graphic whizard
print finishing solutions

GW 3000 Series

Operator Manual

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SOUTHWEST BUSINESS PRODUCTS LTD.

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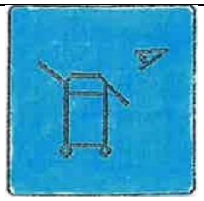
Introduction

The Model GW 3000 can number on single sheets (12# bond to 12-point card or 45 to 250 GSM paper) or multi-part carbonless forms (up to 10 parts) while simultaneously perforating, slitting, and/or scoring. With proper set-up, 3000 sheets per hour (8.5" x 11" stock with one hit) can be quickly and identically processed.

The Model GW 3000 is microprocessor controlled, making it easy to set up and program. The system allows for a maximum of two numbering heads, which can independently turn off or on for a maximum of 1 job with one hit per head that are stored for future use. The unique friction feeder sends through one set at a time, even from the unglued side of a padded set.

Perforations are done between the register board and main rollers, producing a straight perforation, slit or score, avoiding tail whip. Perforating wheels are offered in a wide range of teeth configurations and can be quickly changed using the retaining ring pliers supplied. A photocell recognizes the lead edge of the sheet and the microprocessor stops the sheet at the specific location(s) where numbers are required.

Safety Precautions

	**CAUTION**: The solenoids may get hot during operation. DO NOT touch the solenoid case while the machine is running and until it has been given enough time to cool down.
	**CAUTION**: The motor may get hot during normal operation use. DO NOT touch any vicinity of the motor.
	**CAUTION**: On Electric Solenoid machines the noise levels can be high and hearing protection may be required.
	**CAUTION**: Moving parts could cause harm to body parts and/ or operator clothing may get caught. Keep body parts and clothing away. Use caution when operating.
	**CAUTION**: Machine should never be left unattended.

- Before using the machine, you must read the operating instructions.
- Professionals must only eliminate damage or extraordinary malfunctions.
- Never insert your hand into the machine while it is running.
- Do not wear loose fitting clothing when working with the machine.
- Make sure that the machine stands on a level and well-ventilated positions.
- Ensure power cord has been unplugged prior to performing service on the machine.
- This machine has been certified to IEC/EN 60950-1:2001 standard and pollution degree:2

Specifications

Electrical	115V/60Hz/5A or 230V/50Hz/5A
Speed	3,000 SPH
Max. Stock Size	18” x 18” (45.7cm x45.7cm)
Min. Stock Size	3” x 5” (7.6cm x 12.7cm)
Stock Weight	12# -12 point (45-300 GSM)
Impression Control	Electronic variable, crash up to 10 parts carbonless
Feeder	Friction
Dimensions	44”L x 27”W x 16”H (1.12×0.69×0.26m)
Weight	100 lbs. (45.5kg)
Floor Model	Tabletop, optional stand
Drive Unit Type	Electric
Max. # of Heads	2
Numbering/Creasing Positions	1

Job Memory	Current job only
Head Rotation	Lockable throughout 360
Repeat Action	Consecutive 1x, 2x, 3x, 4x
Numbering Heads	Standard 6-digit reverse head
Perf Blade Options	2, 4, 6, 8, 12. 16 teeth per inch
Micro Perf Options	42 or 72 teeth per inch
Scoring Options	Standard, wide or narrow
12 TPI Perf Blade	1
Score Blade	1

NOTE: *Machine performance will vary based on stock weight, type, and specifications of the job being performed.*

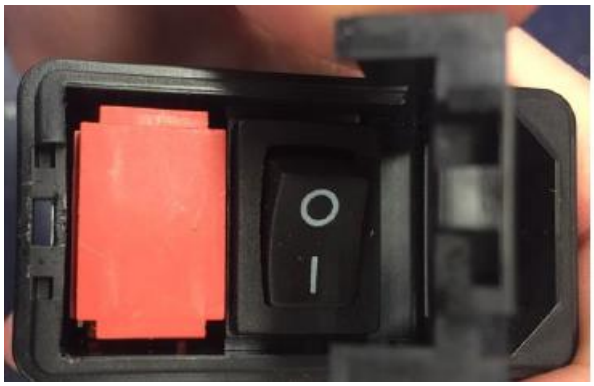
Machine Assembly

Power Supply Instructions

Before connecting the power cord to a wall receptacle, make certain the supply voltage is what the machine has been set up for. The voltage is marked on the sticker containing the serial number of the machine. If there are any discrepancies, please call your dealer first before plugging in the machine. The switch module is located behind the main operator side panel, directly underneath the feed area. It also houses the main fuse. The machine is shipped with two fuses inside the machine, as well as two spare fuses for when they need to be replaced.

Replacing the Fuse

Step 1 (Right): Use a flat head screwdriver to open the lid of the case that surrounds the fuse



Step 2 (Left): Using that same flat head screwdriver, lift up the red case that contains the current fuses

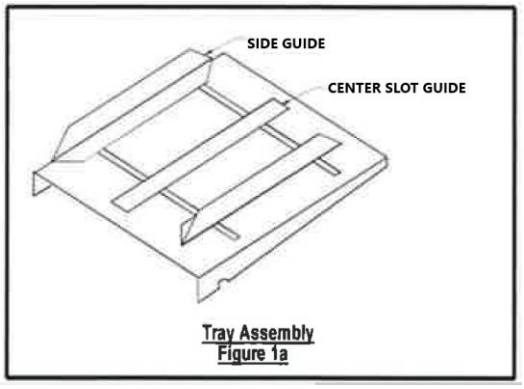
Step 3 (Right): You will need two of these new fuses in order to power the machine when your current two do not work any more

Step 4 (Left): Place new Fuses in the two slots of the red case

Step 5: Put red case back into the FM 100 and close the lid

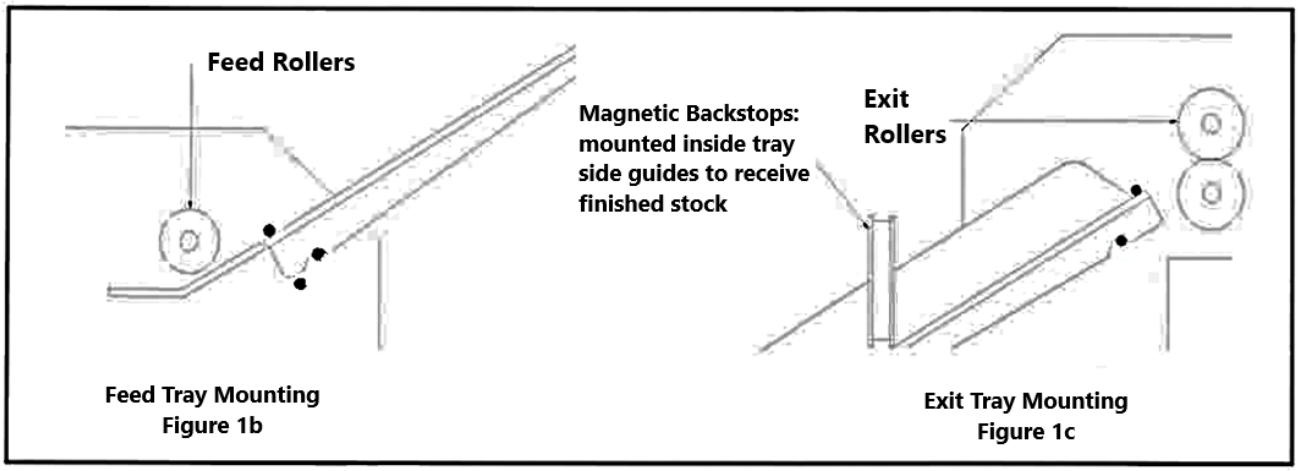
Feed and Exit Trays

The feed and exit tray assemblies are comprised of four components each: the tray, two tray side guides and a center slot cover (see Figure 1a).



Tray Assembly
Figure 1a

The trays sit in the machine on mounting pins inside the machine's side frames as shown in Figure 1b and 1c. The trays can be easily removed and stored elsewhere when not in use. Place the tray side guides, bottom flange towards the center and the center slot cover on the tray as shown in Figure 1a and screw on the nylon wing nuts to secure the pieces on the tray. The operator side tray guide of both the feed and exit tray should be pulled all the way over to the operator side before tightening its two wing nuts.



Feed Tray Mounting
Figure 1b

Exit Tray Mounting
Figure 1c

Note: *It is critical that the operator side tray guide be moved all the way over to the operator side of the machine to ensure that the stock being processed through the machine passes directly over the photocell. If the stock does not pass directly over the photocell, the machine will not recognize sheets and the program being run will not be initiated.*

Place a pile of the stock to be processed in the feed tray and use it to align the non-operator side tray guide to the pile. Allow a fraction of an inch so that the pile flows freely up and down the tray if released from the top. Set the exit tray in a similar manner, although the accuracy of the non-operator side guide position is not critical.

As a backstop to finished stock, there are two magnets included with the machine (unless equipped with the conveyor outfeed) that are set inside the side tray guides on the exit tray. Relative position of the magnets depends on the stock being processed. The magnets should be set such that the stock does not slide down the exit tray too far, possibly causing sheets to get in uncollated order.

Numbering Heads

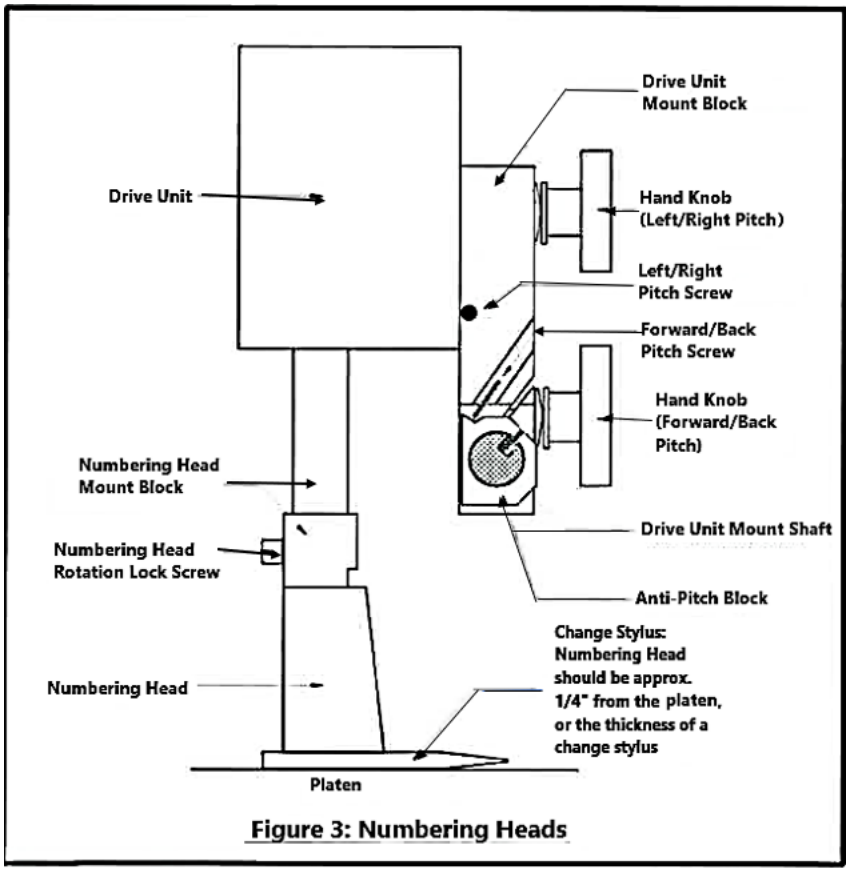


Figure 3: Numbering Heads

The numbering heads are already secured to the drive unit by two screws through the numbering head mount block as shown in Figure 3. The drive unit is then mounted to the drive unit mount block using the hand knob provided. While installing the drive unit, make sure the screw cap on the back of the drive unit fits in the cavity on the drive unit mount block so that the rubber plug provides some pressure against the screw cap. To do this, you may have to back out the left/right pitch screw. Plug in the cord from the drive unit into the appropriate receptacle on the non-operator side cover (closest head to the closest receptacle). If your machine is equipped with more than one head, by convention, the numbering head and drive unit closest to the operator control panel will be referred to as head #1 (H1) and the other will be head #2 (H2).

The height of the numbering head has been factory set and it is critical to the proper performance of the drive unit and numbering head. This distance is approximately 1/4" or the thickness of a numbering wheel change stylus. However, the numbering head must be levelled to ensure that the numbering wheels strikes the sheet square to provide a quality inked impression and a flat crash impression on carbonless sets.

The numbering heads can rotate 360°. This is done by loosening the numbering head rotation screw (using the large hex driver supplied) located on the front of the numbering head mount block. Once the screw is loose, the head is free to rotate. Tighten the screw once the desired position is achieved to prevent any movement during machine operation.

The standard numbering head is 3/16" (4.5mm) Gothic style, reverse order, 6 digits with 2 drop wheels. The numbering head employs a pre-inked pad, which can be purchased in red or black. These ink pads will supply you with approximately 8,000 impressions. Un-inked pads may be purchased if a different color is required (**Note**: *any ink used must be a non-metal corrosive one, labelled numbering machine ink*).

The numbering head comes standard with six numbering wheels, the last two of which are drop wheels (this will be discussed later). The first 5 digits may be activated automatically. The 6th digit must be changed manually. Also available are letter prefix wheels (A-J; K-R; S-Z) and a No. prefix wheel. Modifications are possible with new numbering head orders or by special order.

The numbering heads also have a repeat function. The repeat selector (see Figure 4) allows a number to be repeated from one to four times. By leaving the repeat selector in the "0" position, the number will not change when the head returns to the print position. Using the "0" position prevents you from having to re-set the starting number when you are programming a new job (this will be discussed later). Position "1" changes the number consecutively with each stroke and positions "2", "3" and "4" repeat the number 2, 3 or 4 times, respectively.

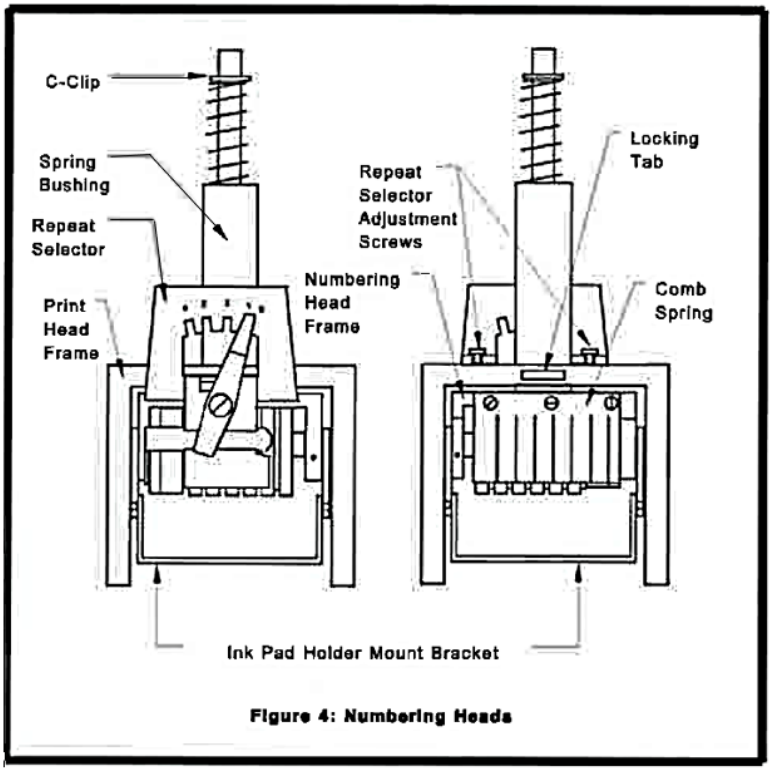


Figure 4: Numbering Heads

The repeat functions are achieved by a mechanical ratchet action in the numbering head. When trying to use these functions, you may have to cycle the numbering head manually to match the number of repeats on a page to the number positions on a page.

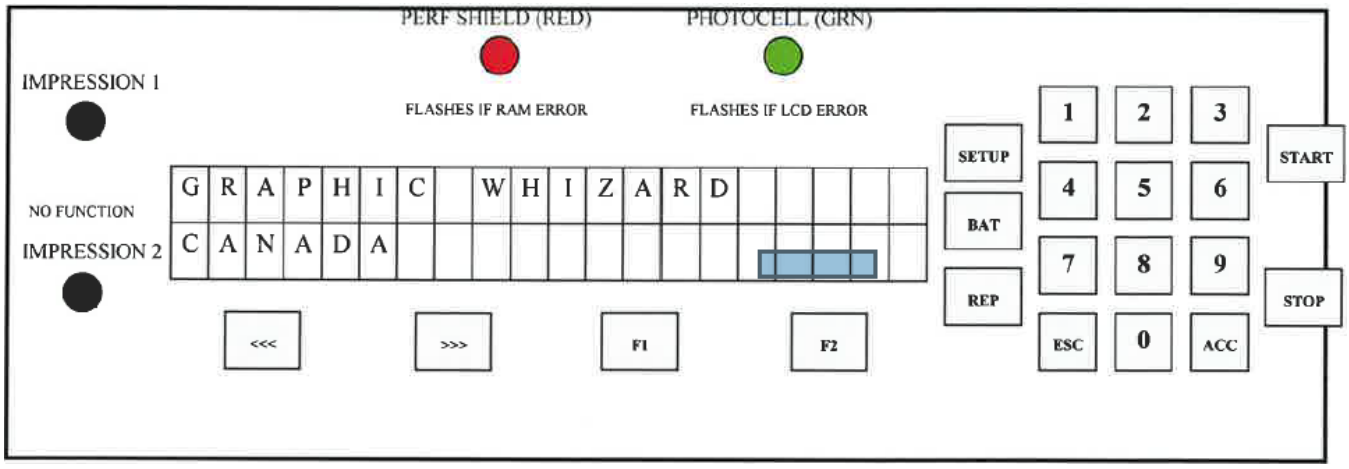
Optional Conveyor Outfeed Plate

The conveyor outfeed plate sits in the machine in the same fashion as the exit tray. Make sure that the spur gears mesh and do not force the conveyor outfeed plate into position. The pile tray is mounted on the end of the conveyor outfeed plate, with two Phillips screws and acts as a backstop for the finished stock.

Additional Switches and Controls

The main on/off switch is located under the feed tray beside the main fuse holder and power cord. On the left-hand side of the operating keyboard, there are two potentiometer knobs that control the crash strength of the numbering head, known as Impression Controls and can be adjusted to best suit the requirements of the job. For example, you may require stronger crash numbering for carbonless sets than for single sheet bond paper. This adjustment can be done while the machine is stopped or running.

Operating Keyboard



NOTE: The Numerical Keypad and BAT button are de-activated on the GW 3000 Model

The operating keyboard is comprised of a two line LCD display, various buttons and two Impression Controls which consist of two potentiometer knobs that control the crash strength of the numbering head, and can be adjusted to best suit the requirements of the job. For example, you may require stronger crash numbering for carbonless sets than for single sheet bond paper. This adjustment can be done while the machine is stopped or running (see Figure 5).

The four buttons under the LCD display will perform whatever function is shown directly above them on the bottom line of the LCD display. They may not always be active (this is the case for the other buttons as well). Three specific function buttons (*SET UP, BAT*) are situated beside the display. A numeric keypad, an **'ESC'** (escape),

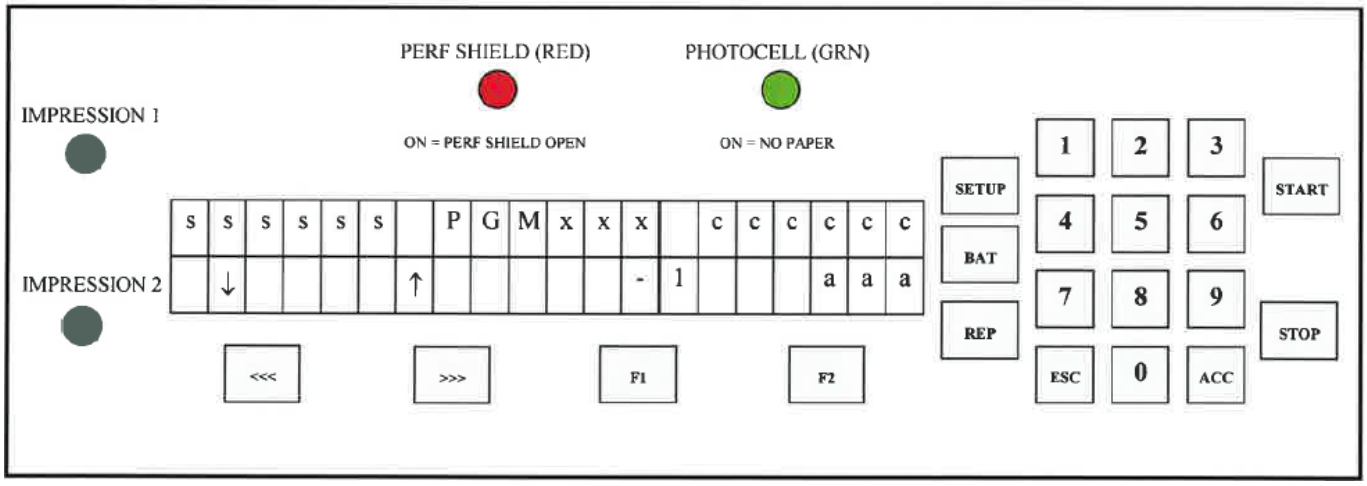
'ACC' (accept), **'START'** and **'STOP'** button rounds out the rest of the keyboard. The **'ESC** ' button can be used at almost any time (except during actual running) to return to the previously viewed menu. The functions of the rest of the buttons will be discussed later in this section.

Once you have plugged the machine in, turn the on/off switch to the **'ON'** position. The microprocessor does an internal system check and the above will flash on the screen.

Running a Job

The Idle Mode is displayed below. From this menu, you can change the motor speed, modify your paper count, and select your program.

DISPLAY:



DISPLAY FUNCTIONS:

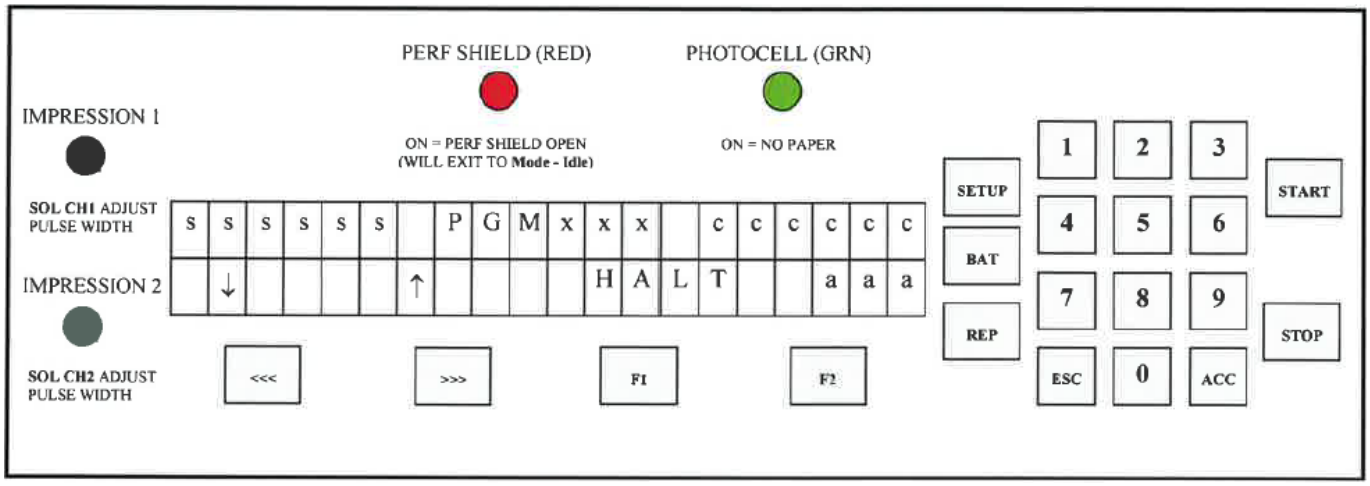
DISPLAY
ssssss = motor speed bar graph
PGMxxx = solenoid program in RAM
cccccc = paper count
↓ = decrement motor speed
↑ = increment motor speed
-1 = decrement paper count
aaa = CLR -> clear paper count normally; aaa = BAT -> Enter **Mode - Set Batch Size** when batch mode is enabled

The <<</>>> will adjust the motor speed, F1 will decrement the paper count, F2 will clear the paper count but if it is already at 0 it will send you to the Batch mode. **SETUP** will select a program and **START** will begin the job. You will now be in the Run Mode.

When the machine is first turned on, it defaults to Program 01 (**PGMOO1**), which is shown on the menu. Pressing the **'START'** button will automatically begin Program 01. The main operating menu will change as the machine is running.

The Run Mode menu looks like this:

DISPLAY:



DISPLAY FUNCTIONS:

DISPLAY
ssssss = motor speed bar graph
PGMxxx = solenoid program in RAM
cccccc = paper count
↓ = decrement motor speed
↑ = increment motor speed
HALT = motor emergency stop, exit to **Mode - Idle**
aaa = CLR -> clear paper count normally; aaa = BAT -> Display current batch size when batch mode is enabled

KEYPAD FUNCTIONS:

<<<	>>>	F1	F2	STOP	START
DECREMENT MOTOR SPEED	**INCREMENT MOTOR SPEED**	**MOTOR EMERGENCY STOP** Exit to **Mode - Idle**	IF BATCH SIZE IS ZERO **CLEAR PAPER COUNT** ELSE: **DISPLAY BATCH SIZE**	Complete numbering Eject current sheet Stop motor Exit to **Mode - Idle**	

ACC	ESC	SETUP	BAT	REP	
MOTOR EMERGENCY STOP Exit to **Mode - Idle**	**MOTOR EMERGENCY STOP** Exit to **Mode - Idle**	**MOTOR EMERGENCY STOP** Exit to **Mode - Idle**	IF BATCH SIZE IS ZERO **MOTOR EMERGENCY STOP** Exit to **Mode - Idle** ELSE: **DISPLAY BATCH SIZE**	**MOTOR EMERGENCY STOP** Exit to **Mode - Idle**	

DIG 0-9
MOTOR EMERGENCY STOP Exit to **Mode - Idle**

Stopping a Job

Here are methods of stopping the machine. Once the program is running, there are several built in safety emergency stops.

1. Pressing the **STOP** button, any of the digits 0-9, F1, **STOP, ACC, ESC**, and if the Batch size is 0, **BAT** will cause the machine to finish the stock it is currently working on, move the next stock into the starting position and then stop the motor. This automatically sends you into Idle Mode.

2. If you want to stop the machine while stock is still left in it, simply hold on to the stock in the feed tray. After about one second, the machine will automatically stop (since it is no longer seeing any new sheets). This is how it also stops when all the stock in the feed tray is gone.

Changing Programs

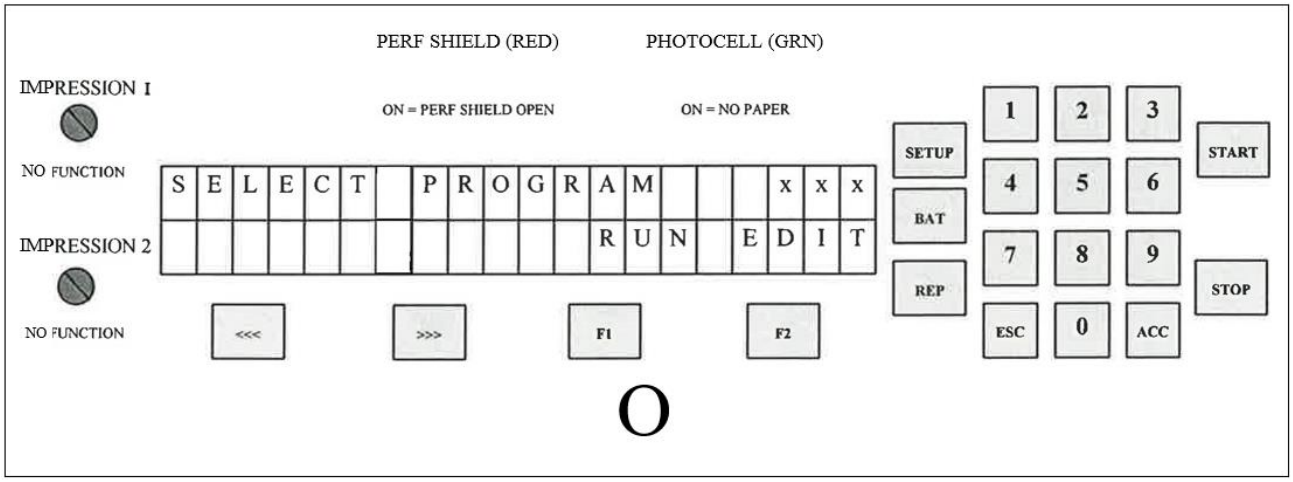
The GW 3000 allows you several choices in programming:

PROGRAM 01 — Allows for a maximum of 1 hit per head. (Same location on the stock)

****Program 01 is also used when you only want to perf, score or slit. Just save the program without any numbering positions programmed.

Whenever you wish to change programs, the LCD display must be in Idle Mode press the **'SET UP'** button. The following screen will appear: *(Changing programs can only be done with the GW 8000 & GW 12000)*

DISPLAY:



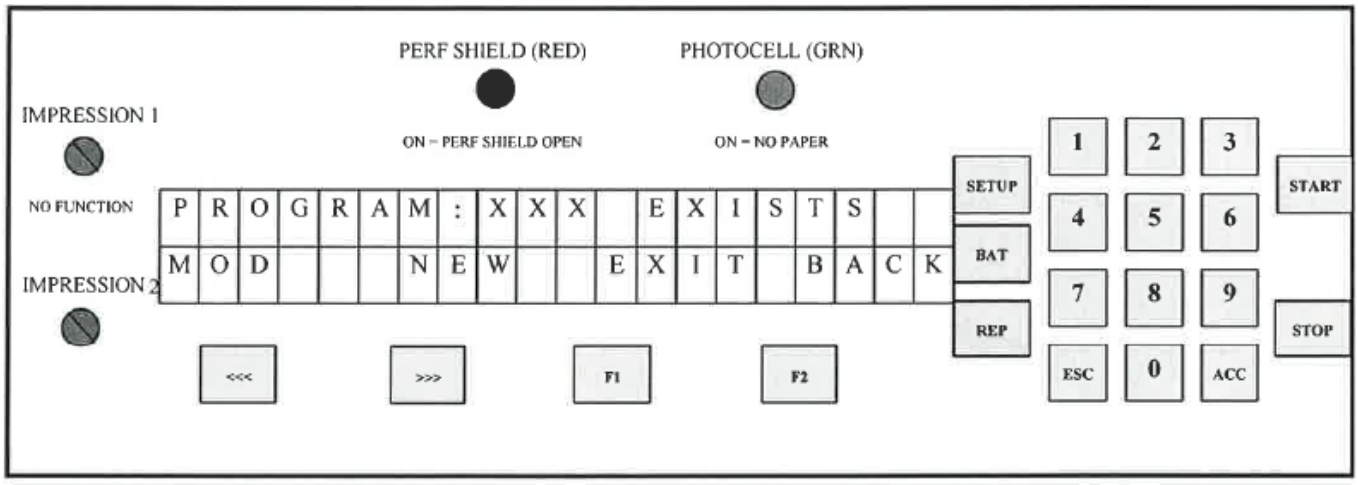
Once you select the program number desired, you may either **'RUN'** the existing program or **'EDIT'** it by pressing the corresponding function key (**F1** to **RUN** & **F2** to **EDIT**).

If **'RUN'** is selected, the machine will exit the Idle Mode where you press **START**. The **ESC** key will also return to Idle Mode in case you wish to change the counter before beginning a job.

Programming a Job

If you wish to program a job or **EDIT** the program, press F2. After selecting **EDIT**, if the program already exists, the machine will ask whether you would like to erase it, start new (**NEW**) or modify it (**MOD**).

DISPLAY:



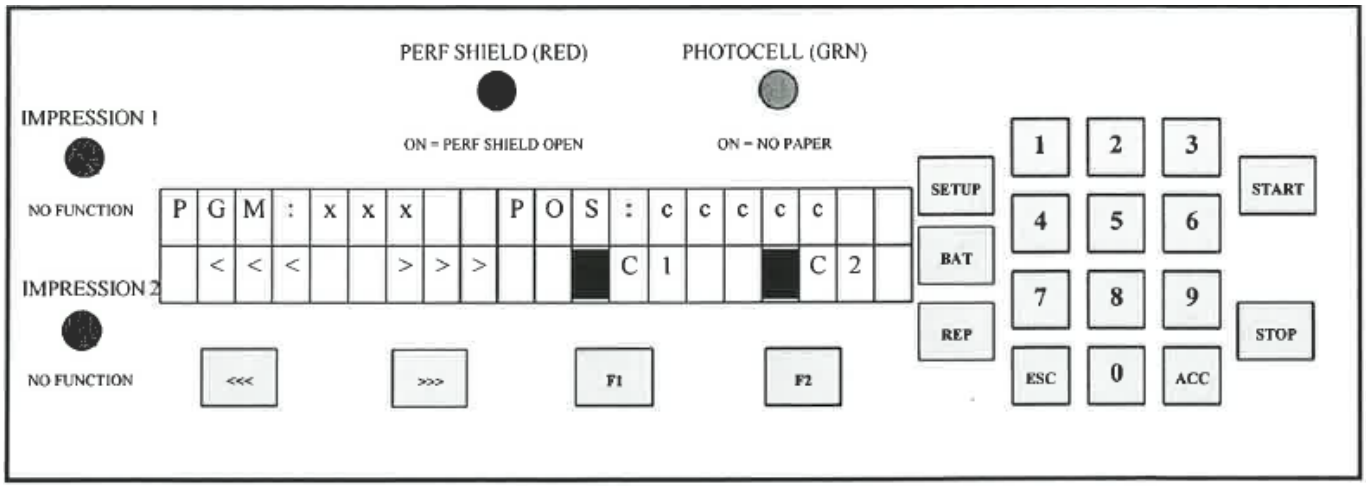
This selection is done with the corresponding function key (<<< and >>> respectively).

When modifying the program, previously programmed hits can be removed from the program while new hits may be added.

Once you make your selection, the machine will instruct you to **'INSERT PAPER/ PRESS START'**. The LCD display will then show the following:

I

DISPLAY:



DISPLAY FUNCTIONS:

DISPLAY
xxx = solenoid program number
ccccc = current paper position in motor steps from paper lead edge
<<< = motor moves in forward direction
>>> = motor moves in backward direction
■ = full block character displayed when hit programmed
C1 = solenoid channel 1 head 1
C2 = solenoid channel 2 head 1

The sheet you inserted is automatically moved to position '75'. Position '0' is the lead edge of the sheet passing the photocell. Position '75' is the first location that an entire number will print on the paper. (***Note**: Each step represents approximately 1750th of an inch).*

The first two function keys step the paper either forward or backward *(**Note**: you cannot back the sheet back further than position '75').* The other two function keys fire either head #1 or head #2. Once a head fire button has been pressed, the numbering head will fire, and the LCD display will light up with one solid bar around the corresponding head fired (*eg.C1*).

If the number is not in the position desired, simply press the function button again to toggle off the hit, otherwise continue moving up or down the sheet (*the hit is automatically saved*). This procedure can be repeated until the number is in the correct location. The page can be stopped a maximum of 1 time where you may program head #1 or head #2 or both heads to fire.

Once all numbers desired have been programmed, simply press the **'ACC'** button and the sheet will be discharged from the machine. The next sheet will be forwarded to step '75' (*if there is another sheet already in the feed tray*) or you will be instructed to **'INSERT PAPER/PRESS START'**. The LCD display will return to Idle Mode and you are set to run the job. Simply press the **'START'** button to begin.

Motor Speed Control

The motor speed can be changed while the machine is running or idle. This function is performed by using the first two function keys under the LCD display screen (marked << and >>) when you are in the main operating menu.

The bottom line of the LCD display shows a down arrow to slow down the motor and an up arrow to speed it up. Maximum throughput speed is 3000 sheets per hour (11” x 82" or A4), with one number per page.

Setting Up a Job

To set up the machine for a specific job, a few items must be adjusted depending on the specific stock being run, the number of heads being used and the number of perforations, slits or scores required. To keep it simple, adjustments required will be discussed from the feed end of the machine to the exit.

Aligning the Feed Tray Guides

As previously mentioned, the operator side tray guide should be seated all the way to the operator side. This will ensure that the stock passes directly underneath the photocell, allowing the program being run to initiate. With a pile of the stock placed in the tray, align the non-operator side tray guide with the pile. Allow a fraction of an inch so that the pile flows freely down the tray if released from the top. Move the center slot cover so that it is in the middle of the two side tray guides and tighten the wing nuts.

It is important that the stock enters the machine square to ensure that all perfs are square and straight. To test for square feeding, place a piece of stock in the feed tray and align the lead edge with a straight edge within the machine (*such as the straight edge of the feed platen, or the edge of the first shaft in the machine*). Now, check that the operator side feed tray guide is parallel to the close edge of the paper for squareness.

Setting Feed Tire Pressure

The friction feed system used in automatic Graphic Whizard machines is unique. It utilizes three top feed tires to feed sheets through with a consistent pull along the full lead edge of the sheet, and a continuous width sheet retarder (the strip of fine sandpaper on the feed platen) to separate sheets and prevent double feeding.

Once the feed tray and side tray guides have been assembled according to the sheet width required, you may locate the feed tires along the feed shaft. For proper sheet feeding, the position of the three feed tires along the width of the sheet is also important. Loosen the set screws of the feed tire hubs using the small hex driver provided in the accessory kit. Slide the feed tire hubs along the feed shaft, setting the two outer tires at about 1/2" in from the outside edges of the stock. The third, middle feed tire is simply centered. Keep the three setscrews of the feed tire hubs in line on the feed shaft. Tighten all setscrews.

If a feed tire is set too close to the edge of the sheet, its feeding efficiency will be affected by variances in the stock such as sheet curl and inconsistent glue thickness on multiple padded forms. Improper setting of the feed tires can cause random skewing problems.

Warning: All feed and exit tires, and perf/score/slit boss wheels use setscrews to secure their positions. When tightening setscrews, DO NOT over-tighten them. This may scar the metal shafts and inhibit the free sliding movement of the feed tire hubs or perf/score/slit boss wheels.

To ensure consistent, trouble-free feeding, the feed tire pressures must be set as loose as possible. The feed tires should never contact the retarder strip! Our design allows for no double feeding with substantially reduced feed pressure than the typical friction feed system. The gap between the feed tires and the feed platen should be just less than the thickness of the stock being used. Remember that we are retarding the full lead edge of the next sheet or set. When setting the feed tire pressures, you should have the sense that the feed tires are just touching the paper. It is better to set the feed tire pressure to the minimum pressure required to prevent double feeding.

The remedy to correct double feeding is to turn down both feed tire pressure adjusting screws a 1/8th turn until consistent feeding is achieved. If the feed tire pressure is too much, you will possibly mark or pull apart forms.

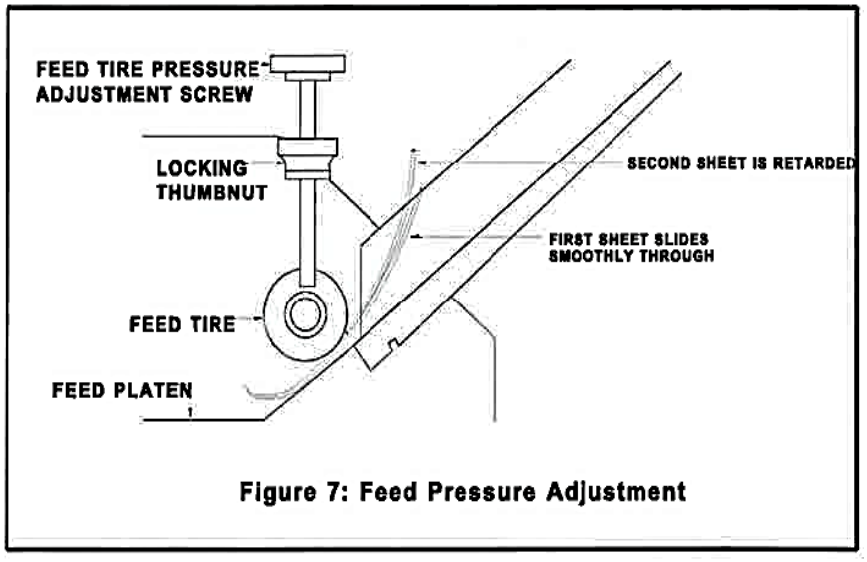


Figure 7: Feed Pressure Adjustment

Adjustments for feed tire pressure are made with the feed tire pressure adjusting screws (see Figure 7). It is recommended to place two sheets of the stock in the feed tray with the feed tire pressure set loosely. Hold the two sheets in your hand with one sheet ahead of the other. Place the leading edge of the first sheet under the feed tires. Slowly tighten the feed tire pressure adjusting screws while jiggling the pages back and forth. The correct setting is achieved when the second page is no longer able to run under the feed tires.

All three feed tires should be adjusted to the same pressure setting to minimize skewing. To check that all the feed tires are adjusted to the same pressure, tear a strip off the stock being run and pass it under each feed tire separately. You should sense the same amount of drag under each feed tire. A tighter feed tire pressure on one side of the sheet, will cause faster feeding of that side of the sheet *(the sheet will skew or twist towards the feed tire with tighter pressure).* To prevent this skewing, reduce pressure on the side of the feed tire shaft where you encounter more drag with a counter-clockwise, 1/8th of the feed tire pressure adjusting screw and increase pressure on the other side by a clockwise, 1/8th of that feed tire pressure adjusting screw. These adjustments should cause a change in the overall balance of pressure from the three feed tires without affecting the total feed tire pressure. When you have the feed tire pressure set properly, you can then tighten down the white nylon thumbnuts to ensure the setting will be maintained.

Note*: The only time the feed is too loose is if double feeding occurs. If the feed is too tight, the feed tires will try to pull only the top sheet off a set. If this occurs, loosen the feed tire pressure a little on both feed tire pressure adjusting screws evenly until this no longer happens.*

With the GW 3000, carbonless sets feed best from a non-glued edge. Glue thickens the set and can cause waves on the edge, while the unglued edges tend to be more consistently flat.

Advisory*: It may require several attempts to get used to this sheet-feed technique, and it is recommended that you practice a few numbering jobs with scrap paper. However, some initial trial and error experimentation will allow you to develop long-term benefits in efficiency.*

Perforating/Slitting

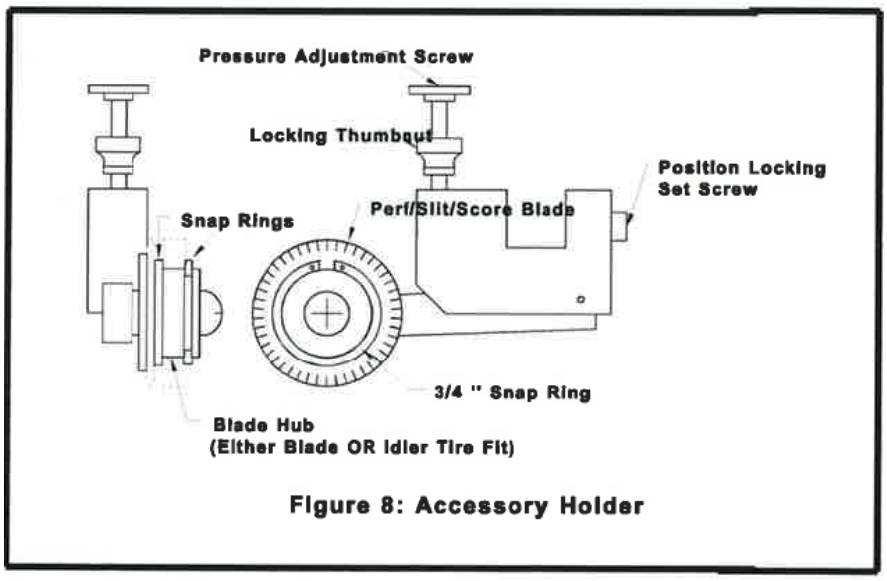


Figure 8: Accessory Holder

Perforating, slitting, and/or scoring can be performed with or without any numbering. As previously mentioned, if no numbering is desired, program **'00'** has been set aside for this task.

The perforator blades are available with 2, 4, 6, 8 and 12 teeth per inch (TPI) as well as micro-perf. The blades can be easily interchanged using the ring pliers supplied with the machine.

Remove the accessory holder (see Figure 8) from the machine. Simply remove the retaining clip from the blade hub and pop off the blade. Place the new blade on the blade hub and put the retaining clip back on. Ensure that the retaining clip sits completely in the groove in the blade hub to prevent any movement of the blade.

Using the small hex driver, move the bottom boss wheel to the approximate location of the desired perforation or slit. *(**Note**: Keep all the setscrews of the boss wheels in line on the shaft.)* Move the accessory holder to the position desired where the perf/slit blade will ride on the flat surface of the boss wheel (see Figure 9) and tighten the position locking set screw into the keyway of the square shaft *(using the large hex driver).* Since you can control the depth of a perf/slit, it is critical that you locate your perf/slit wheel to the flat of the boss wheel. Tighten the pressure adjustment screw located on the top of the accessory holder and turn the handwheel at the same time. When the perf/slit blade turns with the handwheel, test a few sheets. Continue to adjust until the desired perforation depth is obtained.

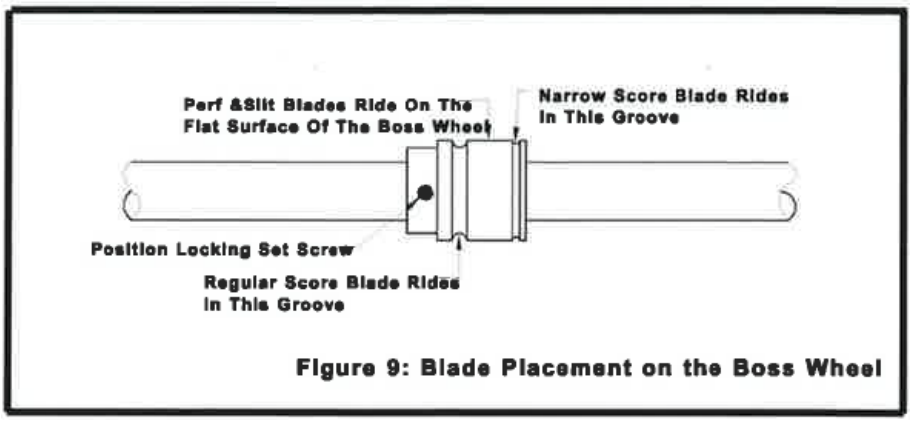


Figure 9: Blade Placement on the Boss Wheel

To ensure a straight perforation, score or slit, run a few sheets through the machine. Using a straight edge, check if the perforation line is straight. If not, you may not have the main tires placed evenly across the sheet with one tire on the non-operator side. Next, flip the first inch of the lead edge of the sheet over and check to see if the perforation lines up. If it does not, double check that there is no excess play in the tray side guides and that the operator side tray guide of the feed tray is over to the operator side as much as possible. You may not be feeding the sheet into the machine square.

To ensure that the sheet is running through the machine square, you can feed a sheet into the machine using the handwheel and align the lead edge of the sheet with a straight edge in the machine *(such as the edge of the bottom boss shaft).* To adjust the squareness of feed, you can move the front or back of the operator side tray guide on the feed tray to make sure the sheet travels through the machine square. If you adjust the operator side tray guide, you must adjust the non-operator side tray guide as well. Run a few more sheets through and check the sheet again. Continue until the perforation lines up. Now, take the lead edge of the sheet and fold it over to the last inch of the sheet. Again, you are checking to see that the perforation lines up. If it does not line up, again check that the perforation itself is straight. If not, check the main rollers for equal distribution over the sheet and check that the feed tires have equal pressure along the sheet.

The feed pressure adjustment screws dictate the paper travel. The general rule to remember is that a perforation runs away from a tighter tire. If the perforation runs towards the non-operator side, then loosen the operator screw by a 1/8th of a turn and tighten the non-operator side by a 1/8th of a turn. Vice versa for a perforation that skews towards the operator side. Make adjustment to the exit rollers in the same way you adjust the main rollers if the perf starts straight and then tails off. If the perforation is straight but the perforation does not line up, you may still not be feeding the sheet through square. Whether perforating or slitting, place one of the strippers close to the cut. The new cut in the sheet can often cause the sheet to curl up and can cause a jam otherwise.

Scoring

Setting up a score is like perforating or slitting although the scoring blade will run in the groove of the bottom boss wheel. With a score, it is more critical to control the depth of the blade, because this controls the depth of your score. When lining up the blade and groove of the boss wheel, do not tighten the boss wheel until you have run the score blade into the groove using the handwheel. Once you have the blade and boss wheel lined up you can adjust the depth of the score and run some test sheets, adjusting the depth of the score until you are satisfied. Adjusting for a straight score are done in the same manner as a perf/slit.

Idler Wheel Holders

On the same-keyed shaft that the accessory holders are mounted on, for your perf/score/slit operation, there are two idler wheel holders. These holders, if possible, should be mounted about 1” to 1.5" from the outside edges of the stock being run. As the stock leaves the feed tires, it will then be perfed, scored or slit. The idler wheel holders' purpose is to equalize the force along the stock as it passes through this section, so you do not encounter any skew, which you may encounter if you only had a perf/score/slit wheel contacting the paper before going through the main rollers.

Main Rollers

The main rollers are comprised of a bottom solid roller and 6 adjustable rollers on top. The top rollers are mounted on a spring-loaded shaft, to maintain pressure down to the bottom solid roller. The adjustable top rollers must be distributed along the shaft so that there is a roller on each end of the shaft, with the remainder distributed along the shaft. To ensure proper transport, most of the rollers should be on the stock, but do not load all rollers to one end of the shaft where you may encounter stock skew.

Installing Ink Pads

Loosen the large, star-shaped, lower knob on the drive-unit mount block and swivel the drive unit up. This will allow you better access to the numbering head itself. Slide the repeat selector, on the numbering head, over to the "0" position. Pull down the numbering wheel frame. The inkpad mount plate swings away giving you better access to the ink pad and exposes the numbering wheels. Now press in the locking tab which sticks out from the top of the head frame. When you pull the numbering wheel frame down far enough, the locking tab will drop into a groove on the numbering head shaft and hold the head in this position. If you pull the numbering wheel frame too far down, the repeat selector may jam the head. Simply pull the numbering wheel frame further down and press the repeat selector out of the way.

Remove an inkpad from its package *(provided in the accessory kit)* and grasp the two plastic fingers on the back of the inkpad holder. Before inserting the inkpad, you must first condition the pad. Because the pad is felt, it may have swollen with ink and be thicker than need be. If inserted on the numbering head, an inkpad with a swollen felt can cause the number wheels to get too much ink and create splattering or fat images. To condition the inkpad, use a piece of coated stock *(because it is less absorbent)* and place the inkpad on the coated stock, felt side down. Press down hard on the inkpad to compress the felt. You can then soak up the excess ink with the pad. Once the pad is conditioned, you gently squeeze the plastic fingers inwards on the back of the inkpad holder and slide it into the groove on the inkpad holder plate, with the ink reservoir side of the pad sliding in first. Release the tabs and the holder.

Locating the Numbering Heads

To move the drive unit into the lateral position required, loosen the large starshaped knob near the bottom of the drive unit mount block *(refer to Figure 3).* Loosen the setscrew in the anti-pitch block using the large hex driver. This will allow you to slide the drive unit across the width of the machine. You may now move the drive unit to the location desired. Bring the anti-pitch block over to and against the drive unit. Now tighten the large star-shaped knob and set screw in the anti-pitch block to lock the drive unit in place.

The anti-pitch block and drive unit mount block act together when locating a number position. If the number position is slightly off, you can loosen one of the blocks and move it over the appropriate distance, using the fastened block as a reference point. Also, when going to replace the inkpad, you may move the drive unit aside, leaving the anti-pitch block in position as a reference when you wish to continue the job.

To turn the numbering head so that it prints the number in the correct rotation, first loosen the rotation lock screw on the numbering head mount block, just above the numbering head. The numbering head will then be free to rotate to the desired orientation. When satisfied, be sure that the head has been returned to the print position and all knobs have been tightened. Once you have the numbering head in the correct physical position, program the job. It is advised that you run a few test sheets to check the strength and quality of the crash impression.

Setting Impression Control

After setting up the machine and then programming a job, test sheets will have to be run to verify you are getting the correct impression, in other words: number sequence; crash strength; level impression; etc.

The Impression Control Dials, located on the control panel of the GW 3000 regulate the strength of the crash. Simply turn the dial clockwise if more impression is required for multipart carbonless work. Check the bottom carbonless copies of the form to see if the impression strength is adequate. If the maximum setting is not adequate, contact your dealer.

Reminder: *Carbonless impressions are created as a development process like developing a photograph. The numbering image will continue to darken for a full twenty-four hours but will reach about 80% of its full color in about twenty minutes. Ink chemistry, offset powder and several other factors can affect both the time and the extent of the image. Your fresh impressions will be lighter than you want but trust them to darken. What you want to achieve is an even, level impression with minimal or no embossing of the stock.*

Flatness of Impression

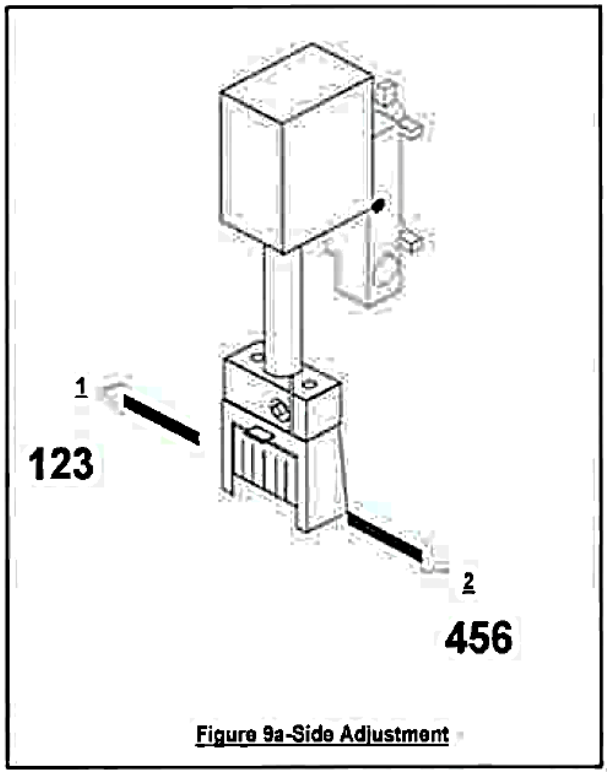


Figure 9a-Side Adjustment

It is best to check for the flatness of the impression on the bottom crash copy from a carbonless set. The inked impression will not adequately show whether the impression is truly flat while the bottom crash impression shows this quite well. Make some test impressions on carbonless, verify the flatness of the crash impression and follow the proceeding instructions.

To adjust for an uneven side to side impression *(i.e. if the impression is too light or too heavy across the machine),* determine in which direction the numbering head must pivot to flatten the crash *(consult Figure 9a, which is viewed from the nonoperator side of the machine).* For adjustment '1 ' to pitch the numbering head away from the non-operator side, loosen the top hand knob on the drive unit mount block and turn the left/right pitch screw counterclockwise. Similarly, turn the left/right pitch screw clockwise for adjustment '2'.

To adjust for an uneven top to bottom impression, determine in which direction the numbering head must pivot to flatten the crash *(consult Figure 9b).* Adjustments for forward/backward pitch are made by first loosening the bottom hand knob on the drive unit mount block and turning the forward/back pitch screw in the appropriate direction. After adjusting, number another carbonless set and make necessary adjustments until the numbering head creates an equal impression along the whole number.

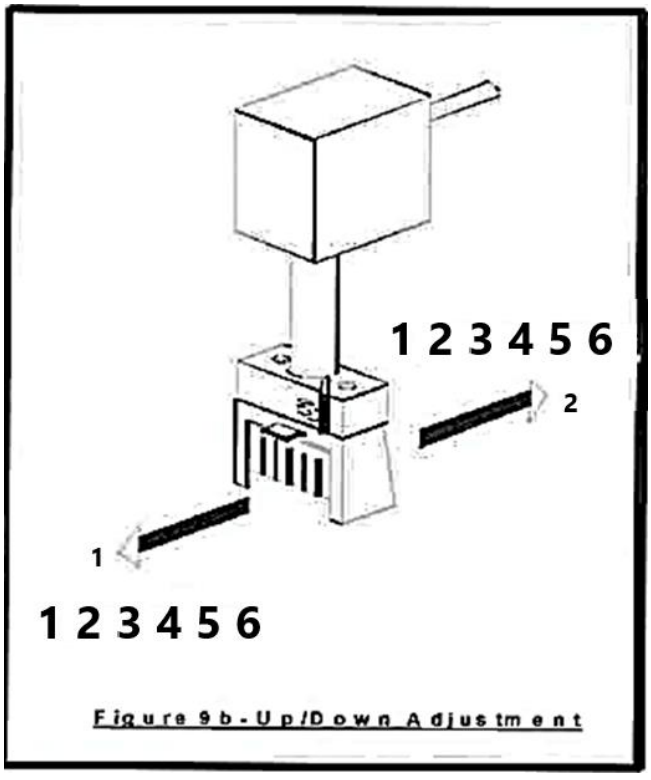


Figure 9b - Up/Down Adjustment

Stripper Assemblies

Each machine is supplied with a minimum of 4 stripper assemblies. Their purpose is to keep the stock flat as it runs through the machine and to ensure that the stock does not catch on the numbering head. The stripper blocks are to be mounted on the keyed square shaft, pointing down, the same shaft that the accessory holders are mounted on. They should normally be located close to the numbering head but not underneath the numbering wheels *(this can damage the numbering wheels!)* or close to where a perf/score/slit is being performed.

If you experience double images when numbering, it is possible that the stripper pressure is not enough to keep the stock flat for the crash and the stock is bouncing, allowing a second image to occur. If this occurs, simply bend the strippers down to create more pressure on the paper.

Running A Job

Setting the Starting Number

To set the starting number on the numbering head, you will have to pivot the drive unit back to get clear access to the numbering wheels. Pull down the numbering wheel frame and push in the locking tab to engage and lock the numbering head with the numbering wheels exposed. Each individual numbering wheel can be rotated to the appropriate starting number using the change stick provided in the accessory kit. Remember that the standard head counts backwards so the number that you set to start the job on will be the last number required.

If you do not require all the digits to print (i.e. 0097 is desired instead of 000097), the last two numbering wheels can be dropped from profile and locked down. To do this, rotate the numbering wheel to the "9" position. Turn the wheel slightly past this position while also pushing down on the "9". When the correct position is reached, the "9" will drop below type height. To restore a dropped wheel to its regular print position, simply rotate the wheel in the regular direction and it will "pop" out of its sunken position and back into regular print position.

Once your number has been set, and the inkpad has been installed, set the repeat selector to "0". Now, pull the numbering wheel frame downward to release the locking tab. Gently release the numbering wheel frame and allow it to return to its rest position. [**Caution**: *the numbering wheel frame is spring loaded. Once you release the locking tab, the numbering wheel frame will spring back quickly. Please make sure that you keep your fingers clear of the inner workings of the numbering head*]. If you pull the numbering wheel frame down too far and it locks, refer to section *Scoring*. If you do not return the numbering wheel frame to its rest position, the numbering head will not operate when the machine is running, since it is already at the end of its available stroke-length. Now you can pivot the drive unit back to the print position and re-tighten the large knob.

It is advised to set the repeat selector to '0' while running a few test sheets so that the starting number does not change. When you are ready to start your numbering job, then change the repeat selector to the action desired.

Setting the Repeat Selector

The numbering heads can be set to repeat a number continuously ("0"), change with every crash (“1”), or change after several crashes (i.e. "2, 3, or 4"). This setting will depend on the type of job required. The repeat selectors is clearly in view on the front of the numbering head and requires no special tools to be changed (see Figure 4). Remember, for 2x, 3x and 4x repeat action, you may need to run a couple of test sheets to ensure these actions match your numbering sequence, since the numbering head is a mechanical process separate from the number position programming.

If the repeat sequence does not match the numbering sequence on your stock, you may need to manually engage the numbering head. Push down on the numbering wheel frame as many times as it takes to complete the repeat action, counting where the sequence was on your last test sheet.

Example: Repeat action desired is a three-time action. After running a test sheet, '9 9 8' is printed. The numbering head is in mid-sequence and to correct, push down on the numbering wheel frame twice to complete the repeat action. Test another sheet and the sequence printed now is

Fanning

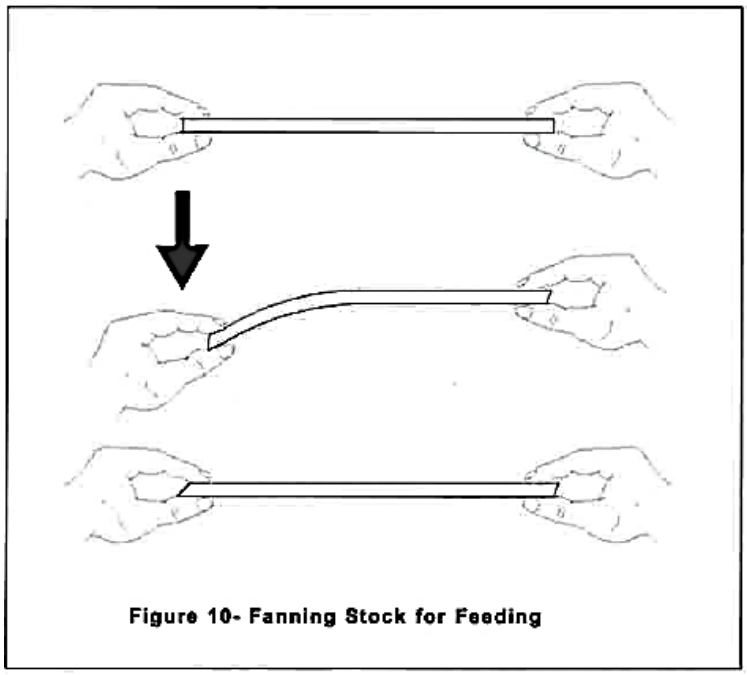


Figure 10- Fanning Stock for Feeding

The final feeding concern is the fanning of the stock. This procedure may also take some practice, and when fanning carbonless sets across the unglued edge. The following steps should be used to fan the pile:

1. Hold the paper as shown in Figure 10.
2. Lower your left hand while holding on to the pile firmly with your right.
3. Hold the pile tight with your left hand and loosely with the right.
4. Return the left hand to its original position
5. Repeat steps 1 through 4 until adequate fanning is obtained.

Try fanning while holding the stack in a vertical, upright position, with the glued edge resting on a table. This will maintain a flat, straight edge. When loading a fanned stack into the feed tires, hold the

back end of the stack up high (*at approximately a 30-degree angle, relative to the feed tray*) so that the lead edge slips under the feed tires (see Figure 11). Then, gently lower the stack onto the feed tray. Before starting the machine, rotate the handwheel one half turn and watch that the first sheet of the stack advances correctly, while the second sheet beneath it should be retarded from feeding into the machine.

The efficiency of the feeding can be improved by increasing the spacing between the sheets of your fanned stack. Begin with small stacks (*10 to 20 sheets*) and build up to larger stacks as you become more confident with your fanning.

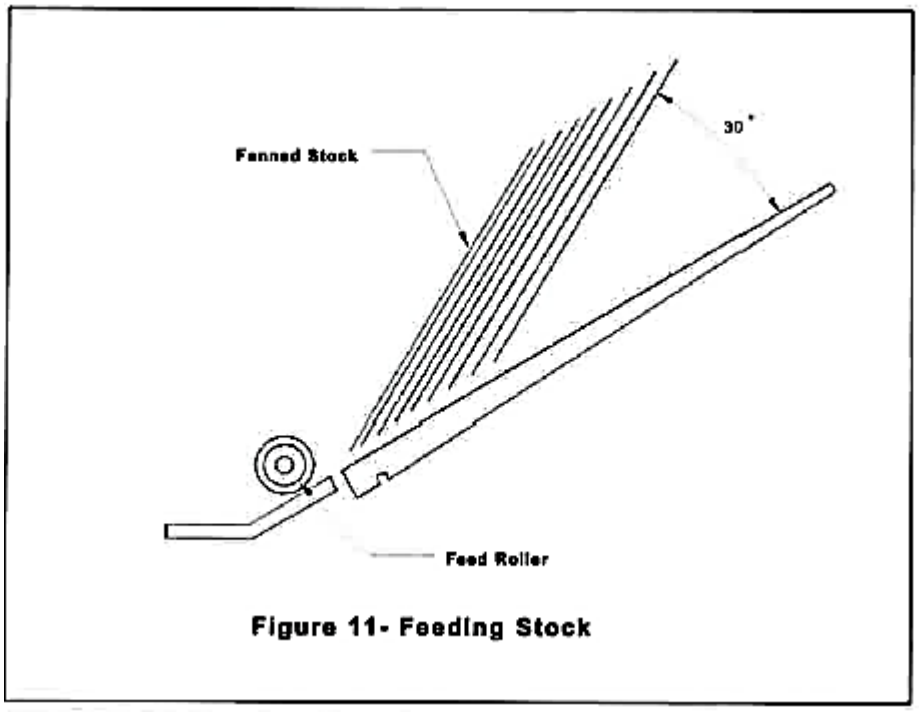


Figure 11- Feeding Stock

Once you have mastered the art of fanning, you can progress to back feeding to provide continuous feeding and uninterrupted operation. To feed while the unit is operating, fan a stack and, while holding it in your right hand, carefully grasp the bottom set of the feeding stack with your left hand. Raise the back edge of this bottom set, thus slightly raising the back of the feeding stack, and slide the new stack under it. Release the new stack into the feed tray, letting it slide down under the feeding stack. Lower and release the back edge of the bottom set so that the stacks now sit together. This back-feeding procedure should be done while there is still sufficient stock in the feed tray to allow for the time needed to prepare and insert the new stack.

Maintenance

The GW 3000 is designed to be trouble-free through years of use. Only minor maintenance operations are required to keep it running like new.

Numbering Heads

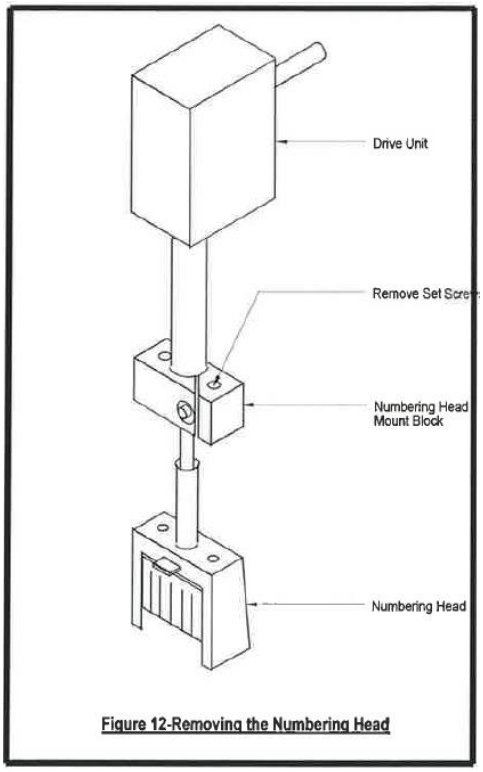


Figure 12-Removing the Numbering Head

With use, the numbering heads will acquire a coat of old ink, paper dust, etc. and therefore periodic cleaning is necessary. The minimum frequency of numbering head cleaning is once a month or when changing over colors. Detach the numbering head by removing the two setscrews on the numbering head mount block, using the larger hex driver s provided (*see Figure 12*). The head may then be cleaned with a petroleum-based spray lubricant (*such as WD-40*) and a small brush (*i.e. an old toothbrush*). Spray and soak the number wheels thoroughly. Take care to keep the spray away from the rest of the machine. Brush the wheels and then rotate them to clean every digit. Spray the numbering wheels a final time to rinse out the ink or dust. After cleaning, allow the head to dry completely (*i.e. leave it standing overnight*) or blow it dry with compressed air. Wipe the head and reinstall.

Important: *Do not use solvents. Solvents will strip out the lubricants from the head, allow corrosion and impair the correct functioning of the print head.*

Machine Cleaning

After each job, or midway through an exceptionally large job, clean the feed tires. You can use warm water to clean off paper dust or drying powder, or blanket wash or alcohol if there is ink on the feed tires. Any type of rubber roller rejuvenator is also good to clean the feed tires, the rejuvenator will also soften the rubber. This will prevent glazing of the rubber. Brand new tires will require extra cleaning for the first job or two until the rubber beds in.

In addition, always watch that paper dust or dirt does not block the two-photocell sensor eyes. The "green" light on the control panel marked "**PHOTOCELL**" can verify correct photocell operation. If dirty, simply wipe the photocell sensor eyes but do not use solvents. Either use a cotton swab or blow clean with compressed air. Ensure that the trays and guides are clean.

Lubrication

The Model GW 3000 utilizes ten oil-impregnated bronze bushings to support all shafts. An occasional drop of light machine oil will maintain their lubricating qualities. Wipe off any excess oil to avoid spoiling a job.

Friction Feed

Over time, the rubber components of the feed tires may wear or harden. Use a rubber roller rejuvenator occasionally to soften the rubber. Other than the feed tires, another important element of the friction feed system is the full lead edge retarding strip. The abrasive agent on the retarding strip prevents sheets from double feeding. As the abrasive agent wears, you will encounter more double feeds and when you see the green backing of the retarding strip you must replace it.

To replace the retarding strip for the feed, adjust the feed shaft to its highest position. Using a scribe or sharp edge, etch into the feed platen where the retarding strip ends (you will use this scribed mark as a reference point when you apply the new retarding strip). Peel off the old retarding strip (you may need a knife or razor) and remove any old adhesive with alcohol. Replace with a new self-adhesive retarding strip. Make sure that there is some of the retarding strip surface under the feed tires to ensure proper operation.

Troubleshooting

Error Messages

Group	Error Message	Description
Paper Handing Errors	PAPER JAM	A paper jam condition exists
	INSERT PAPER	A paper out condition exists
	PAPER TOO LONG	A paper long condition exists
	PAPER TOO SHORT	A paper short condition exists
Solenoid Errors	SOL ERROR 10	Solenoid channel is open
	SOL ERROR 1 1	Solenoid channel is short
	SOL ERROR 12	Solenoid channel is hot
	SOL ERROR 13	Solenoid channel 2 open
	SOL ERROR 14	Solenoid channel 2 short
	SOL ERROR 15	Solenoid channel 2 hot
	SOL ERROR 16	Reserved
	SOL ERROR 17	Reserved
	SOL ERROR 18	No solenoid board attached
	SOL ERROR 19	Reserved
	SOL ERROR 20	MSTP did not report solenoid(s) fired
	SOL ERROR 2 1	ICPU and MSTP solenoid board type do not match
	SOL ERROR 22	ICPU and MSTP solenoid ADC limits do not match
	SOL ERROR 23	Solenoid channel is reported only 1 head instead of 2
	SOL ERROR 24	Solenoid channel 2 reported only 1 head instead of 2
Motor Errors	MOT ERROR 30	Motor run timeout
	MOT ERROR 3	Motor turn on/off timeout
EEPROM Errors	EEP ERROR 40	Unable to read from EEPROM
	EEP ERROR 41	Unable to write to EEPROM
	EEP ERROR 42	CRC invalid for EEPROM programmable parameters
	EEP ERROR 43	Checksum invalid for EEPROM solenoid program
	EEP ERROR 44	Testing failed during test/re-format EEPROM
	EEP ERROR 45	EEPROM version format does not match software
Memory Errors	RAM ERROR 50	Ram self-test read/write failure
	RAM ERROR 51	Checksum invalid for ram solenoid program
	RAM ERROR 52	CRC invalid for ram programmable parameters
	RAM ERROR 53	Setup mode solenoid program hit index out of range
	RAM ERROR 54	Solenoid program number corrupted
Hardware Errors	LINE VOLTAGE ERROR	AC line voltage out of operation range
	MOTOR VOLTAGE ERROR	Motor voltage out of operation range
SCI Errors	ERROR 70	ICPU SCI receive timeout error
	SCI ERROR 71	ICPU SCI receive overflow error

	SCI ERROR 72	ICPU SCI transmit timeout error
	SCI ERROR 73	ICPU SCI invalid ACK received
	SCI ERROR 74	ICPU SCI corrupted message received
	SCI ERROR 75	ICPU SCI transmit aborted
	SCI ERROR 76	ICPU SCI waiting period for MSTP message expired
	SCI ERROR 77	ICPU SCI invalid message type received
	SCI ERROR 80	MSTP SCI receive timeout error
	SCI ERROR 81	MSTP SCI receive overflow error
	SCI ERROR 82	MSTP SCI transmit timeout error
	SCI ERROR 83	MSTP SCI invalid ACK received
	SCI ERROR 84	MSTP SCI invalid command received
	SCI ERROR 85	MSTP receive overrun error
	SCI ERROR 86	MSTP receive framing error
Miscellaneous	UNKOWN ERROR	MSTP error reported is undefined

Numbering Heads

The numbering heads creating an impression are a mechanical process separate from the programming of the machine. If encountering problems with the correct operation of the numbering head, such as numbering wheels not turning, numbers partially printing, numbering wheels turning out of sequence, etc. the repeat selector or other components may be out of alignment (*refer to Figure 4*). Being a mechanical process, alignment of the individual parts is important. Remove the numbering head from the machine. Pressing down on the numbering head shaft, you will see the numbering headframe slide down the print headframe. While this happens, the inkpad holder mount bracket will swing away, exposing the numbering wheels (*see Figure D*).

The numbering wheels and repeat action ratchet wheels are mounted on a keyed shaft inside the numbering headframe. The wheels are then held in place, and refrained from spinning by the retaining pawls, which are forced to the numbering wheel flats by the comb spring. The retaining pawls must be aligned with the flats of the numbering wheels, or what looks like in between the numbering wheels. The comb spring must also apply a constant pressure against the retaining pawls. Consequently, this alignment not in effect is that the numbering wheels may spin freely, causing partial impression or random numbering sequences.

Like the retaining pawls, the changeover pawls of the repeat selector must also be aligned to the flats of the numbering wheels. When an impression is made, the numbering wheel frame is propelled down the print headframe. The inkpad holder mount bracket swings away, the repeat selector is pushed back from the numbering wheels and the numbering wheels are then exposed to make their impression on the stock. After reaching the bottom of its stroke, the numbering wheel frame then returns to the top position. As this happens, the repeat selector's changeover pawls once again meet the numbering wheel flats. Depending upon the action or sequence in place, the repeat pawl may only interact with one of the repeat action ratchet wheels before the changeover pawls interact with the. numbering wheel flats. In most instances, the longest changeover pawl meets the flat of

the unit wheel flat to change it over. After a "0" has been printed, there will be more changeover pawls changing more numbering wheels. When this happens, you may find the next impression, with a "9" as the last digit, printing lightly. This can be overcome by increasing the Impression Control to provide a stronger pulse to turn over more wheels. If you are encountering problems where numbers are not turning over, numbers are printed out of sequence, etc., then the problem may be that the changeover pawls of the repeat selector are not aligned with the flats of the numbering wheels.

The repeat selector is mounted on the print headframe by the two repeat selector adjustment screws. The repeat selector must be mounted to the print headframe squarely. If not, the changeover pawls will not engage the flats of the numbering wheels square, in this case some of the changeover pawls cannot change their numbering wheels. Visually, check that the changeover pawls are riding in-between the numbering wheels, centered on their flats. If not, the whole repeat selector may be moved to the proper position by loosening the repeat selector adjustment screws. Lastly, the changeover pawls must be parallel to each other.

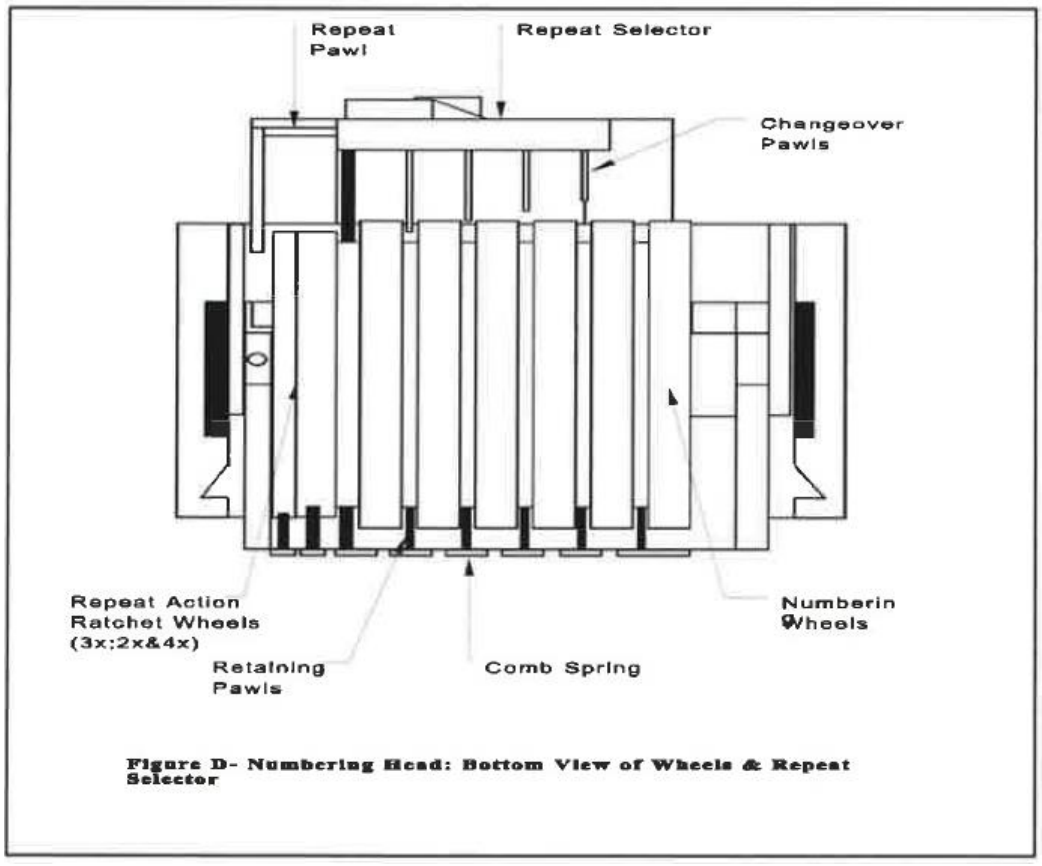


Figure D- Numbering Head: Bottom View of Wheels & Repeat Selector

Friction Feeder

Double-Feeding	Adjust feed tires down by a 1/8th turn (feed is too loose); if the retarding strip is glazed or worn (you can see the green backing), replace retarding strip.
Creasing, Marking, or Sets Pulled Apart	Adjust feed tires up by a 1/8th turn (feed is too tight).
Kicking, Turning	Balance adjustment on feed shaft required (one side is too tight); adjust feed tray guides closer together to eliminate side to side play.
Not Feeding Paper	Feed may be too lose in which case, multiple sheets are jammed under the feed tires, check adjustment; if feed tires are smooth or glazed, clean, rejuvenate or replace; open feed tray guides (set too tight to paper width and pinching stock).

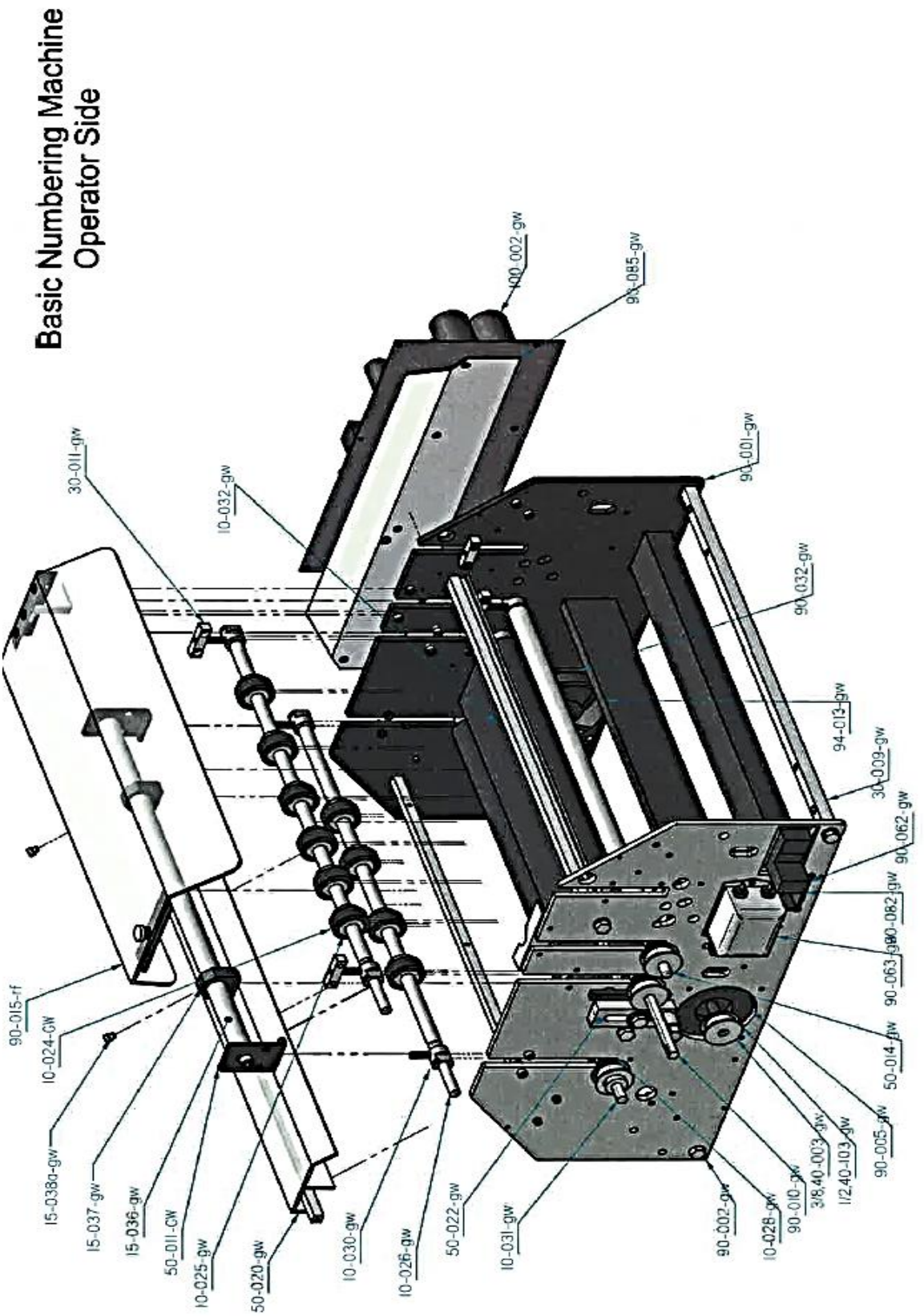
Print Quality

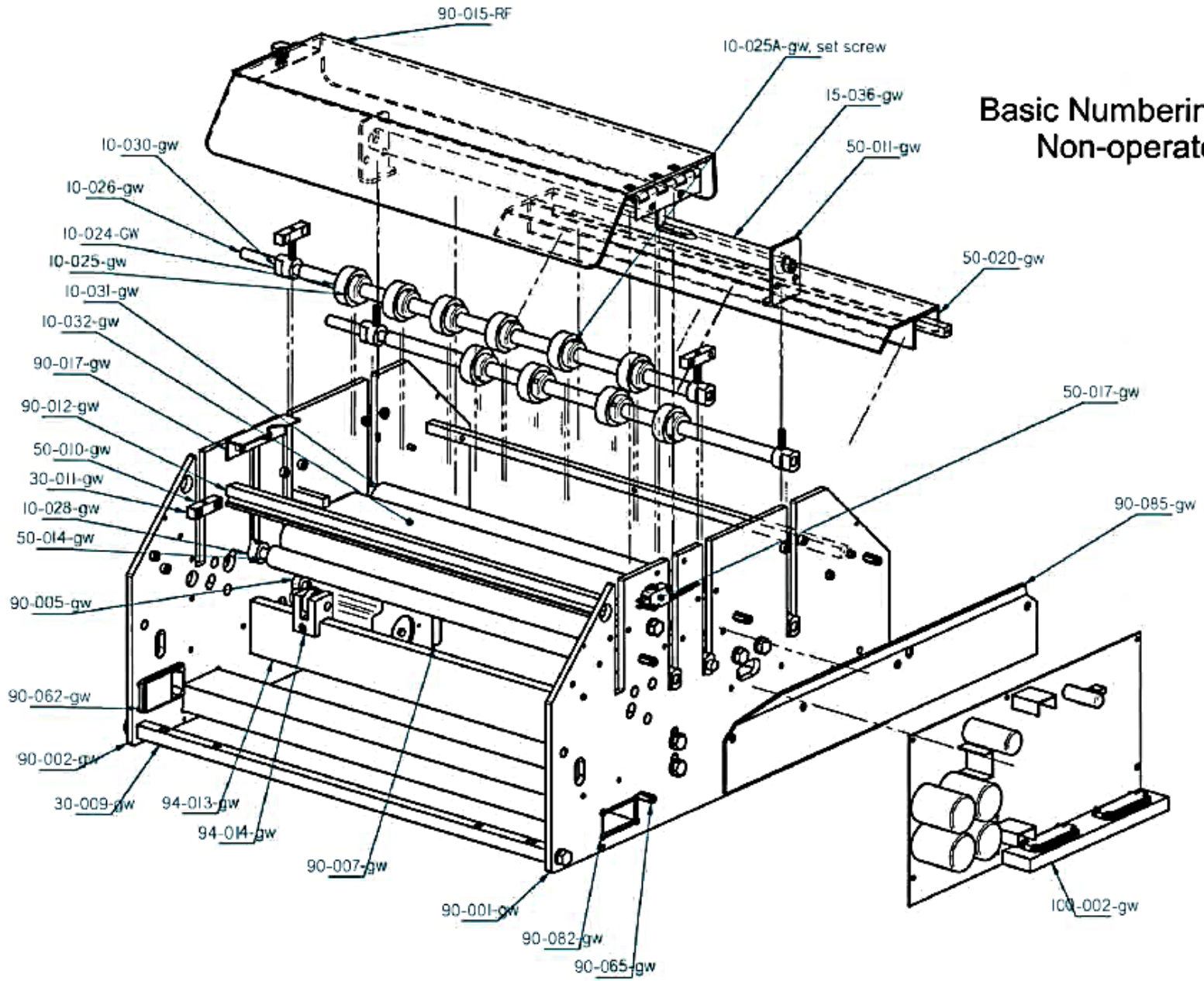
Uneven Crash Impression	Adjust for crash flatness.
Faint Color or Uneven Color Impression Excessive Inking	Replace ink pad.
Excessive Inking	Clean head, condition ink pad or replace leaking ink pad.
Too Heavy (Embossing) or Too Light A Crash	Adjust Impression Control dial. Check platen pad, if there is excessive wear, the platen pad may require replacing.
Ink Spreading, Smudging or Not Drying	Numbering machine ink is mineral oil with pigment. The oil is absorbed by the paper leaving the pigment behind as the image. On slick or glossy stocks, the supplied inkpad will not work effectively. A non-corrosive ink must be used as a substitute (such as fountain pen ink). An important factor with alternative inks is that the numbering heads be cleaned immediately after a job has been run.

Registration

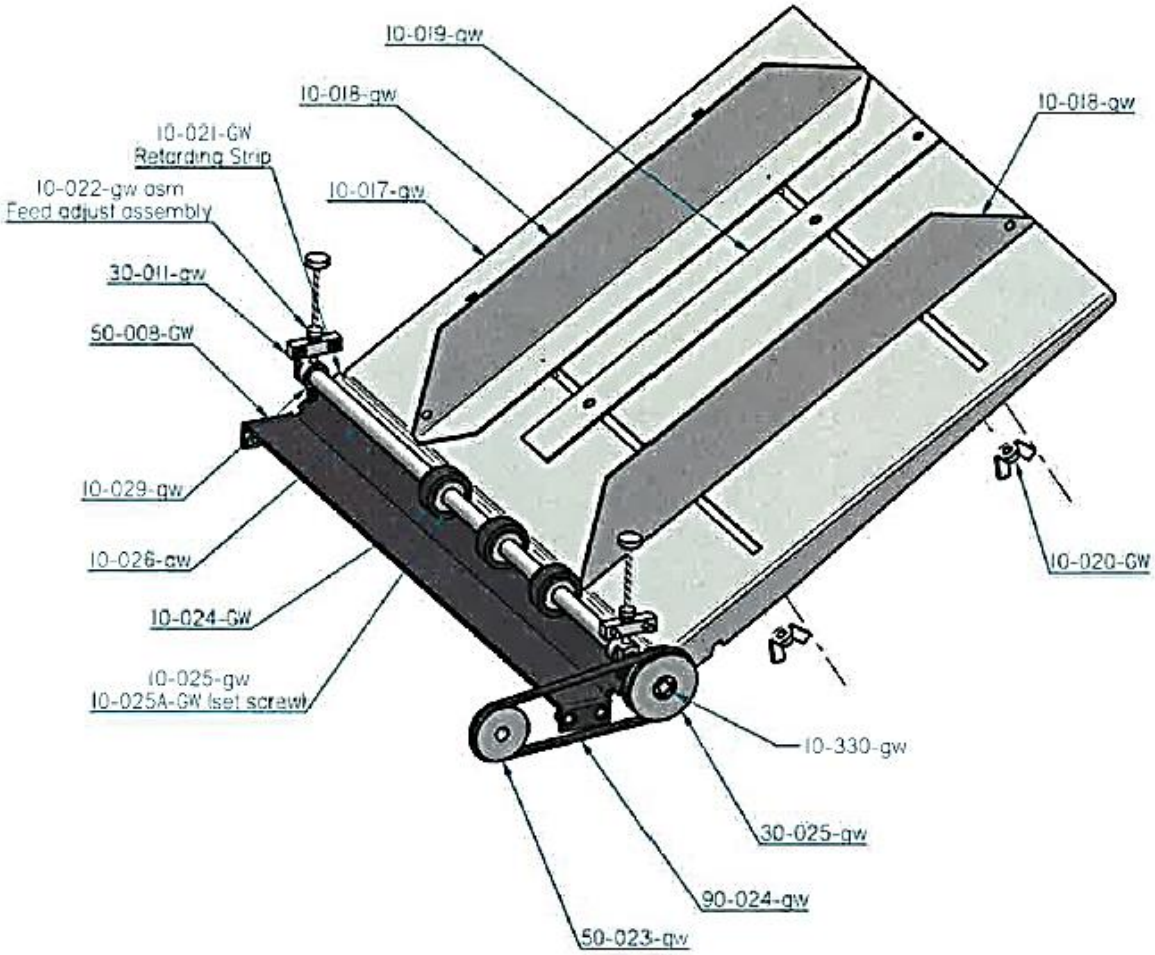
Inconsistent Number Location (Poor Number Register)	Check that the photocell is clear of any obstacles, if the number location seems to 'float', the feed tray guides may be too loose allowing sheets to skew as they feed (this will be seen more often with number locations closer to the non-operator side, furthest away from where the sheet passes the photocell; if numbers occur all over the place, the photocell may require readjustment (it is too sensitive, mis-registering the lead edge of the sheet)
Perf/Score/Slit Line Skewing	With a straight edge, check that the perf/score/slit is straight. If straight, the stock is not feeding square, the feed tray guides may need adjusting to ensure the stock enters square into the machine. If the perf/score/slit line is not straight but is bowed or has a tail whip, the rollers on the main shaft and/or the exit shaft may not be evenly balanced along the shaft, causing uneven pressure on one side of the stock. This causes a skew and the rollers must be evenly spaced across the shaft. A bowed line usually indicates the rollers on the main shaft are uneven, and a tail whip usually means the rollers on the exit shaft are uneven.

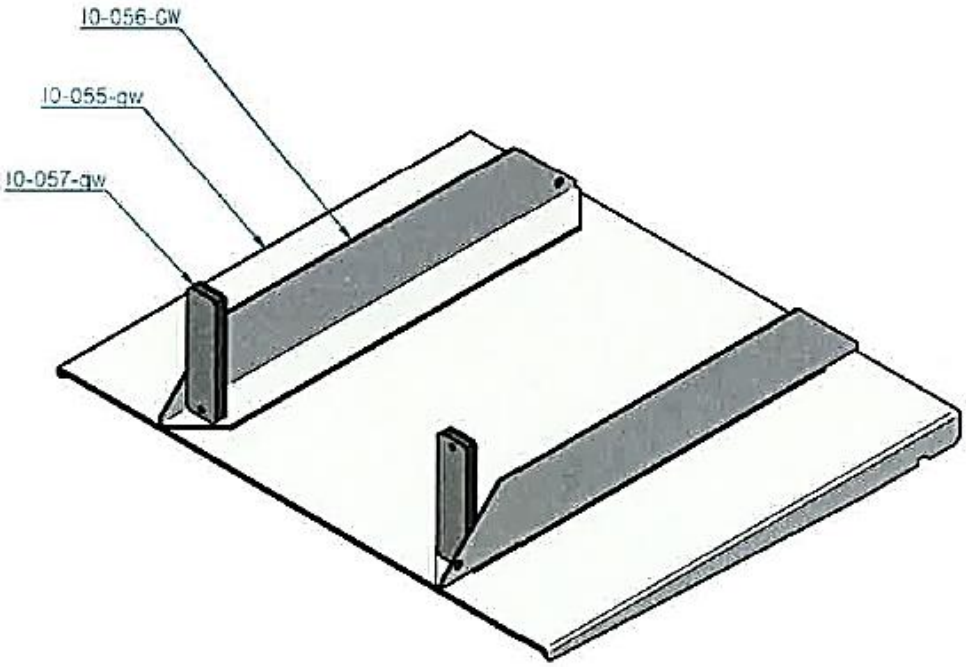
Technical Diagrams



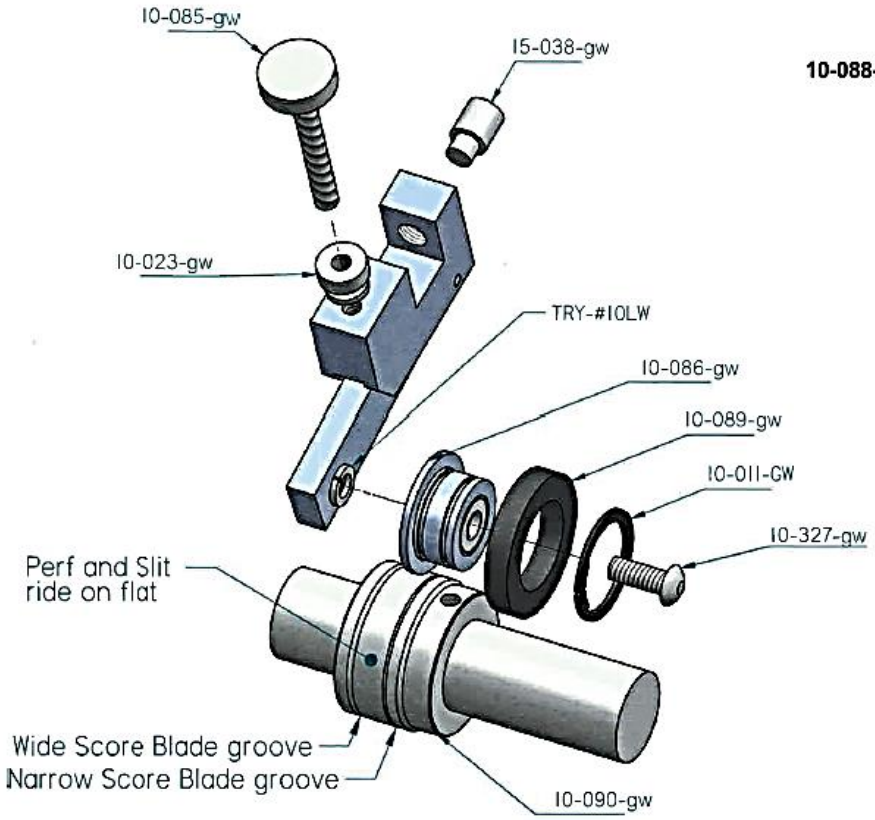


Friction Feed Entrance and Exit Tray Components





Driven Conveyor Exit

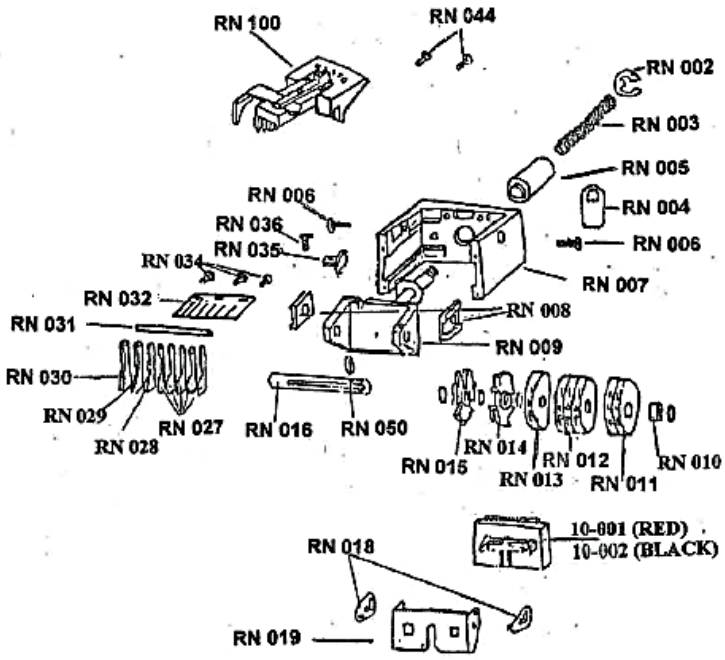


10-088- GW Accessory Holder

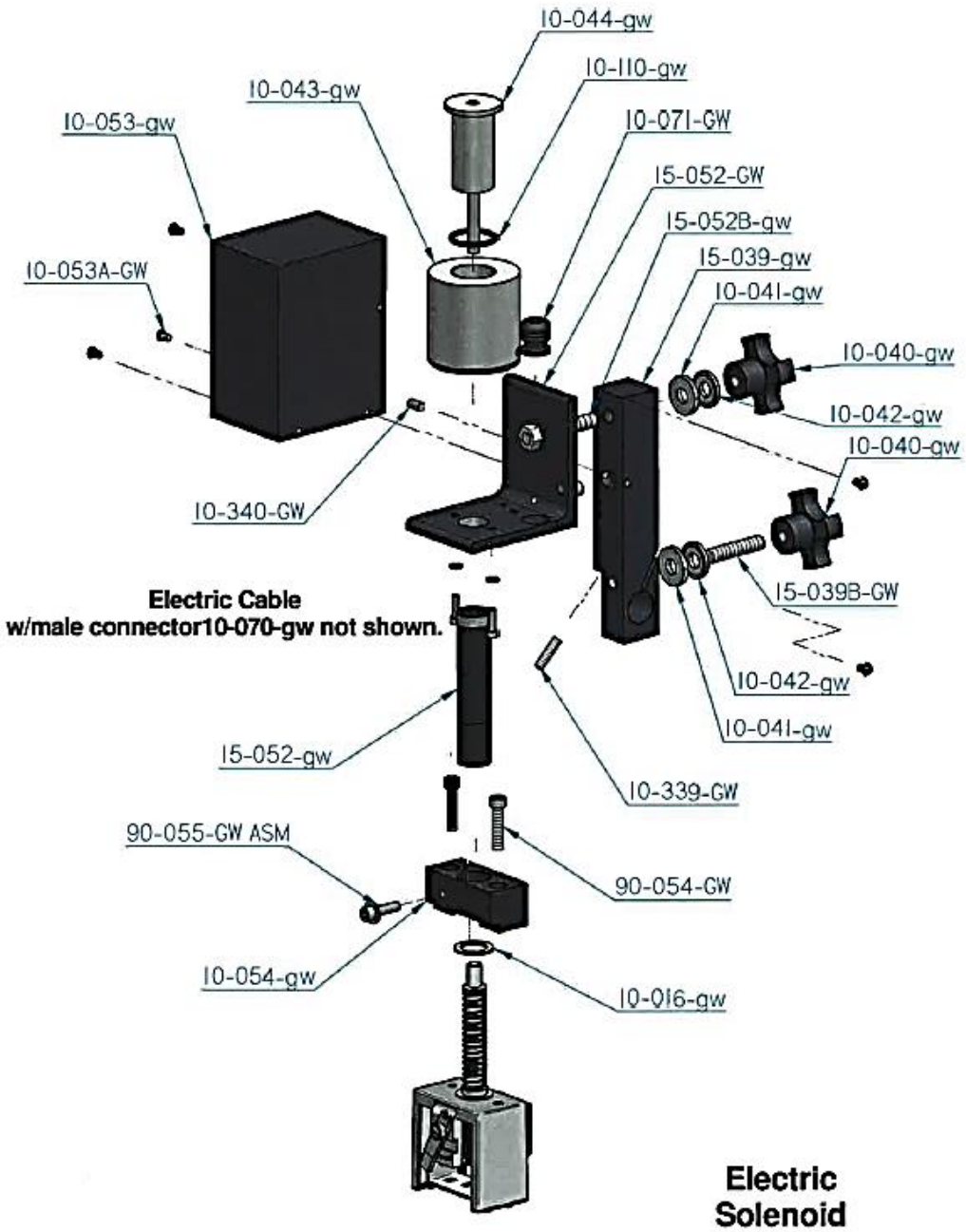
2 TPI Blade...10-091-GW
4 TPI Blade...10-092-GW
6 TPI Blade...10-093-GW
8 TPI Blade...10-094-GW
12 TPI Blade...10-095-GW
16 TPI Blade...10-102-GW
42TPI (microperf)...10-096-GW
72 TPI (microperf)...10-097-GW
Slit Blade...10-098-GW
Score Blade...10-099-GW
Narrow Score Blade...10-100-GW

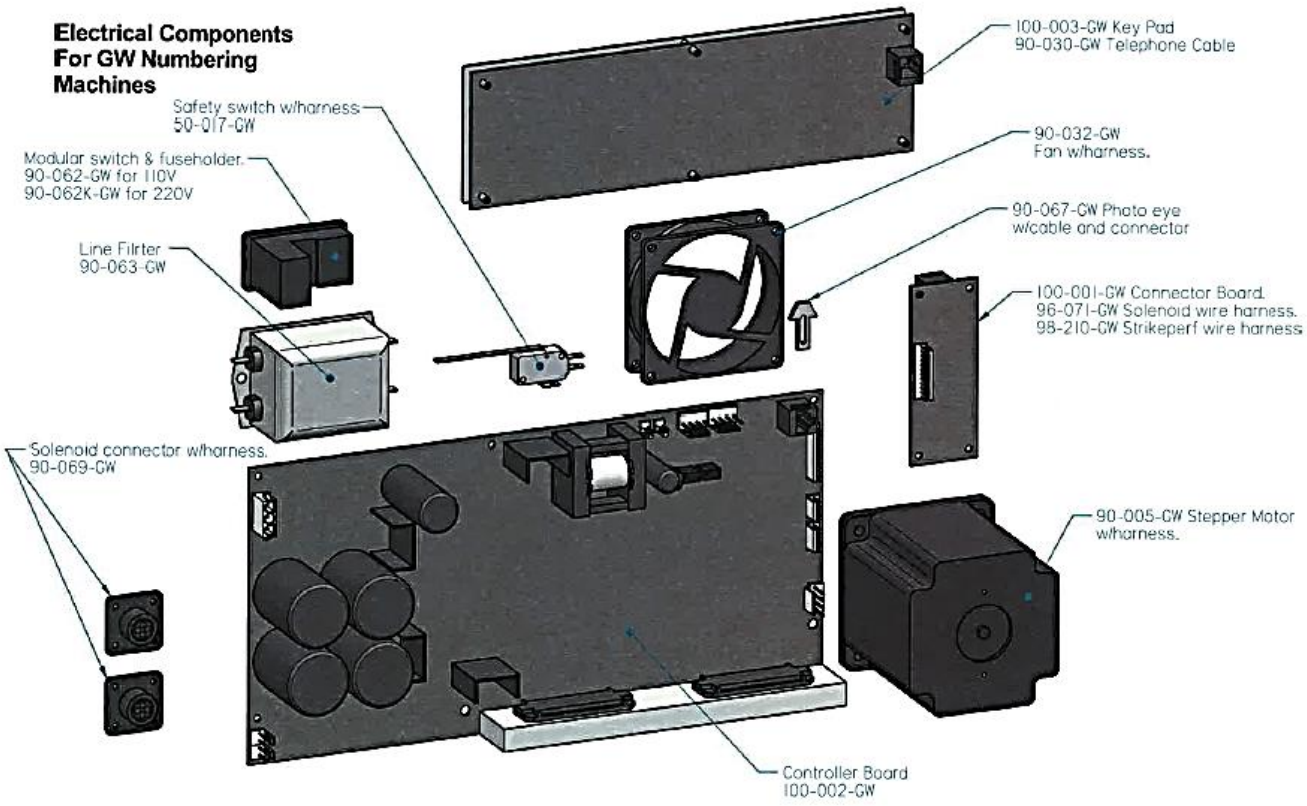
NUMBERING HEAD

RN 001 — BRASS SPACER
RN 002 — C-CLIP
RN 003 — MAIN SPRING
RN 004 — LOCK TAB
RN 005 — SPRING BUSHING
RN 006 — INK PAD MOUNTPIVOT SCREW
RN 007 — HEAD FRAME
RN 008 — WHEEL FRAME SLIDE BUSHING
RN 009 — NUMERING WHEEL FRAME
RN 010 — NUMBERING WHEEL SPACER
RN 011 — DROP NUMBERING WHEEL
RN 012 — SOLID WHEEL
RN 013 — UNIT NUMBER WHEEL
RN 014 — 2x/4x ACTION RATCHET WHEEL
RN 015 — 3x ACTION RATCHET WHEEL
RN 016 — NUMERING WHEEL MOUNT SHAFT
RN 018 — INK PAD MOUNT PIVOT ARMS
RN 019 — INK PAD MOUNT
RN 027 — NUMBERING WHEEL RETAINING PAWLS
RN 028 — UNIT NUMBERING WHEEL RETAINING PAWLS
RN 029 — 2x/4x ACTION RATCHET WHEEL RETAINING PAWLS
RN 030 — 3x ACTION RATCHET WHEEL RETAINING PAWLS
RN 031 — PAWL MOUNT SHAFT
RN 032 — COMB SPRING
RN 034 — COMB SPRING MOUNT SCREW
RN 035 — KNOCKEN
RN 036 — KNOCKEN MOUNT SCREW
RN 050 — SPLIT SPRING PIN
RN 100 — REPEAT SELECTOR ASSEMBLY

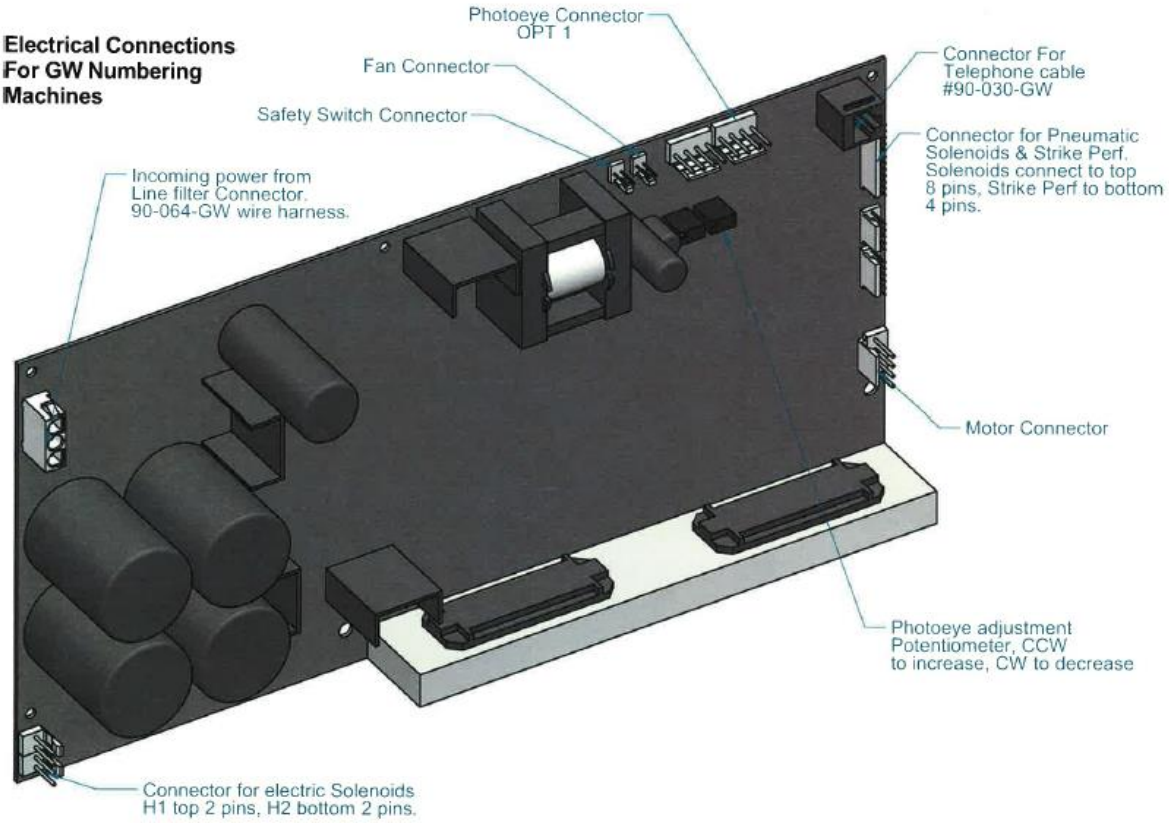


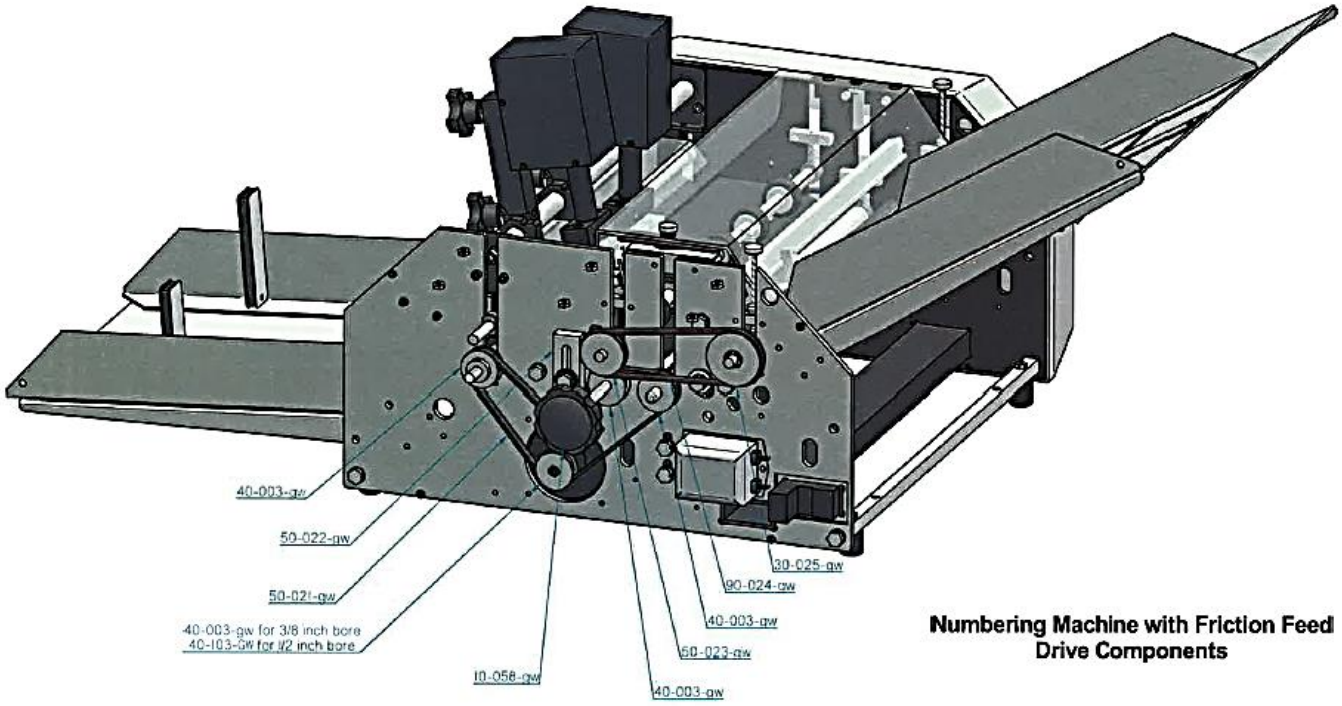
10-001-GW Red Pre-inked Pad with Holder
10-002-GW Black Pre-inked Pad with Holder
10-007-GW Changestick



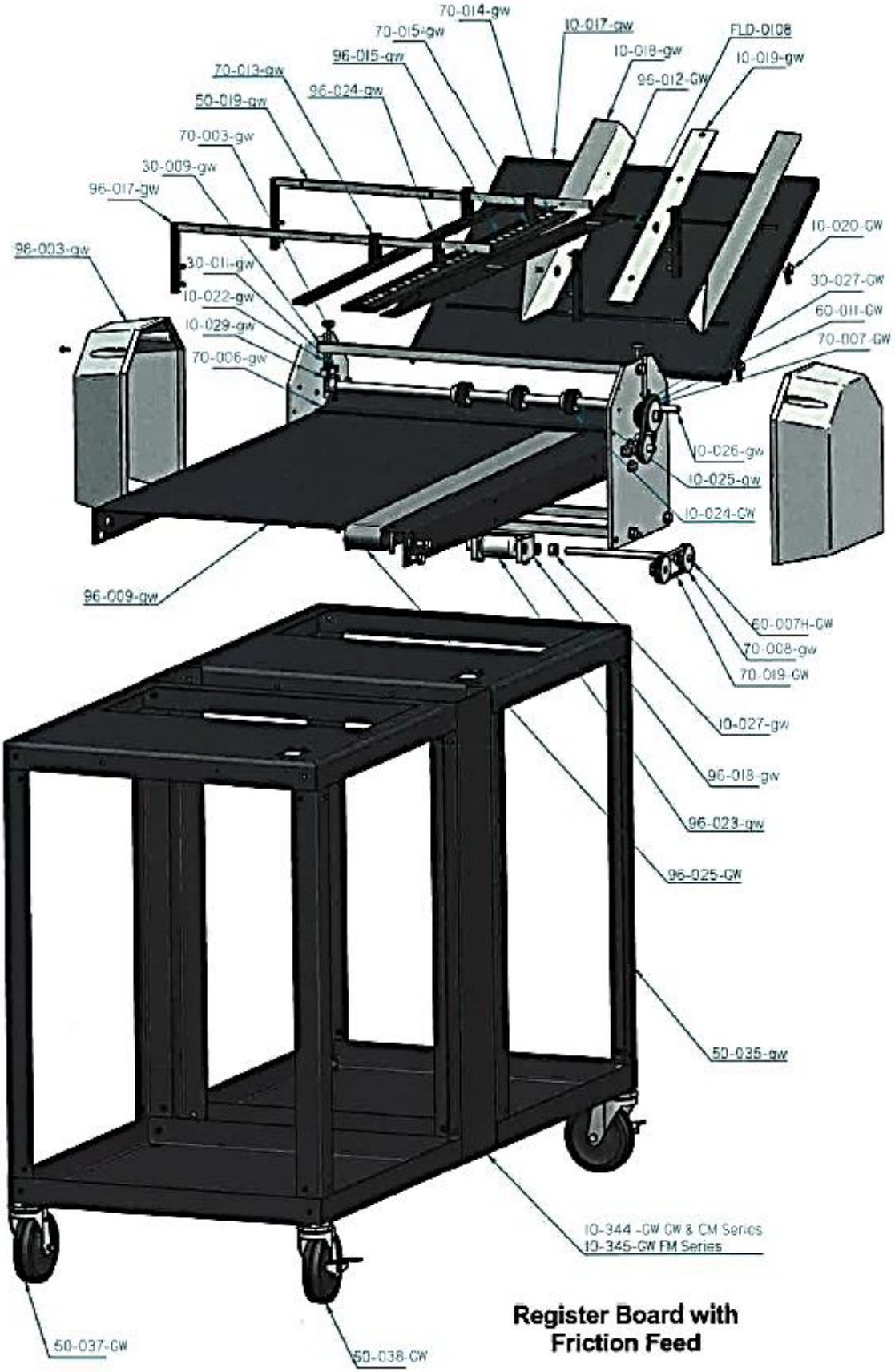


Electrical Connections For GW Numbering Machines





Numbering Machine with Friction Feed Drive Components



Register Board with Friction Feed

Part List

PART NO.	Jr. (J-1)	3K	5K	8K	8KP	12K	FM 100	FM 150	FM 100F	CM PRO	CM F/F	CM PLUS	CM PLAT	AIR FEED	IMP. PERF	TRSPT CONV	DESCRIPTION
10-001-GW	X	X	X	X	X	X											Red, Preinked Pad w/holder
10-002-GW	X	X	X	X	X	X											Black, Preinked Pad w/holder
10-003	X	X	X	X	X	X											Uninked pad w/holder
10-003-GW ASM																	Uninked pad w/holder
10-004-GW	X	X	X	X	X	X											Uninked pad
10-005-GW	X	X	X	X	X	X											Red Ink, 2 oz. bottle
10-006-GW	X	X	X	X	X	X											Black Ink, 2 oz. bottle
10-007-GW	X	X	X	X	X	X											Changestick
10-008-GW		X	X	X	X	X	X	X		X	X	X	X				3/32" Hexdriver
10-009-GW	X	X	X	X	X	X	X	X		X	X	X	X				5/32" Hexdriver
10-010-GW		X	X	X	X	X	X	X		X		X	X				Ring Pliers
10-011-GW	X	X	X	X	X	X	X	X		X	X	X					¾" Snap Ring
10-012-GW	OP	X	X	X	X	X											Reverse Numbering Head 4.5mm (6 digits, 2 drop)
10-012A-GW	OP	OP	OP	OP	OP	OP											Reverse Numbering Head 3.5mm (6 digits, 2drop)
10-013-GW	X	OP	OP	OP	OP	OP											Forward Numbering Head 4.5mm (6 digits, 5 drop)
10-013A-GW	OP	OP	OP	OP	OP	OP											Forward Numbering Head 3.5mm (6digits, 5 drop)
10-014-GW	OP	OP	OP	OP	OP	OP											Condensed Reverse Numbering Head (8 digits, 4 drop)
10-014F-GW	OP	OP	OP	OP	OP	OP											Condensed Forward Numbering Head (8 digits, 4 drop)
10-015-GW	OP	OP	OP	OP	OP	OP											Date Stamp Head (month/day/year)
10-015A-GW	OP	OP	OP	OP	OP	OP											Text Head
10-016-GW	X	X	X	X	X	X											5/8" Wave Washer
10-017-GW		X	X	X	X	X	X	X			X						Feed Tray
10-018-GW		X	X	X	X	X	X	X		X	X						Feed Tray Side Guides
10-019-GW		X	X	X	X	X	X	X		X	X						Feed Tray Slot Cover
10-019A-GW		X	X	X	X	X	X	X			X						Feed Tray Mount Screws w/collars
10-020-GW		X	X	X	X	X	X	X		X	X						Locking Wingnuts
10-021-GW		X	X	X	X	X	X	X			X						Feed Platen Retarding Strip
10-022-GW		X	X	X	X	X	X	X			X						Feed Shaft Adjust Screw
10-022S-GW	X	X	X	X	X	X	X	X		X	X	X					Black Thumb Screw Cap
10-023-GW		X	X	X	X	X	X	X		X	X						Locking Thumbnut
10-024-GW		X	X	X	X	X	X	X		X	X	X	X				Roller Tire (feed/main/exit)
10-024A-GW		X	X	X	X	X	X	X			X						Gummy Tires
10-025-GW		X	X	X	X	X	X	X		X	X	X	X				Roller Hub
10-025A-GW		X	X	X	X	X	X	X		X	X	X					Set screw for boss wheel/roller hub
10-026-CM ASM																	Crease Master Roller Shaft Assembly
10-026-GW		X	X	X	X	X	X	X		X	X	X	X				Roller Shaft
10-027-GW		X	X	X	X	X	X	X		X	X	X	X			X	3/8 " Set Screw Collar
10-027A-GW												X		X			1/2" Set Screw Collar
10-027B-GW						X		X									3/8 " Actuator Collar
10-028-GW		X	X	X	X	X	X	X		X	X	X	X				Shaft Bushing
10-029-GW		X	X	X	X	X	X	X			X						Feed Shaft Bushing w/Spring
10-030-GW		X	X	X	X	X	X	X		X	X	X	X				Shaft Bushing w/Spring
10-031-GW		X	X	X	X	X	X	X		X	X	X	X				Solid Bottom Roller
10-032-GW		X	X	X	X	X											Main Platen Crash Pad
10-032-DH					OP												Crash Pad GW 8000 PDS
10-033-GW		X	X	X	X	X											Main Platen
10-033-OSL		X	X	X	X	X											Main Platen Deflector
10-033-CM										X	X	X		X			Deflector Platen / Die
10-034-GW		X	X	X	X	X											Main Platen Grommets
10-035-GW		X	X	X	X	X											Main Platen Mount Brackets
10-040-GW	X	X	X	X	X	X											Hand Knob
10-041-GW	X	X	X	X	X	X											5/16" Disc Spring
10-042-GW	X	X	X	X	X	X											5/16" Flat Washer
10-043-GW ASM	X	X	X	X													Solenoid w/plunger Assembly
10-044-GW	X	X	X	X													Solenoid plunger
10-045-GW					X	X											Pneumatic Cylinder
10-046-GW					X	X											Pneumatic Valve Controller
10-047-GW					X	X											Regulator, Manifold, Gauge Assembly w/hose
10-047-CM										X	X	X	X				Regulator, Manifold,Gauge Assembly w/ hose
10-048-GW					X	X				X	X	X	X				3/8 " Hose (4' length)
10-049-GW					X	X				X	X	X					3/8 " Hose Quick Connect
10-050-GW					X	X				X	X	X					¼ " Hose (4 ½ ' length)
10-051-GW					X	X				X	X	X					¼ " Hose Quick Connect
10-053-GW	X	X	X	X	X	X											Drive Unit Cover
10-053A-GW	X	X	X	X	X	X	X	X		X	X	X					Drive Unit Cover / Side Cover Screws
10-054-GW	X	X	X	X	X	X											Print Head Mount Block
10-055-GW		X	X	X	X		X			X	X	X					Exit Tray
10-056-GW		X	X	X	X		X			X	X	X					Magnetic Tray Side Guides
10-057-GW	X	X	X	X	X		X			X	X	X					Magnets (2)
10-058-GW		X	X	X	X	X	X	X		X	X	X	X				Handwheel
10-059-GW	X	X	X	X	X	X	X	X		X	X	X	X				120V Modular Line Cord
10-065A-GW	X																3A,250V Fast Blow Fuse
10-065-GW							X	X									3A,250V Slow Blow Fuse
10-066-GW		X	X	X	X	X				X	X	X	X				5A, 250V Slow Blow Fuse
10-067-GW																	Photocell Assembly
10-068-GW	X	X	X	X	X	X										X	Impression Control Dial Knob
10-070-GW		X	X	X													Solenoid connection: male terminal to solenoid
10-070C-GW		X	X	X	X	X						X					Drive Unit / Strike Perf Cable Clip
10-071-GW	X	X	X	X	X	X											½ " Cord Strain Relief
10-084-GW		X	X	X	X	X	X	X		X	X	X	X				Accessory Holder W/12 TPI Perf Blade
10-085-GW		X	X	X	X	X	X	X		X	X	X					Accessory Holder Adjust Screw
10-086-GW		X	X	X	X	X	X	X		X	X	X					Blade Mount Hub w/bearing
10-088-GW		X	X	X	X	X	X	X		X	X	X	X				Accessory Holder w/idler wheel
10-089-GW		X	X	X	X	X	X	X		X	X	X					Idler Wheel Tire
10-090-GW		X	X	X	X	X	X	X		X	X	X	X				Boss Wheel
10-091-GW		X	X	X	X	X	X	X		X	X	X					2 TPI Perf. Blade
10-092-GW		X	X	X	X	X	X	X		X	X	X					4 TPI Perf. Blade
10-093-GW		X	X	X	X	X	X	X		X	X	X					6 TPI Perf. Blade
10-094-GW		X	X	X	X	X	X	X		X	X	X					8 TPI Perf. Blade
10-095-GW		X	X	X	X	X	X	X		X	X	X					12 TPI Perf. Blade

PART NO.	Jr. (J-1)	3K	6K	8K	8KP	12K	FM 100	FM 150	FM 100F	CM PRO	CM F/F	CM PLUS	CM PLAT	AIR FEED	IMP. PERF	TRSPT CONV	DESCRIPTION
10-102-GW		X	X	X	X	X	X	X		X	X	X					16 TPI Perf Blade
10-096-GW		X	X	X	X	X	X	X		X	X	X					Microperf (42 TPI) Blade
IMP-022		X	X	X	X	X	X	X		X	X	X	X				Microperf (50 TPI) Blade
10-097-GW		X	X	X	X	X	X	X		X	X	X					Microperf (72 TPI) Blade
10-098-GW		X	X	X	X	X	X	X		X	X	X					Slit Blade
10-099-GW		X	X	X	X	X	X	X		X	X	X	X				Score Blade
10-100-GW		X	X	X	X	X	X	X		X	X	X					Narrow Score Blade
IMP-020										X	X	X	X		X		Impact Perf - 12 TPI Perf Rule
IMP-021										X	X	X	X		X		Impact Perf - 50 TPI Perf Rule
10-110-GW	X	X	X	X													Solenoid Plunger o-nng
10-300-GW		X	X	X	X	X											Filter Connection Harness
10-301-GW										X	X	X	X				Din Rail Connector
10-311-GW					X	X				X	X	X					Air Gauge
10-312-GW										X	X	X	X				Air Hose Fitting KQL06-U01
10-315-GW					X	X						OP					Air Hose 6mm Plug KQP-06
10-318-GW										X	X	X					Air Hose " Y" Fitting KQU06-U01
10-319-GW										X	X	X					Single Banjo 6mm Tube CM PLUS
10-320-GW					X	X											Double Banjo 6mm Tube Numbering
10-321-GW					X	X											Barb Elbow
10-322-GW					X	X				X	X	X					Regulator
10-323-GW	X	X	X	X	X	X	X	X		X	X	X					Phillips Head Machine Screw 1/2"
10-326-GW		X	X	X	X		X	X			X						Feed Tray Mounting Collar
10-327-GW		X	X	X	X	X	X	X		X	X	X					Phillips Head Machine Screw 3/4"
10-329-GW		X	X	X	X	X											Disc Spring Washer (Rotation Screw)
10-330-GW		X	X	X	X		X				X						C-Clip
10-331-GW		X	X	X	X	X	X	X		X	X	X				X	3/8" Double Wave Washer
10-334-GW										X	X	X					CreaseMaster Die Cover
10-336-GW		X	X	X	X	X				X	X	X					Circuit Board Enclosure
10-339-GW		X	X	X	X	X											Forward & Back Pitch Set Screw
10-340-GW		X	X	X	X	X											Side to Side Pitch Set Screw
10-341-GW		X	X	X	X	X											Disc Spring (Photocell)
10-342-GW		X	X	X	X	X	X	X		X	X	X					Blank Stand Cover
10-343-GW		X	X	X	X	X	X	X		X	X	X					Stand Cover w/ Logo
10-344-GW						X						X	X	X			Stand Spacer GW/ CM Series
15-005-GW	X	X	X	X	X	X											Red Quick Drying Ink, 2 oz. Bottle
15-006-GW	X	X	X	X	X	X											Black Quick Drying Ink, 2 oz Bottle
15-036-GW		X	X	X	X	X											¾ " Keyed Drive Unit Mount Shaft
15-037-GW		X	X	X	X	X											Anti-Pitch Block
15-038-GW		X	X	X	X	X	X	X		X	X	X					5/16" Accessory Holder Set Screw
15-038-A		X	X	X	X	X											5/16" Anti Pitch Set Screw
15-039-GW		X	X	X	X	X											Drive Unit Mount Block (left/right pitch control)
15-039B-GW		X	X	X	X	X											Threaded Bolt for Drive Unit Mount Block
15-052-GW		X	X	X	X	X											Solenoid Mount Angle w/tube (left/right pitch)
15-052B-GW		X	X	X	X	X											Drive Unit Threaded Bolt
15-072-GW		X	X	X													Electric Drive Unit
15-073-GW		X	X	X													Complete Electric Drive Unit w/Reverse #ing Head
20-001-GW	X																Base Plate w/Channel
20-002-GW	X																Register Lay Sheet
20-003-GW	X																Crash Pad
20-005-GW	X																Slot Plate w/Arm
20-007-GW	X																Forward/Back Adjustment Screw
20-008-GW	X																Head Height Adjustment Screw
20-010-GW	X																Footpedal w/Cord
20-015-GW	X						X	X									Speed / Impression Control Harness
20-016-GW	X																J-1 Wire Connecotr
25-004-GW	X																Circuit Enclosure
25-009-GW	X																Switch Plate/Circuit Mount
25-012-GW	X																Circuit Board- external impression control
30-009-GW		X	X	X	X	X	X	X		X	X	X	X				1/2" main structure shaft
30-011-GW		X	X	X	X	X	X	X		X	X	X	X				Shaft adjust blocks
30-025-GW		X	X	X	X		X				X						Large Clutch Feed Pulley
30-027-GW						X		X									O Ring Drive Belt (Small Black)
30-037-GW		X	X	X			X					X	X				Rubber Foot
40-003-GW		X	X	X	X	X	X	X		X	X	X	X			X	Timing Pulley- 18XL037X 3/8"
40-103-GW							X	X				X		X		X	Timing Pulley- 18XL037X 1/2"
50-008-GW		X	X	X	X		X										Feed Platen
50-011-GW		X	X	X	X	X				X	X	X	X				Drive Unit Mount Shaft Bracket
50-014-GW		X	X	X	X	X	X	X		X	X	X	X				Boss Wheel Shaft
50-017-GW		X	X	X	X	X	X	X		X	X	X	X				Safety switch harness GW SERIES ONLY-SN 2111 OR HIGHER
50-018-GW		X	X	X	X	X	X	X		X	X	X					Exit Stripper
50-018A-GW		X	X	X	X	X	X	X		X	X	X		X			Stripper Adjustment Screw
50-019-GW		X	X	X	X	X	X	X		X							Cross Shaft
50-020-GW		X	X	X	X	X				X	X	X					Exit Rollers Safety Shield
50-020-CM							X	X		X	X	X					Exit Roller Safety Shield (FM Series)
50-021-GW		X	X	X	X	X											Timing Belt- 220XL037
50-022-GW		X	X	X	X	X				X	X	X	X				Belt Tensioner
50-023-GW		X	X	X	X												1 5/8 " Feed Pulley
50-033-GW		X	X	X	X	X											Fan Guard
50-035-GW ASM		OP	OP	OP	X	X	OP	X		X	X	X	X	X			Stand assembly
50-037-GW		OP	OP	OP	X	X	OP	X		X	X	X	X	X		X	Regular Caster Wheel
50-038-GW		OP	OP	OP	X	X	OP	X		X	X	X	X	X		X	Locking Caster Wheel
50-040-GW	X	X	X	X													Solenoid Ferrite Bead
60-001-GW						X		X									Conveyor Outfeed Plate
60-002-GW						X		X								X	Shaft Mount Block- operator's side
60-003-GW						X		X								X	Shaft Mount Block- non-operator's side
60-006-GW						X		X									Pile Tray
60-007-GW						X		X									Conveyor/Actuator Shaft
60-007H-GW						X		X									Register Board Bearing Block Shaft
60-008-GW						X		X									Conveyor Actuator Frame
60-009-GW						X		X									Conveyor Actuator Arm

PART NO.	Jr. (J-1)	3K	6K	8K	8KP	12K	FM 100	FM 150	FM 100F	CM PRO	CM F/F	CM PLUS	CM PLAT	AIR FEED	IMP. PERF	TRSPT CONV	DESCRIPTION
60-011-GW						X		X									Conveyor Spur Gear
60-012-GW						X		X									Conveyor Top Roller Support Arm
60-013-GW						X		X									Conveyor Top Roller Shaft
60-013S-GW						X		X									Conveyor Top Roller Thumb Screw
60-014-GW						X		X									Conveyor Top Roller
60-015-GW						X		X									Conveyor Actuator Cam
60-016-GW						X		X									Conveyor Belt
60-017-GW						X		X									Conveyor Belt Spool
60-020-GW						X		X									Coveyor Top Roller O-Ring
70-003-GW						X		X									Feeder Side Plate
70-006-GW						X		X									Feed Platen
70-007-GW						X		X									Feed Pulley w/spur gear
70-008-GW						X		X									1 ½" Feed Pulley
70-013-GW						X		X									Ball Bearing Holder Mount Block
70-013B-GW					X	X				X	X	X		X			Regulator Bracket
70-014-GW						X		X									Steel Ball Bearing
70-015-GW						X		X									Nylon Ball Bearing
70-019-GW						X		X									O-Ring Drive Belt (Register Board - small orange)
80-007-GW							X	X									Controller Board (115 VAC)
85-007-GW							X	X									Controller Board (230VAC)
80-008-GW							X	X									Motor (115 VAC)
85-008-GW							X	X									Motor (230 VAC)
85-010-GW							X	X									Speed Control Potentiometer
90-001-GW		X	X	X	X	X											Non-Operator Side Plate
90-001-CM										X	X	X	X				Non Operator Side Plate (Creasemaster Series)
90-002-GW		X	X	X	X	X				X	X	X	X				Operator Side Plate
90-003-GW		X	X	X	X	X							X				Non-Operator Side Cover w/guard
90-003P-GW					X	X											Non-Operator Side Cover w/guard PNEUMATIC
90-003-GWD										X	X	X	X				Non Operator Side Cover W/Guard (CreaseMaster Series)
90-004-GW		X	X	X	X	X	X	X		X	X	X					Operator Side Cover
90-004-CM										X	X	X					Creasemaster Operator Side Cover
90-005-GW		X	X	X	X	X											Stepper Motor
90-006-GW		X	X	X	X	X											Motor Ferrite Bead
90-007-GW		X	X	X	X	X				X	X	X					Motor Guard
90-009-GW		X	X	X	X	X											Metal Display Panel
90-010-GW		X	X	X	X	X	X	X									Main Bottom Roller
90-011-GW		X	X	X	X	X											Photocell Reflector
90-011-CFL		OP	OP	OP	OP									X			Photocell Reflector (GW Series)
90-012-GW		X	X	X	X	X	X	X		X	X	X	X				Accessory Holder Mount Shaft
90-013-GW		X	X	X	X	X	X	X									Stripper Assembly
90-013A-GW		X	X	X	X	X											Photo Cell Stripper
90-014-GW						X		X									Conveyor Actuator Spring
90-015-GW		X	X	X	X												Safety Shield w/hinge & actuator
90-015-CM										X	X	X	X				Safety Shield w/hinge & actuator CreaseMaster Series
90-015-FM							X	X									Safety Shield (FM Series)
90-015-RF		X	X	X	X	X											Safety shield w/ hinge & actuator SN 2110 & HIGHER
90-016-GW		X	X	X	X	X											Safety Switch w/harness
90-024-GW		X	X	X	X												O-Ring Feed Drive Belt - Large Black
90-025-GW		X															MSTP Board/3k SN 2110 & LOWER
90-026-GW		X															MSTP Chip SN 2110 & LOWER
90-029-GW		X															ICPU Display Board SN 2110 & LOWER
90-030-GW		X	X	X	X	X											Telephone Cable
90-031-GW		X	X	X	X	X	X	X		X	X	X					Low Profile Tie Mounts
90-032-GW		X	X	X	X	X											12V Cooling Fan
90-034-GW		X															Display Board Label SN 2110 & LOWER
90-034S-GW		X															Operator Side Cover Strip 3k
90-054-GW		X	X	X	X	X											Print Head Mount Screws
90-055-GW		X	X	X	X	X											Print Head Rotation Screw
90-059-GW		X	X	X	X	X	X	X		X	X	X					220V Line Cord
90-060-GW		X	X	X	X	X											MSTP Board 120V Connector
90-061-GW		X	X	X	X	X											MSTP Board 220V Connector
90-062-GW		X	X	X	X	X	X	X		X	X	X	X				110V Modular Switch w/fuseholder
90-062K-GW		OP	OP	OP	OP	OP	OP	OP		OP	OP	OP					220V Modular Switch w/fuseholder
90-063-GW		X	X	X	X	X				X	X	X	X				Line Filter
90-064-GW		X	X	X	X	X				X	X	X					Filter to MSTP Board Cable
90-065-GW		X	X	X	X	X											Board Mount Stand-Off
90-067-GW		X	X	X	X	X											Photocell Assembly SN 2304 & Lower
90-068-GW		X	X	X													HV Sol-MSTP Power Cable
90-069-GW		X	X	X													Solenoid Connection: Board to Female Terminal
90-082-GW		X	X	X	X	X				X	X	X	X				Wire Transfer Tube
90-083-GW						X		X					X				2 Sided Aluminum Bearing
90-083-CMTS		X	X	X	X	X				X	X	X	X				2 Sided Aluminum Bearing w/ Spring
90-083-DCM										X	X	X	X				Aluminum Sided Bearing
90-085-GW		X	X	X	X	X											Plastic Electrical Guard
92-002-3000		X															ICPU Board for GW3000 SN 2110 & LOWER
92-002-6000			X														ICPU Board for GW6000 SN 2110 & LOWER
92-002-8000e				X													ICPU Board for 8000e SN 2110 & LOWER
92-002-8000p					X												ICPU Board for 8000p SN 2110 & LOWER
92-002-12000						X											ICPU Board for 12000 SN 2110 & LOWER
92-025-GW			X	X	X	X											MSTP Board - SN 2110 & LOWER
92-026-GW			X	X	X	X											MSTP Chip SN 2110 & LOWER
92-027-GW			X														ICPU EPROM SN 2110 & LOWER
92-027E-GW				X													ICPU EPROM SN 2110 & LOWER
92-028-GW		X	X	X													HV Voltage Solenoid Board SN 2110 & LOWER
92-029-GW			X														Display Board SN 2110 & LOWER
92-030-GW			X														Red Screen Cover SN 2110 & LOWER
92-034-GW			X														Display Board Label/6k SN 2110 & LOWER
92-034S-GW			X														Operator Side Cover Strip 6k
94-013-GW		X	X	X	X	X	X	X		X	X	X	X				Boss Support Shaft
94-014-GW		X	X	X	X	X	X	X		X	X	X	X				Boss Bearing Support Assembly

PART NO.	Jr. (J-1)	3K	5K	8K	8KP	12K	FM 100	FM 150	FM 100F	CM PRO	CM F/F	CM PLUS	CM PLAT	AIR FEED	IMP PERF	TRSPT CONV	DESCRIPTION
94-027-GW					X	X											ICPU EPROM
94-028-GW					X	X											LV Voltage Solenoid Board
94-029-GW				X	X	X											Display Board
94-034-GW		X	X	X	X	X											Display Board Label (ALL MODELS SN 2110 & HIGHER)
94-034-8-GW				X	X												Operator Side Cover Strip 8K
94-034-12-GW						X											Operator Side Cover Strip 12k
94-072-GW					X	X											Pneumatic Drive Unit
94-073-GW					X	X											Complete Pneumatic Drive Unit w/Reverse #ring Head
94-083-GW					X	X											LV Solenoid to MSTP Board Power Cable
94-084-GW					X	X											Drive Unit Connection Metal Plate
96-009-GW						X		X									Register Board
96-012-GW						X		X									Register Guide
96-015-GW						X		X									Register Board Ball Holder
96-017-GW						X		X									Register Board Cross Shaft Supports
96-018-GW						X		X									Register Board Bearing Blocks
96-023-GW						X		X									Register Board Conveyor Spool
96-025-GW						X		X									Register Board Belt
96-024-GW						X		X									Non-Operator Side Stock Guide
96-035-GW						X		X				X					Double Stand
96-070-GW					X	X											LV Solenoid Connection: Phone Jack to Solenoid
96-071-GW					X	X											LV Solenoid Connection: Board to Phone Jack Connector
98-001-GW							X	X									FM Non-Operator Side Plate
98-002-GW							X	X									FM Operator Side Plate
98-003-GW						X		X									Small Side Cover
98-003-F									X								Feeder Control Board
98-004F-GW									X								Motor
98-006-GW							X	X									Display Label
98-006S-GW							X	X									Operator Side Cover Strip
98-007-GW							X	X									Red - Alternate Push Button Switch
98-071-GW							X	X									Large Red -Alternate Push Button
98-009-GW							X	X									Metal Display Panel
98-200-GW					OP	OP											Strike perf assembly c/w solenoid, regulator,hose,cable,bracket
98-200-CM												OP					Strike perf assembly c/w solenoid, regulator,hose,cable,bracket
98-201-GW					OP	OP						OP					Strike perf accessory holder w/ 12 tpi perf blade
98-202-GW					OP	OP						OP					Strike perf "y" union & hose
98-203-GW					OP	OP						OP					Strike perf pneumatic cylinder
98-204-GW					OP	OP											Strike perf solenoid w/ cable 12v
98-204-CM												OP					Strike perf solenoid w/ cable 24v
98-205-GW					OP	OP						OP					8mm hose per 6" length
98-207-GW					OP	OP						OP					Strike perf mini regulator
98-208-GW					OP	OP						OP					Regulator fitting
98-209-GW					OP	OP						OP					Bracket
98-210-GW					OP	OP											Strike perf 4 pin connector
100-001-GW					X	X											Connector Board SN 2111 & HIGHER
100-002-GW		X	X	X	X	X											Controller Board SN 2111 & HIGHER
100-003-GW		X	X	X	X	X											KeyPad Display Brd SN 2111 & HIGHER
100-005-GW		X	X	X	X	X	X	X		X	X	X	X				Tool Holder
100-006-GW																	Side Plate Plug
CBS 100XL037												X		X			Timing Belt
CBS 140XL037							X	X									Timing Belt
CBS 170XL037										X	X	X					Timing Belt
CBS 12XL037												X		X			Pulley
CC-003																X	Conveyor Belt
CC-010																X	Motor
CC-025																X	Timing Belt
CC-026																X	Timing Belt
CC-031																X	Timing Pulley
CC-032																X	Timing Pulley
CM-0001 ASM										X	X	X	X				Upper Die Male
CM-0001N ASM										X	X	X	X				Upper Die Male - Narrow
CM-0002 ASM										X	X	X	X				Upper Die Female
CM-0002N ASM										X	X	X	X				Upper Die Female Narrow
CM-0003 ASM										X	X	X	X				Bottom Die
CM-0003N ASM										X	X	X	X				Bottom Die Narrow
CM-0003LC ASM										X	X	X	X				Bottom Die Combination Narrow / Wide
CM-0003S										X	X	X	X				Bottom Die Spring
CM-0005										X	X	X	X				Photo Sensor Cross Bracket
CM-0006										X	X	X	X				Spacer Block
CM-0007										X	X	X	X				End Support Block
CM-0008										X	X	X	X				Cylinder Mount Bracket
CM-0009										X	X	X	X				Cross Brace Bracket Support
CM-0010										X	X	X					Metal Display Panel
CM-0030										X		X	X				Main Top Roller
CM-0031										X	X	X	X				Main Bottom Roller
CM-0034										X	X	X					Display Panel Label
CM-0034S										X	X						CreaseMaster Pro Strip
CMP-002													X				Pnuematic Cylinder
CMP 003										X	X	X	X				Solenoid Valve
CMP-004										X	X	X					Stepper Motor
CMP-005										X	X	X	X				Touch Screen Cable
CMP-006										X	X	X	X				Battery
CMP-007										X	X	X					Touch Screen
CMP-008										X	X	X					Sensor
CMP-009										X	X	X	X				PLC
CMP-010										X	X	X					Sensor Bracket
CMP-011										X	X	X	X				24V Relay
CMP-034												X					CreaseMaster Strip
CMP-099										X	X	X					Din Rail
CMP-100										X	X	X					Memory Loader
CMP-101										X	X	X	X				Panasonic 24 V Power Supply

PART NO.	Jr (J-1)	3K	6K	8K	8KP	12K	FM 100	FM 150	FM 100F	CM PRO	CM F/F	CM PLUS	CM PLAT	AIR FEED	IMP PERF	TRSPT CONV	DESCRIPTION
CMP-102										X	X	X					24V Power Supply
CMP-103										X	X	X					48 V Power Supply
CMP-104										X	X	X					Side Cover Stand Off
CMP-105												OP					Leg Extensions - adjustable, adds between 4" - 5" (set of 4)
CMP-108													X				5.6 Touch Screen
CMP-109													X				Servo Motor - 110
CMP-109A													X				Servo Motor - 220
CMP-110													X				400W Drive - 110
CMP-110A													X				400W Drive - 220
CMP-111													X				Cable Set
CMP-112													X				1 Axis I/F Cable
CMP-113													X				High Speed Fiber Sensor
CMP-114													X				Diffuse Fiber Cable
CMP-115													X				Zoom Lens
CMP-116													X				Cable Set
CMP-117													X				Top Block Hinge
CMP-118													X				End Block/Perpendicular Hinge
CMP-119													X				Hinged Arm
CMP-200													X				Main Post
CMP-201													X				Spacer
CMP-202													X				Swing Bracket
CMP-203M													X				CM Platinum Touchscreen Enclosure
CMP-204													X				Cross Handwheel
CMP-205													X				Grab Handle
CMP-206													X				Rubber Grommet
CMP-207													X				Side Cover Strip (Platinum)
CMP-208													X				Male Connector
CMP-209													X				Female Connector
CMP-210													X				Cable Gland Connector
CMP-214													X				Servo Drive Mount Bracket
CMP-215													X				Air Feed O-Ring
CMP-218													X				Ferrite Bead (Split Round)
DH-0006										X	X	X	X				Safety Lid Latch
FLD-0006												X		X			Paper Adjustment Block Spring
FLD-0048 ASM												X		X			Bearing Plate Assembly
FLD-0055A										X	X	X		X			Hand Wheel
FLD-0056										X	X	X		X			Hand Wheel Spring
FLD-0057										X	X	X		X			Hand Wheel Collar
FLD-0061												X		X			1/2" Round Shaft
FLD-0062												X		X			Air Feed Table
FLD-0063												X		X			Vacuum Manifold Cover
FLD-0084												X		X			Air Block
FLD-0085 ASM												X		X			Air Nozzle Assembly
FLD-0086 ASM	X	X	X	X	X	X		X		X	X	X					Vacuum Manifold Assembly (older version S/N CM 2204/GW/FM 2205 & lower)
FLD-0087												X		X			Air Main Spool
FLD-0088												X		X			Air Follower Spool
FLD-0089												X		X			Paper Gate Spring
FLD-0090												X		X			Adjustment Knob
FLD-0091												X		X			Reflector
FLD-0092												X		X			Paper Gate Block
FLD-0093												X		X			Paper Gate Adjustment Block
FLD-0099												X		X			Side Rail Ops Side
FLD-0100												X		X			Side Rail Non Ops Side
FLD-0108		X	X	X	X	X											Display Board Springs
FLD-0112												X		X			Pump Switch Plate
FLD-0116												X		X			Magnetic Back Stop
FLD-0117												X		X			Vacuum Belt (older version S/N CM 2204/GW/FM 2205 & lower)
FLD-0121												X		X			Paper Gate Support Shaft
FLD-0124												X		X			Static Eliminator
FLD-0126												X		X			Pump On/Off Switch
FLD-0130												X		X			Vacuum Pump 110V
FLD-0131												X		X			Vacuum Pump 220V
FLD-0135												X		X			Hose Clamps
FLD-0136												X		X			Snaploc Hose
FLD-0137												X		X			Snaploc 90 Degree Elbow
FLD-0138												X		X			Snaploc 1/4F-18NPT Connector
FLD-0139												X		X			Snaploc 1/4NPT To 1/4 Snaploc
FLD-0140												X		X			Hose Barb
IMP-002															X		Perf Blade Holder
IMP-003													X		X		Spacer Block
IMP-004															X		Bottom Die
IMP-004N															X		Bottom Die - Narrow
IMP-004 ASM													X		X		Bottom Die Assembly
IMP-004N ASM															X		Bottom Die Assembly - Narrow
IMP-005													X		X		Impact Perf Cylinder
IMP-006															X		Narrow Female Bar
IMP-006A													X		X		Wide Female Bar
IMP-006B															X		18" Perf Bar
IMP-006C															X		9" Perf Bar
IMP-006D															X		6" Perf Bar
IMP-006E															X		3" Perf Bar
IMP-006F															X		1/2" Perf Bar
IMP-006G ASM															X		Complete Perf Bar Assembly
IMP-008															X		Hex Latch
IMP-009															X		Hinge Block
IMP-011													X		X		Safety Switch
IMP-012															X		Hinge
IMP-013															X		Impact Perf Spring
IMP-014													X		X		Air Hose Y Connector
IMP-015													X		X		Elbow Connection

PART NO.	Jr. (J-1)	3K	6K	8K	8KP	12K	FM 100	FM 150	FM 100F	CM PRO	CM F/F	CM PLUS	CM PLAT	AIR FEED	IMP. PERF	TRSPT CONV	DESCRIPTION
IMP-016 ASM													X		X		Impact Perf - Safety Cover Assembly
IMP-023 ASM															X		Impact Perf - Blade holder assembly
IMP-024															X		Impact Rubber Strip
INDY 7" Ruler												X		X			7" Ruler
INDY 0-9"Ruler														X			0-9"Ruler
INDY H1 H2					X	X											H1 H2 Sticker
INDY-On/Off												X		X			Pump On / Off Label
PB-0001																	Perfect Binder Notching Blade
RN001	X	X	X	X	X	X											Brass spacer
RN002	X	X	X	X	X	X											c-clip
RN003	X	X	X	X	X	X											main spring
RN004	X	X	X	X	X	X											lock tab
RN005	X	X	X	X	X	X											spring bushing
RN006	X	X	X	X	X	X											ink pad mount pivot screw
RN007	X	X	X	X	X	X											head frame
RN008	X	X	X	X	X	X											wheel frame slide bushing
RN009	X	X	X	X	X	X											numbering wheel frame
RN010	X	X	X	X	X	X											numbering wheel spacer
RN011R	X	X	X	X	X	X											reverse drop numbering wheel
RN011F	X	X	X	X	X	X											forward drop numbering wheel
RN011FC	X	X	X	X	X	X											forward condensed drop numbering wheel
RN011RC	X	X	X	X	X	X											reverse condensed drop wheel
RN012R	X	X	X	X	X	X											reverse solid numbering wheel
RN012RC	X	X	X	X	X	X											reverse condensed solid wheel
RN012F	X	X	X	X	X	X											forward solid numbering wheel
RN012FC	X	X	X	X	X	X											forward condensed drop numbering wheel
RN013R	X	X	X	X	X	X											reverse unit numbering wheel
RN013RC	X	X	X	X	X	X											reverse condensed unit wheel
RN013F	X	X	X	X	X	X											forward unit numbering wheel
RN013FC	X	X	X	X	X	X											forward condensed unit wheel
RN014	X	X	X	X	X	X											2x/4x action ratchet wheel
RN015	X	X	X	X	X	X											3x action ratchet wheel
RN016	X	X	X	X	X	X											numbering wheel mount shaft
RN017	X	X	X	X	X	X											numbering wheel frame w/ mount shaft & split pin
RN018	X	X	X	X	X	X											ink pad mount pivot arms
RN019	X	X	X	X	X	X											ink pad mount
RN027	X	X	X	X	X	X											numbering wheel retaining pawls
RN028	X	X	X	X	X	X											unit numbering wheel retaining pawl
RN029	X	X	X	X	X	X											2x/4x action ratchet wheel retaining pawl
RN030	X	X	X	X	X	X											3x action ratchet wheel retaining pawl
RN031	X	X	X	X	X	X											pawl mount shaft
RN032	X	X	X	X	X	X											comb spring
RN033	X	X	X	X	X	X											2-piece comb spring (condensed head)
RN034	X	X	X	X	X	X											comb spring mount screw
RN035	X	X	X	X	X	X											knocken
RN036	X	X	X	X	X	X											knocken mount screw
RN044	X	X	X	X	X	X											repeat selector mount screw
RN050	X	X	X	X	X	X											split spring pin
RN055	X	X	X	X	X	X											nylon washer
RN100	X	X	X	X	X	X											repeat selector assembly (6-digit standard head)
RN100A	X	X	X	X	X	X											repeat selector assembly (8-digit condensed head)
RN101	OP	OP	OP	OP	OP	OP											letter prefix wheel (A-J)
RN102	OP	OP	OP	OP	OP	OP											letter prefix wheel (K-T)
RN103	OP	OP	OP	OP	OP	OP											letter prefix wheel (S-Z)
RN104	OP	OP	OP	OP	OP	OP											No. prefix wheel
RN-Repeat Arm	X	X	X	X	X	X											Repeat Selector Arm
SCAF-001														X			Undercarriage Block
SCAF-002														X			Undercarriage Roller
SCAF-003														X			Undercarriage Cross Bar, Non Operator Side
SCAF-004														X			Undercarriage Cross Bar, Operator Side
SCAF-005L														X			Undercarriage Extender
SCAF-005R														X			Undercarriage Extender
SCAF-006														X			Undercarriage Cross Guide
SCAF-007														X			Table Connector Block
SCAF-008														X			Slide
SCAF-009														X			Air Tube End Blocks
SCAF-010														X			Air Tube, Operator Side
SCAF-010N														X			Air Tube, Non Operator Side
SCAF-011 OP														X			Side Rail Assembly Operator Side
SCAF-011 N/OP														X			Side Rail Assembly, Non Operator Side
SCAF-012														X			Skew Adjust Screw
SCAF-013														X			Air Feed Table
SCAF-014		X	X	X	X	X	X	X		X	X	X	X	X			Vacuum Manifold Assembly (serial #s CMP 2205, GW/FM 2206 & higher)
SCAF-015														X			Side Rail Valve
SCAF-016														X			Boston Gear Rack
SCAF-017														X			Spur Gear
SCAF-018														X			Flanged Bearing
SCAF-019 OP														X			Side Rail Hold Down, Operator Side
SCAF-019 N/OP														X			Side Rail Hold Down,Non Operator Side
SCAF-020														X			Front Jet Cross Bar Bolt
SCAF-021														X			Front Jet Cross Bar
SCAF-022														X			2 1/4 Pulley
SCAF-023														X			Elbow
SCAF-024														X			Air Valve (End of Rail)
SCAF-025														X			Male Knurled Thumb Knob
SCAF-026														X			Vacuum Manifold Drive Shaft
SCAF-027														X			Side Rail Springs
SCAF-028														X			Vacuum Manifold Idler Shaft
SCAF-029														X			Skew Adjust Knob
SCAF-030														X			Feed Table Safety Cover

PART NO.	Jr. (J-1)	3K	5K	8K	5KP	12K	FM 100	FM 150	FM 100F	CM PRO	CM F/F	CM PLUS	CM PLAT	AIR FEED	IMP. PERF	TRSPT CONV	DESCRIPTION
SCAF-031														X			Air Splitter
SCAF-032														X			Vacuum Belt (serial #s CMP 2205, GW/FM 2206 & higher)
SCAF-037														X			Elbow - Male
SCAF-039														X			Bronze Spacer
SCAF-040 ASM														X			Rail Locking Block Assembly
TECH-TUPV												X		X			3/4" Black hose per FT