as almost no electrical problems are due to board failures.

CONNECTOR CALLOUTS:

CONNECTOR J1-1	Batch Size:	----,----,x---	(U2-7)	[800]
2	"	"	x---,----,----	(U1-7) [008]
3	"	"	-x---,----,----	(U1-6) [004]
4	"	"	--x-,----,----	(U1-5) [002]
5	"	"	---x-,----,----	(U1-4) [001]
6	Ground			
7	Ground			
8	Ground			
9	Ground			
10	Batch Size:	----,--x-,----	(U1-11)	[020]
11	"	"	----,---x-,----	(U1-10) [010]
12	"	"	----,x---,----	(U1-13) [080]
13	"	"	----,-x-,----	(U1-12) [040]
14	"	"	----,----,---x	(U2-4) [100]
15	"	"	----,----,--x-	(U2-5) [200]
16	"	"	----,----,-x--	(U2-6) [400]

CONNECTOR J2-1 Counter Input, Signal, Center Wire.
2 Counter Input, Ground, Shield.
3 Ground. Tie wire to Pin 5 when external control in not used.
4 Signal. External Stop Signal when grounded.
No connection.
5 Tie wire to Pin 3 when External Control not used.
6 System Ground.
7 Solenoid, Black.
8 Solenoid, Black.
9 AC Lead from Transformer, Green, 12.6 VAC (Approx.).
10 AC Lead from Transformer, Green, 12.6 VAC (Approx.).

CONNECTOR J3-1 Timer Potentiometer, +12VDC, Brown.
2 Jam Lamp, +12VDC, Red. (Note 1)
3 Auto-Restart. NO #4, +12VDC, Orange.
4 Batcher-On Lamp, +12VDC, Yellow.
5 Zero-Reset Lamp, +12VDC, Green.
6 Jam-Reset, NO #3, Blue. (Note 1)
7 Jam Lamp, Violet. (Note 1)
8 Auto-Restart Lamp & NO #3, Gray.
9 Zero-Reset, NC #1, White.
10 Zero-Reset, NO #3, Black.
11 Zero-Reset Lamp, Brown.
12 Batcher-On Lamp & NO #3, Red.
13 Timer Potentiometer, Orange.
14 Zero-Reset, NC #4 & NO #4, Ground, Yellow.
15 Jam-Reset, NO #4, Ground, Green. (Note 1)
16 Auto-Restart Lamp, Ground, Blue.
17 Batcher-On, NO #4, Ground, Violet.
18 No Connection.
19 No Connection.
20 No Connection.

Note 1: Jam detection was used only once on a special machine.

ENVELOPENER 106/202 SERIES
TROUBLE SHOOTING GUIDE

1. PROBLEM: TOO MANY MISSED FEEDS

- 1.1 The belts may be excessively worn. Replace them.
(See FEED BELT REPLACEMENT)
- 1.2 They may be slick from rubbing envelopes. Clean them with any standard rubber cleaner or water by holding a dampened cloth against the moving belts and then drying them with a dry cloth.
- 1.3 The feeder ramp position and slope may be wrong. Try other positions.
- 1.4 The separator stones may be too low, especially for thicker envelopes.
- 1.5 The separator stones may rub on the feed hopper. Slightly bend or twist the stone mounting bracket to get clearance or adjust the feed hopper.

2. PROBLEM: DOUBLE FEEDING (Not critical except for machines with counters.)

- 2.1 The separator stones may be too high.
- 2.2 The feeder ramp may have to be moved to the right (closer to separator) to lift the trailing edges of the envelopes higher, forcing envelopes to "bend" around the stones.
- 2.3 Where mixed sizes of envelopes are being opened, be sure that the leading edges of all the envelopes are forward and aligned - this is important.
- 2.4 Make sure that the springs holding the stones are hooked and not broken.
- 2.5 Check the stones for wear. They can be rotated to new positions before replacement is required.

3. PROBLEM: ENVELOPES TWIST OUT OF FEEDER

- 3.1 The separator stones may not be set the same.
- 3.2 The feed belts may be unequally worn.
- 3.3 The separator stones may not move freely up and down - check for obstruction or binding.
- 3.4 Check for an obstruction in the envelope path.

- 3.5 An outside guide is available if running envelopes of about the same size.
- 4. PROBLEM: EXCESSIVE WEAR OF FEED BELTS (Should last at least 3-6 months, but does depend on volume.)
 - 4.1 The separator stones may be rubbing - raise them.
 - 4.2 Be sure the stones are free to pivot up and down - check clearances and adjust as necessary.
 - 4.3 Be sure the belts clear the transport surface.
 - 4.4 The feeder belt idler rollers may be frozen - replace rollers as required. This is unlikely since ball bearings are used.
- 5. PROBLEM: THIN ENVELOPES JAM (An obstruction is probably in the path.)
 - 5.1 Make sure the flat head screws do not protrude above the transport surface.
 - 5.2 The tang to the right of the cutter anvils must be flush with or below the anvils.
 - 5.3 The cutter anvils must be just slightly below the small flat plate just to the left of them. Use a paper shim (punched hole reinforcement) under the plate if necessary.
 - 5.4 The flat compression blade just to left of anvils may be too strong - it can be adjusted to relieve pressure.
 - 5.5 Check the transport surface for burrs, cleanliness, etc.
- 6. PROBLEM: ENVELOPES TRAVEL TOO SLOWLY OR SLIP ON THE TRANSPORT BELT.
 - 6.1 The transport belt may be slipping because tension is too low.
 - 6.2 The transport belt may be too slick - clean with any standard rubber roller cleaner or with water by rubbing the belt with a partly dampened cloth and drying with a clean dry part of the cloth.
 - 6.3 The drive belt in the back of machine may be slipping - increase the belt tension by adjusting the tension roller arm.

- 6.4 If a machine is very cold (e.g. after being outside), non-metallic parts have decreased friction and are stiff - let the machine reach room temperature.
 - 6.5 The rear hold-down bar on the rear surface may be too low for thick envelopes - it is adjustable up & down.
 - 6.6 The hold-down rollers may not be holding envelopes against the moving belt. Check for broken springs or sticky movement.
 - 6.7 The hold-down rollers may be locked or do not turn easily. Clean them if necessary.
 - 6.8 The support rollers under the transport belt may not turn freely. Replace them if necessary.
7. PROBLEM: NOT CUTTING COMPLETE EDGE OR ENVELOPES NOT BEING CUT
- 7.1 The operator must align all envelopes, especially mixed sizes, against the back feeder hopper surface.
 - 7.2 The depth of cut may be too thin - tighten the upper cutter button head screw to pull the cutter in and deepen the cut.
 - 7.3 The hold-down rollers may be misaligned, pulling the envelopes away from the cutter, or the transport belt may be slack, or both.
 - 7.4 The flat compression blade ahead of the anvils may be too tight.
 - 7.5 The wear strips along which envelopes move may be worn through - a possible occurrence after long service.
8. PROBLEM: CUTTINGS ARE IN CHUNKS RATHER THAN THIN SNIPS
- 8.1 The hold-down compression blade is not against the rear wear surface or is too loose or missing.
 - 8.2 The hold-down roller springs are applying too much pressure. See ADJUSTMENT AND REPLACEMENT OF HOLD-DOWN ROLLERS AND ASSEMBLIES.
9. PROBLEM: CUTTINGS ARE IN STRINGS INSTEAD OF SNIPS
- 9.1 The cutter wheel or anvils, or both, may be dull - especially the leading teeth on cutter.

- 9.2 The anvil settings may be incorrect - see CHANGE/ADJUSTMENT OF CUTTER ANVILS.
- 9.3 The envelope paper may be excessively soft - but the opener should still work.
- 9.4 The paper may be non-tearable - such as Tyvek - but the ENVELOPENER works well on these envelopes.
- 9.5 The cut may be too deep - try a thinner cut. Always use the thinnest cut possible.

NOTE: Strings may not be serious especially if relatively short. Watch for clogging of the discharge port.

10. PROBLEM: EXCESS CHAFF (CUTTINGS) REMAIN ATTACHED TO ENVELOPES

This is a sign that cutter wheel speed may be too low or the main anvil has nicks or the anvil is not set properly.

- 10.1 Check the drive belt tension and condition.
- 10.2 The cutter pulley may be loose - check it.
- 10.3 If the main anvil is chipped, rotate it to a fresh edge or use a new one. If it is not set properly, reset it. (Caution - read CHANGE/ADJUSTMENT OF CUTTER ANVIL before starting.)

11. PROBLEM: NOT A CLEAN CUT OF THE ENVELOPE EDGE

- 11.1 The most likely cause is that the anvils are not close enough to the cutter wheel and the main anvil may not be parallel. See CHANGE/ADJUSTMENT OF CUTTER ANVIL.
- 11.2 The cutter wheel and/or main anvil may be dull. Rotate or replace the anvil. If necessary, return the cutter wheel sub-assembly for replacement. But order the replacement pod in advance.
- 11.3 The anvil may be too far below the plate to its left. It should be only very slightly below. (.001-.005 inch below.)

12. PROBLEM: CUTTINGS COMING OUT OF FRONT INSTEAD OF GOING TO WASTE BASKET

This indicates blockage of the cutter discharge port.

- 12.1 Assure that there is no obstruction below the discharge tube - no extension should be affixed to the tube. CAUTION OPERATORS NOT TO ALLOW WASTE RECEPTACLE TO FILL UP AND BLOCK THE TUBE.
- 12.1 Lower the discharge tube and clear out the discharge port in the bottom of the cutter. A small screwdriver may be used. A thin stiff wire may also be run down alongside the cutter wheel from the front. Remove the cutter cover plate if necessary.

13. PROBLEM: CUTTER JAMMED OR LOCKED

On rare occasions this may occur with rubber bands and paper clips that are mixed with the envelopes.

- 13.1 Examine cutter opening and try to locate object and remove with needle nose pliers.
- 13.2 If necessary, remove drive belt in back and forcibly turn cutter pulley back and forth to free cutter wheel.
- 13.3 Remove the thin cover plate for access into the cutter and remove any foreign objects. Finally, remove cutter assembly and with narrow tool clear out clearance passages between enclosure and the cutter wheel.

DO NOT TRY TO REMOVE OR ADJUST ANVILS WITHOUT HAVING READ INSTRUCTIONS FOR THIS OPERATION - THIS IS A VERY CRITICAL ADJUSTMENT. IMPROPER ADJUSTMENT MAY CAUSE BREAKAGE.

IMPRESS USERS WITH THE NEED TO INSPECT MAIL AND REMOVE EXTERIOR OR LOOSE PAPER CLIPS AND RUBBER BANDS.

14. PROBLEM: IMPROPER TRACKING OF CONVEYOR-STACKER BELT

Lower output hopper and adjust tension screws - belt moves away from the screw tightened. See CONVEYOR-STACKER instructions.

15. PROBLEM: CONTINUOUS MOVEMENT OF CONVEYOR-STACKER BELT

The switch lever is stuck in the slot - with a thin blade lift the lever out. Check for foreign material blocking movement of lever.

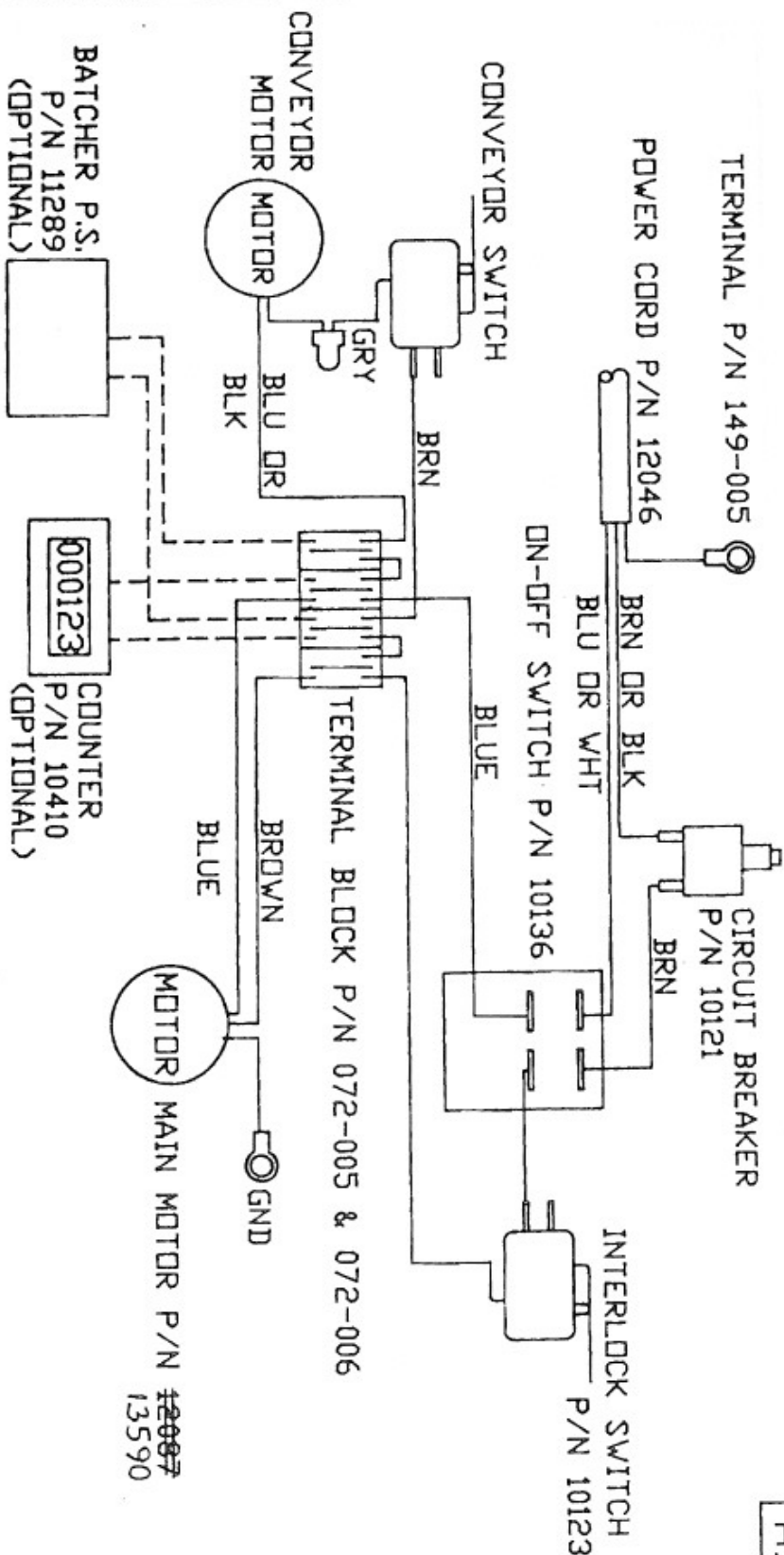
16. PROBLEM: POOR STACKING OF ENVELOPES IN CONVEYOR-STACKER

- 16.1 Model 202: Adjust the deflector up and down to best position.
- 16.2 Model 106: The transfer slide can be moved right and left and tilted. Try different positions.
- 16.3 Postage stamps, envelope windows, labels, etc. can affect stacking - it is best to run envelopes flap side up.
- 16.4 Model 106: The transfer end slide should be bent less than 90 degrees as viewed from above it. Check to make sure someone has not bent it out.

17. PROBLEM: HIGH GENERAL NOISE LEVEL

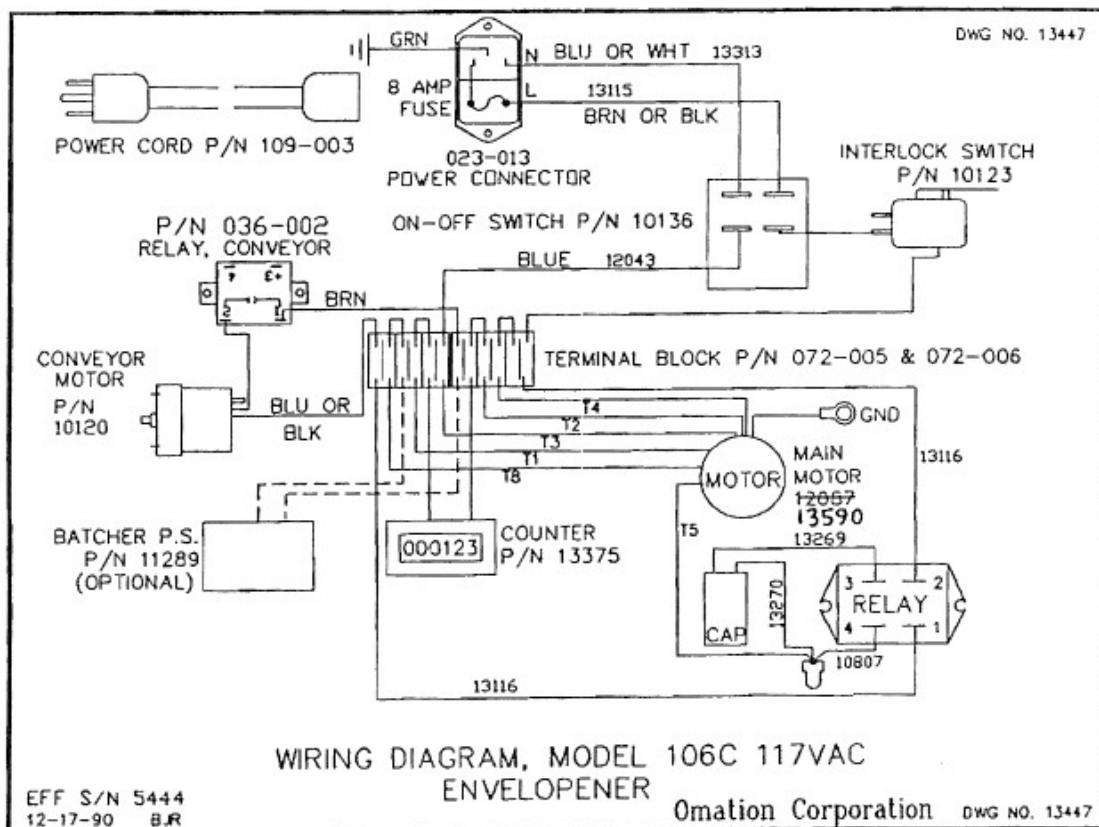
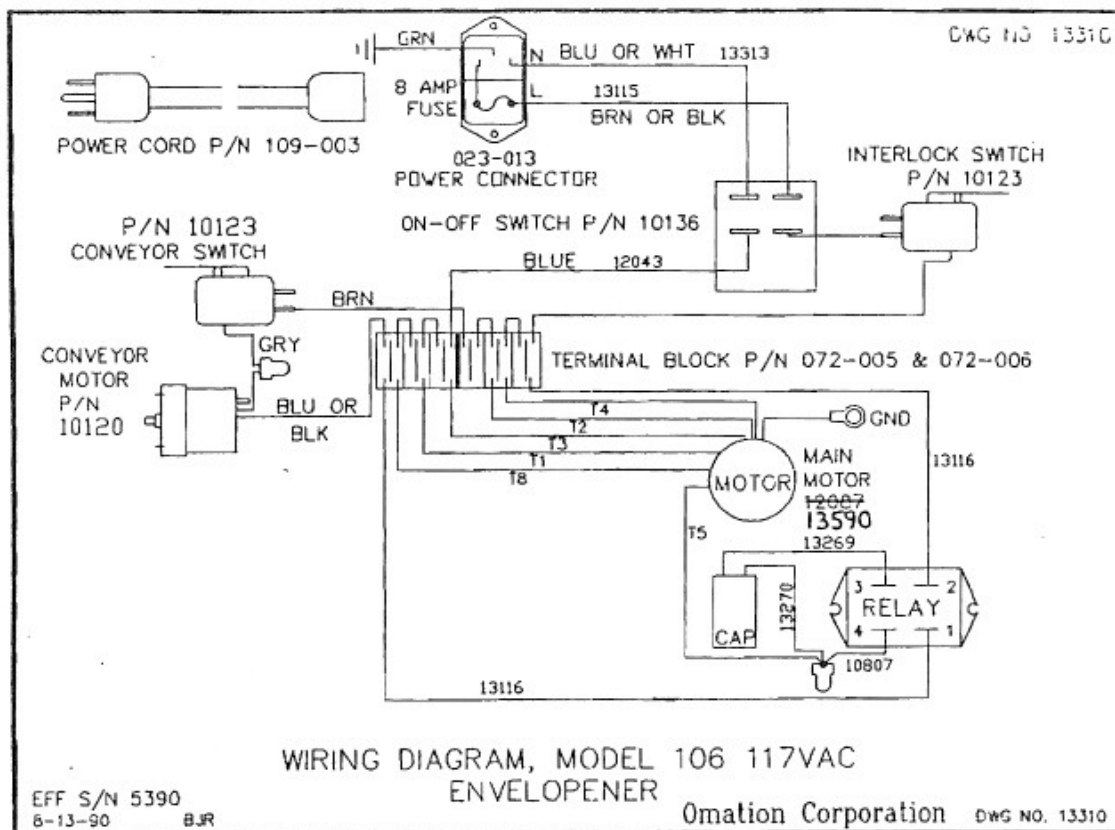
- 17.1 Be sure all fasteners are tight, including set screws.
- 17.2 Check for excessive play in the feed and transport support rollers. Replace if necessary.
- 17.3 Do not apply heavy tension on the drive belts in back of machine - apply only enough to prevent slippage.
- 17.4 Check for parts vibrating and hitting adjacent parts.

A11990A

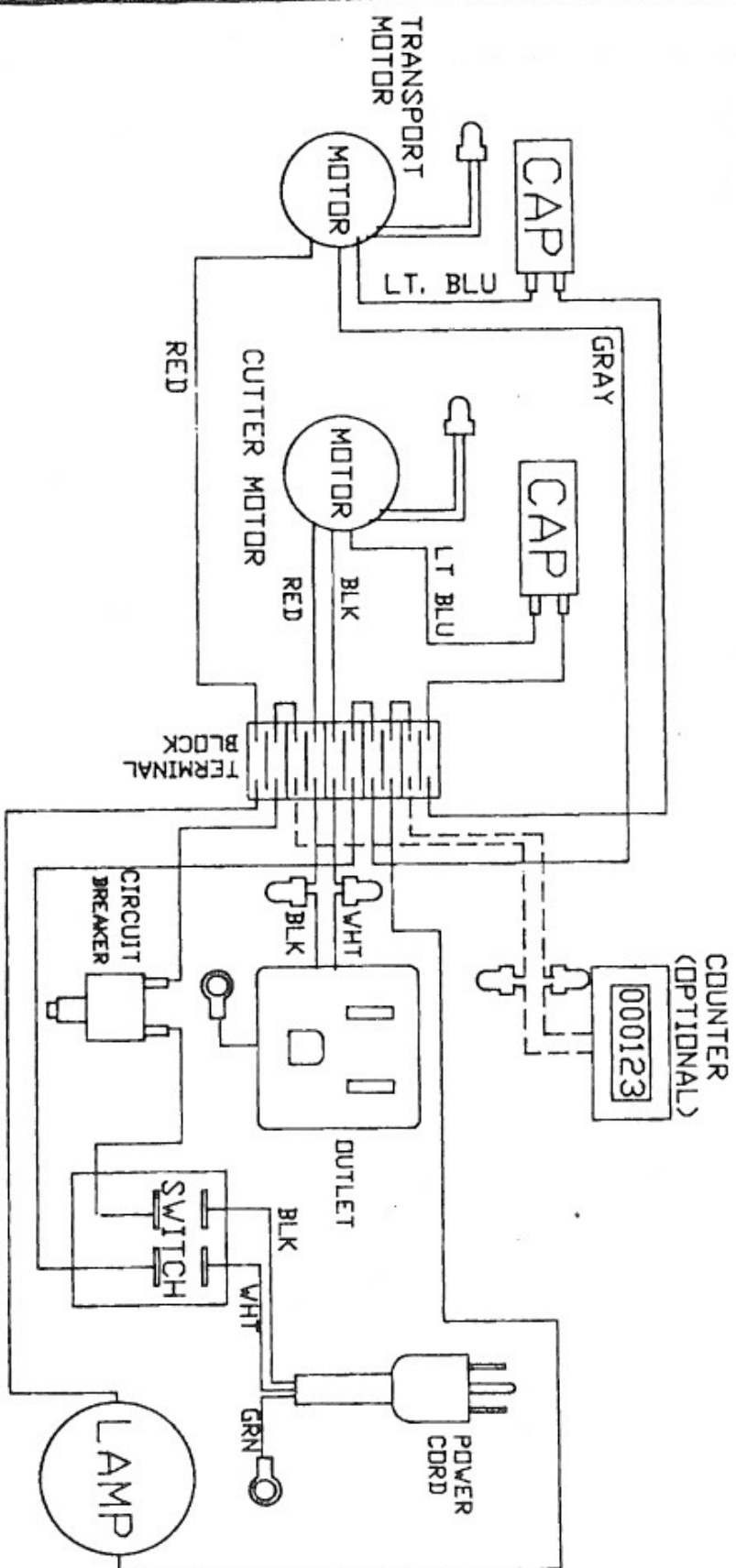


Ovation Corporation

Omaton Corporation			
SCALE:		DRAWN BY: BJR	
DATE: 9-25-86			
MATERIAL:		FINISH:	
TITLE		DRAWING NO.	
WIRING DIAGRAM, MODEL 106		A11990A	
A	9-25-86	THRU 5389	ORIGINAL RELEASE
REV	DATE	EFF	S/N
		DESCRIPTION	



A11012D

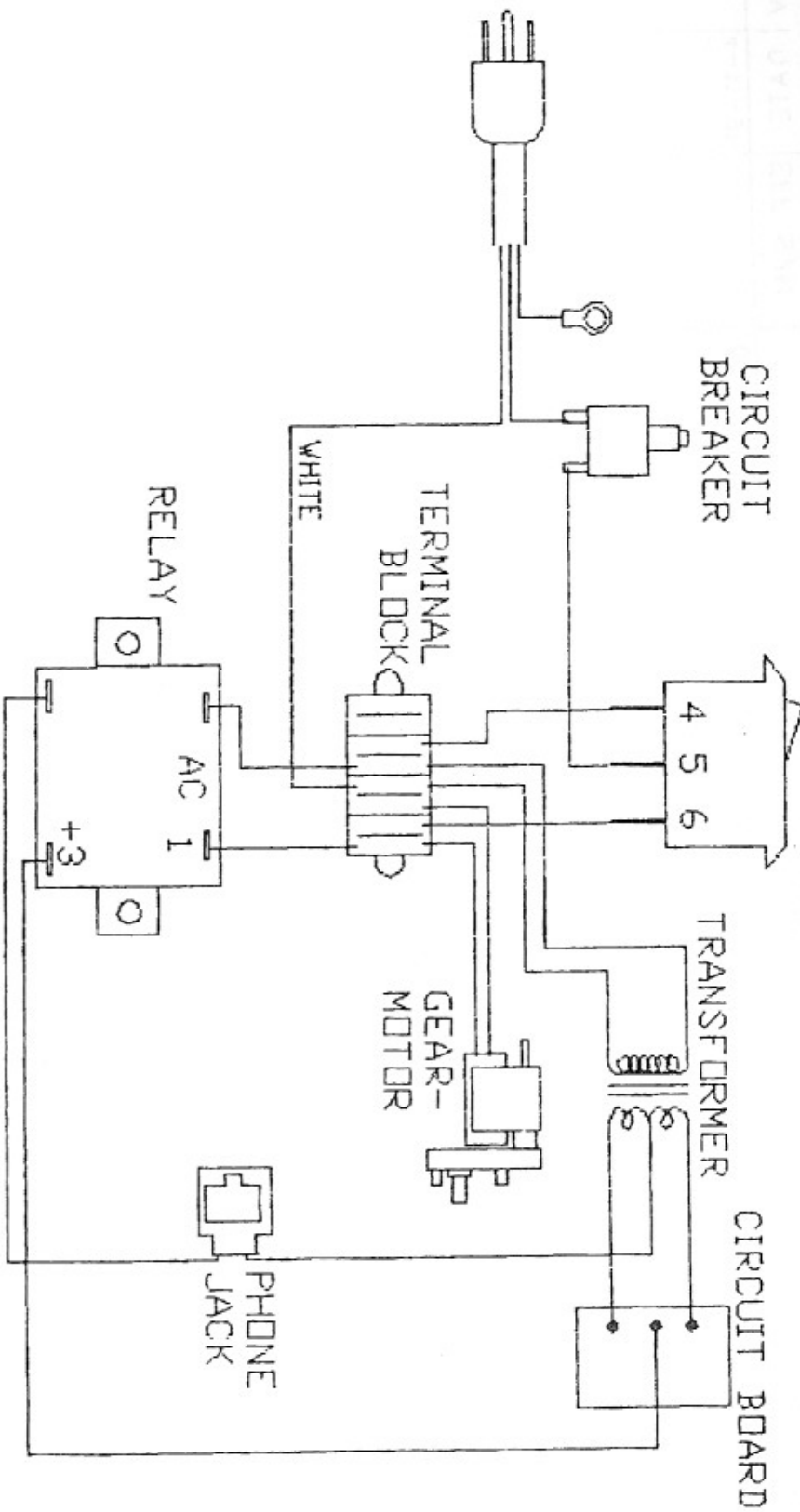


D	7-25-85	UP TO 5725	SEE B11012D
REV	DATE	EFF S/N	DESCRIPTION

Omaton Corporation			
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DATE:	10-6-86		
MATERIAL:		FINISH:	
TITLE	WIRING DIAGRAM, MODEL 202		DRAWING NO. A11012D

A10.00

PULSE-OFF-ON SWITCH



-37-

Oration Corporation			
SCALE: —		DRAWN BY: BJR	
DATE: 5-16-88			
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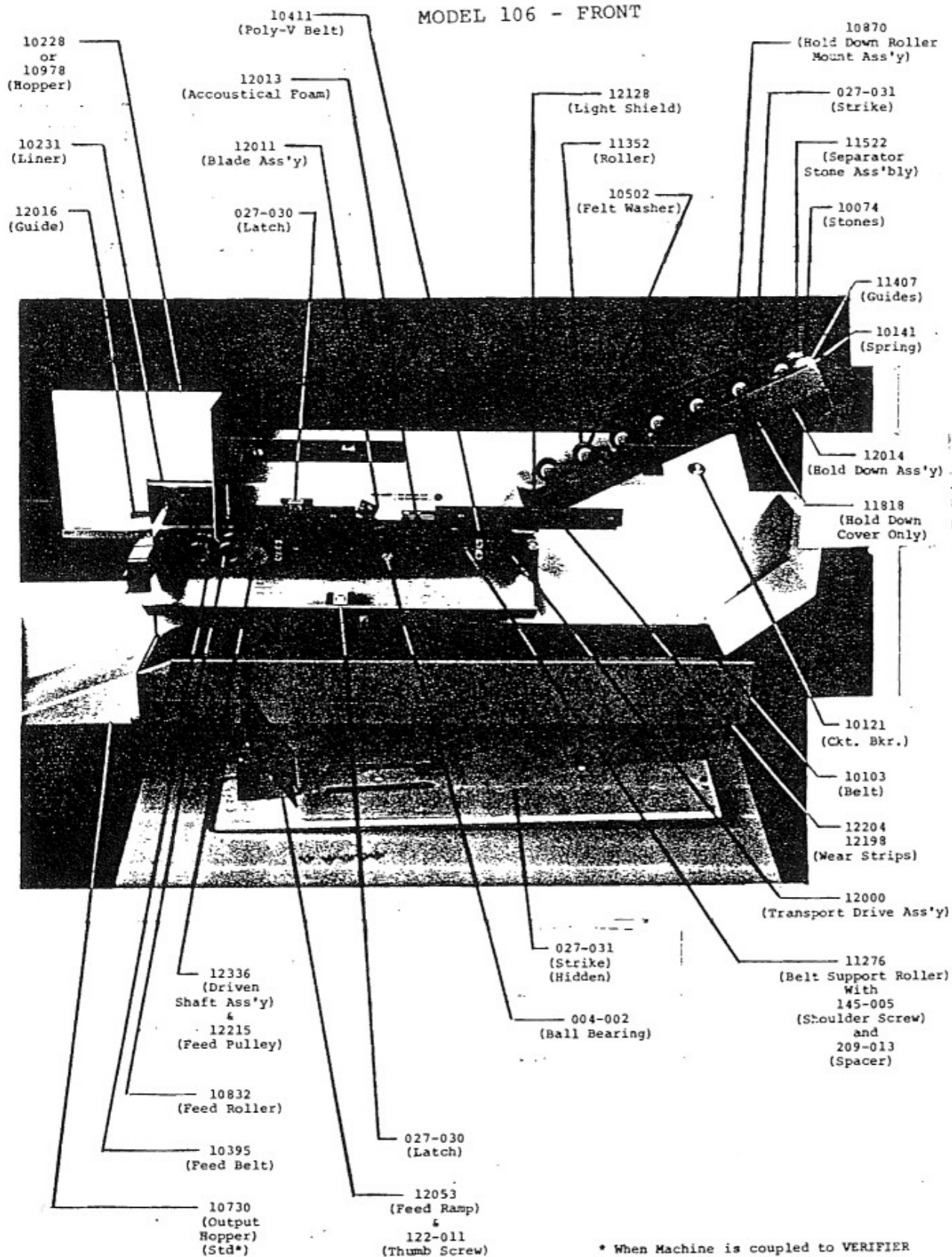
PULSE-OFF-ON SWITCH

THIS SIDE OF SWITCH GOES
TOWARDS TOP OF MACHINE



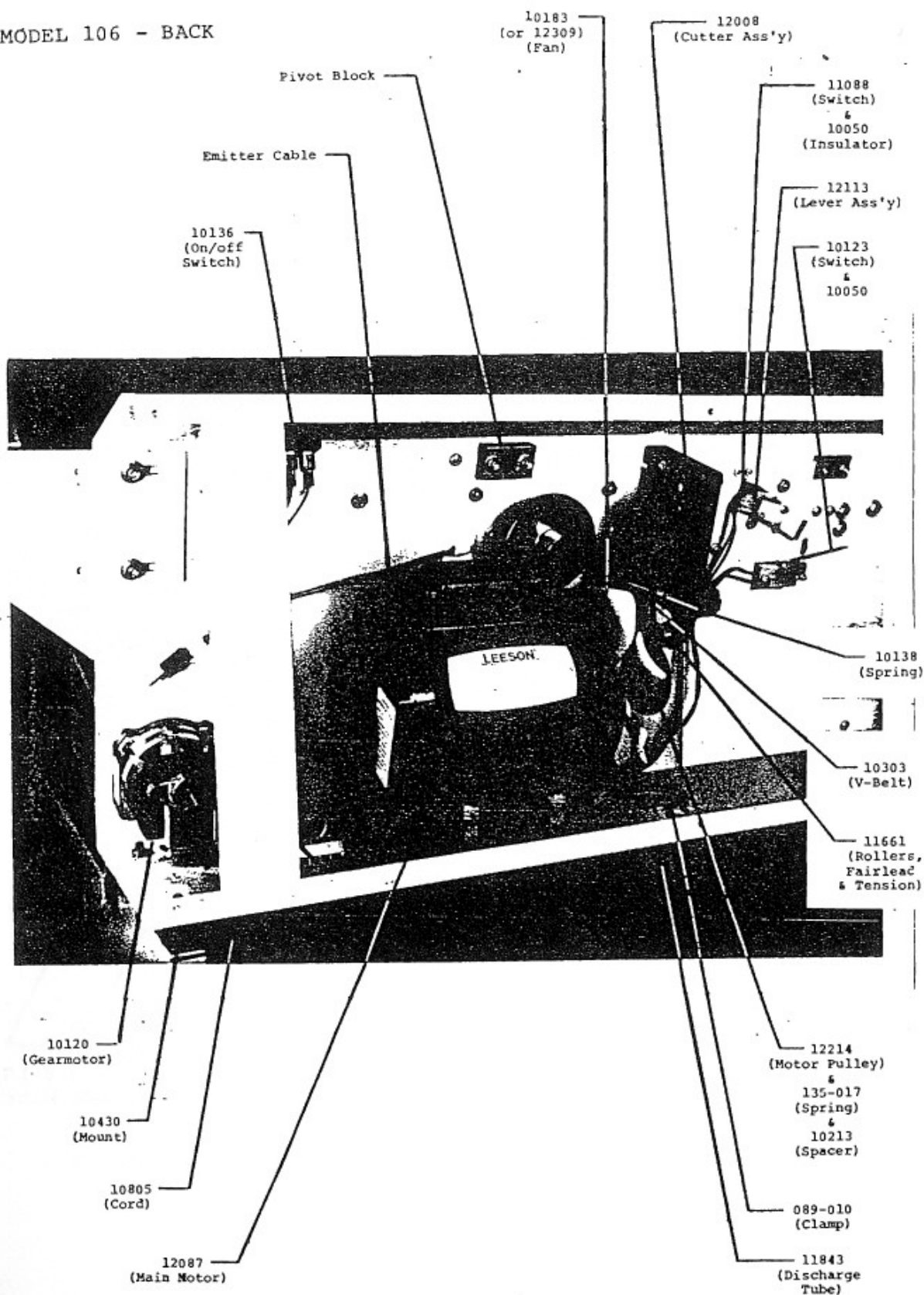
ORIGINAL RELEASE	DESCRIPTION
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MODEL 106 - FRONT

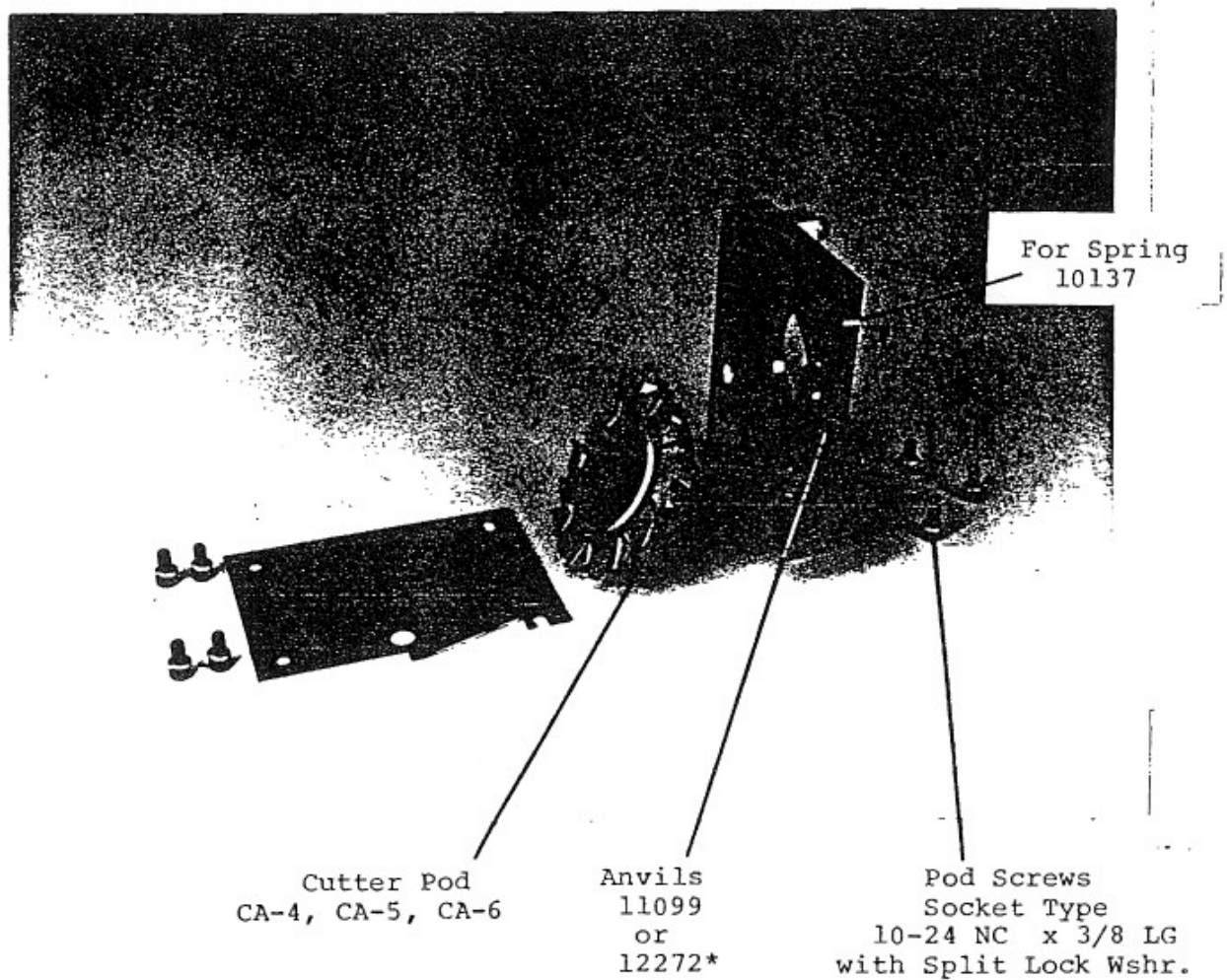


* When Machine is coupled to VERIFIER
use P/N 12225.

MODEL 106 - BACK

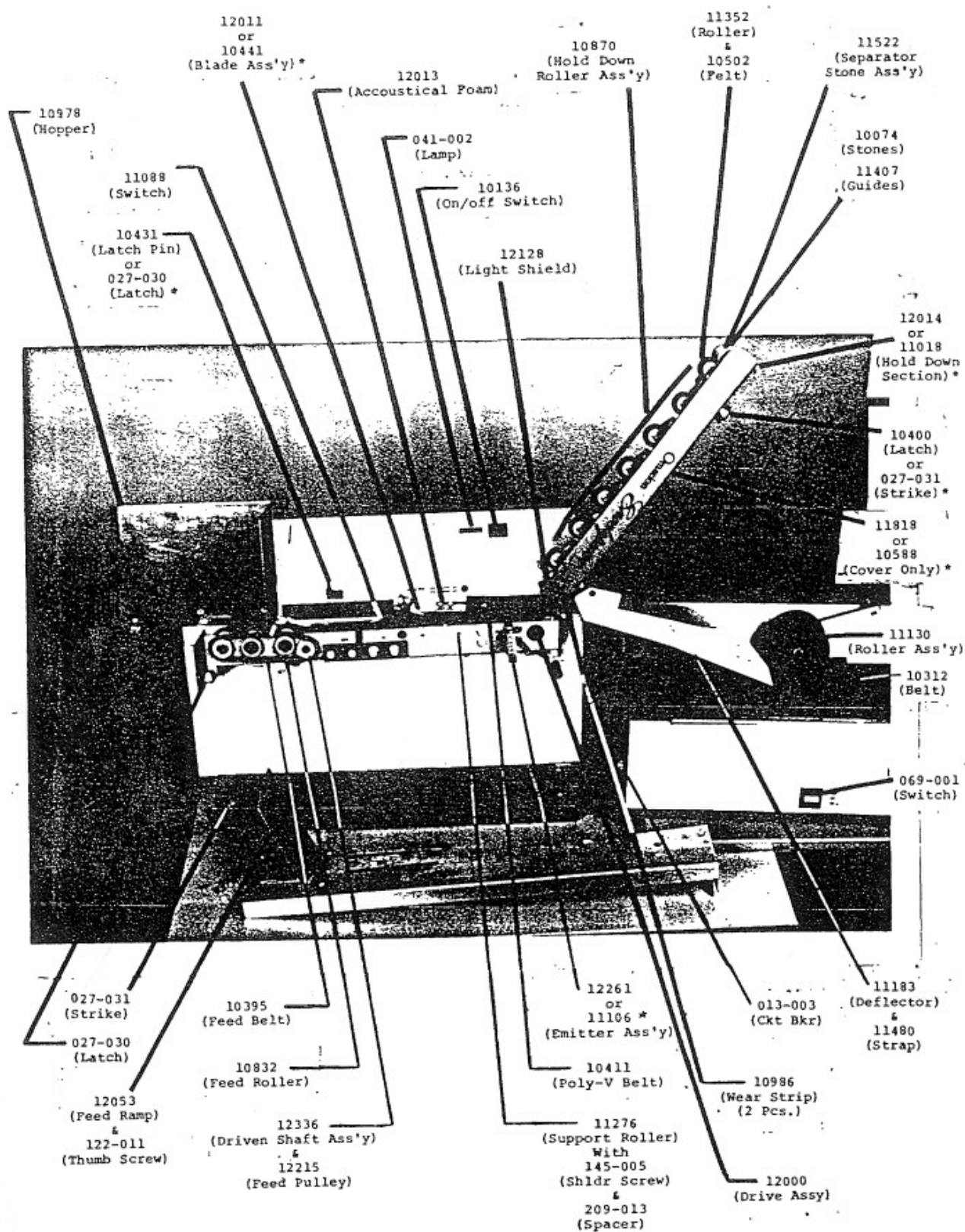


Note: Model 106 uses revised design
but with same key components.



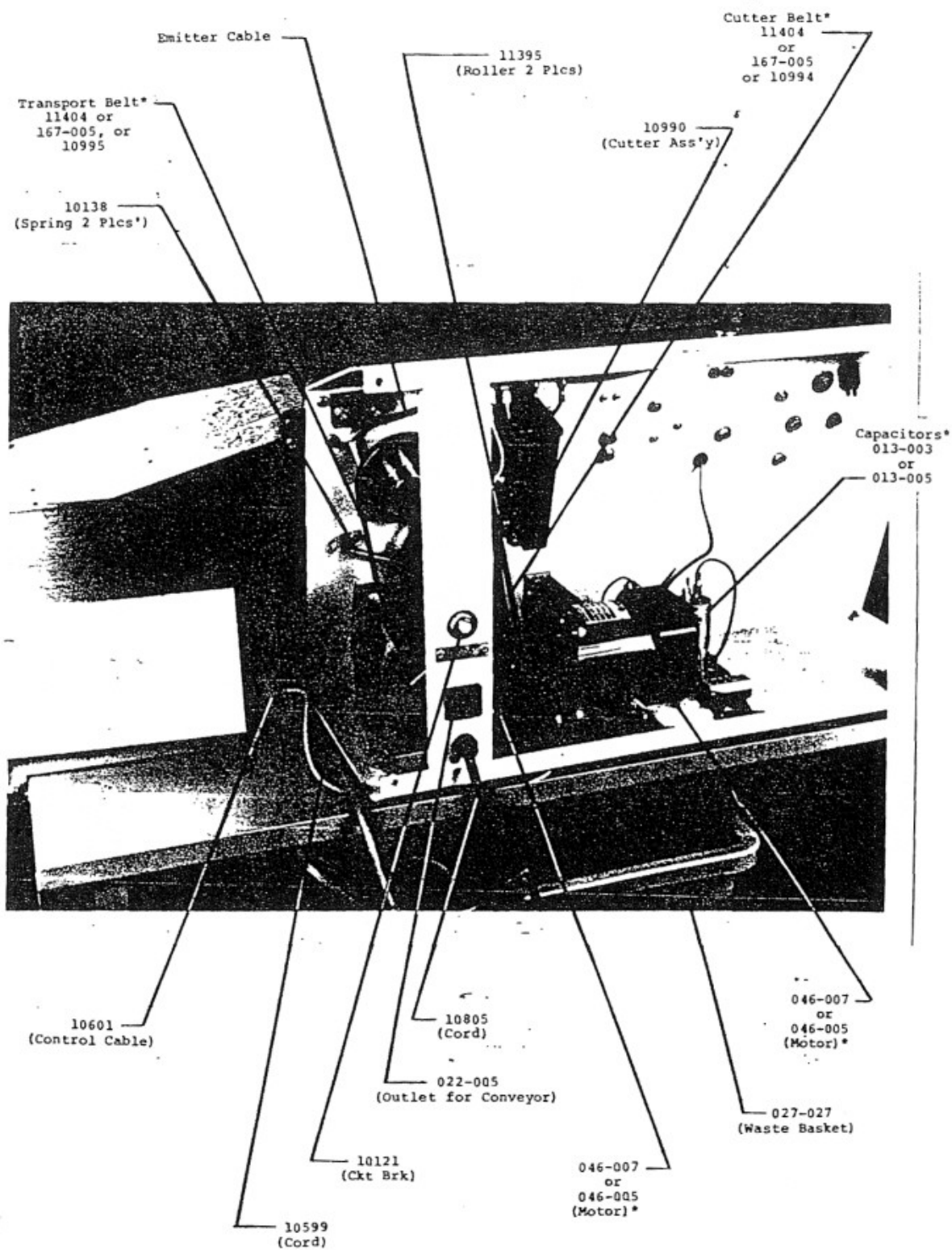
CUTTER ASSEMBLY COMPLETE
P/N 12008

* Check Machine Serial No.



MODEL 202 - FRONT

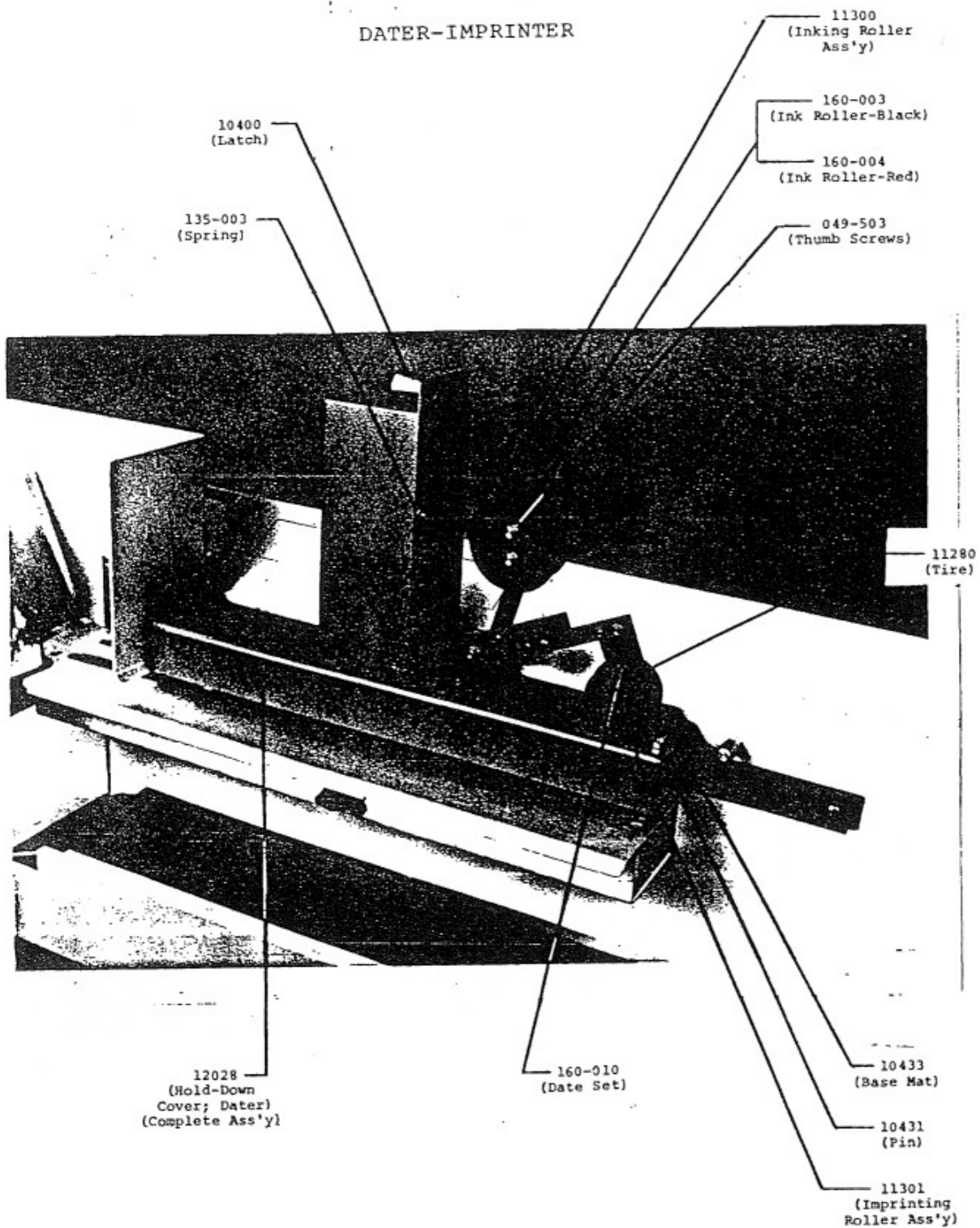
* Check Machine Serial No.



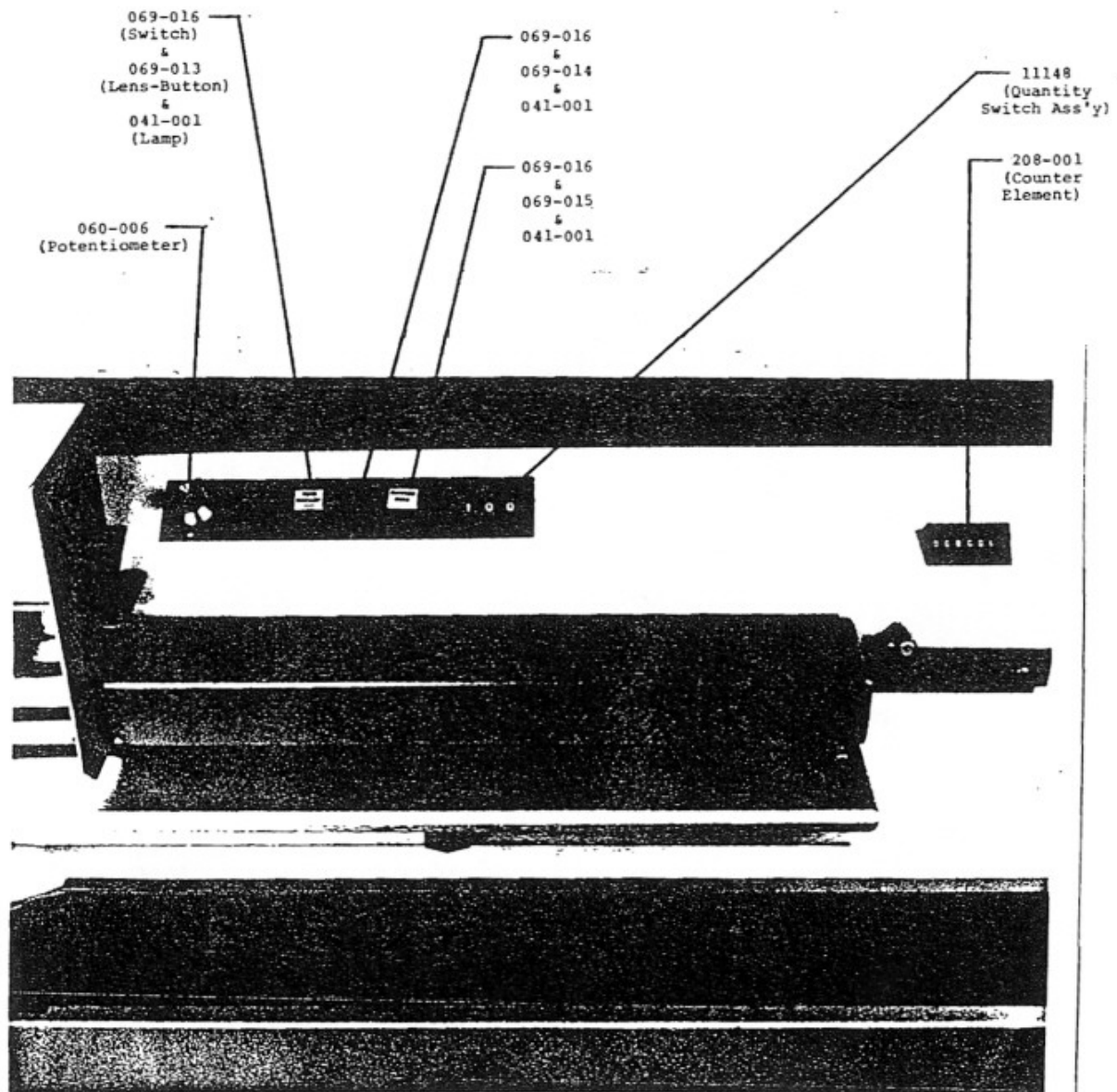
* Check Machine Serial No.

MODEL 202 - BACK

DATER-IMPRINTER



BATCHER



202 SPARE PARTS		10/20/2000				
Description	Component	qty for 1 machine	qty for 2 machines	qty for 5 machines	qty for 10 machines	qty for 20 machines
Separator Stone /PAPER	10074	1	1	2	2	4
On/Off Switch	10136	1	1	1	1	1
Tension Spring	10138	0	0	1	1	1
Spring Extension	10141	0	0	2	2	2
Conveyor belt flat	10312	0	0	0	1	1
Feed Belt	10395	4	4	10	16	20
Transport Belt	10411	1	1	1	2	2
Pulley brg Asm	10832	0	0	0	1	1
Spring Torsion	10919	0	0	2	2	2
Feeder Shaft	11016	0	0	0	1	1
Pulley Transport ASM	11276	0	0	0	1	1
Torsion spring	11387	0	0	1	1	1
Pulley tension asm	11395	0	0	0	1	1
"V" Belt	11404	2	2	2	4	4
Roller, Hold down Plastic 3IN BLADE	11532	0	0	0	1	1
Cutter compression blade asm	12011	1	1	1	2	2
Foam Cap Asm	12012	1	1	1	2	2
Wear Strip	12200	0	0	1	1	1
Wear Strip	12201	0	0	1	1	1
Latch Bracket	12270	0	0	0	1	1
Strike Bracket	12310	0	0	0	1	1
Driven shaft asm	12336	0	0	0	0	1
Gear motor 32 rpm	12423	0	0	0	0	1
Spring Torsion 1st and 2nd	14844	0	0	2	2	2
Knob thumb	122011	0	0	0	1	1
Timing belt 170x1037	167002	0	0	1	2	2
Timing belt 160 x 1037 pcs-1	167011	0	0	1	2	2
Fuse 1amp	171004	0	0	1	1	1
Fuse fast blowing 3amp	171008	0	0	1	1	1
LCD Display	220001	0	0	0	0	1

<u>Description</u>	<u>Component</u>	qty for 1 machine	qty for 2 machines	qty for 5 machines	qty for 10 machines	qty for 20 machines
Motor capacitor	013005	0	0	0	1	1
Pin hitch or clip	027021	0	0	0	1	1
Latch Bracket	027030	0	0	0	1	1
Strike Bracket	027031	0	0	0	1	1
Relay solid state opto-22	036002	0	1	1	2	2
Indicator light	041002	0	0	0	1	1
Cutter Motor 3200 rpm	046007	0	0	0	1	1
Switch lever	069023	1	1	1	2	2

106 - 202 SPARE PARTS		10/20/2000						
			106- 202					
					</			

X REF	Description	P/N	qty for 1 machine 106-202	qty for 2 machines	qty for 5 machines	qty for 10 machines	qty for 20 machines
202 only	Timing belt 170x1037	167002	0	0	1	2	2
202 only	Timing belt 160 x 1037 pcs-1	167011	0	0	1	2	2
202 only	Fuse 1amp	171004	0	0	1	1	1
202 only	Fuse fast blowing 3amp	171008	0	0	1	1	1
106 only	FUSE 8 AMP LOW BLOW	171009	2	2	2	3	3
106 only	LCD Display	220001	0	0	0	0	1
202 only	LCD Display	220001	0	0	0	0	1
106 only	Capacitor main motor	012012	0	0	0	1	1
202 only	Motor capacitor	013005	0	0	0	1	1
202 only	Pin hitch or clip	027021	0	0	0	1	1
202 only	Pin hitch or clip	027021	0	0	0	1	1
106 only	Hold down cover latch	027030	0	0	0	1	1
202 only	Latch Bracket	027030	0	0	0	1	1
202 only	Strike Bracket	027031	0	0	0	1	1
202 only	Relay solid state opto-22	036002	0	1	1	2	2
106 only	Main motor relay	036003	0	0	1	1	1
202 only	Indicator light	041002	0	0	0	1	1
202 only	Cutter Motor 3200 rpm	046007	0	0	0	1	1
106 only	Thumb screw	049503	0	0	0	1	1
106 only	Leaf switch	069023	1	1	1	2	2
202 only	Switch lever/leaf	069023	1	1	1	2	2

Ihr Ansprechpartner:



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Die Münchner Profis - mit Herz