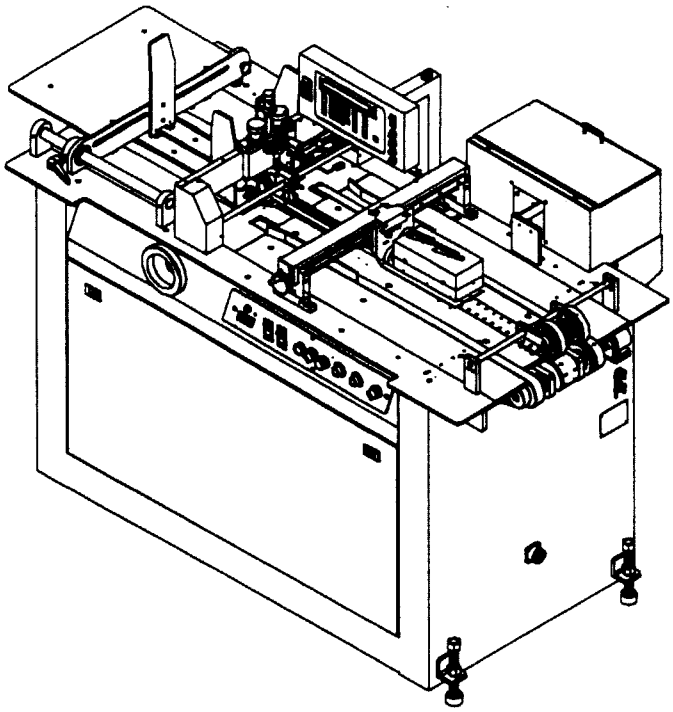

Inkjet Base

BK400 Mikrojet Series

BK400 Inkjet Base User's Guide

Transport Base

for BK400 Inkjet Systems

1.1 Description

The BK400 Inkjet Base is a mailpiece feeding and transportation system comprised of a feeder station and transport mechanism that is controlled via a centrally located operator control panel. The system was specifically designed as a flexible and reliable platform whose purpose was to optimize the performance of an inkjet imaging system. The BK400 inkjet base, in conjunction with the BK432 inkjet controller , produces some of the highest quality imaging within one of the simplest and most efficient operating environments.

The feeder, capable of separating and dispensing a wide variety of mailpieces from single sheets to publications, is of a vacuum shuttle style which has adjustable side and rear guides to accommodate various mailpiece sizes, a movable material gate and upper feed rollers for thickness adjustments, and vacuum control in the form of differing feed plates augmented with a regulating valve.

The mailpiece transport system, modified for the inkjet process, consists of vacuum equipped table belts with twin pitch control selection permitting regulation of the belt movement to conform to the mailpiece's size. In addition, an alignment section with side guides and a variable height skidbar is present at the output of the feeder to reduce mailpiece skew prior to entering the inkjet imaging area. Interface of the transport system to the inkjet sequencing control is provided by a directly coupled shaft encoder mounted on the rear belt pulleys.

Control of the BK400 inkjet base is enabled by a series of electrical switches and buttons displayed on a clear unhindered control panel centrally positioned at the front of the base. The control panel consists of circuit breaker switches for the Main and Pump power; A resetable LCD piece totalizing counter; variable speed potentiometers for both the Machine and Conveyor; Start/Stop/Jog pushbutton controls for machine operation; and an On/Off/Auto selector for the conveyor.

All these features, in addition to the manufacturing quality and innovative product design, add up to an extremely functional inkjet base capable of years of reliable, trouble-free operation.

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BK400 Inkjet Base User's Guide

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1.2 Features

Vacuum Shuttle Feeder

The BK400 Inkjet Base features a vacuum shuttle feeder capable of feeding a wide variety of mailpieces from single sheets to thick publications. The feeder is equipped with adjustable side and rear guides, variable height material gate and upper feed rollers, and a valve for vacuum regulation. The shuttle plate also has two rear pushers which provide feeding assistance for heavy mailpieces. In addition, the unique vacuum plate construction enhances the separating capabilities of the feeder.

Vacuum Table Belts

The table belts, which transport the mailpieces from the feeder past the inkjet imaging area, have vacuum applied to them so that a completely unhindered area is provided for the inkjet heads, enabling unparalleled head placement capabilities. With the addition of vacuum to the belts, there is no need for obstructive skidbars or side guides which may interfere with printhead positioning.

Variable Pitch Selector

The transportation belts have the ability to optimize production with no sacrifice in print quality by permitting selection of two differing pitch settings to closely match the mailpiece size. That is to say, the belt's movement can be selected to create a minimal gap for various mailpieces lengths. Belt pitch selection is achieved by either pulling out or pushing in the machine's handwheel.

Complete Instrument Panel

All necessary controls required to operate the inkjet base are easily accessible to the operator on a central instrument panel. The control panel comes complete with circuit breaker equipped rocker switches, large pushbuttons for all machine/conveyor functions, variable speed potentiometers for machine/conveyor speed regulation, and a resetable piece counter.

BK1600 Series Conveyor Compatibility

The inkjet base is fully compatible with any BK1600 series conveyor from a 6 ft model through to an 18 ft. model. Connection to the conveyor is made through a 7 pin circular plastic connector located at the end of the base. The base has a fully fused DC speed controller mounted in it which comes with a speed potentiometer, located on the front panel, to permit complete control of the conveyor's belt speed.

BK432 Inkjet System Compatibility

The inkjet base has pre-drilled mounting holes and a series of connectors to accomodate the BK432 inkjet controller. In addition, an inline shaft encoder mount, full electrical wiring terminations and facilities for mounting one twin and one single printhead assembly is provided.

Maintenance Considerations

The BK400 Inkjet Base is designed to facilitate maintenance should it be required. The front upper panel, as well as the tabletops, are easily removable in order to expose all the mechanical components. The central instrument panel has quick disconnect plugs for removal and the rear electrical panel can be accessed without hindering any machine functions.

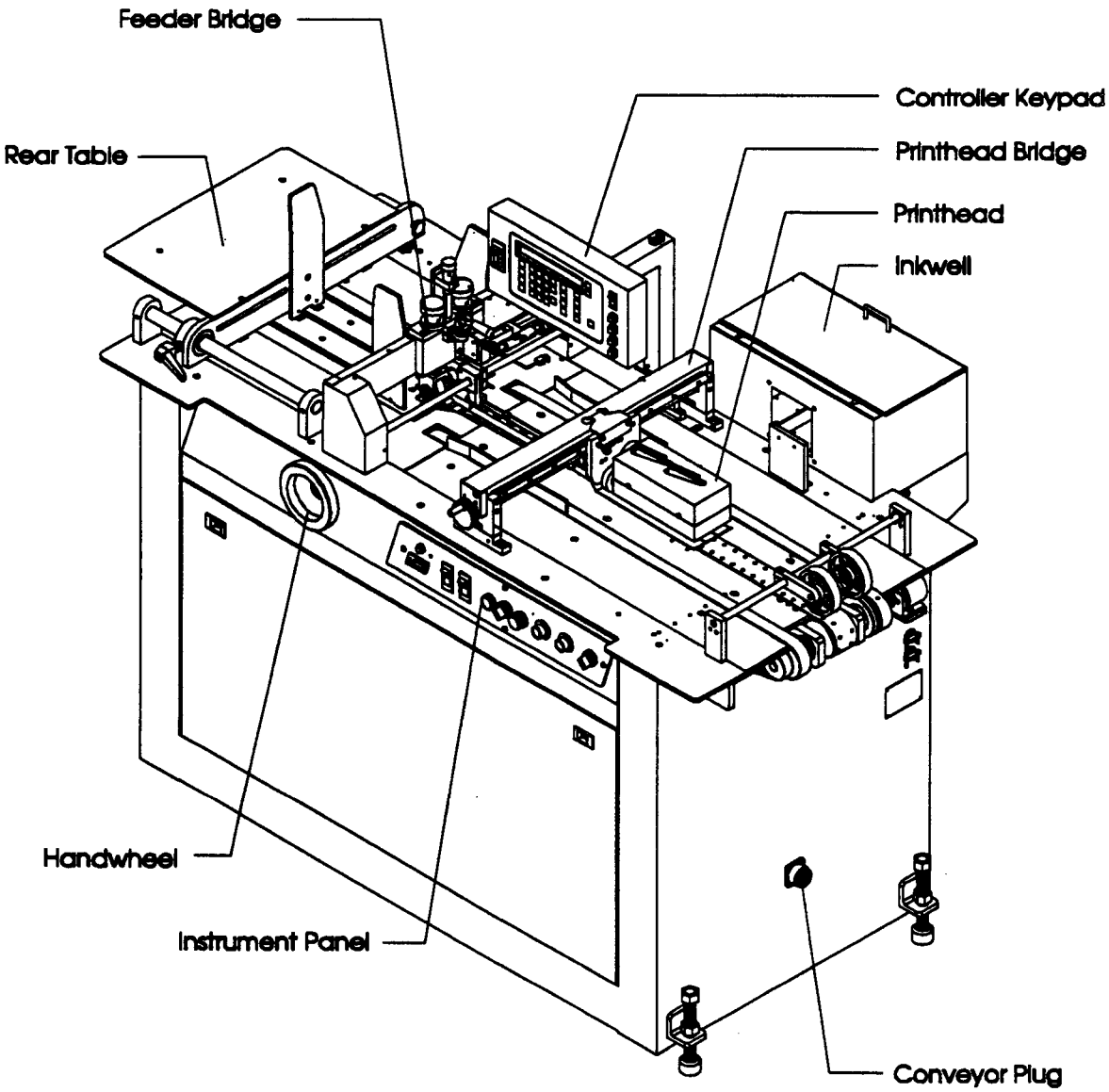
Print Quality Considerations

The inkjet base has been specifically designed for the inkjetting process and as such incorporates certain unique features to optimize print quality. Included in the machine is an inherently smooth mechanical operation which in itself goes a long way to improving printing results. Particular attention was paid to traditional transport problems such as shaft encoder slippage, and belt movement fluctuations to arrive at a very reliable transport platform.

1.3 Specifications

Material Handling	**Minimum**	3" x 5"	76 mm x127 mm
	Maximum		
	standard pitch	13" x 17"	330 mm x 432 mm
	Optional pitch	17" x 17"	432 mm x 432 mm
	Thickness	Single sheet to 5/8"	16 mm
Physical	**Overall Length**	60 in.	1524 mm
	Overall Height *including keypad*	47 in.	1194 mm
	Height *tabletop*	33.5 in.	850 mm
	Overall Width *including inkwell*	36 in.	914 mm
	Width *inkjet base*	28 in.	711 mm
	Weight *crated*	700 lb	320 Kg
Production Rate	**Belt Speed**	0 to 600 fpm	0 to 3.05 m/s
	Cycling Speed	0 to 30,000 pph	
	Cycle Pitch	11.2", 14.5", 18.7"	284 mm, 368 mm, 474mm
	Conveyor Space	0 to 26 in/s	0 to 0.7 m/s
Electrical Requirements	**Voltage**	120 V.A.C.	
	Current		
	Base	20 Amps	
	Inkjet Controller	5 Amps	
	Power	2.4 KVA	
	Machine Motor	1/2 H.P.,90 VDC DC Speed Controller	
	Vacuum Pump	3/4 H.P.120 VAC, 11.8 A 1.8 CFM @ 20 Hg volume	
	Conv. Interface	1/8 H.P., 90 VDC DC Speed Controller	
	Control Panel	Circuit Breaker Switch	Main, Pump
		Machine Pushbuttons	Start, Stop, Run/Jog
		Conveyor Selector:	On, Off, Auto
		Speed Potentiometer	Machine, Conveyor
		Piece Counter (resettable)	

1.4 Inkjet Base Drawing



Chapter 2

Operator Instructions

2.1 Instrument Panel Functions

- Power Rocker Switches
- Machine Function Pushbuttons
- Speed Regulation Potentiometers
- Resetable Piece Counter

2.2 Feeder Setup Instructions

- Feed Plate Selection and Installation
- Upper Feed Roller and Material Gate Adjustments
- Feeder Side Guide Adjustment
- Feeder Rear Pusher Setting

2.3 Skidbar and Transport Side Guide Adjustments

- Skidbar Adjustment
- Transport side Guide Adjustment

2.4 Vacuum System Instruction

- Vacuum Level Setting
- Spool Valve Setting

2.5 Belt Pitch Setting

2.6 Maintenance Schedule

2.1 Instrument Panel Functions

The BK400 Inkjet base is equipped with a centrally located instrument panel which displays all the necessary controls to operate the system. The controls can be subdivided into 4 distinct classes of functions which are :

- Main, and Pump Power Rocker **Switches**
- Machine and Conveyor Function **Pushbuttons**
- Machine and Conveyor Speed Regulation **Potentiometers**
- Resetable Piece **Counter**

NOTE : Refer to the main electrical schematic BK400EL5.DWG for further information.
Code in brackets after instrument control refers to the main electrical schematic.

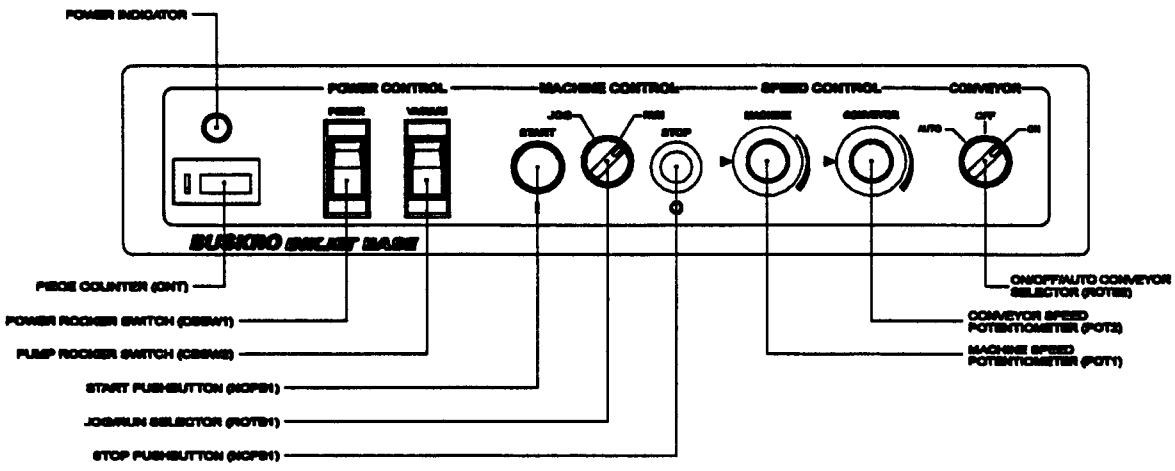


Figure 2.1 - Instrument Panel Control Illustrating Power Switches, Speed Potentiometers, Machine and Conveyor Control Pushbuttons, and a Resetable Piece Counter.

2.1.1 Power Rocker Switches

The power rocker switches, the two switches located to the right of the piece counter, provide power to the inkjet base (Power) and the vacuum pump (Vacuum). These switches are equipped with resetable circuit breakers to protect against overload conditions.

Power Rocker Switch (CBSW1)

Switch which turns on main power to the inkjet base or, in the case of european models, the entire inkjet system. Upon turning this switch on, the power indicator light above the counter should go on indicating that power is now available to all electrical components. The circuit breaker is rated at 20 Amps (120 VAC) for the BK400 Inkjet base.

Pump Rocker Switch (CBSW2)

Switch which turns on the vacuum pump. When this switch is on, the distinct humming sound of the vacuum pump's compressor should be heard. The circuit breaker is rated at 10 Amps (120 VAC).

2.1.2 Speed Regulations Potentiometers

The speed regulations potentiometers, two dials located to the right of the machine pushbuttons, permit adjustment of the machine and conveyor speeds by rotating them. A clockwise rotation of the speed dials corresponds to a speed increase. Conversely, a counter-clockwise rotation results in a speed decrease.

Machine Speed Potentiometer (POT1)

Machine speed dial which permits complete control of the inkjet system's speed over its full range. The speed range is from 0 (0) to 25,000 (10) pieces/hour. A clockwise rotation of the dial corresponds to a speed increase.

Conveyor Speed Potentiometer (POT2)

Conveyor speed dial which permits complete control of the conveyor's speed over its full range. The speed range is from 0 (0) to 26 in./S (10). A clockwise rotation of the dial corresponds to a speed increase.

2.1.3 Machine and Conveyor Function Pushbuttons

The pushbuttons and selector knobs located on the front panel permit control of the machine operation as well as the conveyor's. The **Start** (green) and **Stop** (red) pushbuttons allow engagement and suspension of the inkjet base operation while the **Run/Jog** selector (black) sets the system to run continuously (RUN) when the start button is momentarily depressed or run intermittingly (JOG) provided that the start button remains depressed. The conveyor **On/Off/Auto** selector controls the manner in which the conveyor is capable of operating with the Auto selection causing the conveyor to operate simultaneuosly with the inkjet base's operation and the On selection causing the conveyor to run continuously, independent of the base's operating status. An Off selection would suspend the conveyor's operation.

Start Pushbutton (NOPB1)

Pushbutton which turns on machine contactor and applies power to the motor controller. When this button is depressed, the machine will cycle provided that the following conditions have been met,

- The computer relay is not energized *(See BK400 Controller User's Guide Section 2.7 Stop Relay).*
- The machine **Stop** button is not depressed.
- The conveyor **Stop** button is not depressed *(if present).*
- The conveyor connector (J3) is properly attached to the base.

Stop Pushbutton (NCPB1)

Pushbutton which suspends operation of the inkjet base by interrupting the power to the machine DC controller via the machine contactor. This is used mostly as an emergency stop button since depressing this button will cause the machine to stop immediately regardless of the printing status; Possibly causing the loss of a mailpiece since print quality of the image could be adversely affected.

Note : The Stop pushbutton has a locking feature, which when engaged, will prevent the system from cycling. Should this condition occur, twist and release the locking mechanism to allow base operation.

Jog/Run Selector (ROTB1)

Selector button which permits a choice between continuous and intermittent machine operation. When the **Run** mode has been selected and the **Start** button is depressed, the machine will operate continuously. In the **Jog** mode, the machine will cycle only as long as the **Start** button remains depressed.

- **Run Mode** - Machine will operate the instant the Start button is depressed.
- **Jog Mode** - Machine will operate only while the Start button is depressed.

On/Off/Auto Conveyor Selector (ROTB2)

Selector button which provides the operator with the capability to operate the conveyor in one of three modes. In the ON mode, the conveyor will cycle at all times. Conversely, if the OFF mode is selected, the conveyor will not operate at any time. Finally, in the AUTO mode, the conveyor will function in conjunction with the inkjet base; that is, when the base is operating so will the conveyor.

- **On Mode** - The conveyor will operate continuously when the selector is turned to On.
- **Off Mode** - The conveyor's operation will be suspended when the selector is turned Off.
- **Auto Mode** - The conveyor will run in conjunction with the inkjet base; that is when the inkjet base is on, the conveyor is on. Conversely, when the inkjet base is off, the conveyor will be off.

2.1.4 Resettable Piece Counter

Counter which monitors the number of mailpieces which are detected by the photo cue sensor when the inkjet controller is placed "Online". *(See BK400 Controller User's Guide Section 5.1 Online/Offline Printer Status).* The counter, equipped with a locking feature to prevent accidental resets, can be reset by depressing the reset button located on it.

Note: Counter will not be reset to 000000 when the Power rocker switch (CBSW1) is turned off. However, The inkjet controller's counter will reset to zero when its power is turned off. Hence the piece counter can be used as the total job count while the controller counter will indicate the session count.

2.2 Feeder Setup Instructions

The feeder setup instructions comprise all the adjustments necessary to properly seperate and feed any mailing piece which is within the criteria specified in *Chapter 1, Specification, Material Handling* . Proper setup of the feeder station will go a long way to ensuring a trouble-free operation of the inkjet process.

2.2.1 Vacuum Plate Selection and Installation

The selection of the proper vacuum plate for the mailpiece being processed is central to the proper operation of the feeding system. In most instances the concave plate should be used first as most mailpieces are of a pliable nature and can conform to the surface of this plate. For thicker pieces such as magazines, a flat plate is ideal. For open-ended mailpieces it is best to attempt the concave plate initially, however if the upper page seperates from the lower one(s) and catches the material gate, the convex plate should be employed.

Convex Plate

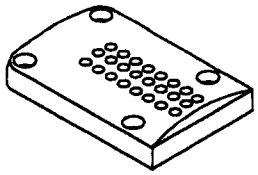
The convex plate is the vacuum plate which has a coarsely textured arched surface. This plate is used primarily with open-ended mailpieces whose leading edge must be bent to ensure that all its individual pages are compressed together into one edge. The plate's lead three holes are threaded (8-32 UNF) to permit the installation of set screws preventing vacuum leakage for certain materials.

Concave Plate

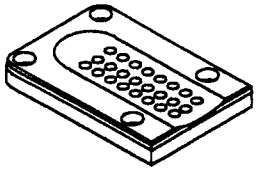
The concave plate, also known as a dish plate, is the polyurethane covered vacuum plate with a depression in the center. This plate is used with thin pliable mailpieces capable of being "sucked down" and conforming to the recessed surface. The plate's lead three holes are threaded (8-32 UNF) to permit the installation of set screws preventing vacuum leakage for certain materials.

Flat Plate

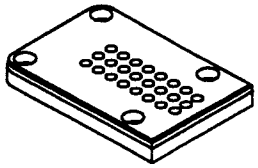
The flat plate, a polyurethane covered vacuum plate, has a flat surface for those mailpieces which cannot bend and conform to the concave plate's surface. Usually this vacuum plate is used in conjunction with thick, rigid materials. The plate's lead three holes are threaded (8-32 UNF) to permit the installation of set screws preventing vacuum leakage for certain materials.



CONVEX PLATE



CONCAVE PLATE



FLAT PLATE

Figure 2.2 - Vacuum Plate Selection including flat, convex, and concave plates.

☞ To Select the Vacuum Feed Plate *(see figure 2.2)*

There are 3 vacuum feed plates provided with the inkjet base and they include a flat plate, a concave plate and a convex plate. Select one of the following plates :

1. **Flat Plate :** Used for thick and stiff mailing pieces. This feed plate has a front row of tapped holes so that they may be blocked off with 8-32 Unf set screws if a round-edged mailpiece is employed. Typical mailpieces which can be processed are thick publications, newspapers, cardstock, ect.

- OR -

2. **Concave Plate :** Used for thin, pliable mailpieces which can conform to the plate's profile when vacuum is applied. Mailpieces used with this plate could include : single sheets, envelopes, leaflets, light cardstock, thin pamphlets, self mailers ect.

-OR-

3. **Convex Plate :** Used for open-ended mailpieces where the upper page may catch the material gate. This feed plate, when vacuum is applied, should cause all the pages to pinch together. Used for multiple page mailpieces which must be fed from the open side.

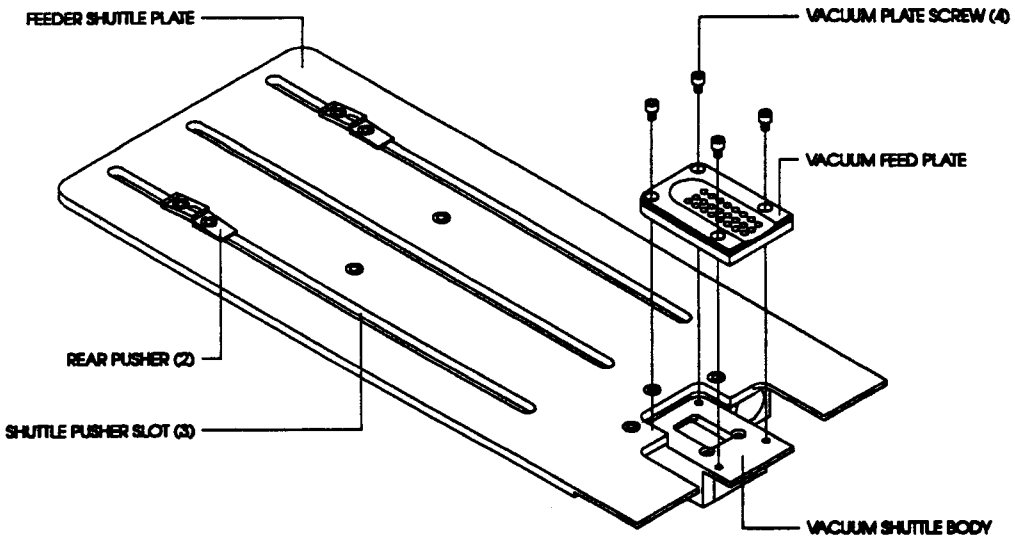


Figure 2.3 - Shuttle feed plate illustrating all adjustment points including the feed plate and pushers.

☛ To Install a Vacuum Feed Plate *(see figure 2.3)*

Upon selecting a feed plate using the criteria defined in ☛ **To Select the Vacuum Feed Plate** *(see figure 2.2)*, the plate will have to be installed on the vacuum shuttle body.

1. Raise the Material Gate sufficiently (approximately 3/16") using the instructions given in ☛ **To Set Material Gate.** This will ensure that the vacuum plate does not interfere with the tip of the material gate after the vacuum plate has been installed.

2. With the handwheel, rotate the machine so that the feeder shuttle plate is fully back, exposing most of the vacuum feed plate.

3. With a 9/64" hex key, loosen and remove all four 8-32 Unf vacuum plate screws. Remove the vacuum feed plate.

4. Place the required vacuum feed plate into position and replace the vacuum plate screws. Do not overtighten these screws as it may result in the threads being stripped in the vacuum shuttle body !

Note : Do not overtighten the vacuum plate screws as it may result in stripped threads located in the vacuum shuttle body.

Cycle the system manually with the handwheel to ensure that the vacuum plate does nor interfere with the material gate tip.

Lifting the material gate using the quick-release mechanism will permit greater access to the vacuum plate during installation.

2.2.2 Upper Feed Roller and Material Gate Adjustment

Upper feed roller and material gate adjustment must be done to accomodate differing mailpiece thicknesses. A successful adjustment of these items will result in a single mailpiece being deposited onto the transport belts without any hint of skewing.

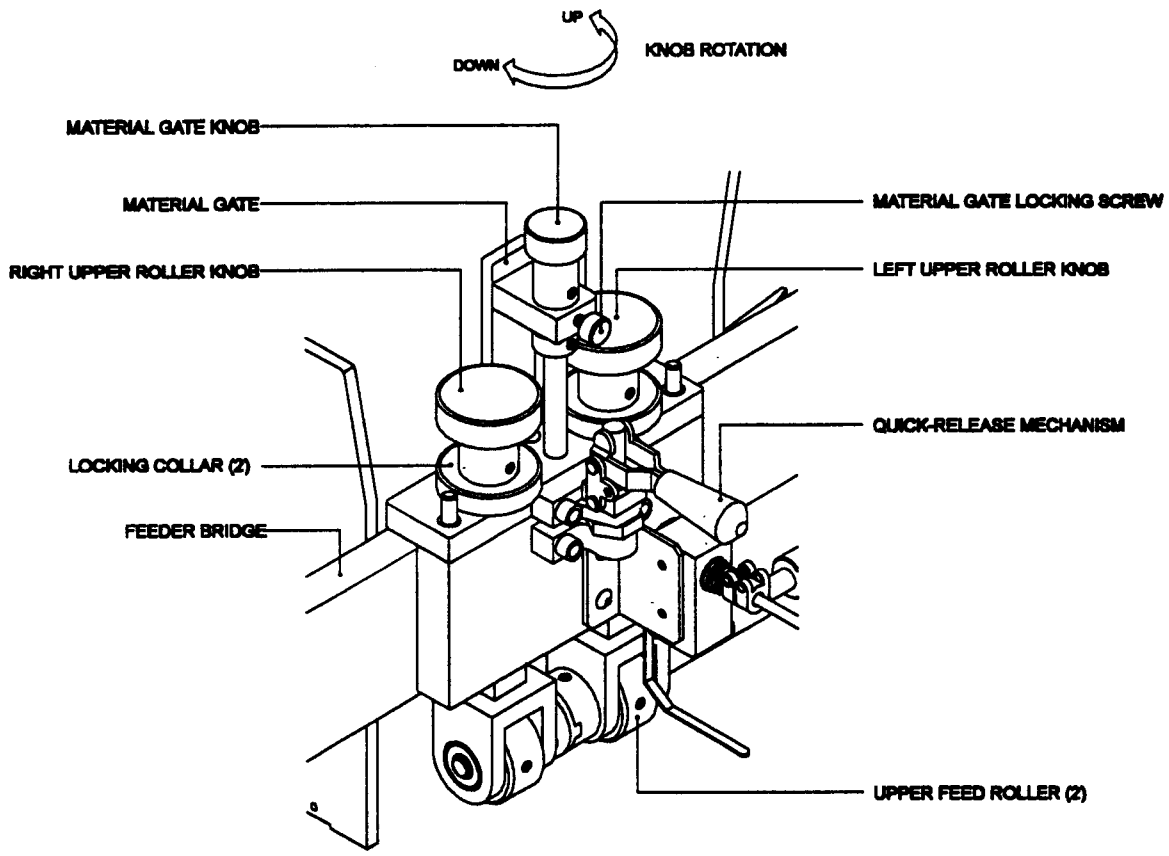


Figure 2.4 - Feeder material gate/ upper feed roller details indicating adjustment points located on the feeder bridge assembly.

☞ To Set the Upper Feed Rollers (see figure 2.4)

When feeding a new mailpiece, it may be necessary to adjust the upper feed rollers to accomodate the mailpiece's thickness. Adjustment should be made so that there is just enough tension on a mailpiece between the upper and lower feed rollers such that it cannot be removed by pulling it. Adjustment of the left and right upper feed roller should be done evenly to prevent the mailpiece from skewing upon exit from the rollers.

☞ To Set the Upper Feed Rollers (continued)

1. Loosen the material gate locking screw. Then loosen the upper feed roller locking collars by rotating them counterclockwise.

2. Raise the material gate sufficiently so that a single mailpiece easily clears its tip. This is done by turning the material gate knob counterclockwise.

3. Raise both the left and right upper feed rollers until a single mailpiece clears both rollers. This is accomplished by turning the feed roller knobs in a counterclockwise direction.

4. Ensure that the lower feed rollers are fully upward. This can be accomplished by rotating the handwheel until the shuttle plate is fully forward.

5. Place the desired mailpiece in between the upper and lower feed rollers. Grip the rear of the mailpiece with one hand and lower the left upper feed roller onto it until firm pressure is applied. (i.e. when it becomes impossible to pull away the mailpiece from under the rollers). A clockwise rotation of the left upper roller knob corresponds to a lowering of the feed roller.

6. Repeat step 5 for the right upper feed roller.

7. When the proper upper feed roller setting has been attained for the mailpiece, tighten the locking collars of the feed roller by rotating them clockwise until they lock against the gate adjuster plate.

NOTE : An improper setting of the upper feed rollers will result in skewed or delayed mailpieces.

Do not overtighten the upper feed rollers as this will result in rapid wearing of the upper and lower feed rollers as well as placing an excessive load on the hopper roller cam assembly. This condition is usually detected when the feed rollers make a "clunking" noise when they meet.

Always make sure that the lower feed rollers are up when making this adjustment, otherwise the aforementioned wear condition may occur.

☞ To Set the Material Gate

1. Ensure that the material gate is in a raised position as described in the previous instructions entitled ☞ *To Set the Upper Feed Rollers.*

2. Turn the vacuum pump on by depressing the **Pump** rocker switch as described in section 2.1, Instrument Panel Function.

3. Place a mailpiece centrally in the hopper and advance the feeder shuttle plate until the lead edge has passed by the material gate. This is accomplished by rotating the handwheel clockwise.

4. Now place a second mailpiece over the first one and lower the material gate onto it by rotating the material gate knob clockwise. Grip the rear of the top mailpiece and pull it away from the material gate; a slight resistance should be present.

5. After removing the top mailpiece, lower the material gate slightly by incrementally rotating the material gate knob clockwise. Do not lower the material gate excessively causing the remaining mailpiece to be pinched.

6. After the proper setting has been attained, tighten the material gate locking screw.

NOTE : An improper gate setting will result in multiple mailpieces being dispensed if the gate is too high. Conversely, damaged or unfed mailpieces will result if the gate is too low.

In the event that a very thin mailpiece is used with a concave plate; it may be necessary to regulate the vacuum flow in addition to adjusting the material gate to obtain the desired result.

When changing feed plates, ensure that the material gate is raised up since interference may occur between the new vacuum feed plate and the material gate. This would result in damage to the vacuum feed plate and possibly the material gate.

2.2.3 Feeder Side and Rear Guide Adjustment

The feeder guides must be set to accomodate differing mailpiece sizes. This adjustment, though quite simple, requires some attention since a setting which is too tight or too loose may cause ineffective material feeding. Typically, a rear guide which is set loosely causes material misfeeds because the mailpiece oscillates back and forth with the shuttle preventing the vacuum from securing and advancing the front of the mailpiece. As well, side guides which are tight causes the material to be pinched and prevents the mailpiece stack from dropping onto the shuttle plate. In addition it is often necessary to remove the side guide bottom plates for thin, narrow mailpieces as these hold up the material and prevents it from being sucked down by the vacuum feed plate.

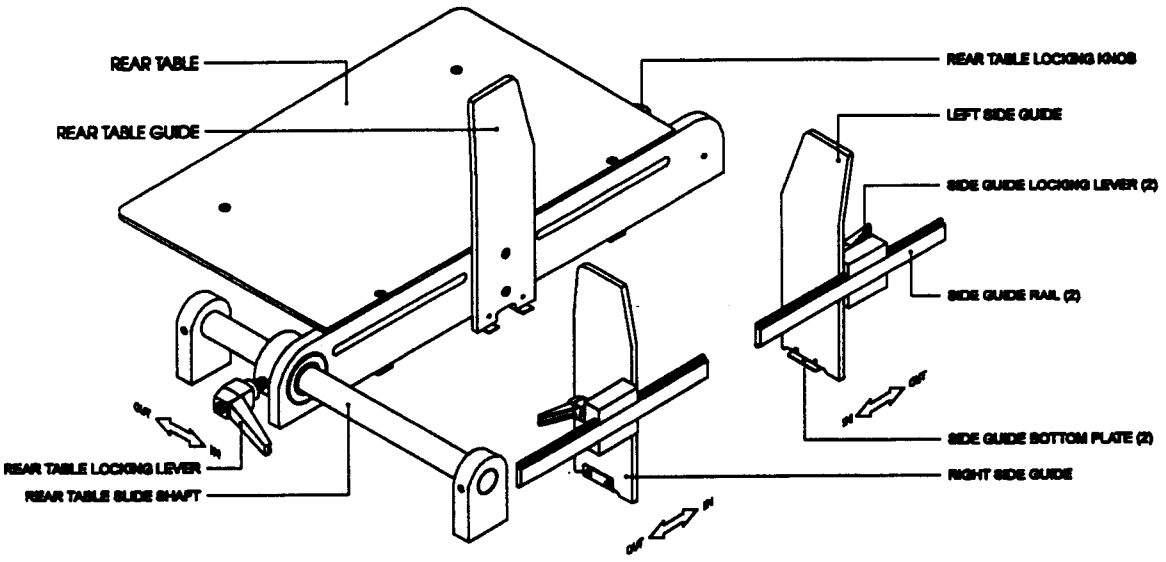


Figure 2.5 - Rear table and side guide illustration indicating the various adjustment points when setting up the hopper material guides.

Installation of the vacuum feed plate *(See ☞ To Install a Vacuum Feed Plate)* and adjustment of the feed rollers *(See ☞ To Set the Upper Feed Rollers)* and material gate *(See ☞ To Set the Material Gate)* should be done prior to setting the material guides as the guides are usually moved when performing the aforementioned setup steps.

☞ To Set the Feeder Side Guides (see figure 2.5)

The feeder's side guides mounted on slide rails on the feeder bridge, are used to align the mailpiece stack centrally in the feeder hopper so that the mailpiece is transported evenly on the belts.

1. Loosen the rear table locking lever and remove the rear table locking knob by turning it counter-clockwise. Slide the rear table assembly back to a fully open position.

2. Loosen both left and right side guide locking levers and slide both outward to a fully open position.

3. Place the desired mailpiece centrally in the hopper.

4. Slide the left and right side guides inward until both are 1/16" to 1/8" from the side edges of the mailpiece. Ensure that both side guide bottom plates *(if used)* are underneath the mailpiece and then retighten the side guide locking levers.

NOTE : If the guides are closed too tightly against the mailpiece, proper feeding will be affected due to mailpiece pinching.

In the event that the mailpiece is thin and narrow, it is probably best to remove the side guide bottom plates as these sometimes hinder the seperating and feeding operation.

Occasionally due to the edge of the mailpiece which is presented to the material gate, it is better to offset the mailpiece slightly along the centerline in order to improve the feeding operation.

☞ To Set Rear Table (see figure 2.5)

The rear table must be properly set to control the rear of the mailpiece stack so that the mailpieces do not oscillate with the feeder shuttle's motion.

1. Ensure that the rear table is fully backward as described in ☞ *To Set the Feeder Side Guides*.

2. Place a mailpiece in the feeder hopper.

3. Slide the rear table assembly forward until the rear guide is approximately 1/16" (1.5 mm) from the rear of the mailpiece. Ensure that the rear guide bottom plate is underneath the mailpiece.

4. Retighten the rear table locking lever. Place the rear table locking knob in the nearest threaded hole located in the base's tabletop. and tighten it by rotating it in a clockwise fashion.

NOTE : A loose adjustment of the rear table assembly will result in oscillation of the mailpieces resulting in intermittent feeding.

2.2.4 Feeder Rear Pusher Setting

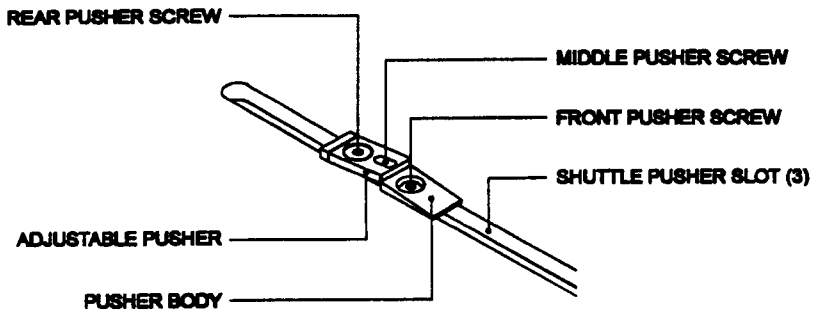


Figure 2.6 - Rear pusher details indicating the location of the various adjustment points.

☞ To Set Rear Pushers for Thick Mailpieces (see figure 2.6)

Rear pushers are to be used if the vacuum feed plate is not sufficient to advance the mailpiece into the feed rollers. This condition may present itself with thick, heavy mailpieces. Adjustment of the rear pushers may best be accomplished with the rear table fully back.

1. Rotate the handwheel in a clockwise direction until the shuttle plate is fully back.
2. With a 3/32" hex key, loosen the front and rear pusher screws until the pusher assembly is just loose. If both pushres are used, loosen the screws for the second pusher assembly.
3. Slide the pusher(s) fully back in the slots of the shuttle plate.
4. Place a mailpiece in the feeder hopper.
5. Advance the pusher(s) until it is up against the rear of the mailpiece. With the 3/32" hex key, set the height of the pusher just below the top surface of the mailpiece, by rotating the middle pusher screw. A clockwise rotation corresponds to a lowering of the pusher.
6. After the proper height has been attained, set the pusher(s) so that the pusher is approximately 1/8" (3 mm) from the rear edge of the mailpiece.
7. Tighten both the front and rear pusher screws using the 3/32" hex key.
8. Set the rear table as per instructions provided in ☞ *To Set Rear Table (see figure 2.5).* Ensure that the rear pushers do not remain under the mailpiece stack when the shuttle plate is fully back. If the pushers do in fact remain under the bottom mailpiece, repeat steps 2 to 7.

NOTE : Two pushers are provided with the BK400 inkjet base. In the case of a narrow piece, only one pusher in the central pusher slot may be required.

An improper pusher setting will result in a damaged or jammed mailpiece if the pusher is set too high. Conversely, a pusher which is set too low or too far away will have no effect on feeding performance .

2.3 Skidbar and Material Side Guide Adjustments

Proper adjustment of the skidbar assembly and material side guides will permit dependable and accurate feeding of the mailpieces so that they are correctly aligned when presented under the printhead(s). The objective of this section of the transport base is to straighten out any mailpiece which may come out of the feeder in a skewed manner such that when the printheads produce the image, it will be placed properly and accurately onto the mailpiece.

As there is no vacuum applied to the belts in this section of the transport, it is the skidbar's purpose to provide positive mailpiece movement in this area by forcing the mailpiece against the central transport belt. Both material side guides provide the ability to correct any material skew which may be caused by the feed rollers. When adjustment of the side guides is performed, it is imperative that they not squeeze and retard the advancing mailpiece as this would result in incorrect print positioning.

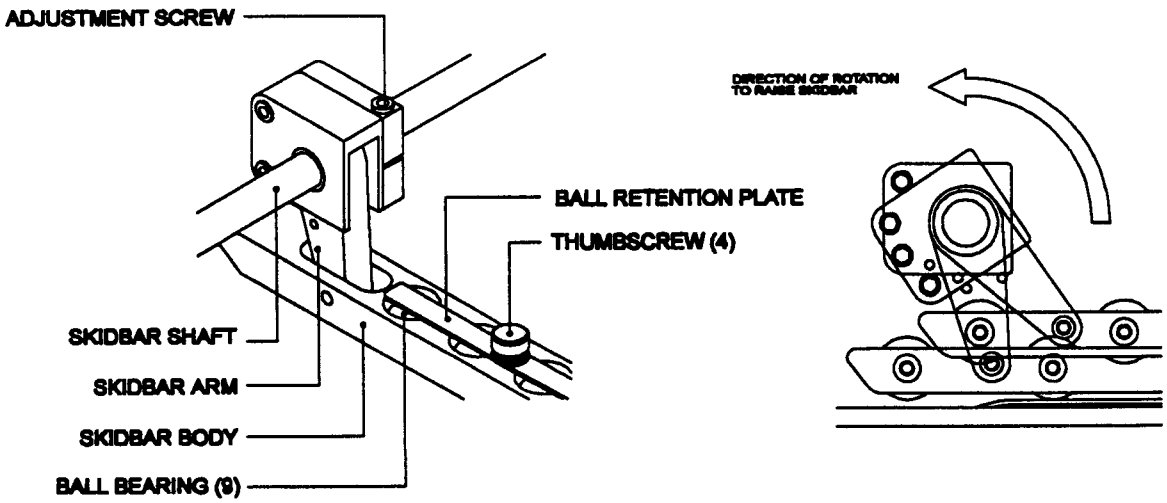


Figure 2.7 - Skidbar adjustment points including an illustration of the height adjustment method.

☞ To Make a Skidbar Adjustment (see figure 2.7)

A proper skidbar adjustment is essential to ensure positive skew-free transport of the mailpieces. The skidbar is used in conjunction with the transport side guides to eliminate and correct any skewed mailpieces prior to the inkjetting process.

1. After the feeder has been setup as described previously in *Section 2.2 , Feeder Setup Instructions,* place a stack of mailpieces in the feeder hopper. Ensure that the vacuum pump is operating by placing the **Vacuum** rocker switch to the ON position.
2. Loosen both skidbar adjuster screws using a 9/64" hex key and raise the skidbar away from the transport belts to ensure unencumbered passage of a mailpiece.
3. Rotate the handwheel clockwise until a mailpiece has been completely fed onto the table belts.
4. Lower the skidbar onto the mailpiece until the skidbar's ball bearings contact the upper surface and pressure is applied.
5. While holding the skidbar down (slight spring tension exerted on the skidbar), retighten both skidbar adjuster screws.
6. Some of the ball bearings may have to be removed to prevent mailpiece buckling at the feed rollers. To do this, manually lift the skidbar and rotate the handwheel to permit the feeding of a mailpiece. Halt the feeding of the mailpiece the instant the trailing edge of the mailpiece just clears the feed rollers. Release the skidbar onto the mailpiece.
7. Loosen and remove the thumbscrews holding the ball retention plate. Now remove all the ball bearings contacting the surface of the mailpiece. If a ball bearing just makes contact with the mailpiece at its lead edge, it may be left in place.
8. Replace and tighten the ball retention plate against the ball bearings by turning the thumbscrews in a clockwise fashion.

NOTE : An improper skidbar adjustment may cause inconsistent transportation of the mailpiece resulting in jams and improper inkjet image positioning. If there is sufficient retardation of the mailpiece, an inkjet image may completely miss the mailpiece and/or the piece will become trapped in the transport track resulting in a Photo Eye Jam message.

If sufficient balls are not removed and firm pressure is applied to the mailpiece, buckling of the mailpiece will occur; This may cause mailpiece jams at the feeder resulting in a Feeder Jam message.

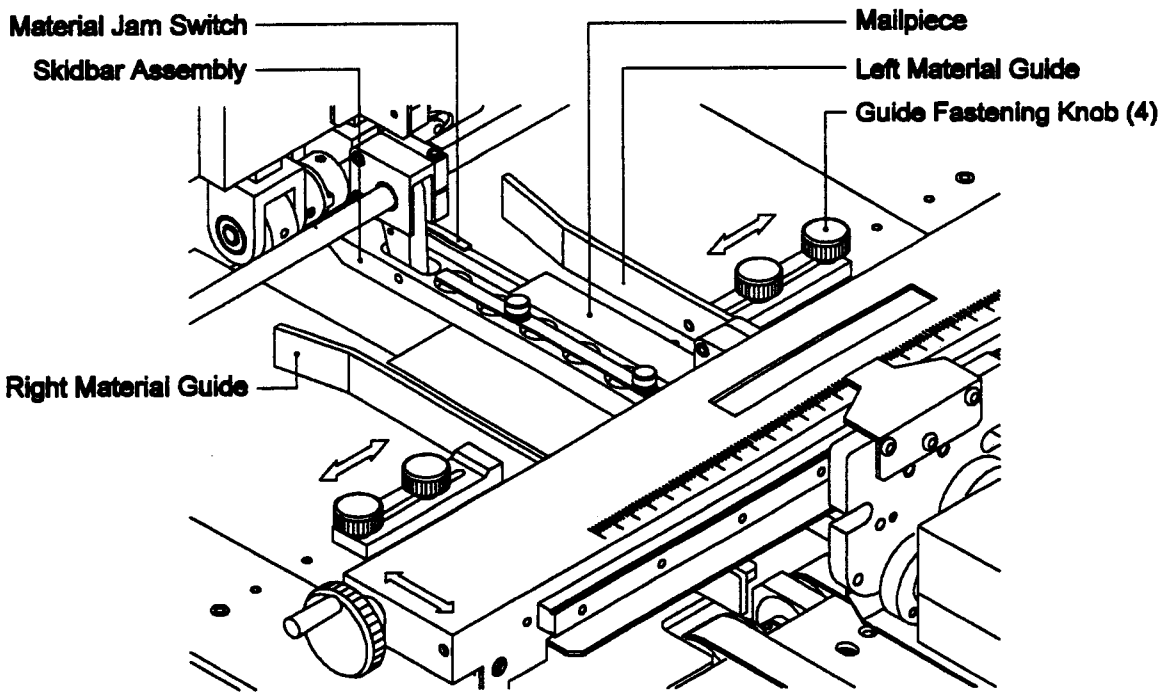


Fig 2.8 - Outfeed section of the feed rollers illustrating the material side guides and the skidbar.

☞ To Adjust the Material Side Guides (See figure 2.8)

The material side guides must be set correctly to ensure that the mailpieces are directed in a straight fashion into the inkjet imaging area. These guides, used in conjunction with the skidbar, can correct mailpiece skewing.

1. Loosen off the two fastening knobs present on each material side guide. Remove them.
2. Turn the vacuum pump ON and place mailpieces in the feed hopper. Rotate the handwheel in a clockwise fashion to cycle the machine and dispense a mailpiece onto the transport belts. Stop the rotation the instant the trailing edge of the mailpiece has cleared the feed rollers.
3. Place the left and right side guides about 1/16" to 1/8" from the corresponding edge of the mailpiece. Ensure that the guides do not pinch the mailpiece anywhere along its edges.
4. Replace the fastening knobs in the nearest threaded holes located in the base's tabletop, and by turning them in a clockwise fashion, retighten them.
5. Dispense another mailpiece onto the transport belts by rotating the handwheel and check that the mailpiece's path is unobstructed by the material side guides; If so repeat steps 1 to 4.

Note : If the material side guides are improperly set, the mailpiece may become trapped between them and/or cause a jam at the output of the feed rollers.

The Material Jam switch may trigger resulting in a system stoppage if the material side guides and/or skidbar are incorrectly set.

2.4 Vacuum System Adjustments

The vacuum system consists of an On/Off **Vacuum** circuit breaker switch; a vacuum pump; a vacuum distribution block featuring a relief valve and vacuum gauge; and two hoses which lead to the vacuum table and feeder vacuum plate respectively. The larger diameter hose leading to the feeder station is equipped with a shutoff valve in order to regulate the vacuum for light mailpieces *(See figure 2.9)*.

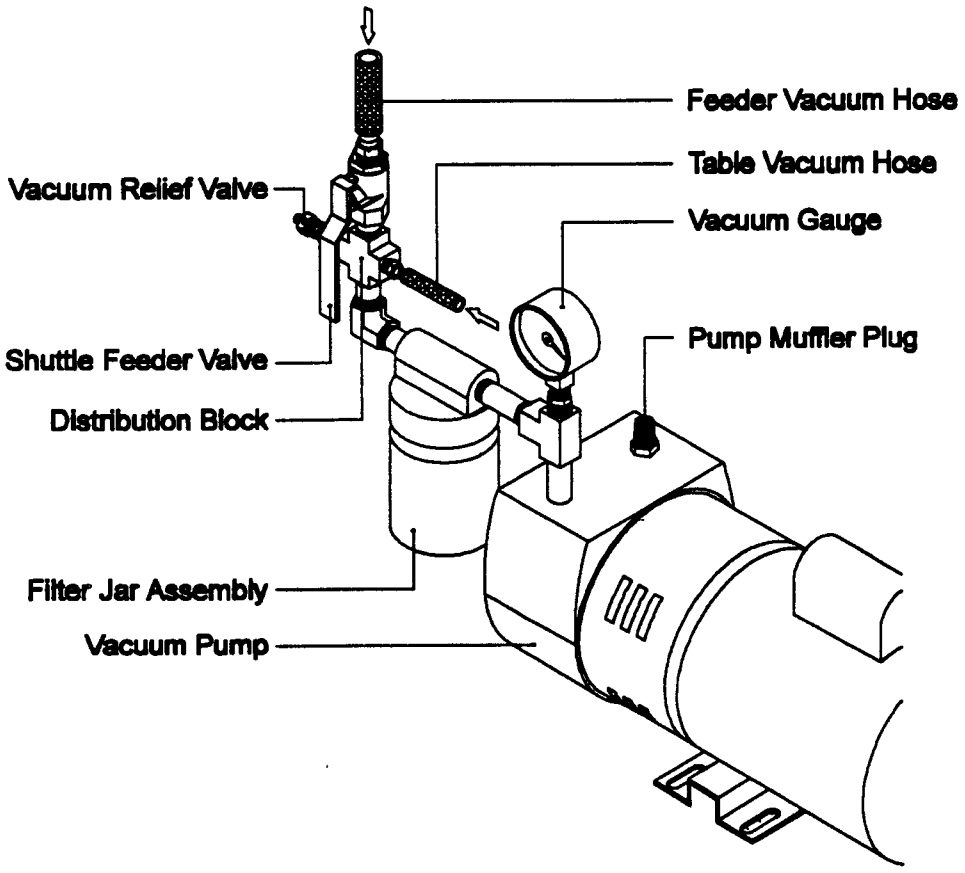


***Figure 2.9** - Vacuum Pump System illustrating relief valve,shuttle feeder valve, filter jar assembly, vacuum gauge and hose locations.*

Adjustments to the vacuum system are simple and accomplished quite readily by an operator. Most adjustment points are situated on the distribution block with filter replacement being done at the filter jar assembly. Vacuum pressure regulation in the range of 20 to 25 In. Hg is provided by the vacuum relief valve and is observed at the vacuum gauge. Should vacuum pressure remain persistently low even after filter replacement and relief valve adjustment, it may be necessary to replace the pump vanes which should only be performed by the factory or an authorized dealer.

2.4.2 Feeder Vacuum Valve Adjustments

The spool valve which controls the vacuum flow to the vacuum feed plate *(See 2.2.1 Vacuum Plate Selection and Installation)* must be properly set to ensure optimum performance of the feeder station. The correct vacuum setting is such that when the shuttle plate is completely back, the vacuum is fully ON; and, conversely, it must just go OFF when the leading edge of the mailpiece is 1/4" (6 mm) past the feed rollers.

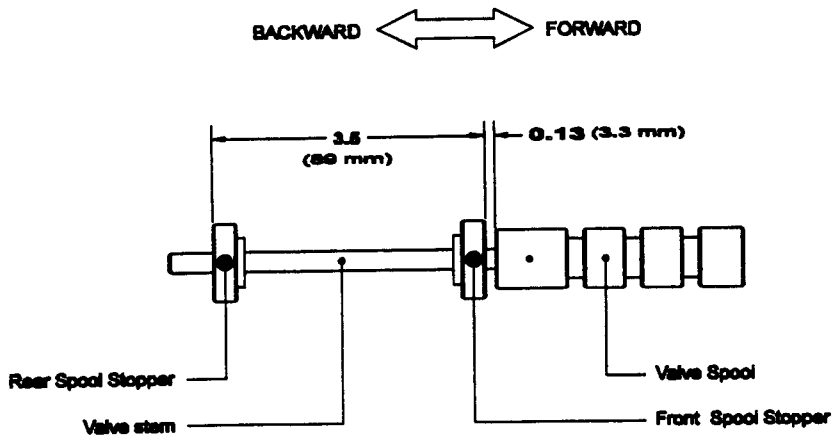


***Figure 2.10** - Spool valve assembly illustrating the initial settings for the front and rear spool stoppers. Arrow indicates shuttle feed plate movement.*

The spool valve controls the sequencing of the vacuum supply to the vacuum feed plate permitting proper mailpiece seperation and dispensation. The front spool stopper regulates the vacuum turn-ON time which occurs when the shuttle feed plate is fully back causing the vacuum feed plate to "pull down" (seperating) the next mailpiece from the stack; Vacuum supply just begins when the shuttle feed plate is 1/8" (3mm) from the fully back position and is completely supplied at the fully back position. Once the vacuum is ON, it remains so until the rear spool stopper disengages it 1/4" past the center of the feed rollers. Improper setting of the front spool stopper will cause a partially obstructed vacuum port resulting in insufficient vacuum being supplied to the feeder.

The rear spool stopper's task is to shut-OFF the vacuum after the front of the vacuum feed plate has past the center of the feed rollers by 1/4" (6 mm) with the objective being to keep the vacuum supply ON until the shuttle feed plate has brought the seperated mailpiece into the feed rollers whereupon it is dispensed onto the transport belts. If vacuum is maintained too long, the mailpiece may be damaged as the feed rollers would attempt to advance it while the vacuum would continue to "hold it down" acting as a brake; Conversely, if the vacuum is not maintained ON long enough, the mailpiece might slip with its lead edge not being deposited between the feed rollers resulting in a misfeed.

☞ To Set Vacuum Level (25 In.Hg) (See Fig. 2.9)

Peak feeder performance is achieved when the vacuum level is set to its maximum which is in the 20 - 25 In.Hg range. Adjustment is made via the vacuum relief valve situated on the distribution block *(See Figure 2.9)*.

1. Remove the front panel door to expose the vacuum pump and distribution block.
2. Close the shutoff valve *(See fig. 2.9)* by rotating it fully clockwise so that the valve handle points to the right (towards vacuum pump).
3. Completely restrict the vacuum to the table vacuum hose by kinking it with your hands.
4. Turn the vacuum pump ON with the **Vacuum** switch located on the instrument panel *(See Figure 2.1)*.
5. Take a vacuum level reading from the vacuum gauge. If it appears low (< 20 In. Hg.), an adjustment of the vacuum relief valve will be required.
6. Place a flat screwdriver in the vacuum relief valve slot, and, with the other hand, rotate the nut in a clockwise direction in order to compress the spring. Keep rotating downward until maximum pressure (25 In. Hg.) has been attained.

Note : If after this adjustment has been completed, the vacuum level is still below acceptable values (< 20 In. Hg.) and the filter has been replaced, it may be necessary to replace the vacuum pump vanes. This should only be done by an authorized technician.

If it appears that the vacuum pump vanes are worn, please contact your dealer or the factory for assistance.

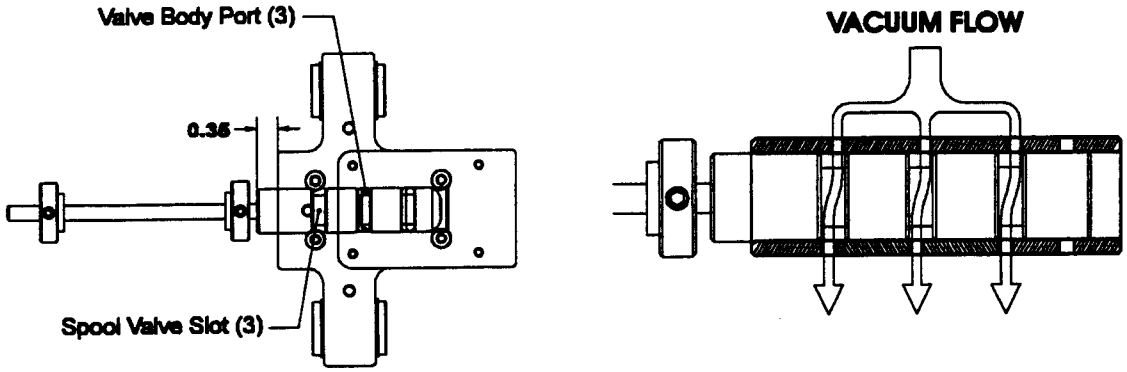


***Figure 2.11** - Feeder vacuum valve assembly illustrating the location of the spool assembly when the shuttle feed plate has attained its fully back position. Side view shows vacuum flow from the top to the lower valve body port when spool valve slots are properly centered along the ports. End port shown is the vent port which is completely blocked by the spool.*

☞ To Adjust the Front Spool Stopper (Vacuum ON setting)

This adjustment is best accomplished by removing the vacuum feed plate in order to view the spool valve slot alignment with respect to the valve body ports (3) *(See Figure 2.11)*. To remove the vacuum feed plate refer to ☞ *To Install a Vacuum Feed Plate.*

1. Remove the vacuum feed plate following the instructions described in ☞ *To Install a Vacuum Feed Plate.*
2. With a 3/32" hex key, loosen both the front and rear spool stoppers. The spool stopper screws should be accessed through the central pusher slot of the shuttle feed plate *(See Figure 2.3)*. If the screws are not aligned with the pusher slot, rotate the entire spool valve assembly manually from the bottom of the shuttle feed plate.
3. Adjust the front spool stopper as per the initial setting illustrated in *Figure 2.10;* tighten lightly onto the valve stem with a 3/32" hex key. Repeat for the rear spool stopper.
4. Rotate the handwheel until the shuttle feed plate is fully back. Observe the position of the spool valve's slot with respect to the corresponding valve body's port. The spool valve's slot should be centered over the upper and lower ports with no slot edges showing *(See Figure 2.11)*. If this is not so, the front spool stopper will have to be adjusted; proceed to step 5.
5. Loosen the front spool stopper screw with a 3/32" the hex key.
6. Insert the 3/32" hex key in the rear spool stopper screw, and proceed to move the complete spool valve assembly until the spool valve's slot is centered over the upper and lower valve body ports. No spool valve slot edges should be visible.
7. With a 3/32" hex key, tighten the front spool stopper screw against the valve stem ensuring that the rubber washer and front spool stopper are resting against the Shuttle Slide Shaft Mount (P.N. 330001H).
8. Repeat step 4 to ensure that the front spool stopper is properly set. You can double-check this setting by measuring the distance by which the spool protrudes from the rear of the valve body; This measurment should be 0.35" (8.9 mm) as per *Figure 2.11.*

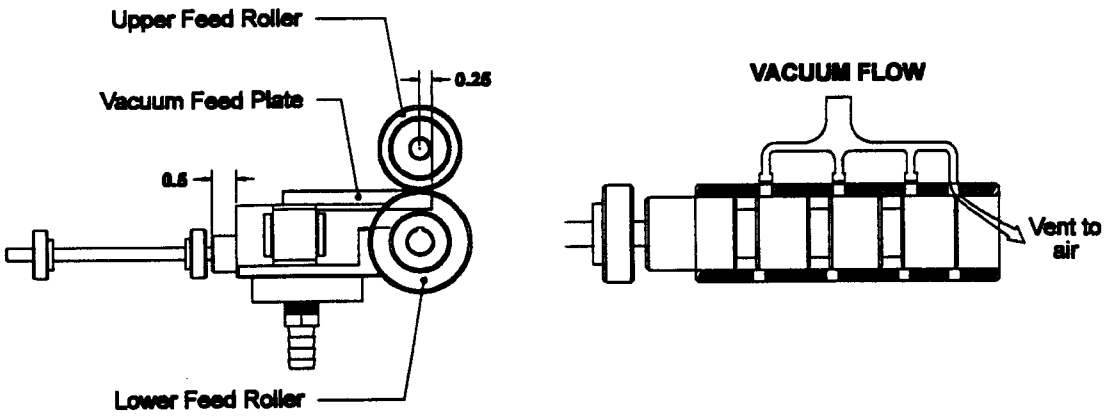


Figure 2.12 - Feeder vacuum valve assembly illustrating the location of the spool assembly when the shuttle feed plate is 1/4" past the center of the feed rollers. Side view shows vacuum flow from the top to the exhaust port when vacuum is released. End port shown is the vent port which is fully open.

☞ To Adjust the Rear Spool Stopper (Vacuum OFF setting)

1. Once the proper position has been achieved for the front spool stopper, it is now necessary to adjust the rear spool stopper such that the vacuum shuts off the instant the lead edge of the vacuum feed plate is 1/4" (6 mm) past the center of the feed rollers. With the initial rear spool stopper setting as per Figure 2.10, rotate the handwheel slowly until the vacuum is just OFF and is no longer supplied to the vacuum feed plate. Measure the position of the lead edge of the vacuum feed plate with respect to the center of the feed rollers.

2a. If the vacuum shuts OFF too soon (i.e the front of the vacuum feed plate position is < 1/4"), then the rear spool stopper moved **backward** the distance necessary to cause vacuum shutoff at 1/4".

- Or -

2b. If the vacuum shuts OFF too late (i.e the front of the vacuum feed plate position is > 1/4"), then the rear spool stopper will have to be moved **forward** the distance necessary to cause vacuum shutoff at 1/4".

3. Once you have determined the amount of movement necessary and the direction in which the rear spool stopper should be moved as per step 2a or 2b, loosen the rear spool stopper screw with a 3/32" hex key.

4. Hold the spool valve assembly stationary by placing a 3/32" hex key in the front spool stopper screw.

☞ To Adjust the Rear Spool Stopper (continued)

5. Place another 3/32" hex key in the rear spool stopper screw and move it according to the distance calculated in step 2a or 2b. Ensure that the rubber washer and rear spool stopper are resting against the Shuttle Slide Shaft Mount (P.N. 330001H) and retighten the screw in the rear spool stopper when the distance has been achieved.
6. Cycle the machine by rotating the handwheel until the vacuum supply is just OFF. Observe the position of the lead edge of the vacuum feed plate with respect to the center of the feed rollers. The distance measured should be about 1/4". If this is not so, the rear spool stopper will have to be re-adjusted by repeating steps 1 to 5.
7. Replace the vacuum feed plate as per ☞ *To Install a Vacuum Feed Plate.*
8. Cycle the machine with the handwheel and ensure that the vacuum sequencing is correct. If not "finetune" the settings as per the previous instructions until proper sequencing is achieved.

NOTE : Valve spool setting is very important to the smooth operation of the feeder station. Incorrect placement of the front and/or rear spool stopper will result in inconsistent or complete failure of the feeding operation.

An improper front spool stopper setting results in insufficient vacuum being supplied to the vacuum feed plate. The resulting lack of optimal vacuum supply may cause inconsistent material feeding because the vacuum feed plate may not be able to "pull down" and "hold onto" the bottom mailpiece.

If the rear spool stopper is improperly set, it will result in inconsistent or no material feeding since the vacuum feed plate is not depositing the front of the mailpiece between the feed rollers. Damage of the mailpiece may also occur if the vaccum holds on too long to a mailpiece after the feed rollers have engaged.

2.5 Belt Pitch Adjustment

The BK400 inkjet base comes standard with two belt pitch settings, 11" (279 mm) and 14.5" (369 mm), to accomodate small (less than 10") and large mailpieces (less than 13.5"). As well, there is an optional 18.68" (474 mm) pitch setting to accomodate mailpieces of 17". Selection of the appropriate pitch setting is accomplished by pulling out or pushing in the handwheel; Pushing in the handwheel results in a pitch setting of 11" (small) while pulling out the handwheel selects the 14.5" or 18.68" pitch setting. For optimum performance, it is always imperative that a mailpiece gap of at least 1" (25mm) exist, anything less results in a "Print Sync" error when operating at high speeds.

Note : When changing pitch settings, ensure that the gears are meshed, otherwise the shuttle feeder may not operate and/or gear damage may occur.

A mailpiece gap of at least 1" (25 mm) is necessary to ensure proper functioning of the printing process.

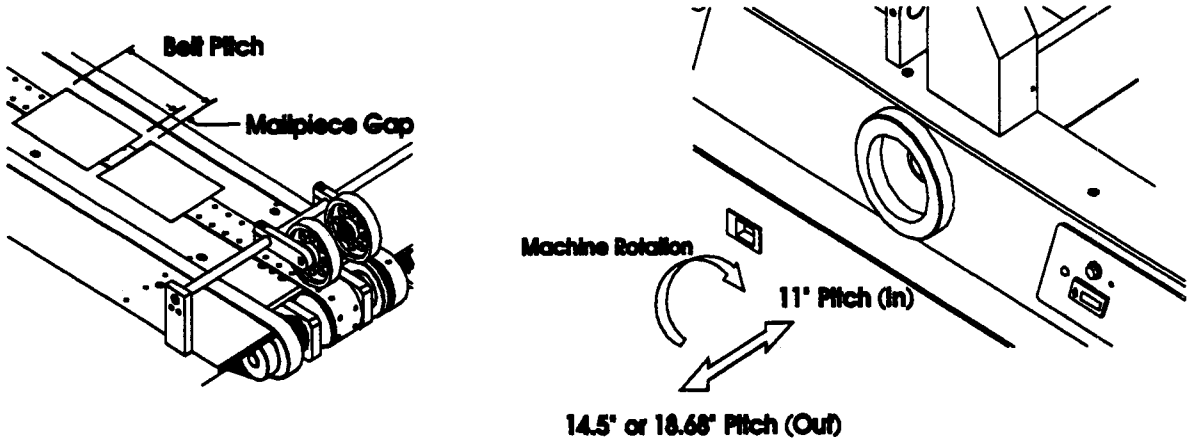


Figure 2.13 - Belt Pitch adjustment points located on the BK400 Inkjet Base and and illustration of the terminology used. Pulling "out" the handwheel results in 14.5" or 18.68" pitch selection whereas pushing "in" selects the 11" pitch setting.

☞ To Select a Belt Pitch Setting

1a. If you wish to select a 11" belt pitch setting for mailpieces under 10" in length, then grip the handwheel and push it in. If there are difficulties doing this, rotate the handwheel slightly to permit the gear set to mesh.

-OR-

1b. If you wish to select a 14.5" or an 18.68" belt pitch setting for mailpieces under 13.5" and 17.5" respectively, then grip the handwheel and pull it out.

Cycle the machine by turning the handwheel in the direction shown in Figure 2.13 and ensure that the feeder delivers the mailpiece using the selected belt pitch, if not, repeat step 1a or 1b. If the feeder does not cycle, the gears are not meshed, a repeat of steps 1a or 1b will have to be done.

2.5 Belt Pitch Adjustment

The maintenance schedule table presented below applies to equipment which is operated daily on an 8 hour basis. If the equipment is to be used more frequently than the aforementioned operating standard, please adjust your schedule accordingly.

Table 2.1 - Maintenance Schedule Table

Period	Maintenance Function
Daily	Wipe table surface clean of paper dust and other accumulated debris Remove the front door and clean any debris which may have fallen into the machine Check the vacuum filters. If they appear to be clogged, remove them from the jars and clean them. If they are beyond cleaning, replace the vacuum filters (P.N. 802036) Wipe away any ink which may have settled on the tabletops, belts, and rollers. Use of Fastdri maintenance spray (P.N. 800814) will facilitate the ink removal procedure.
Monthly	Grease gears accessible though the Rear Gear Cover (P.N. 700030H). *See Appendix A, drawing BK400A (pp A1-A2).* Special gear grease oil such as **Shell Capac lube** is recommended. Grease pitch setting gears located at the front of the machine behind the handwheel. These gears are accessed from the inside of the machine by removing the front door. Special gear grease oil such as **Shell Capac lube** is recommended. Remove vacuum feed plate and clean the vacuum valve assembly removing any dust which may be present *(see ☛ To Install a Vacuum Feed Plate* (Figure 2.3)). This may best be accomplished with a small compressor. Clean vacuum lines and fittings with compressed air.
Semi Annually	Remove tabletops and examine all mechanical drive components for wear. Replace if necessary. Grease all bearings which require it. These bearings are equipped with grease nipples. Use any commercially available grease. Examine the table belts and feed rollers for wear. Replace if necessary. Remove the feeder shuttle plate and clean the exposed shuttle mechanism assembly. *See Appendix A, drawing 325005HA (pp A41).* Apply grease to the hardened shuttle slide shafts (P.N. 100007H) along the contact area of the linear bearings (P.N. 212030). Use a graphite based grease.

Note : Acquiring a small air compressor is recommended. Compressed air is useful in removing debris and is indispensable in cleaning out the vacuum systems.

Mechanical Drawings

BK400, Inkjet Base Assembly

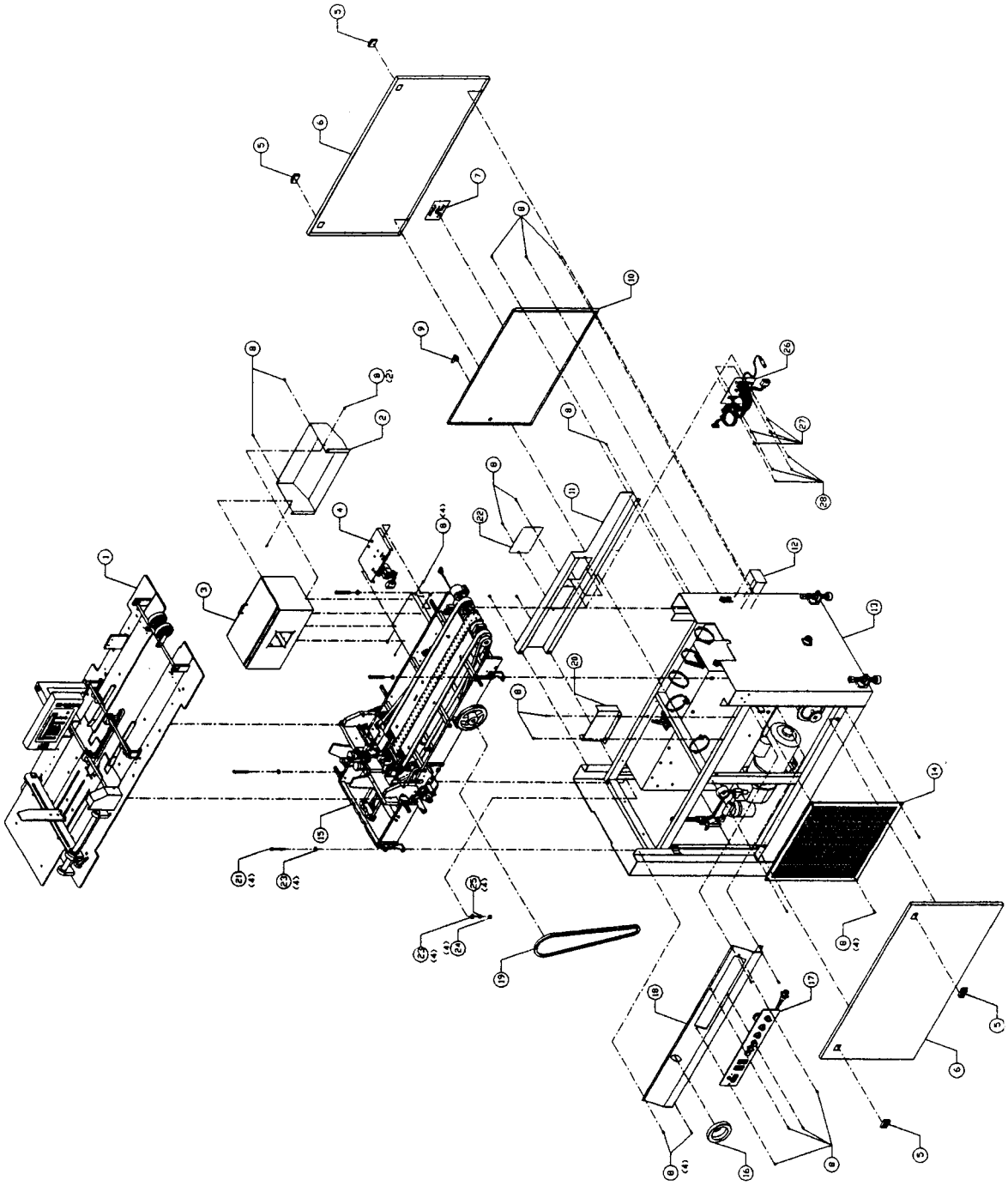
- **300323A**, Base Mechanical Assembly
  - **100320A**, Mainshaft Assembly
  - **100321A**, Idler Shaft Assembly
  - **106323A**, Table Belt Roller Assembly
  - **300321A**, Left Sideframe Assembly
  - **300322A**, Right Sideframe Assembly
  - **300329A**, Feeder Bridge Assembly
  - **325005HA**, Shuttle Feeder Assembly
  - **325325A**, Vacuum Belt Tabletop Assembly
- **325321A**, Tabletop Assembly
  - **100314A**, Outfeed Roller Assembly
  - **325011A**, Rear Table Assembly
    - **310010A**, Rear Table Crossmember Assembly
  - **330301A**, Skidbar Assembly
  - **330322A**, Keypad Mount Assembly
- **700332A**, Base Mechanical Assembly
  - **706330A**, Electrical Box Assembly
    - **706317A**, Computer Cage Assembly
    - **706331A**, Base Control Board Assembly
      - **615330A**, Terminal Block 1 Assembly
      - **615331A**, Terminal Block 2 Assembly
    - **706338A**, Power Supply Mount Assembly
  - **706332A**, Connector Plate Assembly
  - **800001A**, Motor Assembly
  - **802006A**, Vacuum Distributor Assembly
- **700334A**, Inkwell Container Assembly
- **706335A**, Instrument Panel Assembly
- **713322A**, Priming Pump Assembly

330450A, Printhead Bridge Assembly

BK602 (A,F,H, or V), Twin Printhead

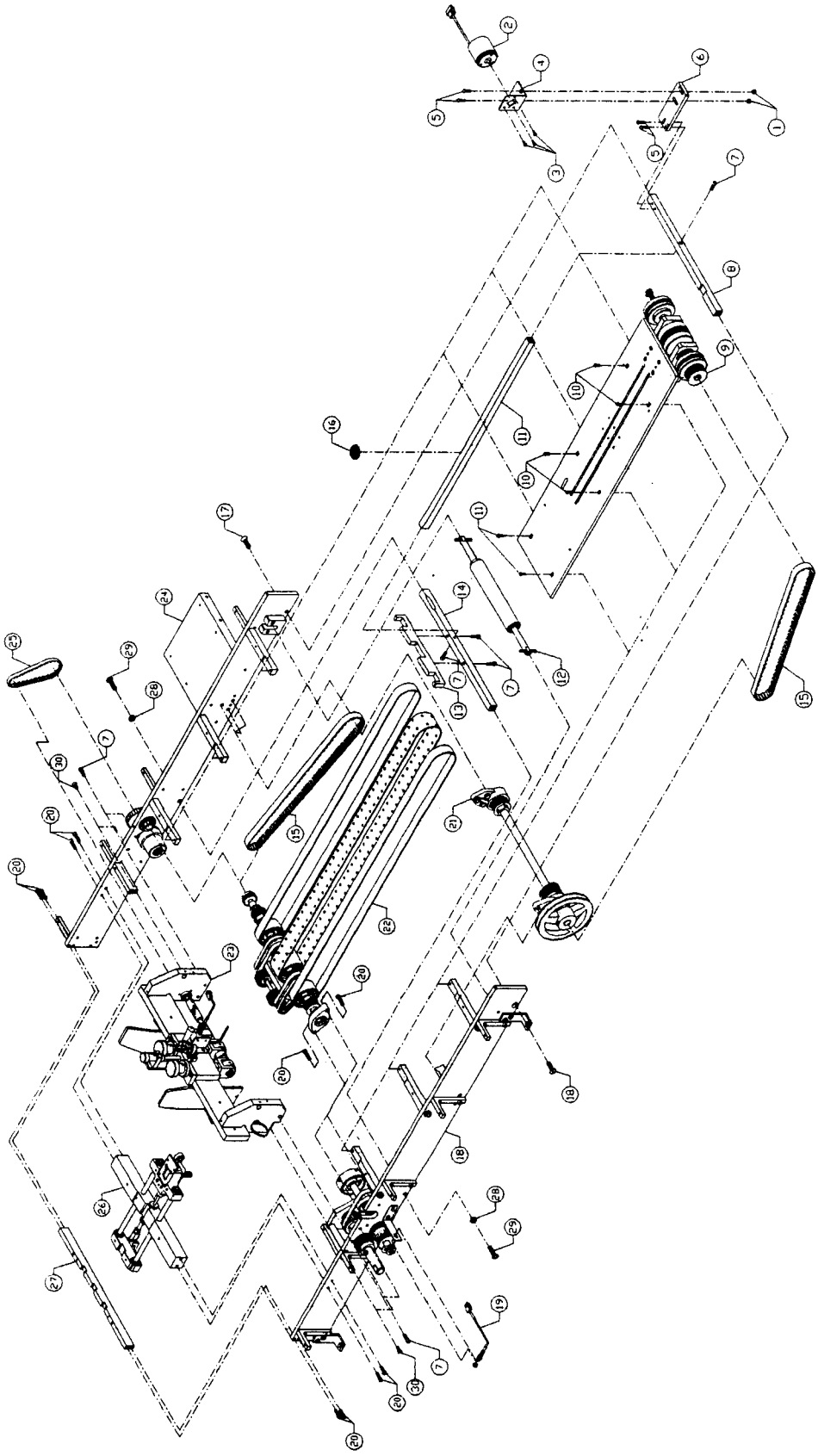
BK601 (A,F,H, or V), Single Printhead

BK400A, Inkjet Base Assembly



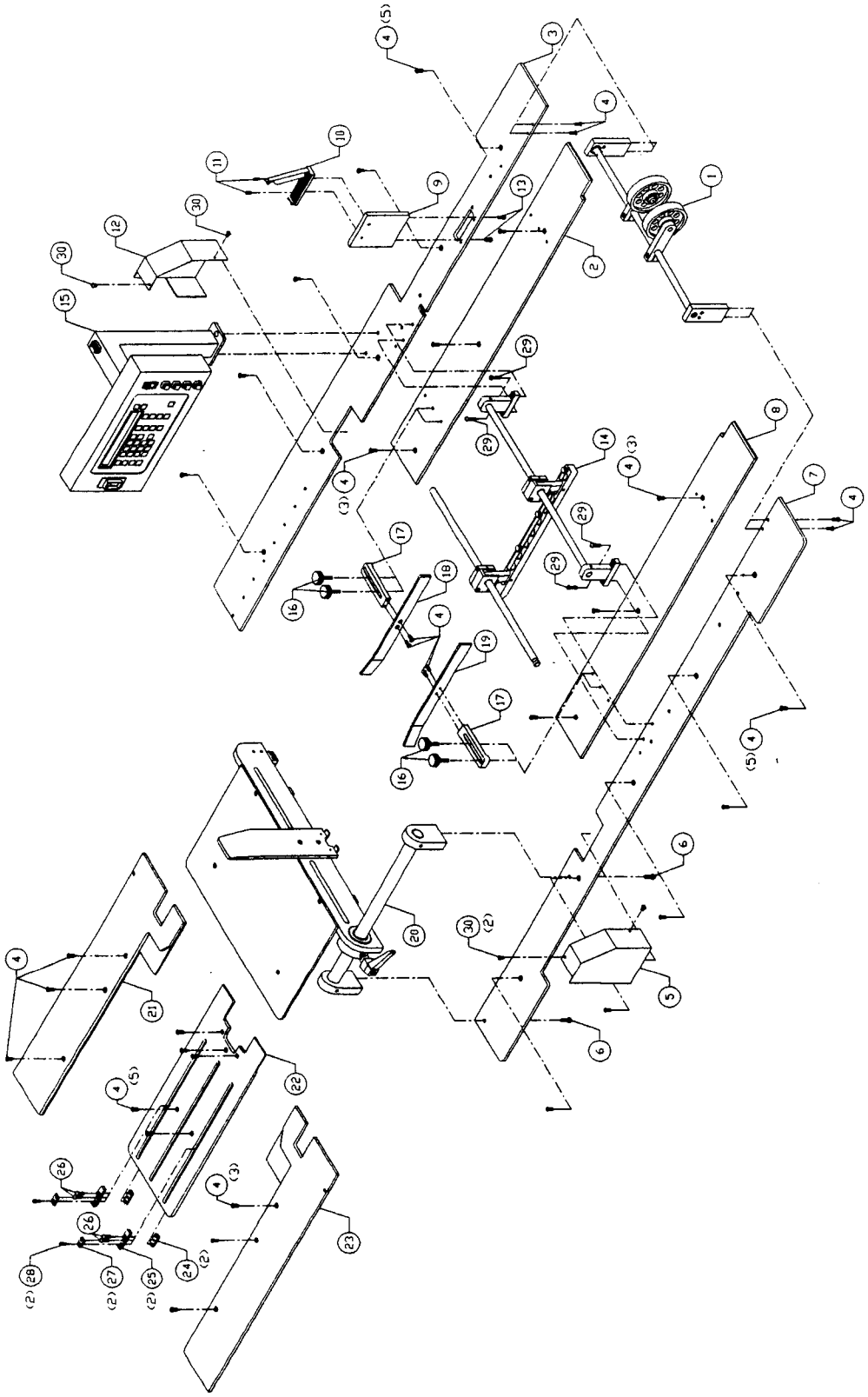
	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	325321A	1	TABLETOP ASSEMBLY	Page A5-A6
2	707330	1	INKWELL SUPPORT	
3	700334A	1	INKWELL CONTAINER ASSEMBLY	Page A9
4	713322A	1	PRIMING PUMP ASSEMBLY	Page A11
5	446000	4	SLIDE LATCH	
6	700040H	2	CABINET DOOR	
7	803010	1	WARNING LABEL "HIGH VOLTAGE"	
8	404520	30	SCREW, BHCS, 10-32 UNF X 3/8"	
9	615313	1	CAM LOCK, 5/8"	
10	700330	1	ELECTRICAL BOX DOOR	
11	700331	1	REAR TOP COVER	
12	803001	1	SERIAL PLATE	
13	700332A	1	BASE CABINET ASSEMBLY	Page A7-A8
14	700041	1	PROTECTIVE SCREEN	
15	300323A	1	BASE MECHANICAL ASSEMBLY	Page A3-A4
16	127004	1	HANDWHEEL	
17	706335A	1	INSTRUMENT PANEL ASSEMBLY	Page A10
18	700332	1	BASE INSTRUMENT PANEL	
19	120303	1	MACHINE DRIVE BELT, "V" BELT, A53	
20	700333	1	PULLEY GUARD COVER	
21	407290	4	SCREW, SHCS, 3/8-16 UNC X 3"	
22	700030H	1	REAR GEAR COVER	
23	440020	8	WASHER, 3/8" I.D.	
24	439020	4	LOCKWASHER, 3/8" I.D.	
25	420020	4	NUT, 3/8-16 UNC	
26	706332A	1	CONNECTOR PLATE ASSEMBLY	Page A15
27	420008	4	NUT, 10-32 UNF	
28	439010	4	LOCKWASHER, No.10	

300323A, Base Mechanical Assembly



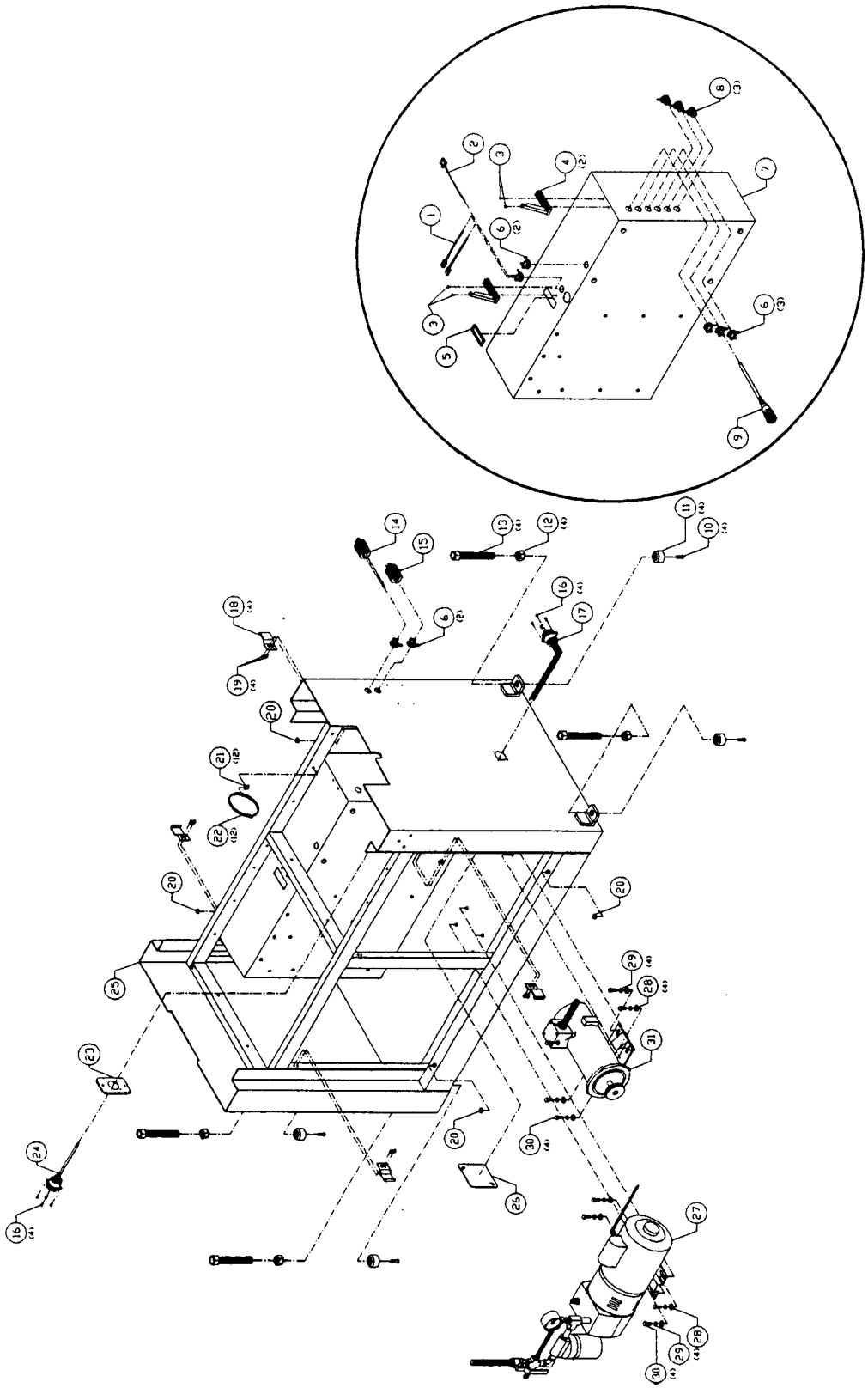
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	420009	2	LOCKNUT, 10-32 UNF	
2	630301A	1	SHAFT ENCODER ASSEMBLY	
3	401315	3	SCREW, PHMS, M4 X 10	
4	330303	1	SHAFT ENCODER BRACKET	
5	404550	4	SCREW, BHCS, 10-32 UNF X 3/4"	
6	330308	1	SHAFT ENCODER MOUNT	
7	405250	8	SCREW, SHCS, 1/4-20 UNC X 3/4"	
8	300325	1	REAR CROSSMEMBER	
9	325325A	1	VACUUM BELT TABLETOP ASSEMBLY	Page A42
10	404530	6	SCREW, BHCS, 10-32 UNF X 1/2"	
11	300324	1	CROSSMEMBER LINK	
12	106323A	1	TABLE BELT TAKEUP ROLLER ASSEMBLY	Page A33
13	343320	1	TABLE BELT GUIDE	
14	300323	1	FRONT CROSSMEMBER	
15	120342	2	FEED ROLLER DRIVE BELT, 420L075	
16	630003	1	REFLECTOR, 35mm DIA.	
17	407070	2	SCREW, FHCS, 3/8-16 UNC X 1"	
18	300322A	1	RIGHT SIDEFRAME ASSEMBLY	Page A37-A38
19	630004A	1	PROXIMITY SENSOR ASSEMBLY	
20	405270	10	SCREW, SHCS, 1/4-20 UNC X 1"	
21	100320A	1	MAIN SHAFT ASSEMBLY	Page A30
22	100321A	1	IDLER SHAFT ASSEMBLY	Page A31-A32
23	300329A	1	FEEDER BRIDGE ASSEMBLY	Page A39-A40
24	300321A	1	LEFT SIDEFRAME ASSEMBLY	Page A35-A36
25	120214	1	UPPER FEED ROLLER DRIVE BELT, 140XL050	
26	325005HA	1	SHUTTLE FEEDER ASSEMBLY	Page A41
27	320001H	1	REAR FRAME SPACER	
28	439020	2	LOCKWASHER, 3/8" I.D.	
29	407675	2	SCREW, HHMS, 3/8-16 UNF X 1 1/4"	
30	405030	2	SCREW, FHCS, 1/4-20 UNF X 1/2"	

325321A, Tabletop Assembly



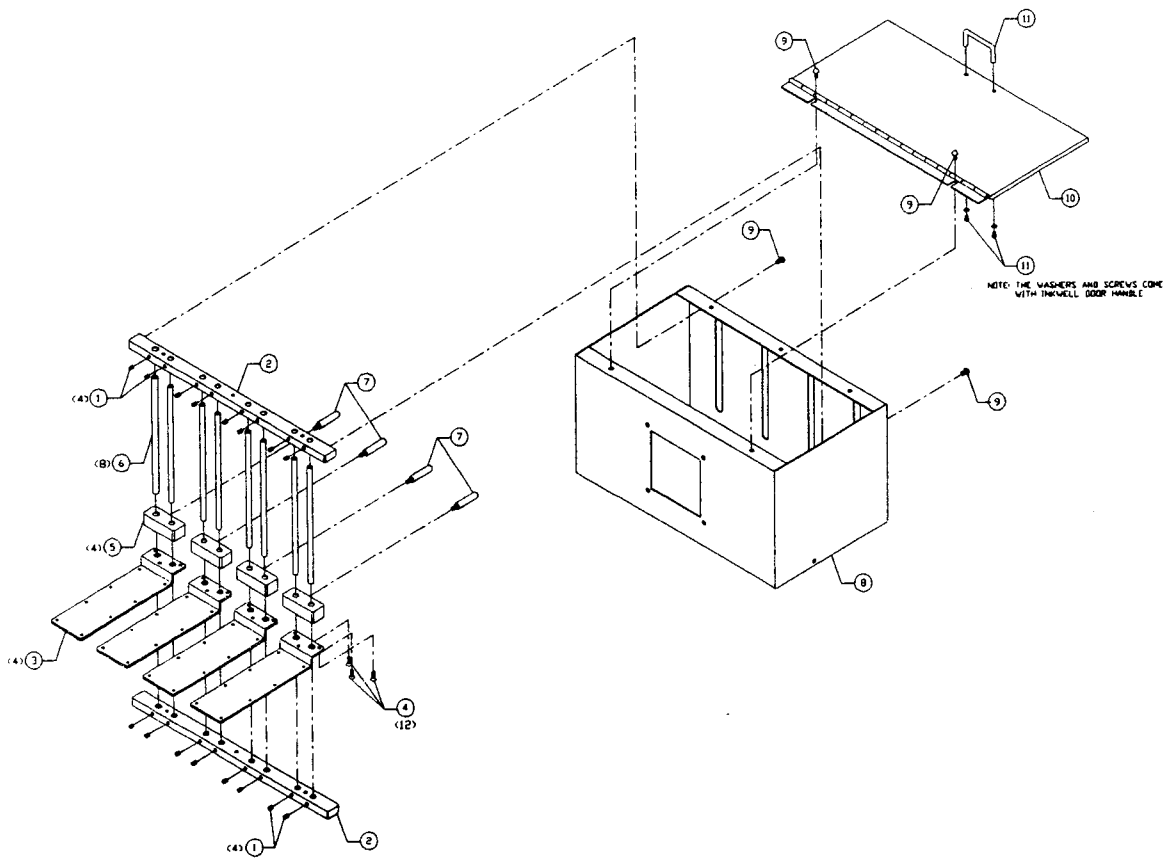
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	100314A	1	OUTFEED ROLLER ASSEMBLY	Page A18
2	325326	1	LEFT REAR TABLETOP	
3	325321	1	LEFT TABLE SKIRT	
4	404030	31	SCREW, FHCS, 10-32 UNF X 1/2"	
5	700009H	1	RIGHT BRIDGE COVER	
6	405540	2	SCREW, BHCS, 1/4-20 UNC X 5/8"	
7	325324	1	RIGHT TABLE SKIRT	
8	325327	1	RIGHT REAR TABLETOP	
9	330323	1	RIBBON CABLE MOUNT	
10	609300	1	RIBBON CABLE TIE MOUNT	
11	402320	2	SCREW, PHMS, 6-32 UNF X 3/8"	
12	700008H	1	LEFT BRIDGE COVER	
13	404530	2	SCREW, BHCS, 10-32 UNF X 1/2"	
14	330301A	1	SKIDBAR ASSEMBLY	Page A20
15	330322A	1	KEYPAD MOUNT ASSEMBLY	Page A21
16	438110	4	SIDE GUIDE KNOB	
17	330321	2	SIDE GUIDE BRACKET	
18	212300	1	LEFT MATERIAL GUIDE	
19	212301	1	RIGHT MATERIAL GUIDE	
20	325011A	1	REAR TABLE ASSEMBLY	Page A19
21	325322	1	LEFT FRONT TABLETOP	
22	325005H	1	FEEDER SHUTTLE PLATE	
23	325323	1	RIGHT FRONT TABLETOP	
24	206006	2	PUSHER SCREW PLATE	
25	206005	2	PUSHER BODY	
26	404540	4	SCREW, BHCS, 8-32 UNF X 5/8"	
27	206007	2	ADJUSTABLE PUSHER	
28	403030	2	SCREW, FHCS, 8-32 UNF X 1/2"	
29	404550	4	SCREW, BHCS, 8-32 UNF X 3/4"	
30	402510	4	SCREW, BHCS, 6-32 UNF X 1/4"	

700332A, Base Cabinet Assembly



NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	614061A	2	JAM/PROXI/PHOTOCUE CABLE	
2	606300A	1	SHAFT ENCODER CABLE	
3	402310	4	SCREW, PHMS, 6-32 UNF X 1/4"	
4	609300	2	RIBBON CABLE TIE MOUNT	
5	615026	1	FLEXIBLE GROMMET EDGING	
6	615131	7	BOX CONNECTOR, 3/8" CABLE	
7	706330A	1	ELECTRICAL BOX ASSEMBLY	Page A13-A14
8	615130	3	BOX CONNECTOR, 3/8" CONDUIT	
9	614052A	1	INSTRUMENT CONTROL CABLE	
10	405250	4	SCREW, SHCS, 1/4-20 UNC X 3/4"	
11	343010	4	BASE MOUNTING FOOT	
12	343016	4	JAM NUT, 3/4-10 UNC	
13	343015	4	BASE MOUNTING LEG	
14	606331A	1	BASE POWER CABLE	
15	614016	1	STRAIGHT BLADE PLUG, 125V	
16	402320	8	SCREW, PHMS, 6-32 UNF X 3/8"	
17	614056A	1	CONVEYOR CABLE ASSEMBLY	
18	717050	4	BASE DOOR CATCH	
19	404520	8	SCREW, BHCS, 10-32 UNF X 3/8"	
20	440510	4	RUBBER WASHER, 1/4" I.D.	
21	615103	12	TIE WRAP MOUNT	
22	615141	12	LASHING TIE	
23	615154	1	RECEPTACLE COVER, w/ CUTOUT	
24	614050A	1	MAIN POWER CABLE ASSEMBLY	
25	713307A	1	BASE CABINET SHELL ASSEMBLY	
26	615153	1	BOX COVER, 4" X 4"	
27	802006A	1	VACUUM DISTRIBUTOR ASSEMBLY	Page A17
28	440015	8	WASHER, 5/16" I.D.	
29	439015	8	LOCKWASHER, 5/16" I.D.	
30	406650	8	SCREW , HHMS, 5/16-18 UNC X 3/4"	
31	800001A	1	MOTOR ASSEMBLY	Page A16

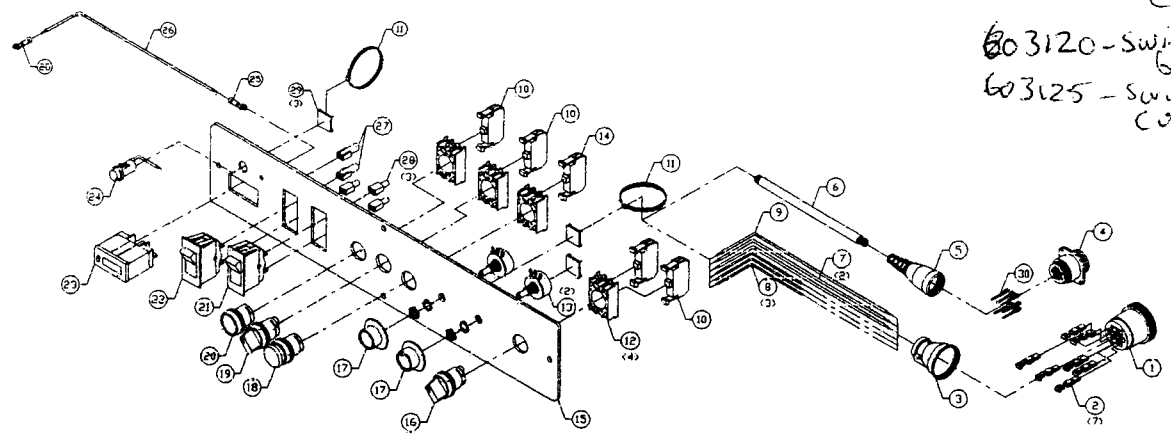
700334A, Inkwell Container Assembly



NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	404810	16	SCREW, SHSS, 10-32 UNF X 1/4"	
2	310311	2	INKWELL RACK FRAME	
3	706314	4	INKWELL PLATE	
4	403020	12	SCREW, FHCS, 8-32 UNF X 3/8"	
5	212314	4	INKWELL SLIDE BLOCK	
6	310310	8	INKWELL SLIDE ROD	
7	438312	4	INKWELL HANDLE	
8	711310	1	INKWELL CONTAINER	
9	404520	4	SCREW, BHCS, 10-32 UNF X 3/8"	
10	700334	1	INKWELL CONTAINER DOOR	
11	438314	1	INKWELL DOOR HANDLE	

706335A, Instrument Panel Assembly

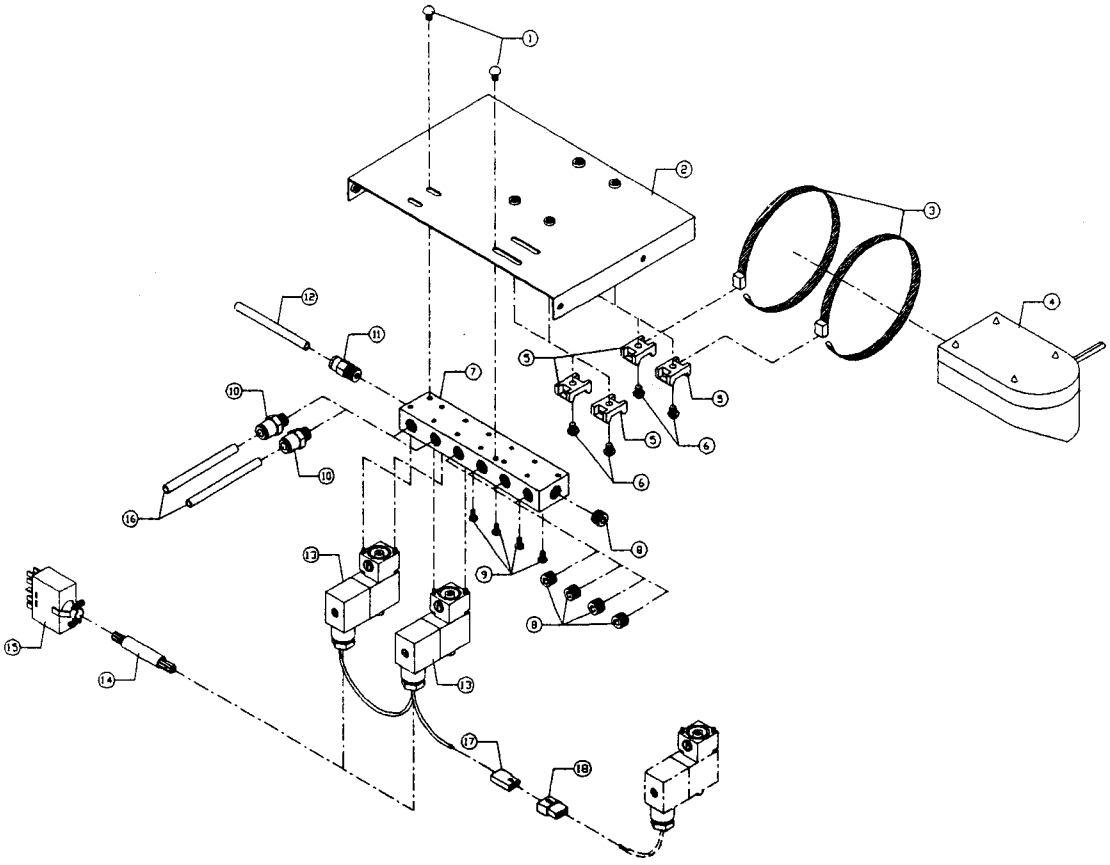
603126 - Block N.O. Contact
603120 - Switch green button
603125 - Switch locking collar



NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	614105	1	RECEPTACLE PLUG 23-7	
2	614109	6	MALE CONTACT, PIN	
3	614113	1	CABLE CLAMP	
4	614101	1	RECEPTACLE,17-16	
5	614111	1	CABLE BOOT, FLEXIBLE	
6	606016		CABLE, #22-15, SHIELDED, 32" LONG	
7	606009		WIRE, #16, WHITE, HOOKUP, 56" LONG	
8	606010		WIRE, #14, BLACK, HOOKUP, 56" LONG	
9	606000		WIRE, #16, BLACK, HOOKUP, 56" LONG	
10	603126	4	BLOCK, N.O. CONTACT	
11	615140	10	LASHING TIE	
12	603125	4	SWITCH LOCKING COLLAR	
13	600007	2	POTENTIOMETER, 5K OHM, 1/4 WATT	
14	603127	1	BLOCK, N.C. CONTACT	
15	706335	1	INSTRUMENT PANEL PLATE	
16	603123	1	SWITCH, 3 POSITION ROTARY KNOB	
17	613002	2	KNOB, 36mm SKIRTED	
18	603121	1	SWITCH, RED MUSHROOM PUSH BUTTON	
19	603122	1	SWITCH, 2 POSITION ROTARY KNOB	
20	603120	1	SWITCH, GREEN PUSH BUTTON	
21	603118	1	CIRCUIT BREAKER SWITCH, 10 A, 1 POLE	
22	603320	1	CIRCUIT BREAKER SWITCH, 20 A, 1 POLE	
23	600100	1	COUNTER	
24	612001	1	PILOT LIGHT, GREEN, 125V, 1/2 W	
25	609111	2	RING TONGUE TERMINAL	
26	606005		WIRE, #16, GREEN, HOOKUP, 18" LONG	
27	609113	2	CONNECTOR PUSH ON	
28	609110	3	CONNECTOR PUSH ON	
29	615100	3	ADHESIVE BACKED TIE MOUNT	
30	614107	13	MALE PIN, CONNECTOR, YELLOW	

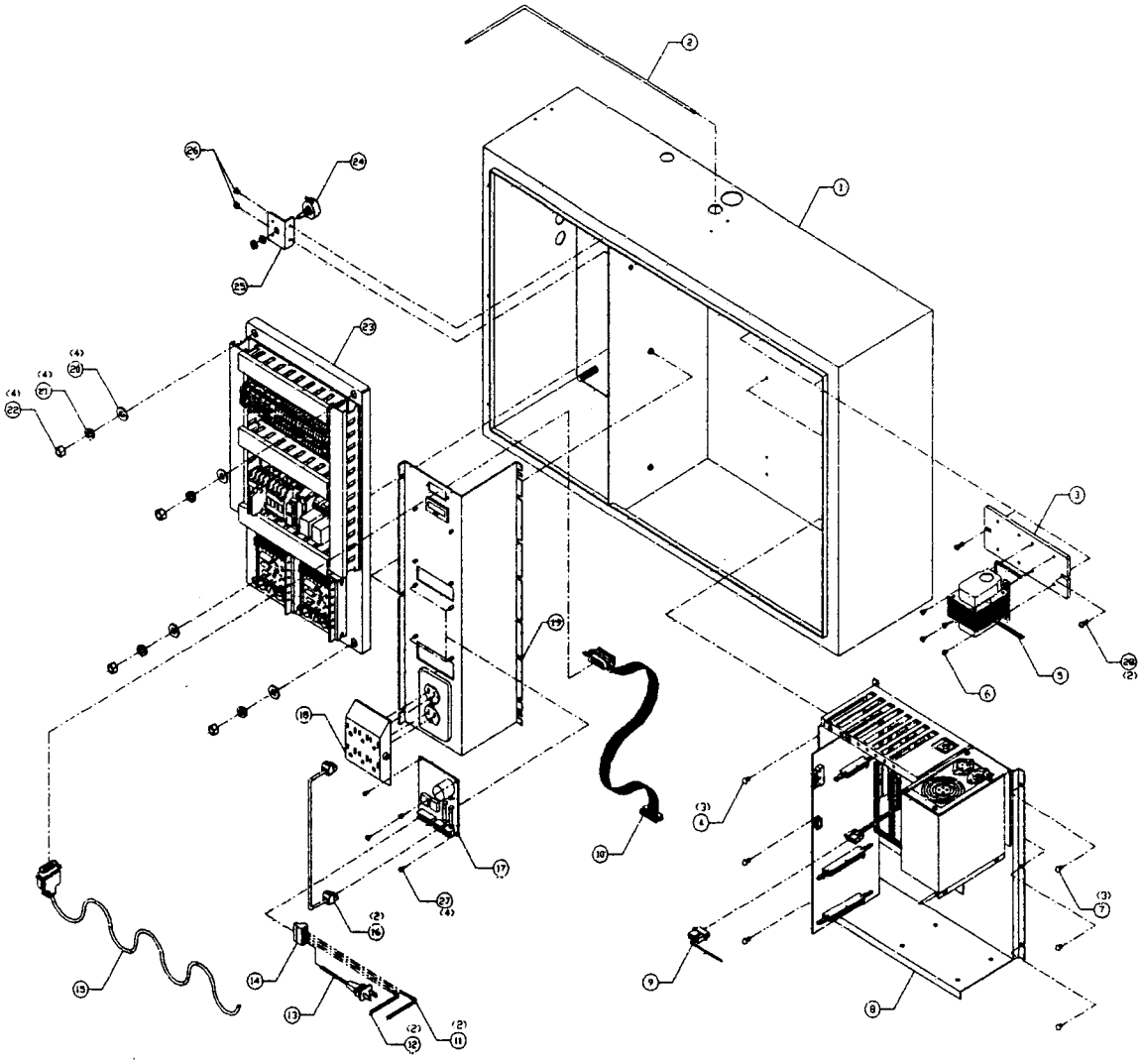
Changed to 603121 →

713322A, Priming Pump Assembly



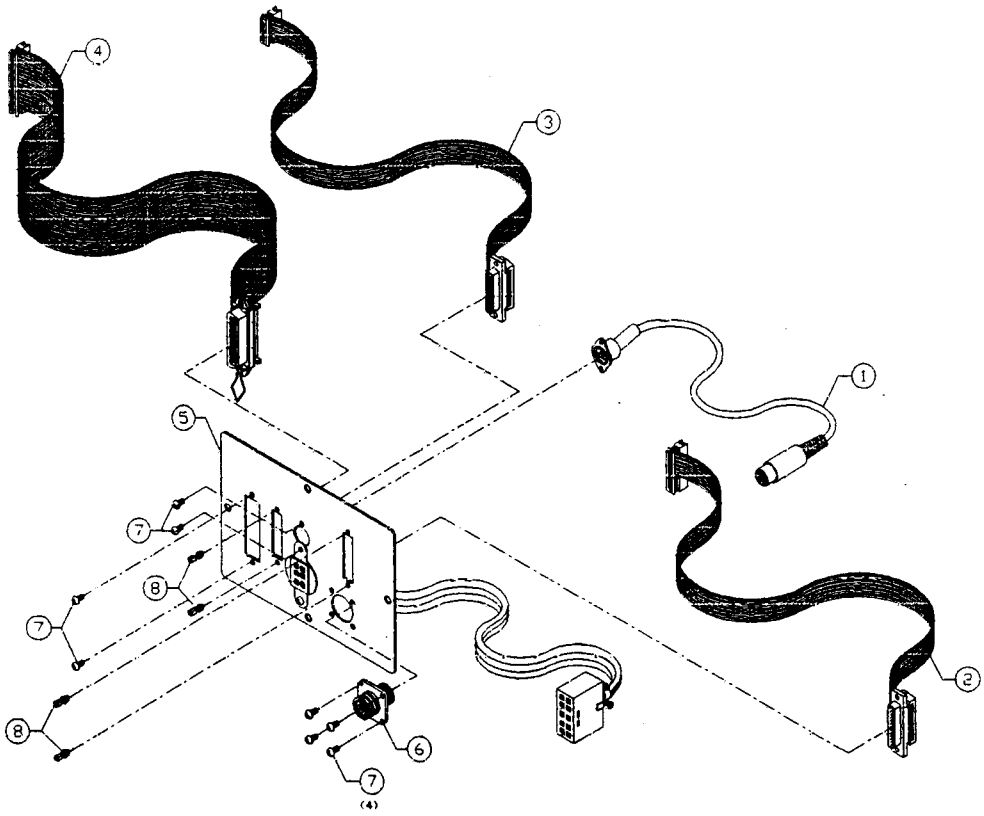
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	403530	2	SCREW, BHCS, 8-32 UNF X 1/2"	
2	713322	1	PUMP MOUNTING BRACKET	
3	615141	2	LASHING TIE	
4	803801	1	PRIMING AIR PUMP	
5	615102	4	TIE MOUNT	
6	404510	4	SCREW, BHCS, 10-32 UNF X 1/4"	
7	330333	1	VALVE MANIFOLD	
8	803807	5	HEX PLUG	
9	402310	4	SCREW, PHMS, 6-32 UNF X 1/4"	
10	803802	2	STRAIGHT CONNECTOR, 6mm	
11	803805	1	STRAIGHT CONNECTOR, 1/4"	
12	803806	1	PLASTIC TUBING, 1/4" O.D.	
13	803808	2	SOLENOID VALVE	
14	606017	1	CABLE, #22-8, SHIELDED	
15	614330	1	PLUG, CABLE CLAMP IN CAP, 10 PIN	
16	803804	2	NYLON TUBING, GREEN, 6mm	
17	614131	1	CONNECTOR PIN	
18	614133	1	CONNECTOR, 010-03-06-2031	

706330A, Electrical Box Assembly



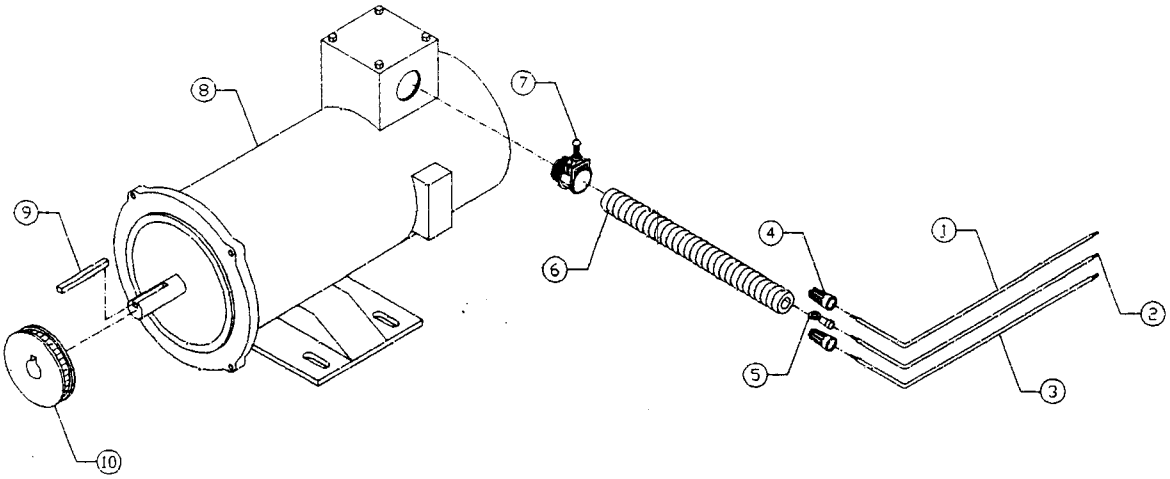
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	706330	1	ELECTRICAL BOX	
2	606013		CABLE, #22-3, UNSHIELDED, 24" LONG	
3	330183	1	TRANSFORMER PLATE	
4	404520	3	SCREW, BHCS, 10-32 UNF X 3/8"	
5	640002	1	TRANSFORMER	
6	403310	4	SCREW, PHMS, 8-32 UNF X 1/4"	
7	404510	3	SCREW, BHCS, 10-32 UNF X 1/4"	
8	706317A	1	COMPUTER CAGE ASSEMBLY	Page A23-A24
9	606336A	1	12 VDC SUPPLY CABLE	
10	614320A	1	JET DRIVE I/O RIBBON CABLE	
11	606020		WIRE, #18, BLACK, HOOKUP, 48" LONG	
12	606023		WIRE, #18, GREEN, 48" LONG	
13	614121	1	POWER CABLE	
14	615064	1	FEMALE CONNECTOR, 6 PIN, BLA6	
15	606334A	1	JET DRIVE I/O DISTRIBUTION CABLE	
16	606013A	1	JET DRIVE BOARD VOLTAGE CABLE	
17	600321	1	POWER SUPPLY BOARD	
18	640003	1	SURGE SUPPRESSOR, FULL 3-LINE	
19	706338A	1	POWER SUPPLY MOUNT BOARD ASSEMBLY	Page A27
20	440020	4	WASHER, 3/8" I.D.	
21	439020	4	LOCKWASHER, 3/8" I.D.	
22	420020	4	NUT,3/8-16 UNC	
23	706331A	1	BASE CONTROL BOARD ASSEMBLY	Page A25-A26
24	600007	1	POTENTIOMETER, 5K OHM, 1/4 WATT	
25	615005	1	MICROSWITCH BRACKET	
26	402510	2	SCREW, BHCS, 6-32 UNF X 1/4"	
27	401310	4	SCREW, PHMS, 4-40 UNF X 1/4"	
28	404530	2	SCREW, BHCS, 10-32 UNF X 1/2"	

706332A, Connector Plate Assembly



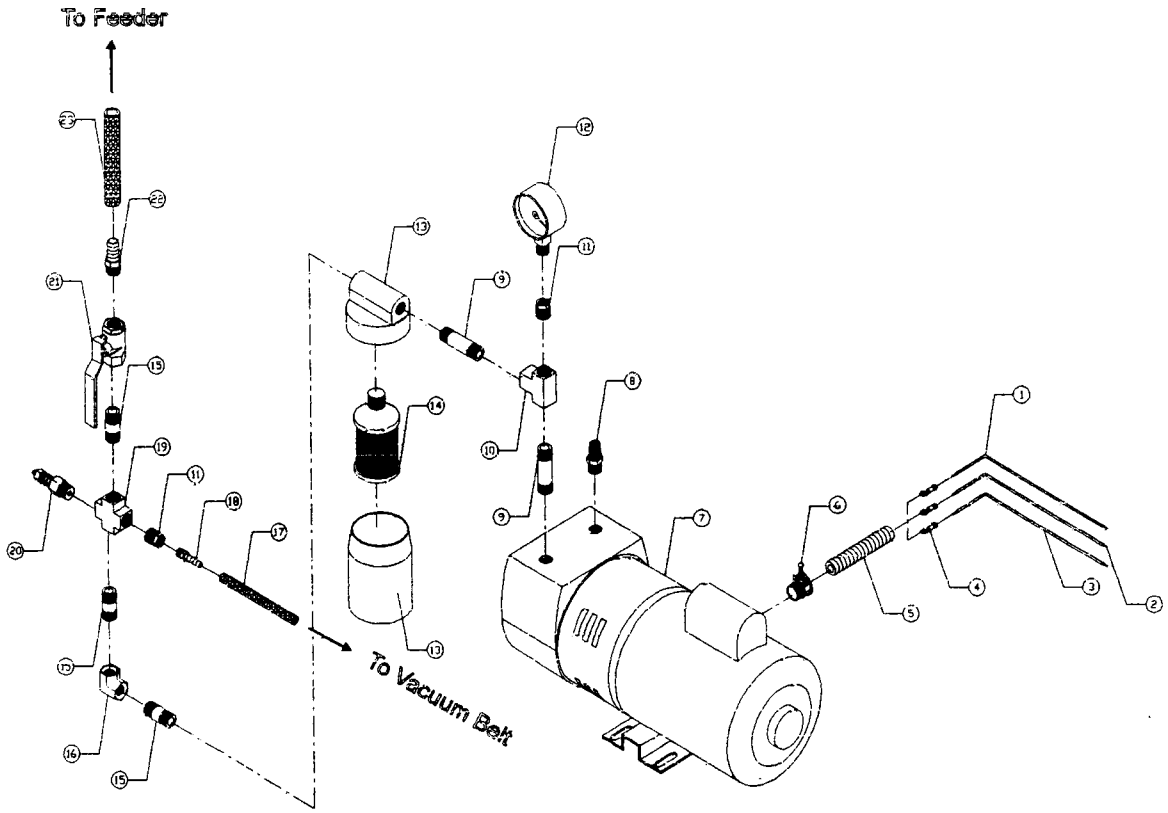
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	606341A	1	KEYBOARD CABLE ASSEMBLY	
2	606342A	1	KEYPAD RIBBON CABLE ASSEMBLY	
3	606340A	1	SERIAL RIBBON CABLE ASSEMBLY	
4	606339A	1	CENTRONICS RIBBON CABLE ASSEMBLY	
5	614332A	1	PRIMING PUMP EXTENSION CABLE	
6	614119	1	RECEPTACLE, 11-4, REVERSE	
7	401310	8	SCREW, PHMS, 4-40 UNF X 1/4"	
8	615322	4	FEMALE SCREWLOCK, 4-40 UNF	

800001A, Motor Assembly



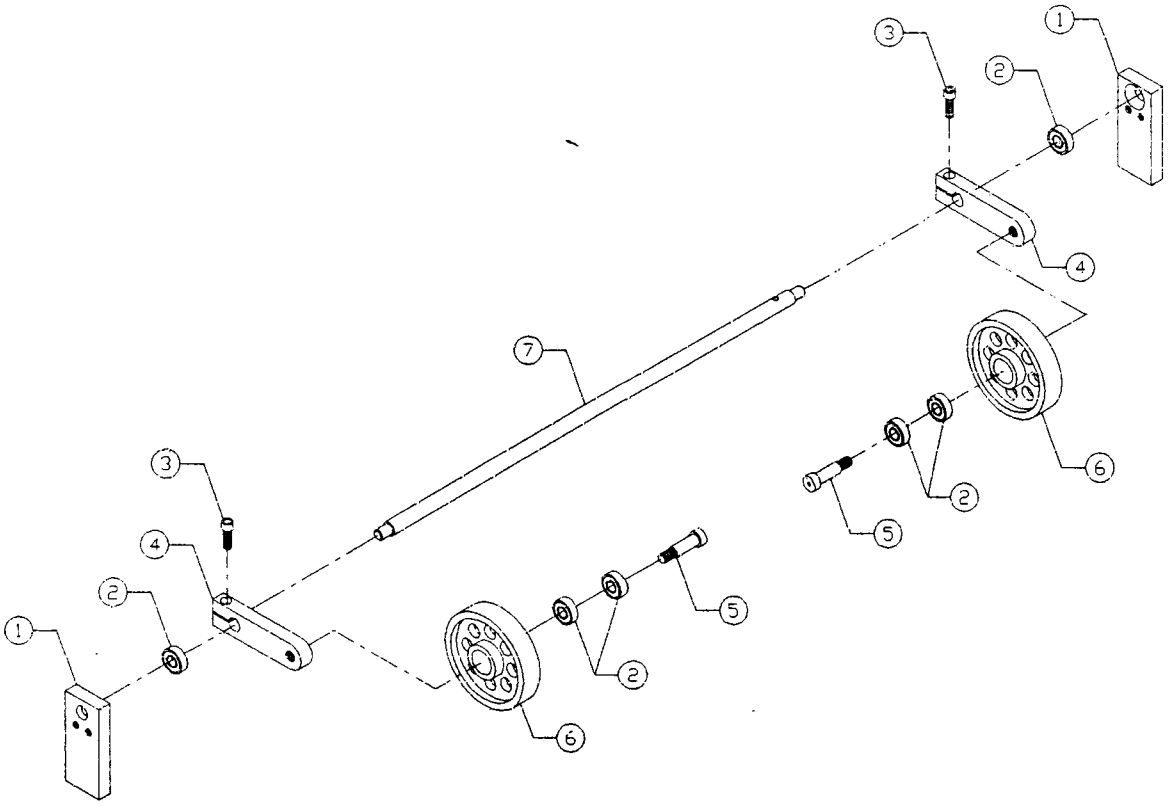
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	606000		WIRE, #16, BLACK, HOOKUP, 40" LONG	
2	606005		WIRE, #16, GREEN, HOOKUP, 40" LONG	
3	606009		WIRE, #16, WHITE, HOOKUP, 40" LONG	
4	609101	2	MARETTE, ORANGE, 14-22	
5	609111	1	RING TONGUE TERMINAL	
6	609100		MOTOR CONDUIT, BLACK, 3/8", 36" LONG	
7	615130	1	BOX CONNECTOR, 3/8", CONDUIT	
8	800001	1	MOTOR, 1/2 H.P., 90 VDC	
9	433320	1	KEYSTOCK, 3/16" X 2" LONG	
10	116007	1	MOTOR SHEAVE, AK25	

802006A, Vacuum Distributor Assembly



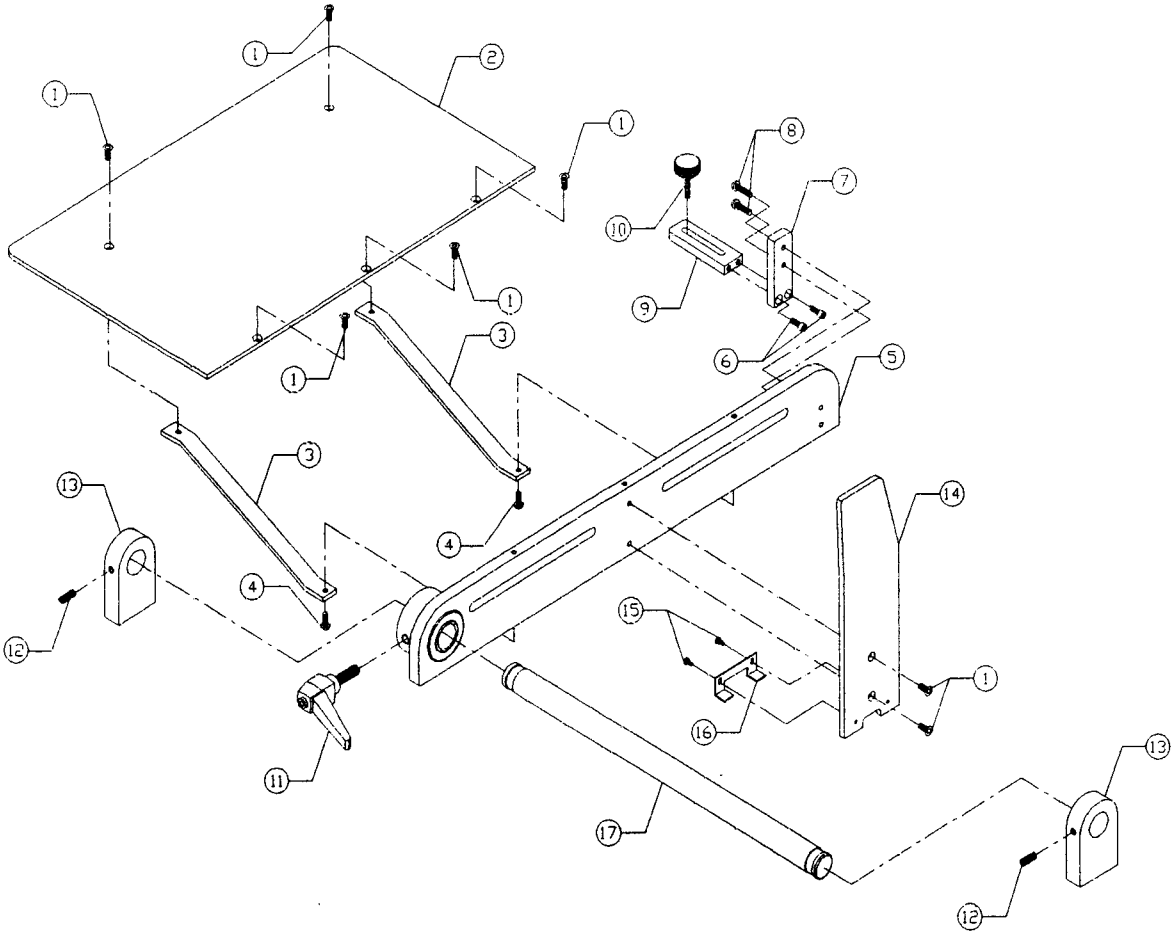
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	606000		WIRE, #16, BLACK, HOOKUP, 40" LONG	
2	606005		WIRE, #16, GREEN, HOOKUP, 40" LONG	
3	606009		WIRE, #16, WHITE, HOOKUP, 40" LONG	
4	609111	3	RING TONGUE TERMINAL	
5	609100		MOTOR CONDUIT, BLACK 3/8", 28" LONG	
6	615130	1	BOX CONNECTOR, 3/8", CONDUIT	
7	801102	1	VACUUM PUMP	
8	801103	1	PIPE PLUG, 1/4" NPT	
9	802013	2	EXTENSION PIPE, 3/8" NPT X 2 1/2"	
10	802071	1	PIPE TEE, 1/8" NPT	
11	802065	2	PIPE BUSHING 3/8" - 1/4" NPT	
12	802030	1	VACUUM GAUGE, 1/4" NPT	
13	802036	1	FILTER ASSEMBLY, AB 599	
14	802037	1	FILTER ELEMENT, (c/w FILTER)	
15	802010	3	EXTENSION PIPE, 3/8" NPT X 1 1/2"	
16	802060	1	ELBOW FITTING, FEMALE, 3/8" NPT	
17	802047		HOSE CLEARFLEX, 1/4" I.D., 48" LONG	
18	802051	1	BARB VACUUM HOSE FITTING, 1/4" NPT X 1/4"	
19	802081	1	BRASS CROSS 3/8" NPT	
20	802035	1	VACUUM RELIEF VALVE, 3/8" NPT	
21	802045	1	SHUTTLE FEEDER VALVE, 3/8" NPT	
22	802058	1	BARB VACUUM HOSE FITTING, 3/8" NPT X 1/2"	
23	802046		HOSE CLEARFLEX, 1/2" I.D., 24" LONG	

100314A, Outfeed Roller Assembly



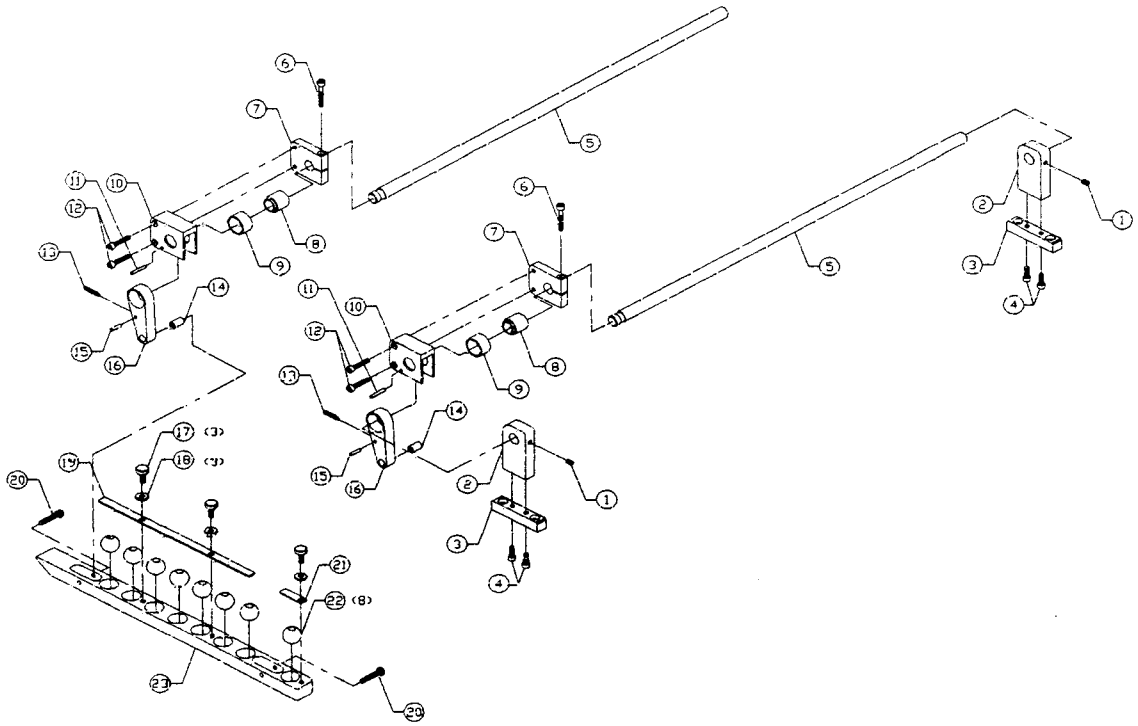
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	330309	2	OUTFEED ROLLER BRACKET	
2	500020	6	BEARING, 3/8" I.D.	
3	405250	2	SCREW, SHCS, 1/4-20 UNC X 3/4"	
4	203302	2	OUTFEED ROLLER ARM	
5	413070	2	SCREW, SHOULDER 3/8" DIA. X 1"	
6	106182	2	PRESSURE ROLLER	
7	100314	1	OUTFEED ROLLER SHAFT	

325011A, Rear Table Assembly



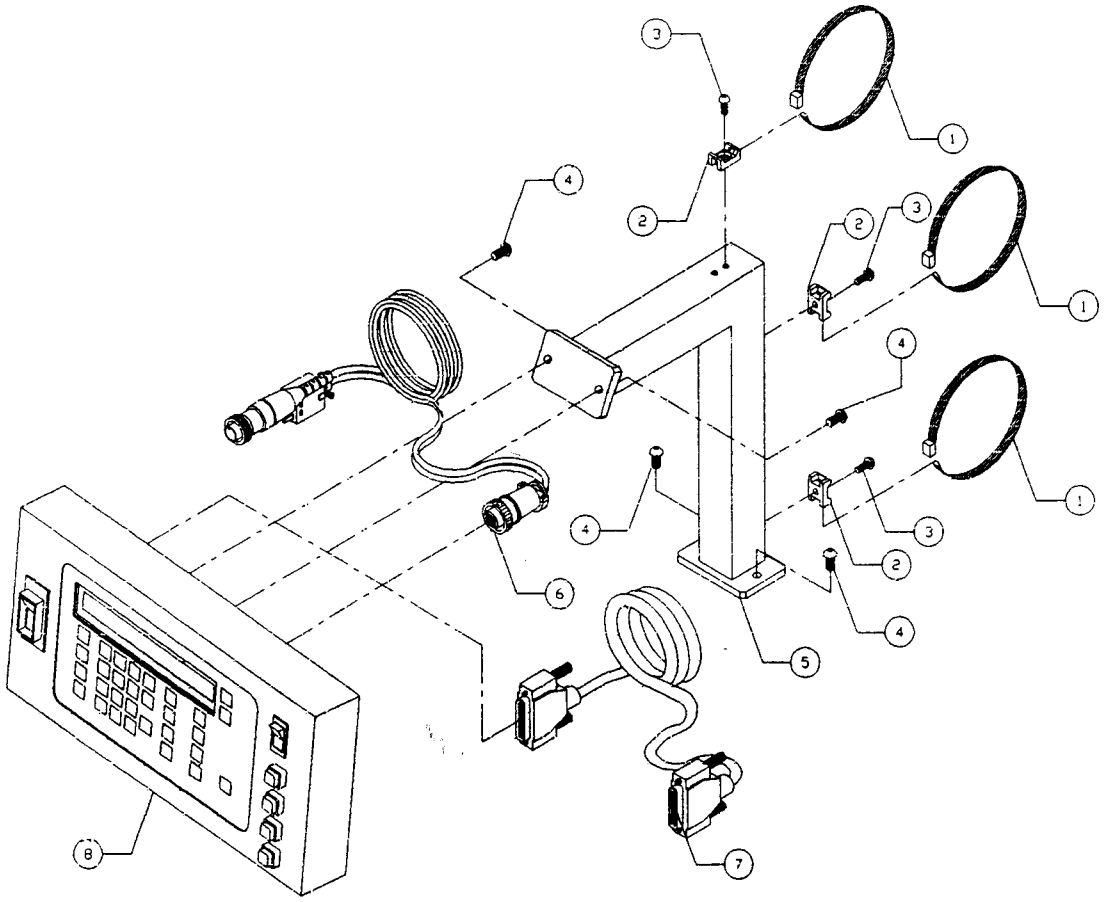
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	404030	7	SCREW, FHCS, 10-32 UNF X 1/2"	
2	325011	1	REAR TABLE	
3	310011	2	REAR TABLE SUPPORT BAR	
4	404530	2	SCREW, BHCS, 10-32 UNF X 1/2"	
5	310010A	1	REAR TABLE CROSSMEMBER ASSEMBLY	Page A22
6	404230	2	SCREW, SHCS, 10-32 UNF X 1/2"	
7	310046	1	REAR TABLE CLAMP MOUNT PLATE	
8	404550	2	SCREW, BHCS, 10-32 UNF X 3/4"	
9	310045	1	REAR TABLE CLAMP MOUNT PLATE	
10	438011H	1	REAR TABLE LOCK KNOB	
11	206011	1	REAR TABLE LOCKING LEVER	
12	405830	2	SCREW, SHSS, 1/4-20 UNC X 1/2"	
13	330002	2	SLIDE SHAFT HOLDER	
14	707011H	1	REAR TABLE GUIDE	
15	402310	2	SCREW, PHMS, 6-32 UNF X 1/4"	
16	707010H	1	REAR GUIDE BOTTOM PLATE	
17	100012	1	REAR TABLE SLIDE SHAFT	

330301A, Skidbar Assembly



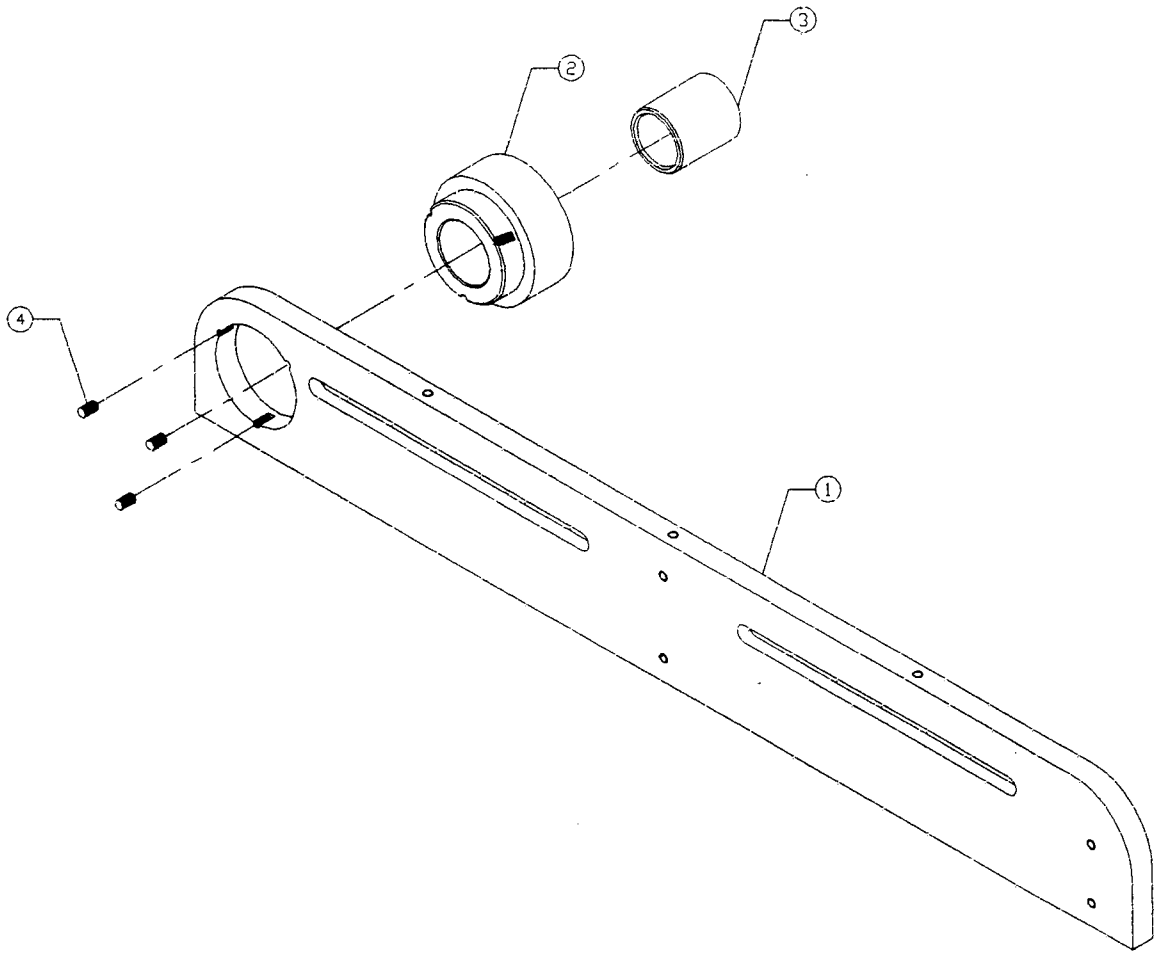
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	404820	2	SCREW, SHSS, 10-32 UNF X 3/8"	
2	330302	2	SKIDBAR BRACKET	
3	330304	2	SKIDBAR BRACKET BASE	
4	404250	4	SCREW, SHCS, 10-32 UNF X 3/4"	
5	100021H	2	FRONT SKIDBAR SHAFT	
6	403275	2	SCREW, SHCS, 8-32 UNF X 1 1/4"	
7	343006	2	SKIDBAR HOLDER CLAMP	
8	100026	2	HOLLOW SKIDBAR SHAFT	
9	505004	2	BUSHING, 3/4" I.D. X 1/2"	
10	330018H	2	SKIDBAR HOLDER	
11	436050	2	SPRING PIN, 1/8" DIA. X 3/4"	
12	403260	4	SCREW, SHCS, 8-32 UNF X 7/8"	
13	209003	2	SPRING EXTENSION	
14	505003	2	BUSHING, 3/16" I.D. X 1/2"	
15	436030	2	SPRING PIN, 1/8" DIA. X 1/2"	
16	203003	2	SKIDBAR ARM	
17	438171	3	THUMBSCREW, 10-32 UNF X 3/8"	
18	440008	3	WASHER, NO.10	
19	707313	1	BALL RETENTION SPRING PLATE, 9" X 3/8"	
20	404570	2	SCREW, BHCS, 10-32 UNF x 1"	
21	707312	1	BALL RETENTION SPRING PLATE, 3/4" X 3/8"	
22	500211	8	BALL BEARING, 3/4" O.D., CHROME	
23	330301	1	SKIDBAR BODY	

330322A, Keypad Mount Assembly



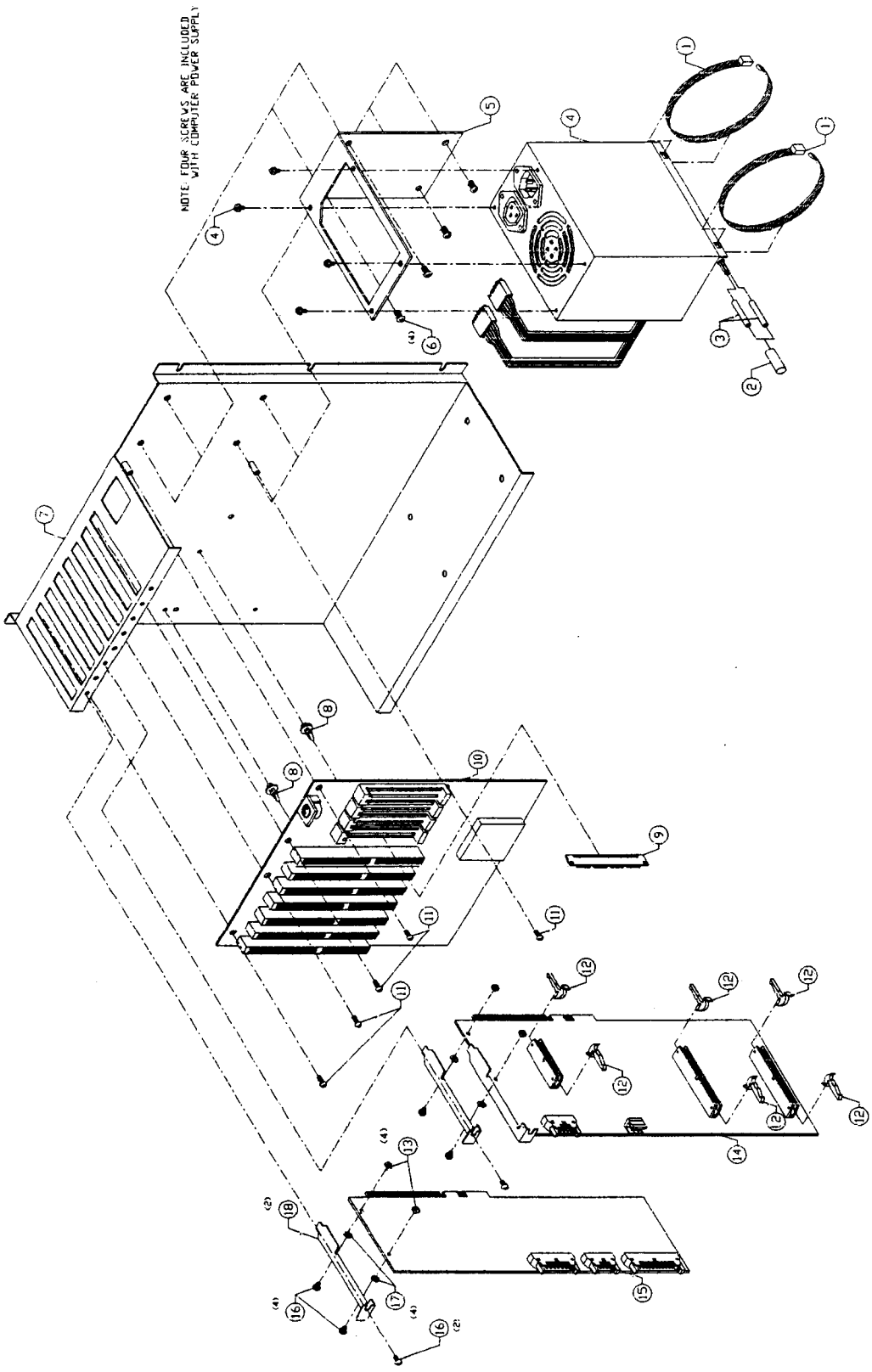
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	615141	3	LASHING TIE	
2	615102	3	TIE MOUNT	
3	404530	3	SCREW, BHCS, 10-32 UNF X 1/2"	
4	405530	4	SCREW, BHCS, 1/4-20 UNC X 1/2"	
5	330322	1	KEYPAD MOUNT	
6	606337A	1	POWER EXTENTION CABLE	
7	606321	1	SERIAL EXTENTION CABLE, 6 Ft., 25 COND	
8	711325A	1	KEYPAD ASSEMBLY	

310010A, Rear Table Crossmember Assembly



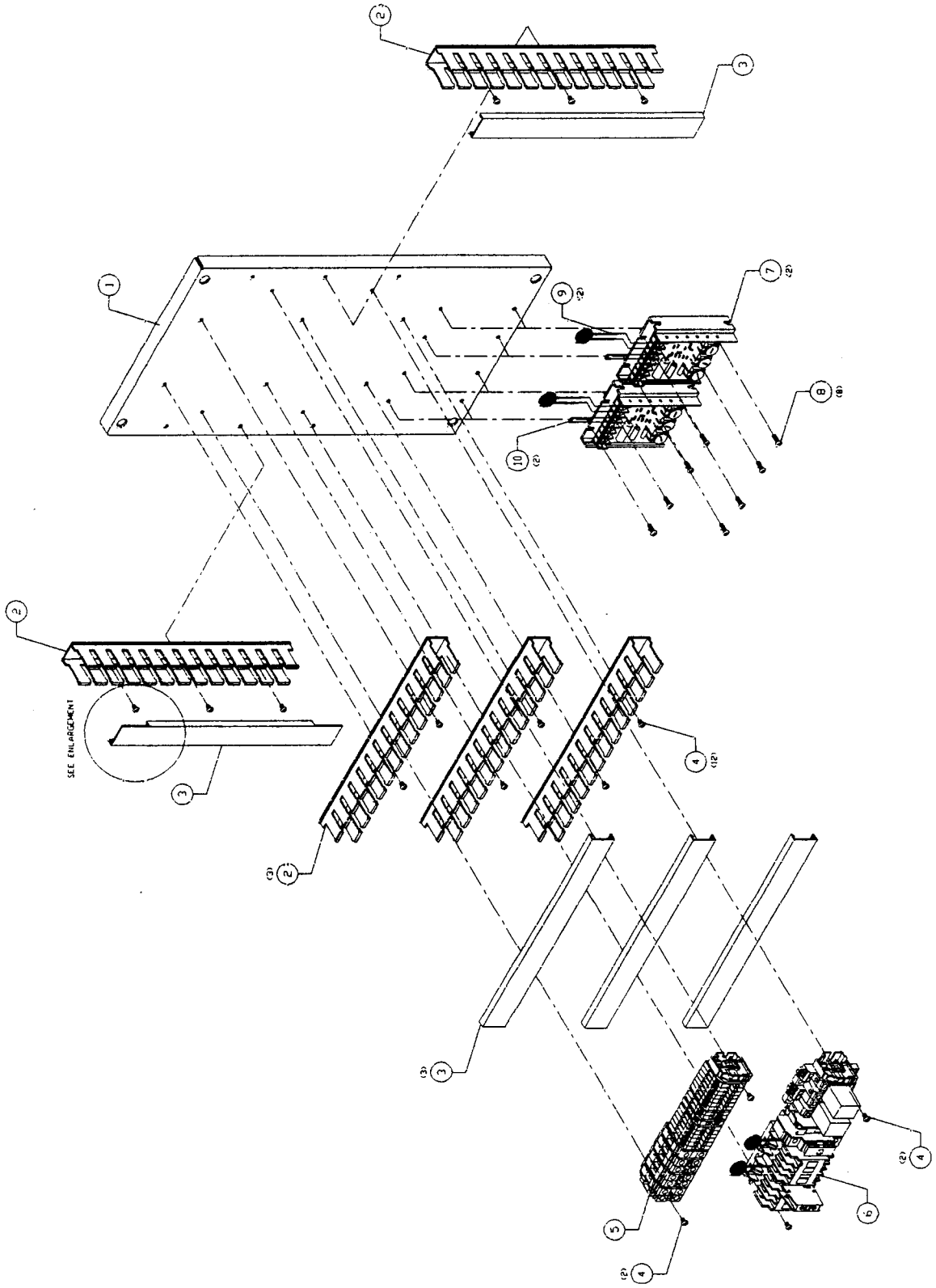
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	310010	1	REAR TABLE CROSSMEMBER	
2	330003	1	REAR TABLE ADJUSTMENT BLOCK	
3	505011	1	BUSHING, 1" I.D., 1 1/4" O.D. X 1 1/2"	
4	404815	3	SCREW, SHSS, 10-32 UNF X 5/16"	

706317A, Computer Cage Assembly



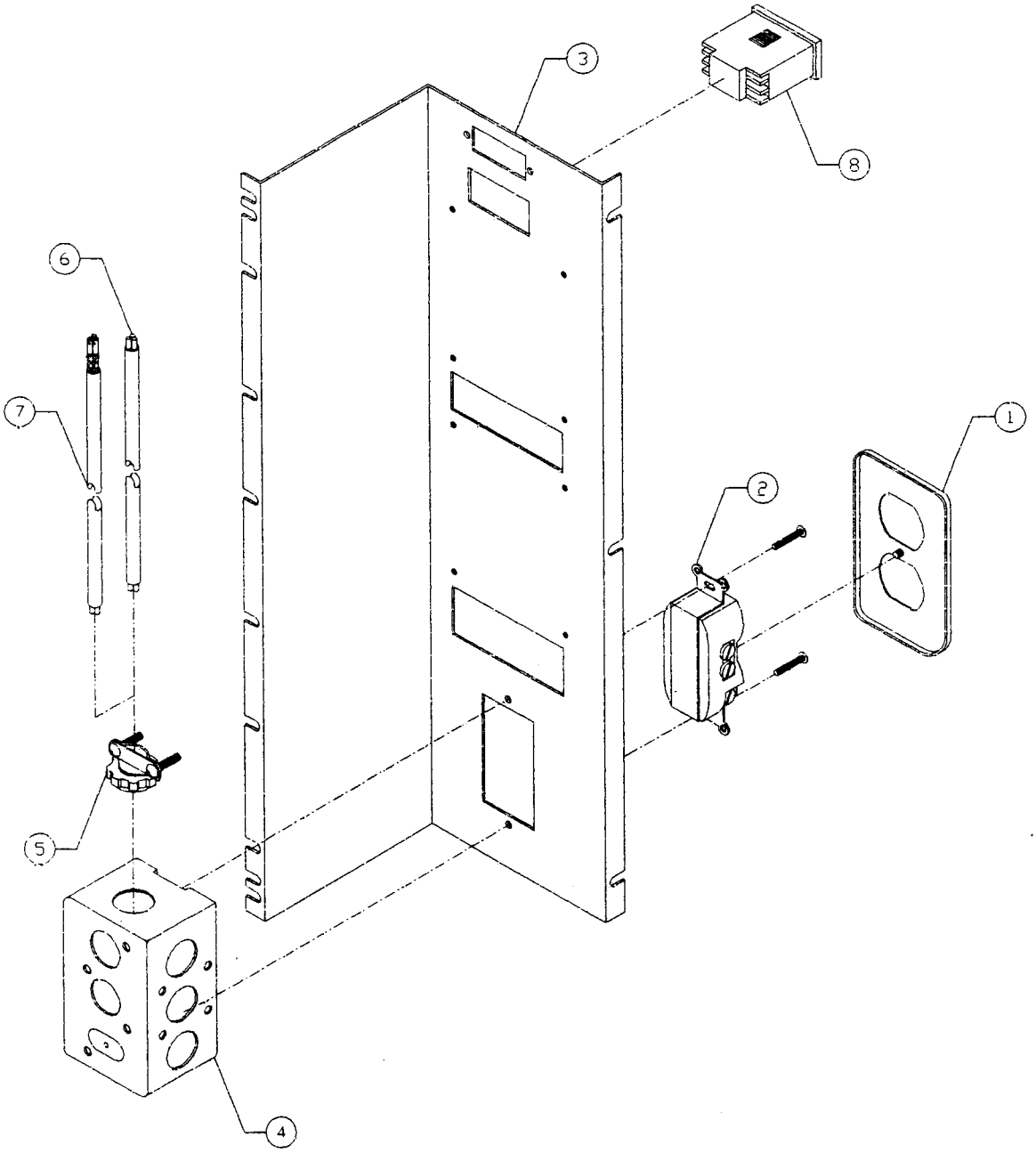
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	615141	2	LASHING TIE	
2	609003	1	SHRINK WRAP, 1/4" I.D.	
3	609000	2	SHRINK WRAP, 3/16" I.D.	
4	600312	1	COMPUTER POWER SUPPLY	
5	713318	1	COMPUTER POWER SUPPLY BRACKET	
6	404320	4	SCREW, PHMS, 10-32 UNF X 3/8"	
7	706317	1	COMPUTER MOUNTING BOARD	
8	615106	2	PCB POST, NYLON 6/6, 614-435	
9	640305	1	256Kb SIMM MEMORY MODULE	
10	600313	1	COMPUTER MOTHERBOARD	
11	402320	5	SCREW, PHMS, 6-32 UNF X 3/8"	
12	614329	6	HEADER LATCH, WITH PUSH TAB	
13	420004	4	NUT, 4-40 UNC	
14	600300	1	JET DRIVE BOARD	
15	600320	1	JET MEMORY INTERFACE BOARD	
16	401310	6	SCREW, PHMS, 4-40 UNF X 1/4"	
17	440004	4	WASHER, NO.6 NYLON, 1/16" THICK	
18	615300	2	AUXILIARY CARD BRACKET	

706331A, Base Control Board Assembly



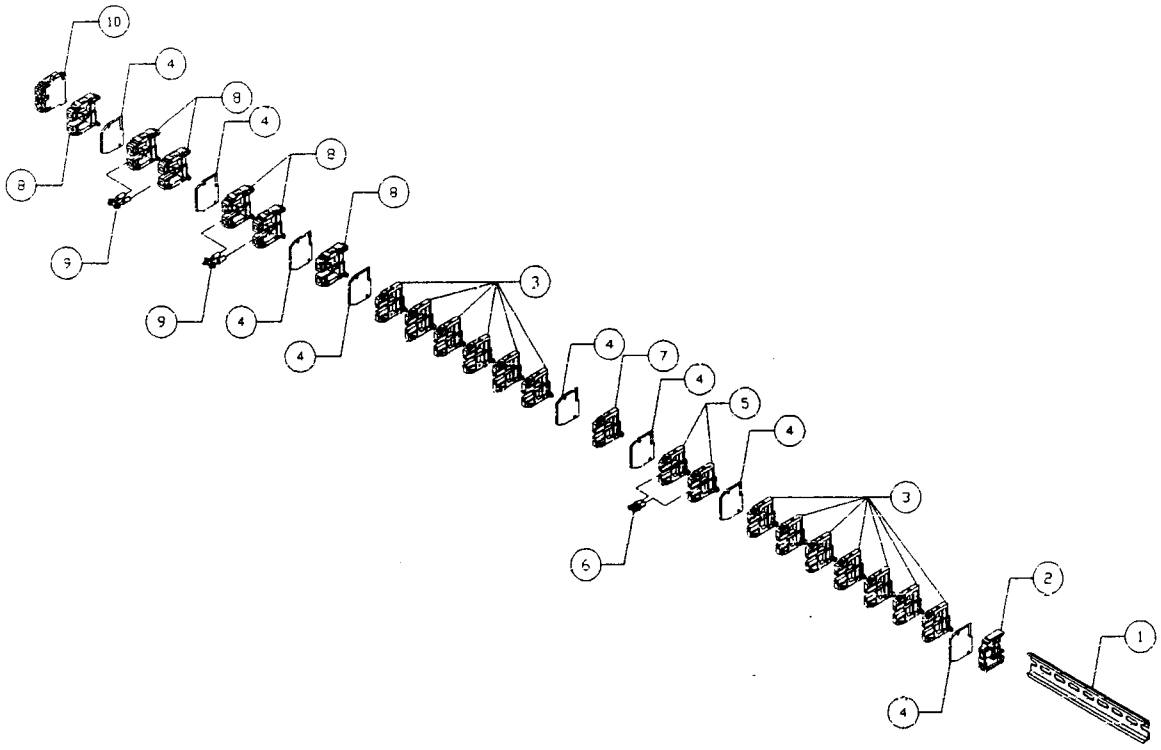
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	706331	1	BASE CONTROL BOARD	
2	615220	5	WIRING DUCT, 1" X 1" x 8" LONG	
3	615210	5	WIRING DUCT COVER, 1" X 8" LONG	
4	403310	16	SCREW, PHMS, 8-32 UNF X 1/4" LONG	
5	615330A	1	TERMINAL BLOCK 1 ASSEMBLY	Page A28
6	615331A	1	TERMINAL BLOCK 2 ASSEMBLY	Page A29
7	600005	2	DC CONTROLLER, 90 VDC	
8	403320	8	SCREW, PHMS, 8-32 UNF X 3/8" LONG	
9	640300	2	METAL OXIDE VARISTOR, 120 VAC	
10	640301	2	ZENER DIODE	

706338A, Power Supply Mount Board Assembly



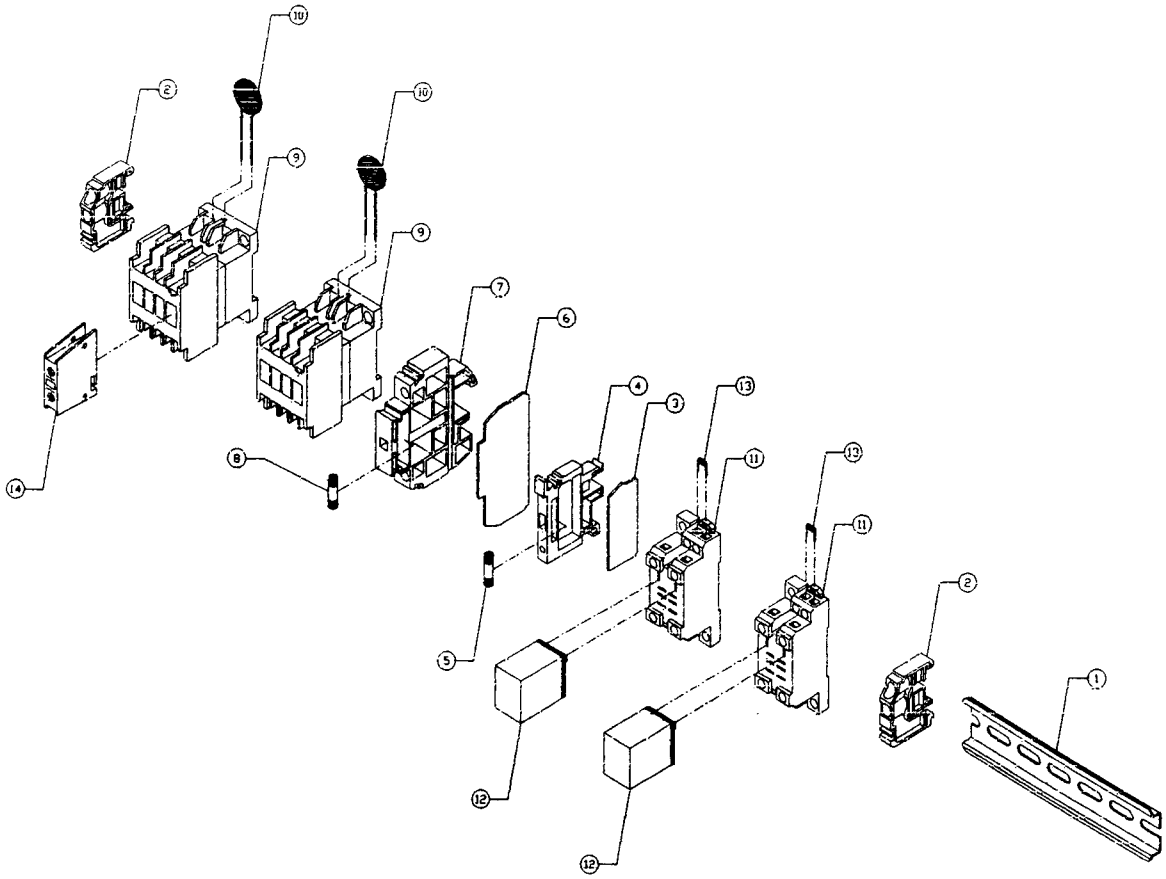
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	615155	1	BOX COVER, DUPLEX RECEPTACLE	
2	614014	1	RECEPTACLE, DUPLEX, 2 POLE, 3 WIRE	
3	706338	1	POWER SUPPLY MOUNT BOARD	
4	615150	1	ELECTRICAL JUNCTION BOX, 2" X 4"	
5	615131	1	BOX CONNECTOR, 3/8", CABLE	
6	606030	1	CABLE, #18-3 SHIELDED	
7	606343A	1	KEYPAD POWER CABLE	
8	600101	1	COUNTER	

615330A, Terminal Block 1 Assembly



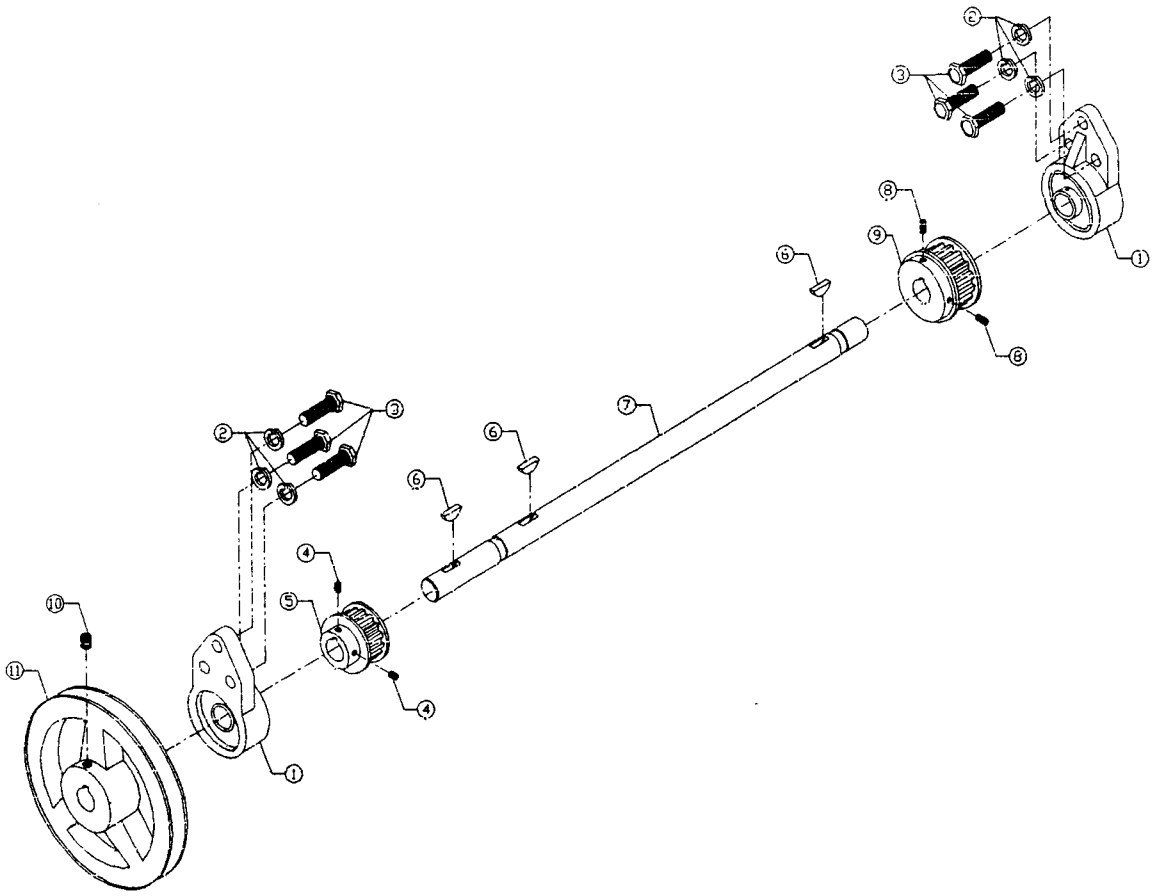
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	615021	1	T RAIL, 8" LONG, DIN	
2	615016	1	END STOP, 9.1mm	
3	615002	13	TERMINAL BLOCK, GREY, 6mm	
4	615012	8	END SECTION, GREY, 1mm	
5	615000	2	TERMINAL BLOCK, BLUE, 6mm	
6	615022	1	JUMPER BAR, 6mm	
7	615025	1	TERMINAL BLOCK, BLACK, 6mm	
8	615003	6	TERMINAL BLOCK, GREY, 10mm	
9	615006	2	JUMPER BLOCK, 10mm	
10	615018	1	GROUND BLOCK, 10mm	

615331A, Terminal Block 2 Assembly



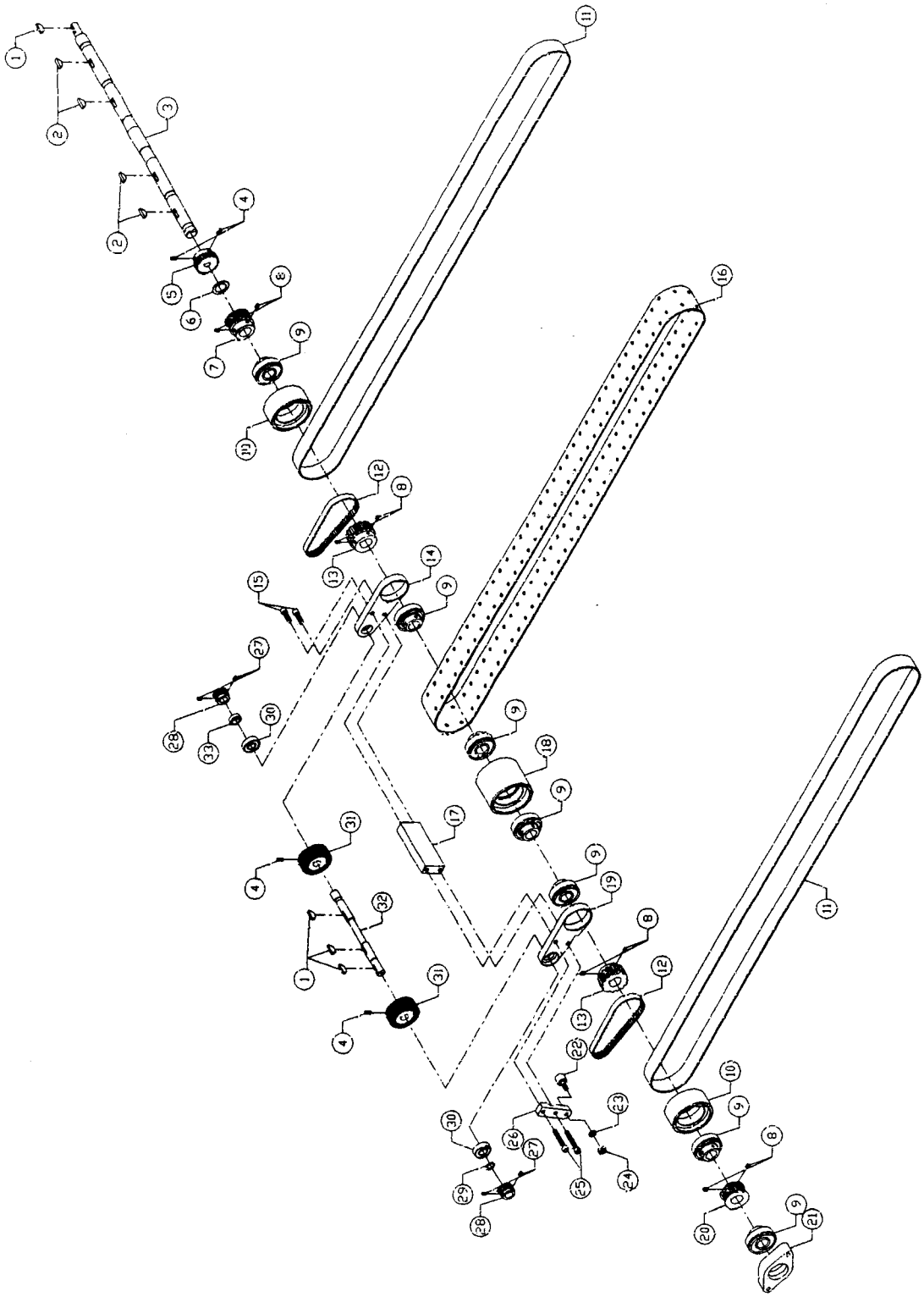
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	615021	1	T RAIL, 8" LONG, DIN	
2	615016	2	END STOP, 9.1mm	
3	615011	1	END SECTION, GREY,1.5mm	
4	615001	1	FUSE HOLDER, GREY,8mm, 6.3 A	
5	646001	1	FUSE, 5 X 20 5 A	
6	615023	1	END SECTION, BLACK, 1.5mm	
7	615024	1	FUSE HOLDER, 10mm, 16 A 60	
8	646002	1	FUSE, 5 X 20, 10 A	
9	610001	2	3 POLE CONTACTOR, 9 A, 600 V	
10	640300	2	METAL OXIDE VARISTOR, 120 VAC	
11	615004	2	RELAY BASE	
12	610102	2	RELAY, 12 VDC	
13	640301	2	ZENER DIODE	
14	610002	1	AUXILIARY CONTACT, N.C.	

100320A, Mainshaft Assembly



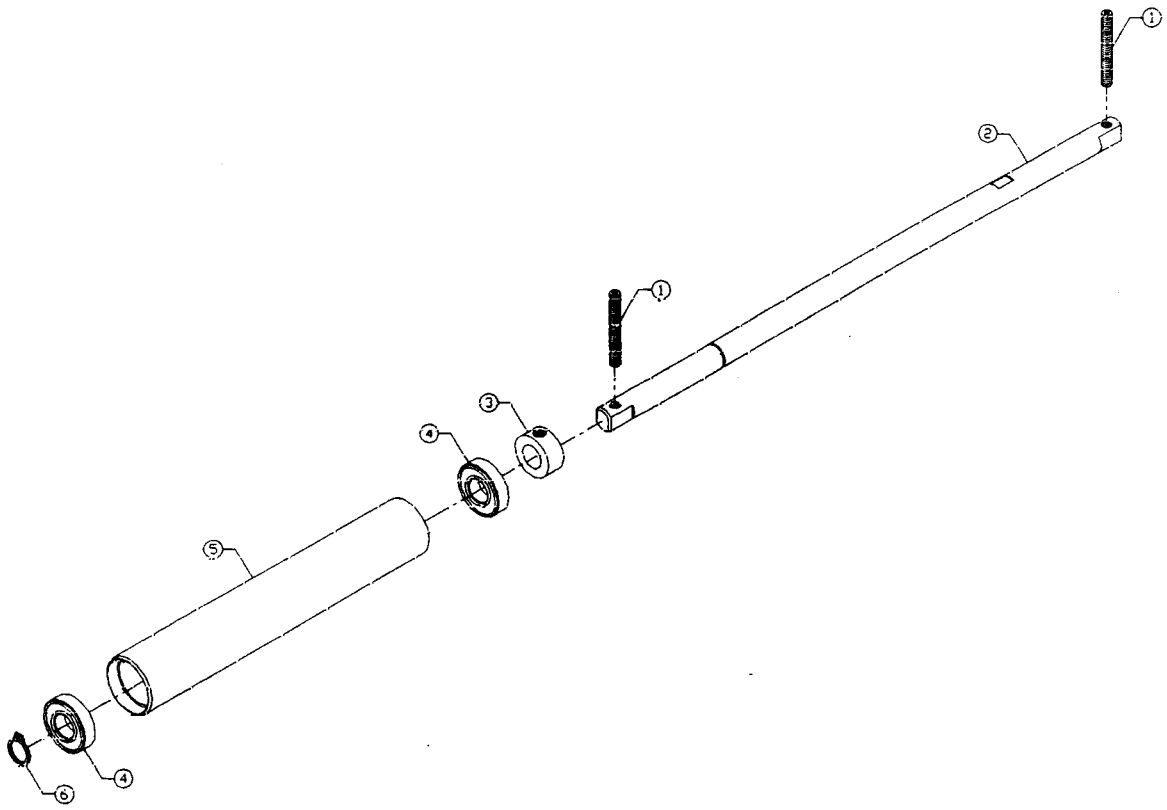
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	500300	2	BEARING, 3/4" I.D.	
2	439020	6	LOCKWASHER, 3/8" I.D.	
3	407675	6	SCREW, HHMS, 3/8-16 UNC X 1/14"	
4	404820	2	SCREW SHSS 10-32 UNF X 3/8"	
5	116301	1	PULLEY, 18LB075	
6	433001	3	KEY, WOODRUFF, #606	
7	100320	1	MAINSHAFT	
8	404830	2	SCREW, SHSS, 10-32 UNF X 1/2"	
9	116308	1	PULLEY, 22LB075	
10	406820	1	SCREW, SHSS, 5/16-18 UNC X 3/8"	
11	116305	1	MACHINE DRIVE SHEAVE, AK64	

100321A, Idler Shaft Assembly



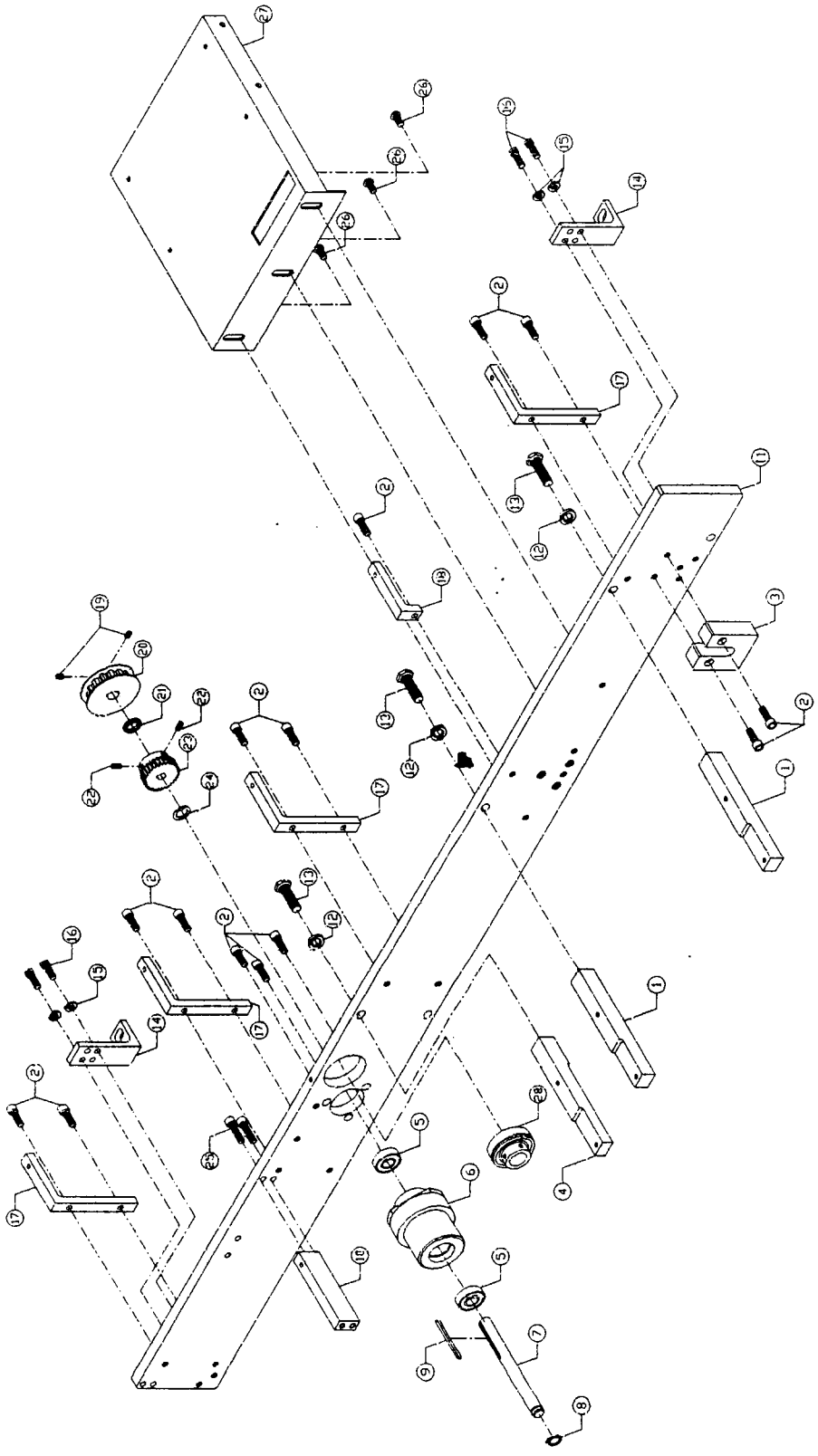
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	433002	4	KEY, WOODRUFF, #406	
2	430001	4	KEY, WOODRUFF, #606	
3	100321	1	IDLER SHAFT	
4	404830	4	SCREW, SHSS, 10-32 UNF X 1/2"	
5	110005H	1	GEAR, NSS1632	
6	440050	1	WASHER, 3/4" I.D.	
7	116306	1	PULLEY, 15LF075	
8	404810	8	SCREW, SHSS, 10-32 UNF X 1/4"	
9	500055	7	BEARING, 3/4" I.D.	
10	106320	2	VACUUM BELT IDLER ROLLER, 1" WIDE	
11	120304	2	TABLE BELT, NO HOLES, 1" WIDE	
12	120212	2	TIMING BELT, 120XL037	
13	116005H	2	PULLEY, 32XLB037	
14	203308	1	LEFT HOPPER ARM	
15	405250	2	SCREW, SHCS, 1/4-20 UNC X 3/4"	
16	120305	1	TABLE BELT, c/w HOLES, 2" WIDE	
17	320006H	1	HOPPER ARM SPACER	
18	106322	1	VACUUM BELT IDLER ROLLER, 2" WIDE	
19	203309	1	RIGHT HOPPER ARM	
20	116320	1	SHUTTLE DRIVE PULLEY, 15LF050	
21	330042-2H	1	BEARING HOUSING	
22	510040	1	CAM FOLLOWER, 1/2" I.D.	
23	439010	1	LOCKWASHER, 1/4" I.D.	
24	420012	1	NUT, 1/4-28 UNF	
25	405280	2	SCREW, SHCS, 1/4-20 UNC X 1 1/2"	
26	203005H	1	HOPPER EXTENSION ARM	
27	403805	4	SCREW, SHSS, 8-32 UNF X 1/8"	
28	116009H	2	PULLEY, 18XLB037	
29	437030	1	RETAINING RING, 1/2" I.D. EXTERNAL	
30	500030	2	BEARING, R8, 1/2" I.D.	
31	106300	2	LOWER FEED ROLLER	
32	100304	1	LOWER FEED ROLLED SHAFT	
33	440133	1	SPACER WASHER, 1/2" I.D. X 1/4"	

106323A, Table Belt Takeup Roller Assembly



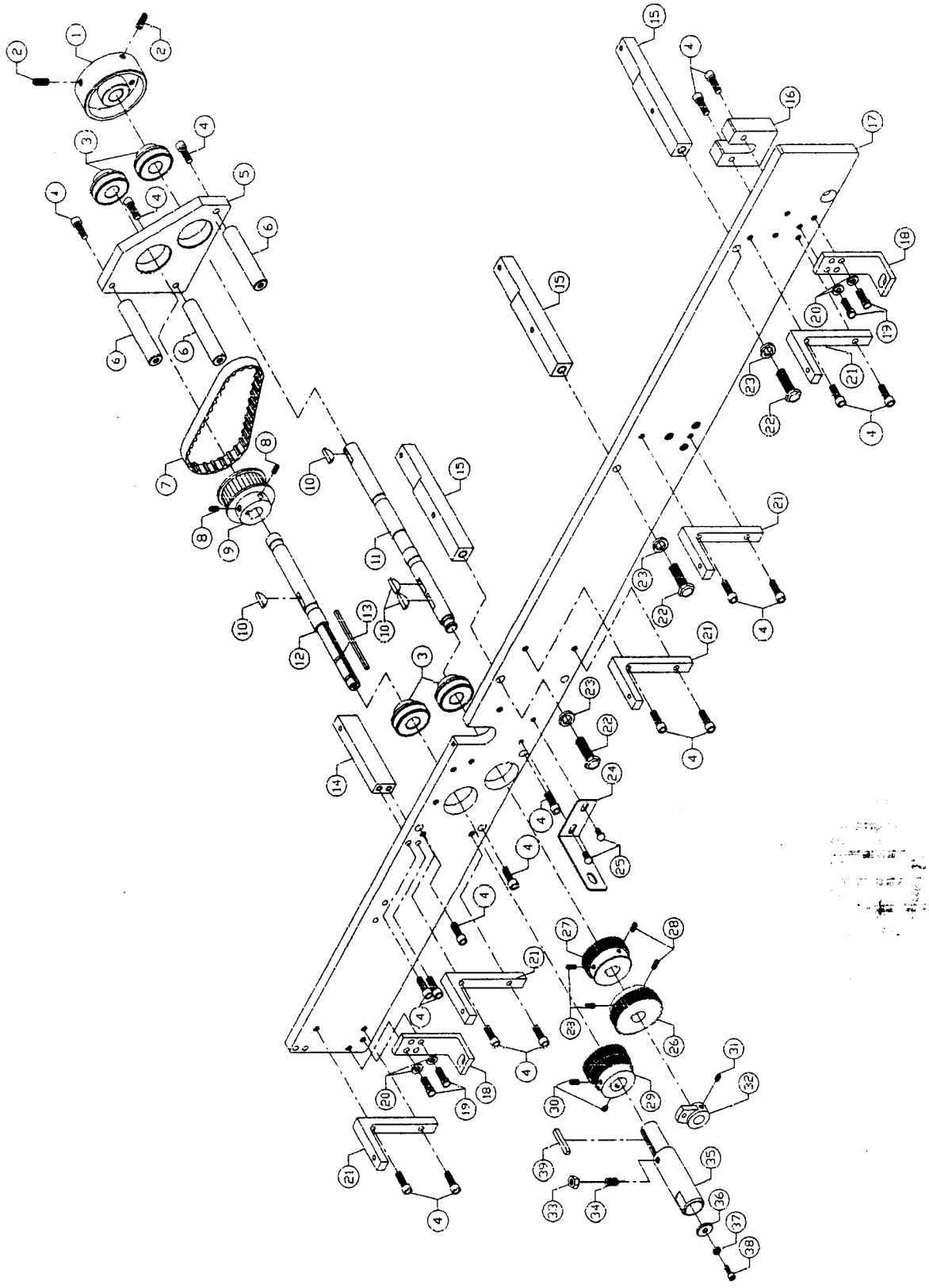
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	405880	2	SCREW, SHSS, 1/4-20 UNC X 1 1/2"	
2	100325	1	TABLE BELT TAKEUP SHAFT	
3	131040	1	COLLAR, 5/8" I.D.	
4	500040	2	BEARING, R10, 5/8" I.D.	
5	106323	1	TABLE BELT TAKEUP ROLLER	
6	437040	1	RETAINING RING, 5/8" I.D. EXTERNAL	

300321A, Left Sideframe Assembly



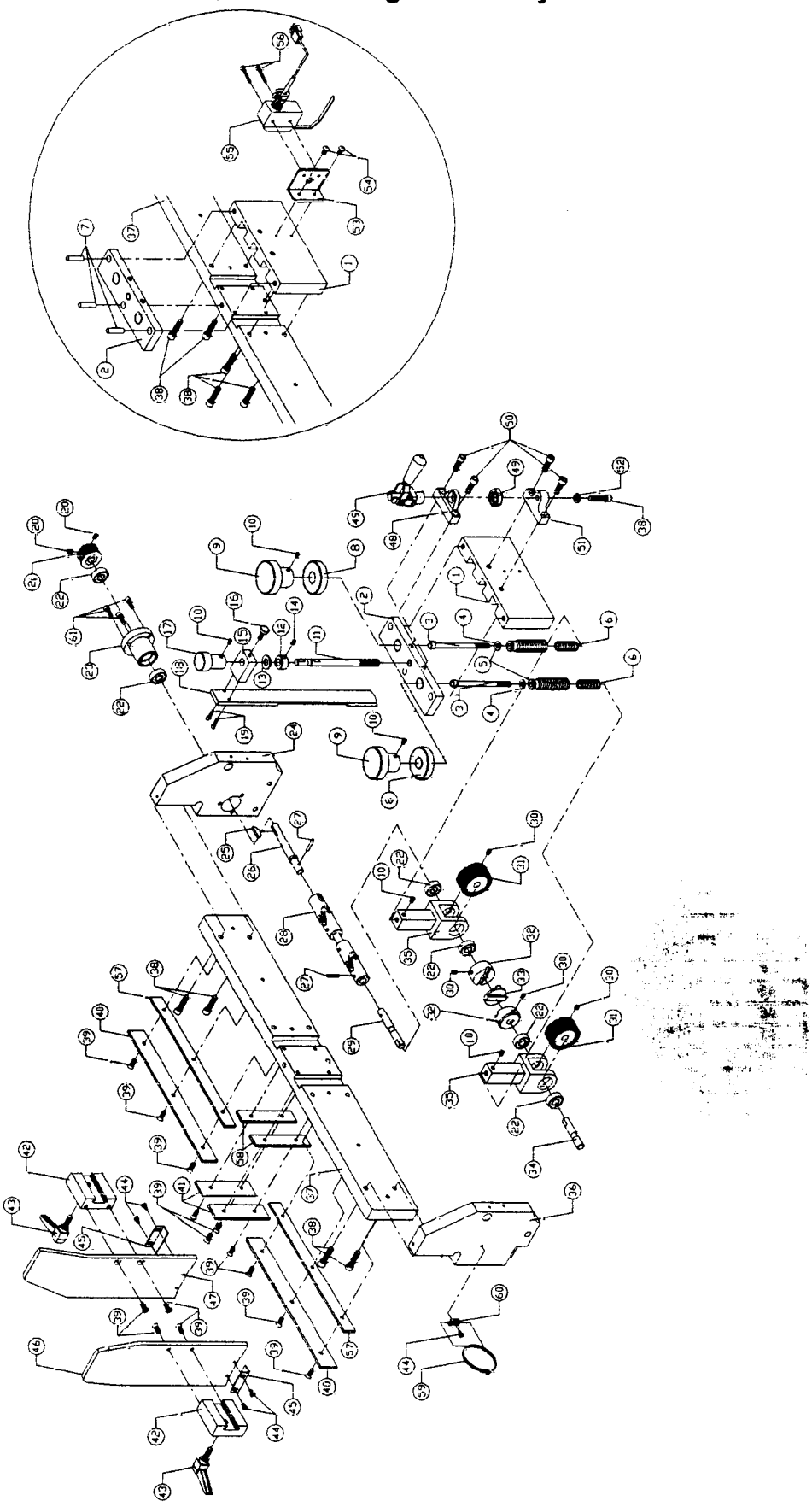
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	300320	2	TABLETOP SUPPORT	
2	405250	14	SCREW, SHCS, 1/4-20 UNC X 3/4"	
3	330215	1	TAKEUP ROLLER BLOCK	
4	300319	1	TABLETOP SUPPORT c/w BELT CLEARANCE	
5	500030	2	BEARING, R8, 1/2" I.D.	
6	330101	1	UPPER ROLLER DRIVESHAFT HOUSING	
7	100305	1	UPPER ROLLER DRIVESHAFT	
8	437030	1	RETAINING RING, 1/2" I.D., EXTERNAL	
9	432320	1	KEY, 1/8" X 1/8" X 2" LONG	
10	320003H	1	TABLETOP RIB	
11	300321	1	BK400 BASE LEFT SIDEFRAME	
12	439020	3	LOCKWASHER, 3/8" I.D.	
13	407675	3	SCREW, HHMS, 3/8-16 UNF X 1 1/4"	
14	330023H	2	FRAME MOUNTING FOOT	
15	439010	4	LOCKWASHER, 1/4" I.D.	
16	405650	4	SCREW, HHMS, 1/4-20 UNC X 3/4"	
17	330013	4	SKIRT SUPPORT	
18	330016	1	MODIFIED SKIRT SUPPORT	
19	404820	2	SCREW, SHSS, 10-32 UNF X 3/8"	
20	116300	1	PULLEY, 42XLB037	
21	320305	1	DRIVESHAFT SPACER	
22	404830	2	SCREW, SHSS, 10-32 UNF X 1/2"	
23	110005H	1	GEAR, NSS1632	
24	440030	1	WASHER, 1/2" I.D., 0.032" THICK	
25	405270	2	SCREW, SHCS, 1/4-20 UNC X 1"	
26	405530	3	SCREW, BHCS, 1/4-20 UNC X 1/2"	
27	706333	1	INKWELL CABINET SHELF	
28	500055	1	BEARING, 0.75" I.D.	

300322A, Right Sideframe Assembly



NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	109010H	1	LOWER ROLLER CAM	
2	405830	2	SCREW SHSS, 1/4-20 UNC X 1/2"	
3	500045	4	BEARING, 5/8" I.D.	
4	405250	20	SCREW, SHCS, 1/4-20 UNC X 3/4"	
5	330320	1	VARIABLE PITCH GEAR PLATE	
6	310320	3	GEAR PLATE SPACER	
7	120314	1	SHUTTLE DRIVE BELT, 150L050	
8	403810	2	SCREW, SHSS, 8-32 UNF X 1/4"	
9	116321	1	SHUTTLE PITCH PULLEY, 24LB050	
10	433001	4	KEY, WOODRUFF #606	
11	100324	1	SHUTTLE CRANKSHAFT	
12	100322	1	INTERMEDIATE SHUTTLE SHAFT	
13	432520	1	KEY, 1/8" X 1/8" X 3 1/4" LONG	
14	320003H	1	TABLETOP RIB	
15	300320	3	TABLETOP SUPPORT	
16	330215	1	TAKEUP ROLLER BLOCK	
17	300322	1	INKJET BASE RIGHT SIDEFRAME	
18	330023H	2	FRAME MOUNTING FOOT	
19	405650	4	SCREW, HHMS, 1/4-20 UNC X 3/4"	
20	439010	4	LOCKWASHER 1/4" I.D.	
21	330013	5	SKIRT SUPPORT	
22	407675	3	SCREW, HHMS, 3/8-16 UNC X 1 1/4"	
23	439020	3	LOCKWASHER, 3/8" I.D.	
24	615325	1	CYCLE SWITCH BRACKET	
25	404520	2	SCREW, BHCS, 10-32 UNF X 3/8"	
26	110323	1	SHUTTLE GEAR, NSS1636	
27	110321	1	SHUTTLE GEAR, NSS1632	
28	404830	4	SCREW, SHSS, 10-32 UNF X 1/2"	
29	110322A	1	DRIVE GEAR ASSEMBLY	
30	404807	2	SCREW, SHSS, 10-32 UNF X 3/16"	
31	404810	1	SCREW, SHSS, 10-32 UNF X 1/4"	
32	109050	1	SENSOR CAM	
33	420010	1	NUT, 1/4-20 UNC	
34	455030	1	BALL, PLUNGER, 1/4-20 UNC X 1/2"	
35	100323	1	DISCONNECT MEMBER	
36	127003	1	RETENTION WASHER, 0.75" O.D.	
37	439009	1	LOCKWASHER, NO. 10	
38	404230	1	SCREW, SHCS, 10-32 UNF X 1/2"	
39	433230	1	KEY, 1/8" X 1/8" X 1 1/4"	

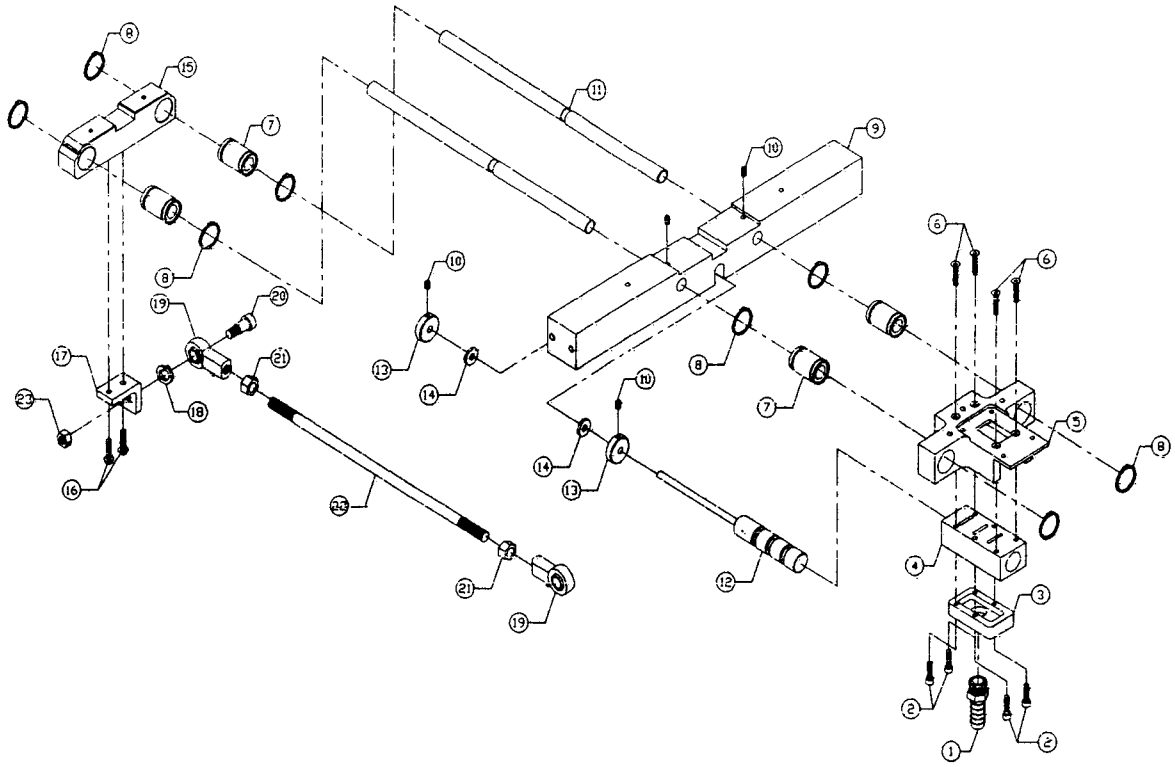
300329A, Feeder Bridge Assembly



NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	212008H	1	BRIDGE SLIDE MOUNT	
2	340010H	1	GATE ADJUSTER PLATE	
3	405295	2	SCREW, SHCS, 1/4-20 UNC X 3 1/2"	
4	440011	2	WASHER, BRASS, 1/4" I.D. X 9/16" O.D.	
5	330007H	2	UPPER ROLLER ADJUSTER	
6	209007	2	UPPER FEED ROLLER SPRING	
7	436313	3	DOWEL PIN, 1/4" DIA. X 1"	
8	438008	2	UPPER ROLLER LOCKNUT	
9	438007H	2	UPPER ROLLER KNOB	
10	404810	4	SCREW, SHSS, 10-32 UNF X 1/4"	
11	429009H	1	GATE ADJUSTMENT SCREW	
12	131020	1	COLLAR, 3/8" I.D.	
13	440021	1	WASHER, BRASS, 3/8" I.D. X 0.68" O.D.	
14	405805	1	SCREW, SHSS, 1/4-20 UNC X 1/8	
15	330011H	1	MATERIAL GATE BLOCK	
16	438171	1	THUMBSCREW, 10-32 UNF X 3/8"	
17	438010	1	GATE ADJUSTMENT KNOB	
18	212011H	1	MATERIAL GATE	
19	402230	2	SCREW, SHSS, 6-32 UNF X 1/2"	
20	403805	2	SCREW, SHSS, 8-32 UNF X 1/8"	
21	116310	1	UPPER FEED ROLLER PULLEY, 20XL037	
22	500020	6	BEARING, 3/8" I.D.	
23	330008H	1	BRIDGE BEARING BLOCK	
24	300008H	1	LEFT BRIDGE FRAME	
25	432122	1	KEY, WOODRUFF,1/8" X 3/4", #406	
26	100018H	1	UPPER ROLLER DRIVESHAFT	
27	436050	2	SPRING PIN, 1/8" DIA. X 3/4" LONG	
28	122010HA	1	UNIVERSAL ASSEMBLY	
29	100020H	1	LEFT UPPER ROLLER SHAFT	
30	404820	4	SCREW, SHSS, 10-32 UNF X 3/8"	
31	106007H	2	UPPER FEED ROLLER	
32	122007H	2	COUPLING COLLAR	
33	122006	1	COUPLING SPIDER	
34	100019H	1	RIGHT UPPER ROLLER SHAFT	
35	212009H	2	UPPER ROLLER HOLDER	
36	300329	1	RIGHT BRIDGE FRAME	
37	310008H	1	FEEDER BRIDGE	
38	405270	9	SCREW, SHCS, 1/4-20 UNC X 1"	
39	404030	14	SCREW, FHCS, 10-32 UNF X 1/2"	
40	340008H	2	SIDE GUIDE RAIL	
41	340009H	2	MATERIAL GATE SLIDE	
42	212006	2	SIDE GUIDE CLAMP BLOCK	
43	206010	2	SIDE GUIDE LOCKING LEVER	
44	402310	5	SCREW, PHMS, 6-32 UNF X 1/4"	
45	707009	2	SIDE GUIDE BOTTOM PLATE	
46	707007H	1	RIGHT SIDE GUIDE	
47	707008H	1	LEFT SIDE GUIDE	
48	330010	2	QUICK RELEASE BRACKET	
49	206012	1	RELEASE LEVER c/w NUT	
50	405250	4	SCREW, SHCS, 1/4-20 UNC X 3/4"	
51	330014	1	QUICK RELEASE ANCHOR	
52	439010	1	WASHER LOCK, 1/4" I.D.	
53	615005	1	MICROSWITCH BRACKET	
54	402520	2	SCREW, BHCS, 6-32 UNF X 3/8"	
55	603020A	1	JAM SWITCH ASSEMBLY	
56	402370	2	SCREW, PHMS, 6-32 UNF X 1"	
57	340007H	2	SIDE GUIDE RAIL SPACER	
58	340006H	2	MATERIAL GATE SLIDE SPACER	
59	615140	1	LASHING TIE	
60	615101	1	TIE MOUNT	
61	404250	3	SCREW, SHCS, 10-32 UNF X 3/4"	

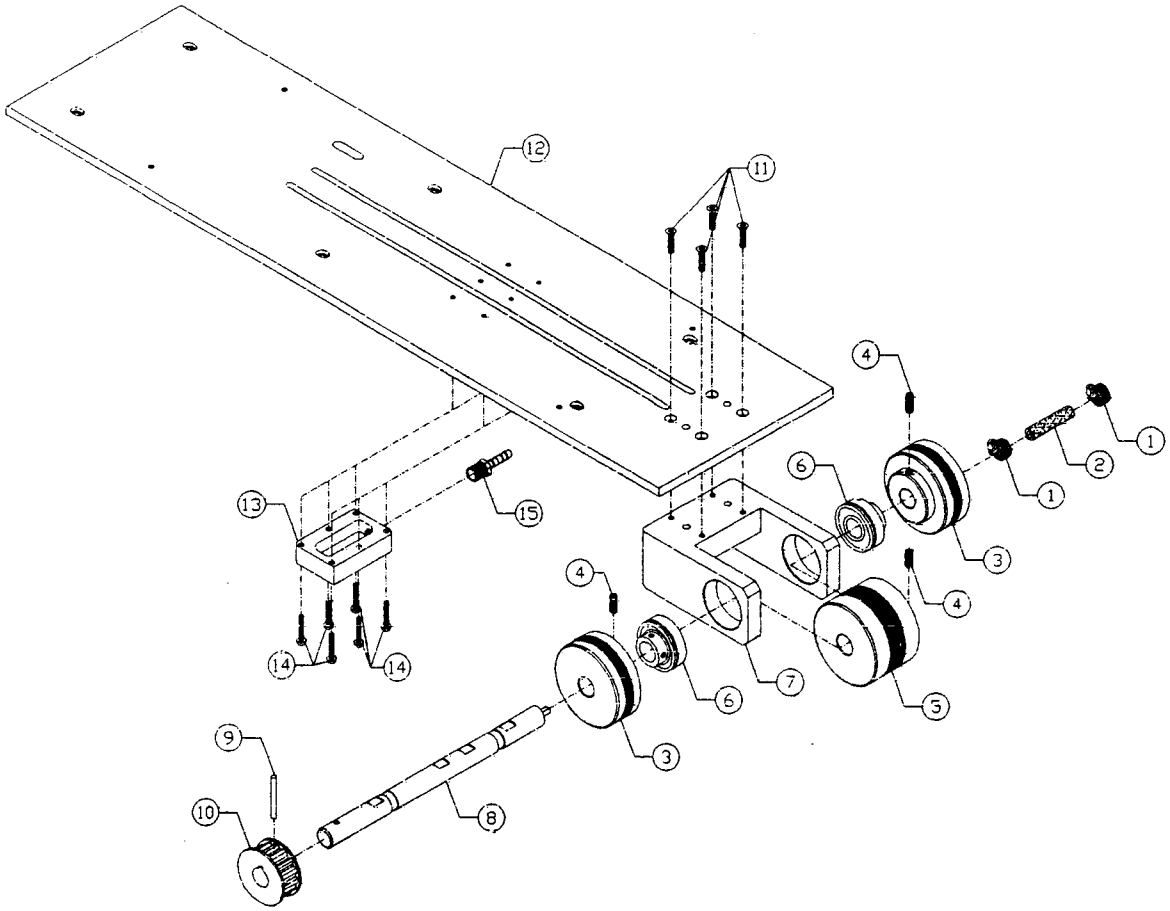
106008H - Lower Feed Bk400
106007H - Upper Feed Rollers

325005HA, Shuttle Feeder Assembly



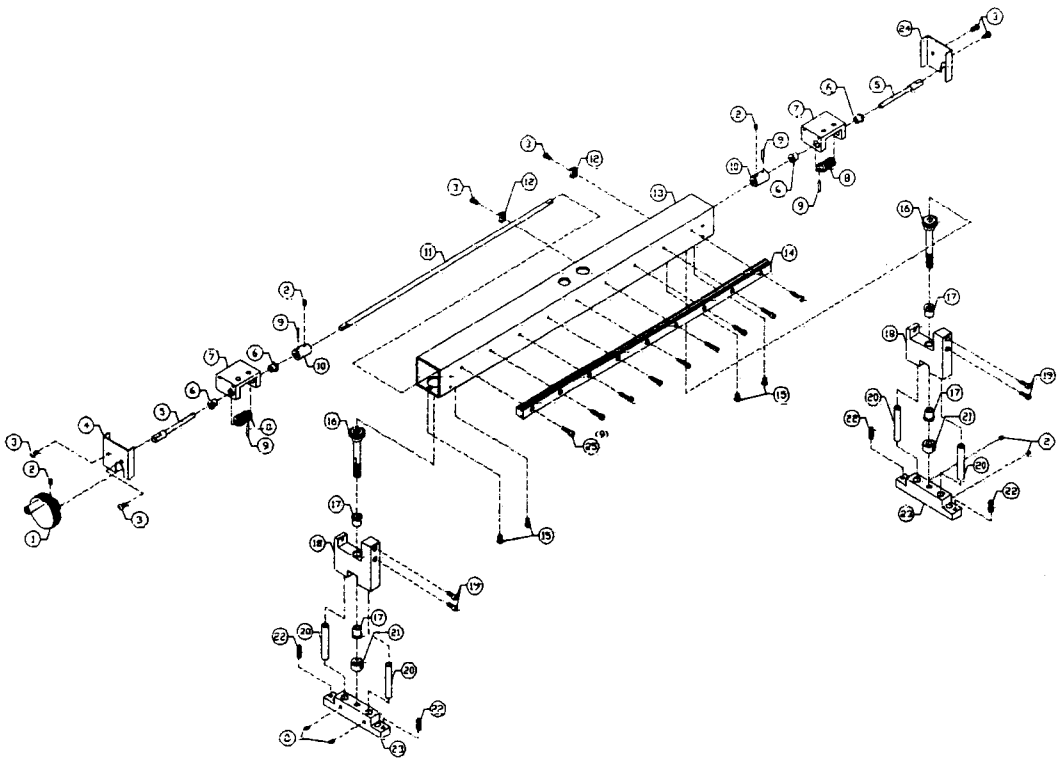
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	802058	1	BARB VACUUM HOSE FITTING, 3/8" NPT X 1/2"	
2	403250	4	SCREW, SHCS, 8-32 UNF X 3/4"	
3	802007H	1	VACUUM FITTING BLOCK	
4	802004H	1	VACUUM VALVE BODY	
5	212004H	1	VACUUM SHUTTLE BODY	
6	403050	4	SCREW, FHCS, 8-32 UNF X 3/4"	
7	212030	4	LINEAR BEARING, 7/8" I.D.	
8	437060	8	RETAINING RING, 7/8" I.D. EXTERNAL	
9	330001H	1	SHUTTLE SLIDE SHAFT MOUNT	
10	404810	4	SCREW, SHSS, 10-32 UNF X 1/4"	
11	100007H	2	SHUTTLE SLIDE SHAFT	
12	802005HA	1	VACUUM VALVE ASSEMBLY	
13	212012	2	SHUTTLE STOPPER	
14	440510	2	RUBBER WASHER, 1/4" I.D.	
15	212002H	1	REAR SHUTTLE BLOCK	
16	404550	2	SCREW, BHCS, 10-32 UNF X 1/2"	
17	212003H	1	REAR SHUTTLE BRACKET	
18	439020	1	LOCKWASHER, 3/8" I.D.	
19	200009	2	ROD END, 3/8" I.D. C/W LUBRICATING FITTING	
20	416140	1	SHOULDER BOLT, 5/16-18 UNC X 5/8"	
21	420025	2	NUT, 3/8-24 UNF	
22	200010H	1	SHUTTLE CRANK LINK	
23	420015	1	NUT, 5/16-18 UNC	

325325A, Vacuum Belt Tabletop Assembly



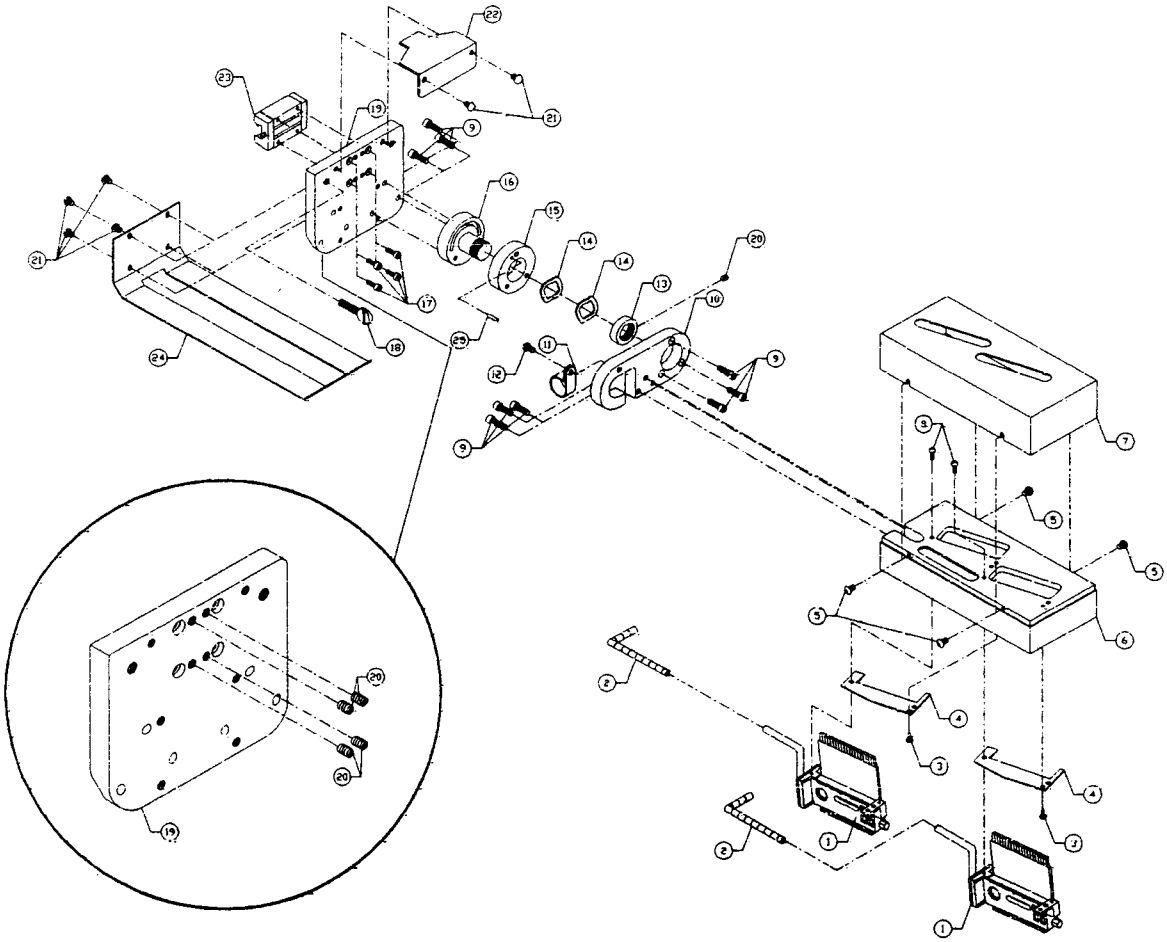
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	444001	2	HOSE CLAMP, GEAR TYPE	
2	802047	2	HOSE CLEARFLEX, 1/4" I.D. X 1/2"	
3	106301	2	VACUUM BELT PULLEY, 1" WIDE	
4	405830	3	SCREW, SHSS, 1/4-20 UNC X 1/2"	
5	106321	1	VACUUM BELT PULLEY, 2" WIDE	
6	500055	2	BEARING 3/4" I.D.	
7	330306	1	DRIVE PULLEY BLOCK	
8	100301	1	VACUUM BELT DRIVESHAFT	
9	436300	1	SPRING PIN, 3/16" DIA X 1 3/4"	
10	116309	1	PULLEY, 18LB075	
11	404050	4	SCREW, FHCS, 10-32 UNF X 3/4"	
12	325325	1	VACUUM BELT TABLETOP	
13	802301	1	VACUUM PLATE FITTING	
14	403570	6	SCREW, BHCS, 8-32 UNF X 1"	
15	802051	1	BARB VACUUM HOSE FITTING, 1/4" NPT X 1/4"	

330450A, Printhead Bridge Assembly



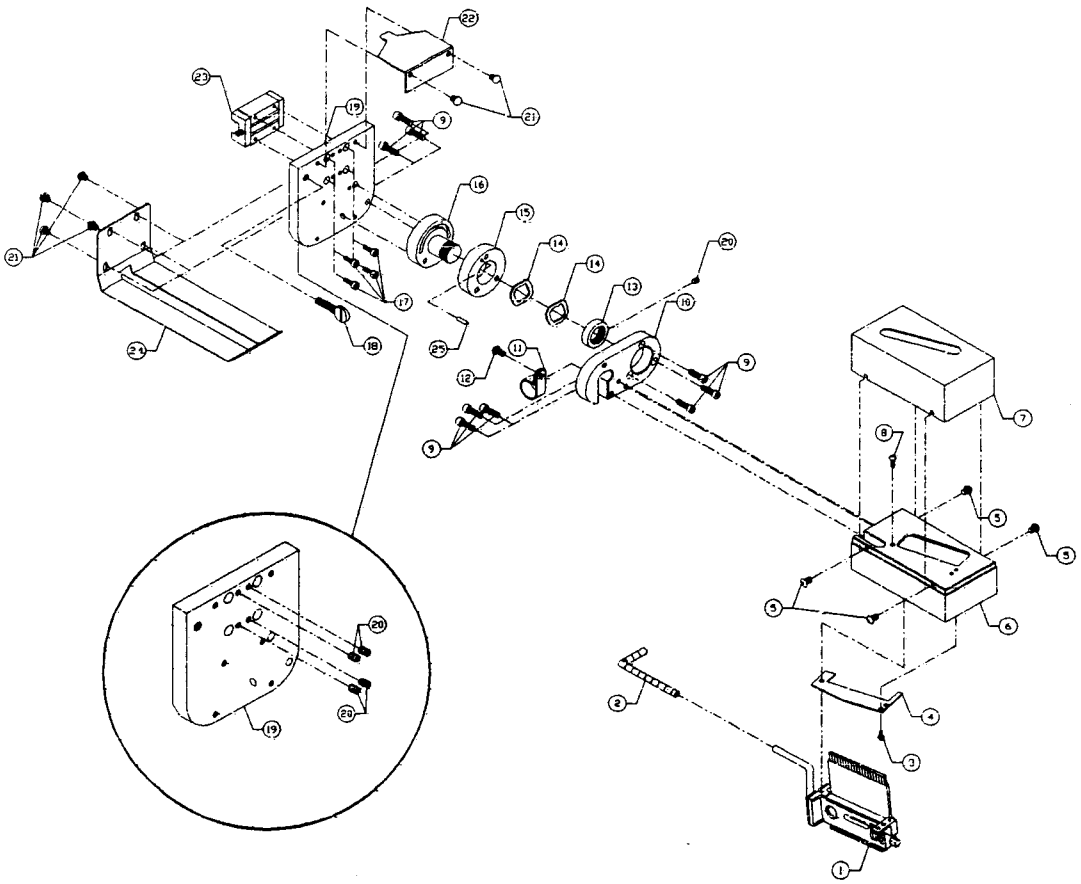
NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	438311A	1	BRIDGE HANDWHEEL ASSEMBLY	
2	404807	7	SCREW, SHSS, 10-32 UNF X 3/16"	
3	402520	6	SCREW, BHCS, 6-32 UNF X 3/8"	
4	700450	1	PRINT BRIDGE RIGHT COVER	
5	100310	2	GEARBOX SHAFT	
6	505463	4	FLANGE BUSHING, 1/4" I.D. X 3/8"	
7	330451	2	BRIDGE GEARBOX	
8	110310	2	GEARBOX WORM, HARDENED	
9	436312	4	SPRING PIN, 3/32" DIA. X 5/8"	
10	122201	2	GEARBOX COUPLING	
11	100450	1	BRIDGE SHAFT	
12	615101	2	TIE MOUNT	
13	330450	1	PRINTHEAD BRIDGE	
14	212311	1	LINEAR BEARING RAIL	
15	404520	4	SCREW, BHCS, 10-32 UNF 3/8"	
16	100451A	2	HEIGHT ADJUSTMENT SCREW ASSEMBLY	
17	505384	4	FLANGE BUSHING, 3/8" I.D. X 1/2"	
18	212350	2	ADJUSTABLE MOUNT	
19	404250	4	SCREW, SHCS, 10-32 UNF X 3/4"	
20	100309	4	HEIGHT ADJUSTMENT PIN	
21	131020	2	COLLAR, 3/8" I.D.	
22	405830	4	SCREW, SHSS, 1/4-20 UNC X 1/2"	
23	330314	2	PRINTHEAD BRIDGE MOUNTING FOOT	
24	700451	1	PRINT BRIDGE LEFT COVER	
25	403250	9	SCREW, SHCS, 8-32 UNF X 3/4"	

BK602 (H,V,F,A), Twin Printhead



NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	640395,6,7	2	PRINTBAR, (H,V,F,A), 96/32	
2	609002		SPIRAL WIRE WRAP, (LENGTH VARIES)	
3	402310	2	SCREW, PHMS, 6-32 UNF X 1/4"	
4	706310	2	PRINTHEAD INSULATION SHIELD	
5	402510	4	SCREW, BHCS, 6-32, UNF X1/4"	
6	330310	1	TWIN PRINTBAR MOUNT BLOCK	
7	700310	1	TWIN PRINTHEAD COVER	
8	402320	2	SCREW, PHMS, 6-32 UNF X 3/8"	
9	404240	9	SCREW, SHCS, 10-32 UNF X 5/8"	
10	330312	1	TWIN PRINTBAR BODY BRACKET	
11	615105,4	1	CABLE CLAMP 3/4", 7/8"	
12	404520	1	SCREW, BHCS, 10-32 UNF X 3/8"	
13	131300	1	ROTARY JOINT NUT	
14	439051	2	WAVE WASHER 3/4" I.D.	
15	127311	1	HEAD SWIVEL DISK	
16	127310	1	PRINTHEAD SWIVEL POST	
17	410415	4	SCREW, SHCS, M4 X 10 METRIC	
18	438310	1	LOCKING SCREW, 1/4-20 UNC X 1"	
19	330311	1	TWIN PRINTBAR MOUNTING PLATE	
20	404807	5	SCREW, SHSS, 10-32 UNF X 3/16"	
21	404510	6	SCREW, BHCS, 10-32 UNF X 1/4"	
22	706313	1	TWIN PRINTHEAD INDICATOR	
23	212310	1	LINEAR BEARING	
24	706312	1	TWIN PRINTHEAD SHIELD	
25	436030	1	SPRING PIN, 1/8" DIA. X 1/2"	

BK601 (H,V,F,A), Single Printhead



NO.	PART NO.	QUANTITY	DESCRIPTION	REFERENCE
1	640395,6,7	1	PRINTBAR, (H,V,F,A), 96/32	
2	604002		SPIRAL WIRE WRAP, (LENGTH VARIES)	
3	402310	1	SCREW, PHMS, 6-32 UNF X 1/4"	
4	706310	1	PRINTHEAD INSULATION SHIELD	
5	402510	4	SCREW, BHCS, 6-32 UNF X 1/4"	
6	330318	1	BK601 HEAD MOUNT BLOCK	
7	700311	1	BK601 HEAD COVER	
8	402320	1	SCREW, PHMS, 6-32 UNF X 3/8"	
9	404240	9	SCREW, SHCS, 10-32 UNF X 5/8"	
10	330319	1	SINGLE HEAD BRACKET	
11	615104,5	1	CABLE CLAMP, 3/4", 7/8"	
12	404520	1	SCREW, BHCS, 10-32 UNF X 3/8"	
13	131300	1	ROTARY JOINT NUT	
14	439051	2	WAVE WASHER, 3/4" I.D.	
15	127311	1	HEAD SWIVEL MEMBER	
16	127310	1	PRINT HEAD SWIVEL POST	
17	410415	4	SCREW, SHCS, M4 X 10 METRIC	
18	438310	1	LOCKING SCREW, 1/4-20 UNC X 1"	
19	330326	1	SINGLE HEAD MOUNT	
20	404807	5	SCREW, SHSS, 10-32 UNF X 3/16"	
21	404510	6	SCREW, BHCS, 10-32 UNF X 1/4"	
22	706321	1	BK601 HEAD INDICATOR	
23	212310	1	LINEAR BEARING	
24	706319	1	BK601 HEAD SHIELD	
25	436030	1	SPRING PIN, 1/8" DIA. X 1/2"	

Appendix B Electrical System

Electrical Components

Terminal Block 1 Assembly

Terminal Block 2 Assembly

DC Speed Controller Layout

Schematics

Power Circuit Schematic, BK400EL5

12 VDC Power Schematic, BK400EL7

Keypad/Priming Schematic, BK400EL6

Controller Power Schematic, BK400EL3

Connector Information

JE1 - Shaft Encoder Connector

JS2 - Photocue Sensor Connector

JS3 - Jam Stop Microswitch Connector

JS4 - Cycle Proxi-Switch Connector

JS5 - Jet Drive I/O Distribution Connector

J1 - Base Power Connector

J2 & J3 - Jet Power Supply Connector

J4 - Main Power Connector

J5 - Instrument Control Connector

J6 - Keypad Power Connector

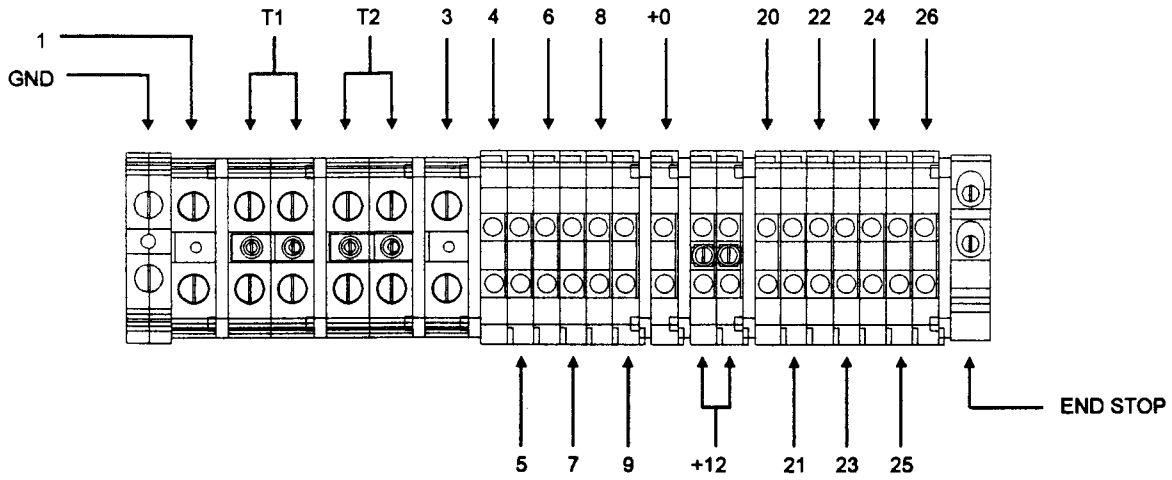
J7 - Connector Plate Keypad Power Connector

J11 - Connector Plate Socket Connector

J12 - Priming Pump Connector

J13 - Conveyor Connector

Terminal Block 1 Assembly

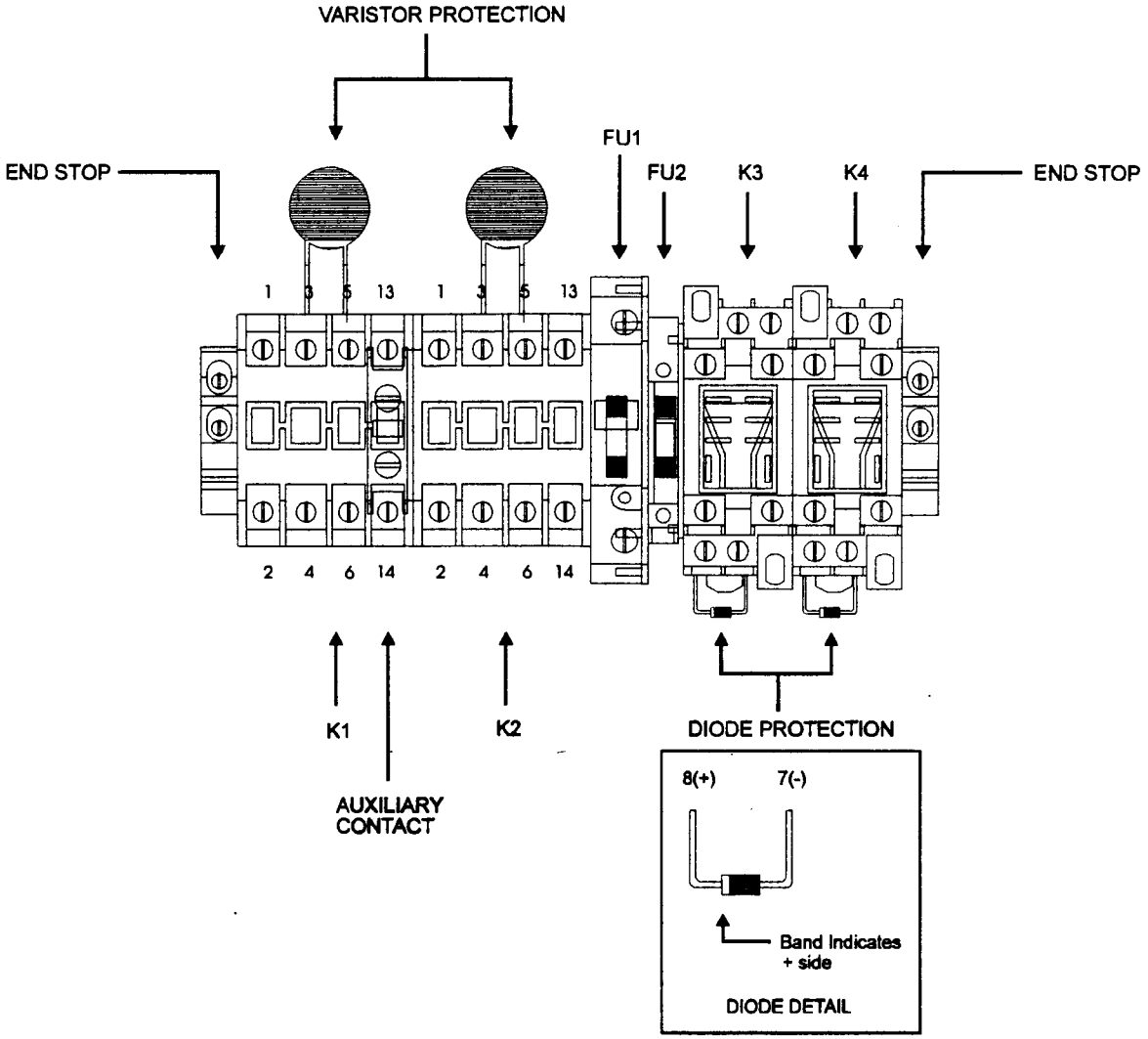


Terminal Block 1 Part List

SYMBOL	NAME	PART NUMBER	DESCRIPTION
GND	Earth Ground	615018	Ground Block, 10 mm
1	120 VAC, Supply Power	615003	Terminal Block, Grey, 10 mm
T1	120 VAC, Switched Power	615003	Terminal Block, Grey, 10 mm
T2	120 VAC, Supply Power	615003	Terminal Block, Grey, 10 mm
3	Pump Power	615003	Terminal Block, Grey, 10 mm
4	Stop Relay	615002	Terminal Block, Grey, 3 mm
5	NCPB1, Stop	615002	Terminal Block, Grey, 3 mm
6	NOPB1, Start	615002	Terminal Block, Grey, 3 mm
7	ROTB1, Run/Jog	615002	Terminal Block, Grey, 3 mm
8	ROTB2, Conveyor On	615002	Terminal Block, Grey, 3 mm
9	ROTB2, Conveyor Auto	615002	Terminal Block, Grey, 3 mm
0	0 VDC Power Supply	615002	Terminal Block, Grey, 3 mm
12	+12 VDC Power Supply	615002	Terminal Block, Grey, 3 mm
20	Photo Cue	615002	Terminal Block, Grey, 3 mm
21	Machine Cycle	615002	Terminal Block, Grey, 3 mm
22	Jam Switch	615002	Terminal Block, Grey, 3 mm
23	Shaft Encoder A	615002	Terminal Block, Grey, 3 mm
24	Shaft Encoder A NOT	615002	Terminal Block, Grey, 3 mm
25	K3-8 Machine Stop Relay	615002	Terminal Block, Grey, 3 mm
26	Piece Counter	615002	Terminal Block, Grey, 3 mm

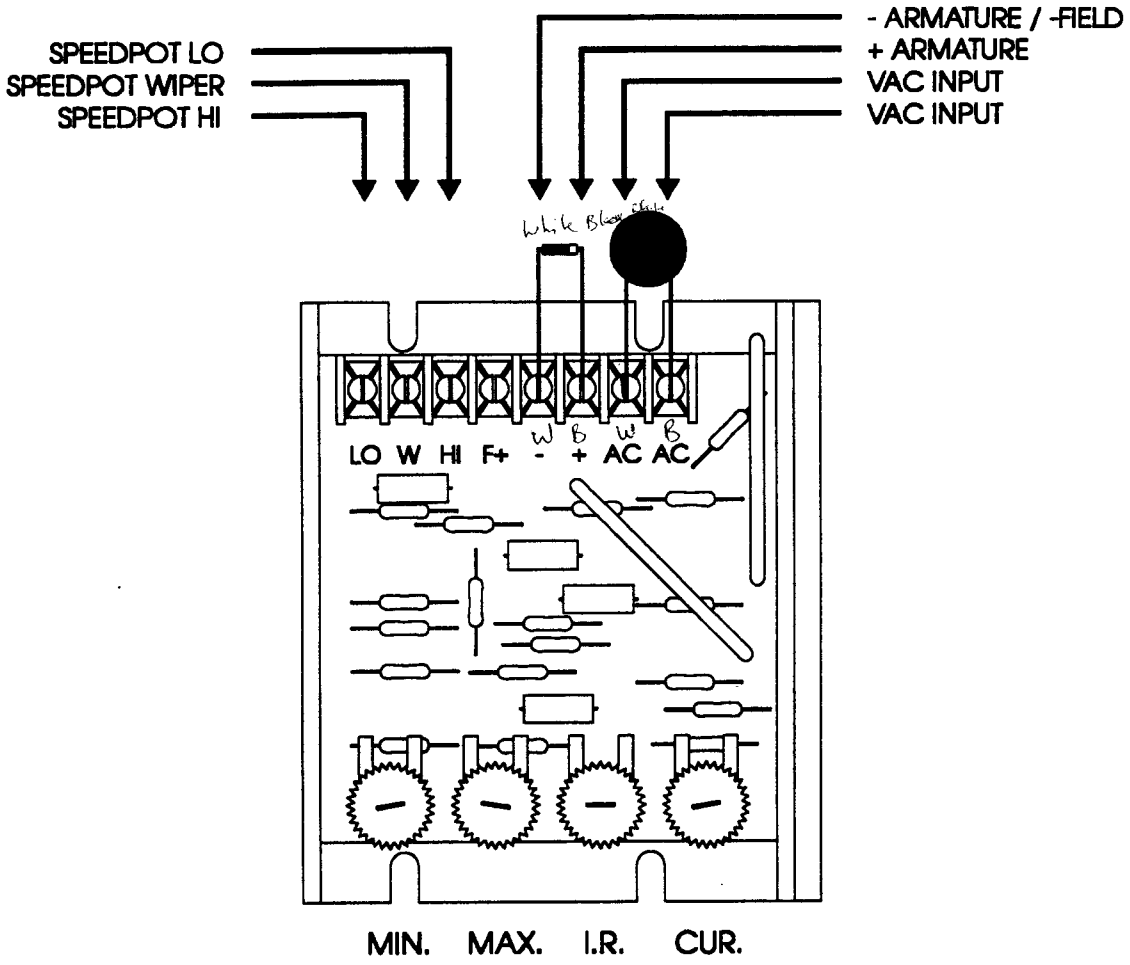
NoContact
610003

Terminal Block 2 Assembly



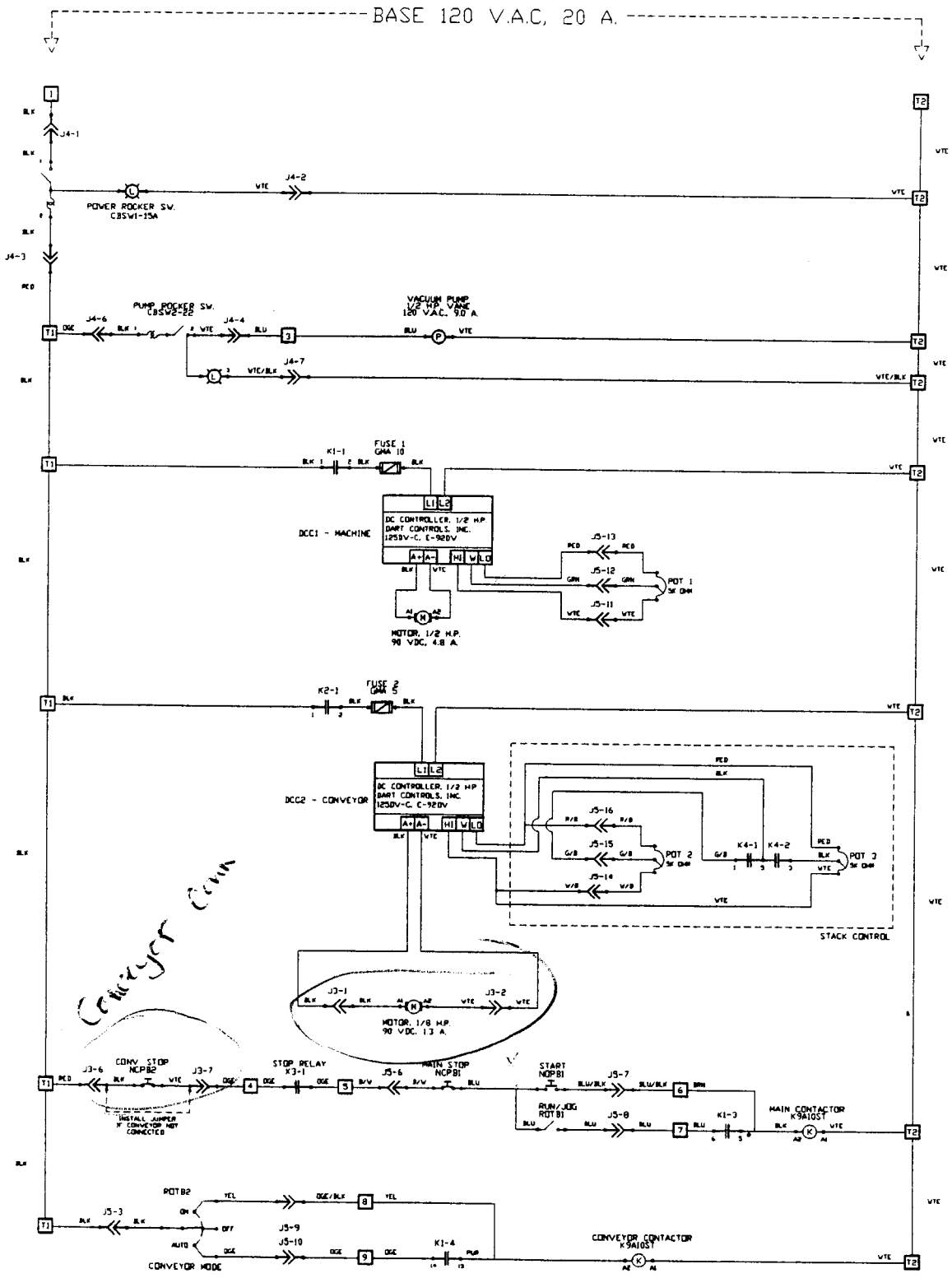
SYMBOL	NAME	PART NUMBER	DESCRIPTION
K1	Machine Contactor	610001 640300 610003	3 Pole Contactor, 9 A, 600 V Metal Oxide Varistor, 120 VAC N/O Auxiliary Contact, HA10
K2	Conveyor Contactor	610001 640300	3 Pole Contactor, 9 A, 600 V Metal Oxide Varistor, 120 VAC
FU1	120 VAC Fuse	615024 646002	Fuse Holder, 10mm, 16 A, 60 V Fuse, 5 X 20 10 A
FU2	120 VAC Fuse	615001 646001	Fuse Holder, Grey, 8mm, 6.3 A Fuse, 5 X 20 5 A
K3	Conveyor Relay ? Step	615004 610102 640301	Relay Base Relay, 12 VDC Zener Diode
K4	Stop Relay ? Stack	615004 610102 640301	Relay Base Relay, 12 VDC Zener Diode

DC Speed Controller Layout

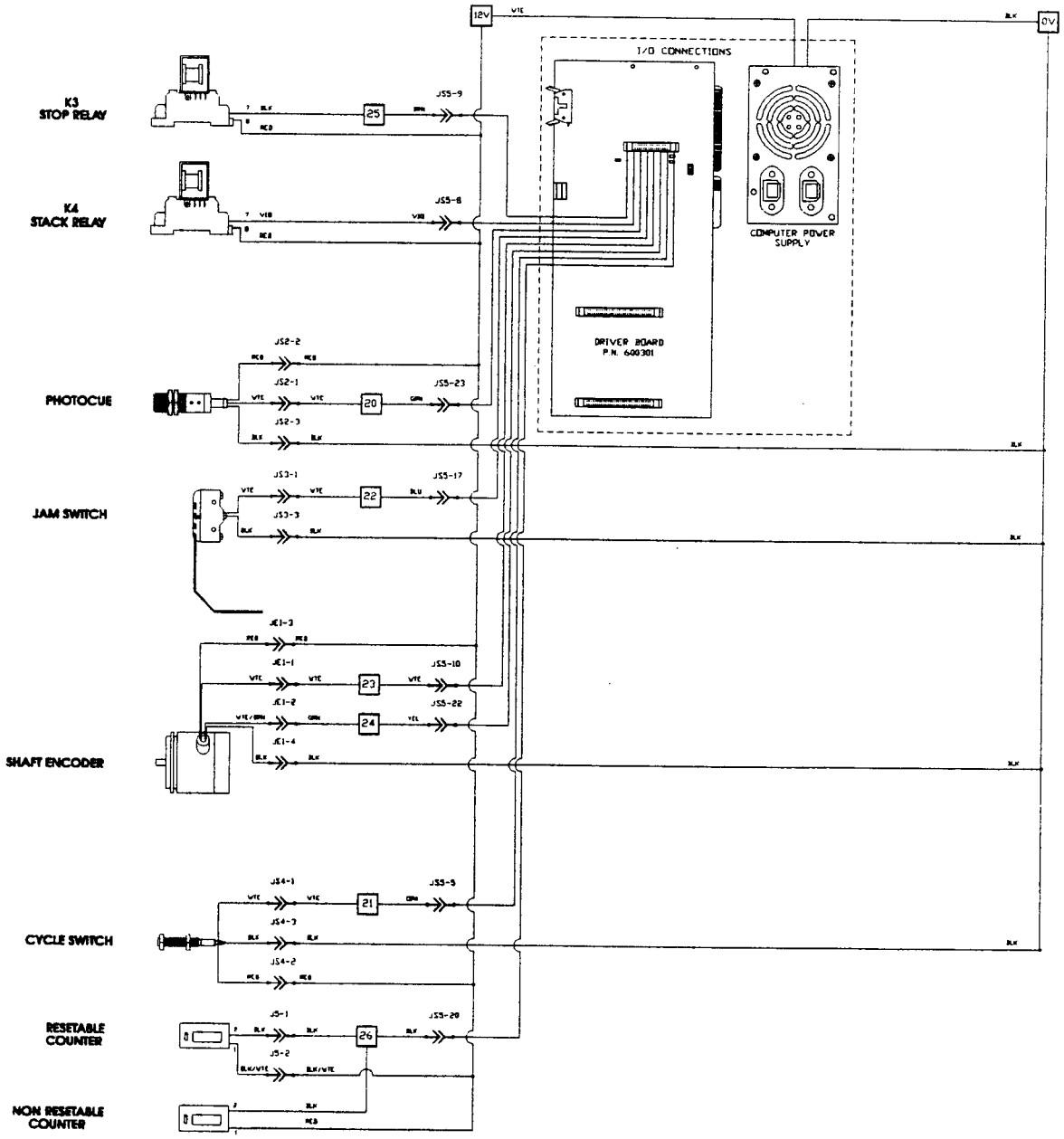


TRIMPOT ADJUSTMENT CHART			
DCC1 - MACHINE CONTROLLER		DCC2 - CONVEYOR CONTROLLER	
MIN. MAX. I.R.. CUR.		MIN. MAX. I.R.. CUR.	
1/2 H.P.	120 VAC INPUT	1/8 H.P.	120 VAC INPUT

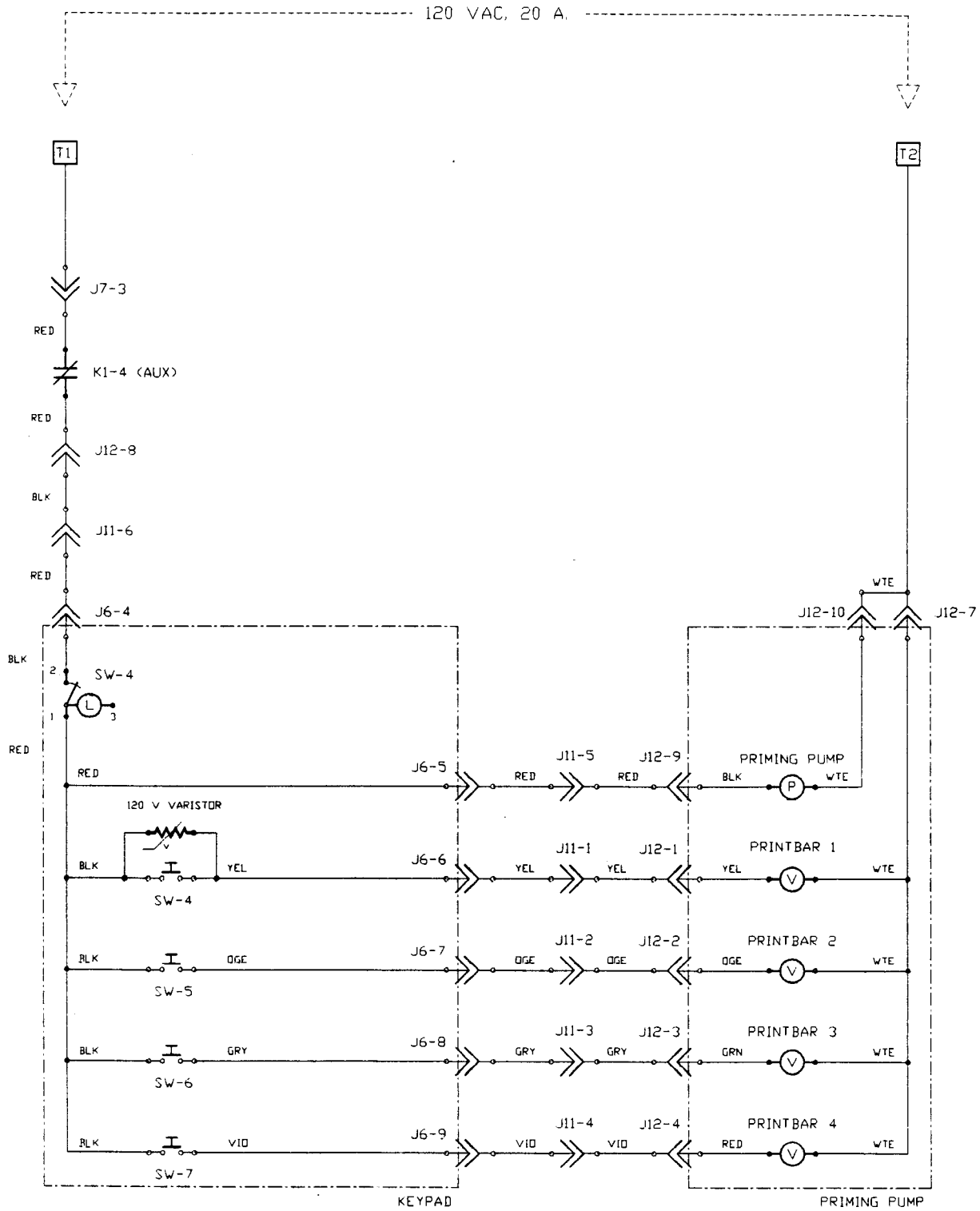
Power Circuit Schematic, BK400EL5



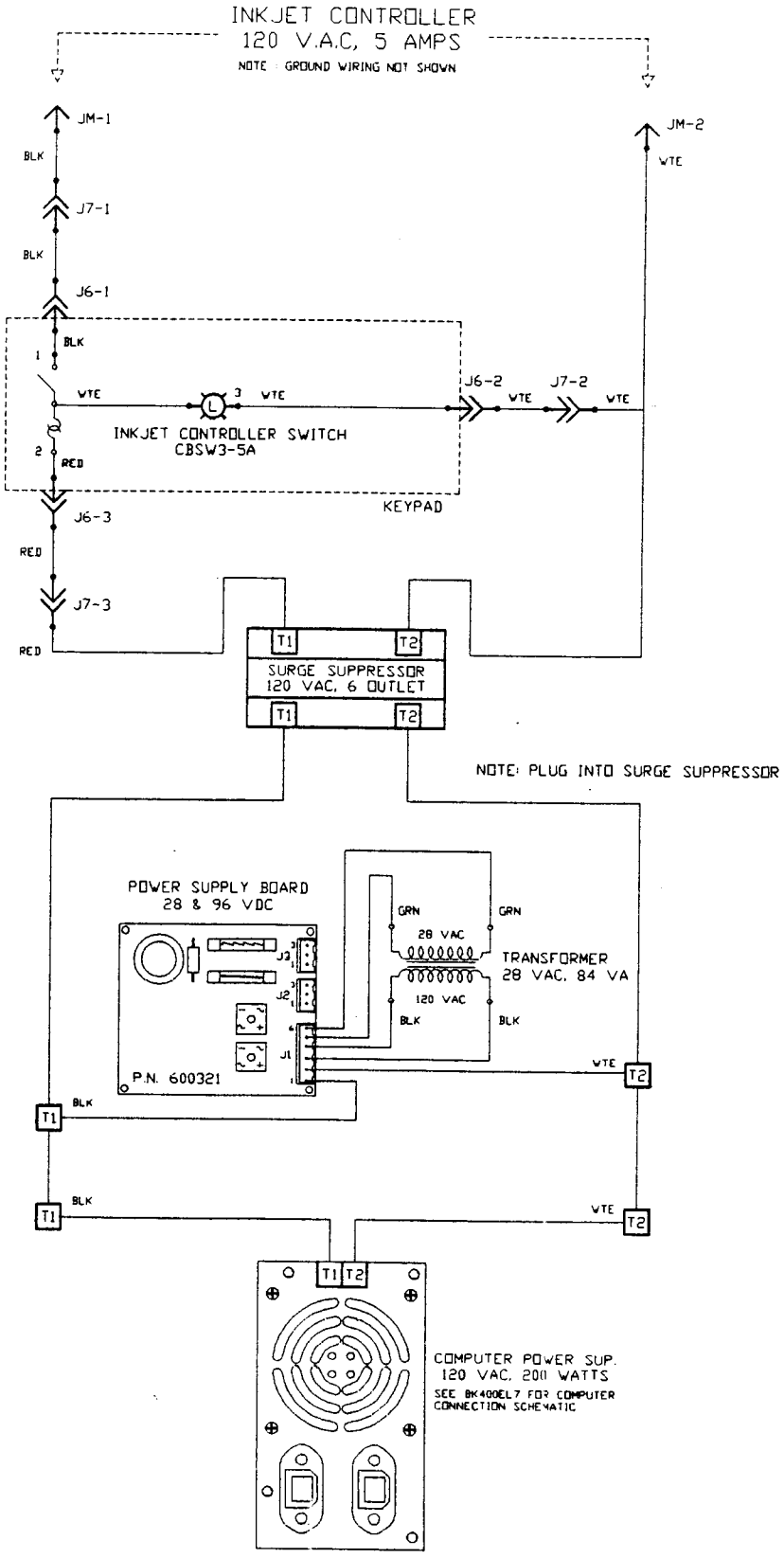
12 VDC Power Schematic, BK400EL7



Keypad/Priming Schematic, BK400EL6



Controller Power Schematic, BK400EL3



JE1 - Shaft Encoder Connector

PART NUMBER: 614007

DESCRIPTION: Connector that provides +12 VDC to the Shaft encoder.

TYPE: 4 pin AMP connector
REFERENCE: AMP No. 1-480424-0, 606017-1
ORIGIN: Shaft Encoder
DESTINATION: Terminal Block 1

JE1 - Shaft Encoder Connector Pin Assignment

No.	Function
1	Terminal 23, Encoder Input A+
2	Terminal 24, Encoder Input A-
3	Terminal +12 VDC
4	Terminal -0 VDC

JS2 - Photocue Sensor Connector

PART NUMBER: 614001

DESCRIPTION: Connector that provides +12 VDC to the Photocue sensor.

TYPE: 3 pin AMP connector
REFERENCE: AMP No. 172329-1, 172337-1
ORIGIN: Photocue Sensor
DESTINATION: Terminal Block 1

JS2 -Photocue Sensor Connector Pin Assignment

No.	Function
1	Terminal 20, Photocue Input
2	Terminal +12 VDC
3	Terminal -0 VDC

JS3 - Jam Stop Microswitch Connector

PART NUMBER: 614001

DESCRIPTION: Connector that provides +12 VDC to the Jam Stop Microswitch.

TYPE: 3 pin AMP connector
REFERENCE: AMP No. 172329-1, 172337-1
ORIGIN: Jam Stop Microswitch
DESTINATION: Terminal Block 1

JS3 -Jam Stop Microswitch Connector Pin Assignment

No.	Function
1	Terminal 22, Jam Stop Input
2	Terminal +12 VDC
3	Terminal -0 VDC

JS4 - Cycle Proxi-Switch Connector

PART NUMBER: 614001

DESCRIPTION: Connector that provides +12 VDC to the Cycle Proxi-Switch.

TYPE: 3 pin AMP connector
REFERENCE: AMP No. 172329-1, 172337-1
ORIGIN: Cycle Proxi-Switch
DESTINATION: Terminal Block 1

JS4 Cycle Proxi-Switch Connector Pin Assignment

No.	Function
1	Terminal 21, Machine Cycle Input
2	Terminal +12 VDC
3	Terminal -0 VDC

JS5 - Jet Drive I/O Distribution Connector

PART NUMBER: 614321

DESCRIPTION: Connector that provides the I/O signals to the I/O Card.

TYPE: 24 pin AMP Champ connector
REFERENCE: AMP No. 552317-1, 552076-1
ORIGIN: I/O Connections
DESTINATION: Terminal Block 1

JS5 -Jet Drive I/O Distributiion Connector Pin Assignment

No.	Function
1	Not Connected
2	Not Connected
3	Not Connected
4	Not Connected
5	Terminal 21, Machine Cycle
6	Not Connected
7	Not Connected
8	Stack Relay, No.7
9	Terminal 25, Stop Relay
10	Terminal 23, Encoder A+
11	Not Connected
12	Not Connected
13	Not Connected
14	Not Connected
15	Not Connected
16	Not Connected
17	Terminal 22, Jam Switch
18	Not Connected
19	Not Connected
20	Terminal 26, Piece Counter
21	Not Connected
22	Terminal 24, Encoder A-
23	Terminal 20, Photocue Sensor
24	Not Connected

J1 - Base Power Connector

PART NUMBER: 614016

DESCRIPTION: Connector that provides 120 VAC to the Inkjet bases controls.

TYPE: 120 VAC Electrical Plug
REFERENCE: Pass&Seymour No. 5266-C
ORIGIN: 120 VAC plug
DESTINATION: Terminal Block 1

J1 -Base Power Connector Pin Assignment

No.	Function
1	Terminal T2, 120 VAC
2	Terminal GND, Ground
3	Terminal T1, 120 VAC

J2 & J3 - Jet Power Supply Connector

PART NUMBER: 615063

DESCRIPTION: Connector that provides 0, 28, 96 VDC to the Jet Drive Board.

TYPE: 3 pin connector
REFERENCE: Wiedmuller, No. 12818-6 BLA3
ORIGIN: Power Supply Board
DESTINATION: Jet Drive Board

J2 & J3 -Jet Power Supply Connector Pin Assignment

No.	Function
1	+ 96 VDC
2	- 0 VDC
3	+28 VDC

J4 - Main Power Connector

PART NUMBER: 614106

DESCRIPTION: Connector that provides main electrical power to the instrument panel.

TYPE: 7 pin connector
REFERENCE: AMP, 23-7, No. 206226-1, 206227-1
ORIGIN: Panel Box
DESTINATION: Terminal Block 1

J4 -Main Power Connector Pin Assignment

No.	Function
1	Terminal 1
2	Terminal T2, 120 VAC
3	Terminal T1, 120 VAC
4	Terminal 3
5	Terminal T2, 120 VAC
6	Terminal T1, 120 VAC
7	Terminal T2, 120 VAC

J5 - Instrument Control Connector

PART NUMBER: 614103

DESCRIPTION: Connector that provides all control functions to the instrument panel.

TYPE: 16 pin AMP circular plastic connector
REFERENCE: AMP, 17-16, No. 206037-1, 66105-2
ORIGIN: Instrument control connector
DESTINATION: Terminal Block 1

J5 -Intrument Control Connector Pin Assignment

No.	Function
1	Terminal 26, Piece Counter
2	Terminal + 12 VDC
3	Not Connected
4	Not Connected
5	Not Connected
6	Terminal 5, Stop Pushbutton
7	Terminal 6, Start Pushbutton
8	Terminal 7, Jog/Run Selector
9	Terminal 8, Conveyor On
10	Terminal 9, Conveyor Auto
11	DCC1-HI, Machine Pot "Hi"
12	DCC1-W, Machine Pot "W"
13	DCC1-LO, Machine Pot "Lo"
14	DCC2-HI, Conveyor Pot "Hi"
15	DCC2-W, Conveyor Pot "W"
16	DCC2-LO, Conveyor Pot "Lo"

J6 - Keypad Power Connector

PART NUMBER: 615124

DESCRIPTION: Connector that provides 120 VAC to the Keypad Priming System.

TYPE: 9 pin CPC connector
REFERENCE: AMP, 13-9, No. 206708-1, 206705-1
ORIGIN: Power, 120 VAC
DESTINATION: Keypad Priming System

J6 -Keypad Power Connector Pin Assignment

No.	Function
1	Power 120 VAC
2	Power 120 VAC
3	Power 120 VAC
4	Power 120 VAC
5	Priming Pump
6	Priming Valve 1
7	Priming Valve 2
8	Priming Valve 3
9	Priming Valve 4

J7 - Connector Plate Keypad Power Connector

PART NUMBER: 614116

DESCRIPTION: Connector that transmits 120 VAC to the keypad power switch.

TYPE: 4 pin connector
REFERENCE: AMP, 11-4, No. 206429-1
ORIGIN: Power 120 VAC
DESTINATION: Keypad power switch

J7 -Connector Plate Keypad Power Connector Pin Assignment

No.	Function
1	Power 120 VAC
2	Power 120 VAC
3	Keypad Power, Switched
4	Not Connected

J11 - Connector Plate Socket Connector

PART NUMBER: 614334

DESCRIPTION: Connector that provides 120 VAC from the keypad to the priming system.

TYPE: 6 pin connector
REFERENCE: Cinch & Jones, S-306-FP, P-306-CCT
ORIGIN: Pump Priming System
DESTINATION: Keypad Priming System

J11 -Connector Plate Socket Connector Pin Assignment

No.	Function
1	Priming Valve 1
2	Priming Valve 2
3	Priming Valve 3
4	Priming Valve 4
5	Priming Pump
6	Power 120 VAC

J12 - Priming Pump Connector

PART NUMBER: 614332

DESCRIPTION: Connector that provides 120 VAC to the Pump Priming System.

TYPE: 10 pin connector
REFERENCE: Cinch & Jones, No. S-310-CCT, S-310-AB
ORIGIN: Pump Priming System
DESTINATION: Connector Plate Priming Socket

J12 -Priming Pump Connector Pin Assignment

No.	Function
1	Priming Valve 1
2	Priming Valve 2
3	Priming Valve 3
4	Priming Valve 4
5	Not Connected
6	Not Connected
7	Power 120 VAC
8	Power 120 VAC
9	Priming Pump
10	Power 120 VAC

J13 - Conveyor Connector

PART NUMBER: 614106

DESCRIPTION: Connector that provides all the controls nescessary for the operation of the conveyor.

TYPE: 7 pin connector
REFERENCE: AMP, 23-7, No. 206226-1, 206227-1
ORIGIN: DCC2, Conveyor Controller
DESTINATION: Conveyor Motor

J13 - Conveyor Connector Pin Assignment

No.	Function
1	DCC2-A1, Conveyor Motor A1
2	DCC2-A2, Conveyor Motor A2
3	Terminal GND, Ground
4	Jumper to Pin 6 (T1)
5	Not Attached
6	Terminal T1, 120 VAC
7	Terminal 4