AmeriPak®

AMERIPAK MODEL 140 OPERATOR'S MANUAL

AMERIPAK®

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This manual for the **Model 140** is intended to be an aid as well as a guide to assist you in the installation, operation and service of your horizontal wrapper. It has been outlined and prepared with the service and operating personnel in mind with the manual broken down into various sections for quick, easy reference.

In order to obtain the most from this manual and better understand your machine, read each section thoroughly prior to operating the machine. The information contained is essential for correct operating procedures and as a prevention from costly down time and machine damage.

The care you give your machine will greatly determine the satisfaction and service life you will obtain from it.

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This manual has been prepared for:

_____

Machine Serial #_____

Manual Version 3.2 February 2013

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GENERAL

DESCRIPTION

The AmeriPak Model 140 Horizontal Wrapper is a multipurpose wrapping machine capable of speeds up to 140 PPM. The machine has the capability to wrap products in heat sealable materials including polypropylene and laminated wrapping materials. It can also be adjusted over a wide range of operating speeds through means of a convenient variable speed drive. This model is built with sturdy construction to offer years of dependable trouble free service.

MACHINE IDENTIFICATION

The machine identification plate is located on the side of the electrical box. For your convenience, we have put your machine's serial number into the block on the first page of this manual. You should always include the machine model and serial number in all correspondence and telecommunications regarding your machine.

MACHINE REPAINTING

When repainting your Ameripak Model 140 Horizontal Wrapper, it is essential that proper paint be used that is acceptable in food grade applications. A non-leaded paint must be used for food packaging machines. Contact AmeriPak for the paint specifications of your wrapper.

POLYCLORINATED BIPHENYL LUBRICANT ADDITIVES

The Food and Drug Administration (FDA) has issued directives prohibiting the use of oil and lubricants containing polyclorinated biphenyl (PCB) in, around or on food processing equipment.

CAUTION:

DO NOT USE *OILS OR LUBRICANTS*

CONTAINING POLYCLORINATED BIPHENYL.

INSTALLATION

Upon receipt of your machine, carefully check the machine over for damage and vandalism. ***If vandalism or damage has occurred, it is recommended that photographs be taken and a claim filed with the carrier immediately.***

The AmeriPak Wrapper may be shipped fully assembled or partially assembled with receiving conveyor and/or discharge conveyor detached. The overall size and weight of the shipping cartons is determined by shipping requirements.

As the shipping cartons are received, keep the cartons in an upright position and follow any instructions indicated on the container. Move the cartons to the proper location site by forklift truck or hand truck. Once at the proper location, the crating should be carefully removed and discarded allowing for a clean, safe access to the machine.

A domestically shipped machine is secured to a support platform. Each machine may be sprayed with a rust preventative solution which can be removed by dry wiping the machine. Moisture preventative material and polyethylene are also used for protection against the weather.

Those machines shipped outside the United States are prepared in a similar fashion to the domestic machine. The rust preventative is also of a heavier grade and can be removed by wiping with a good quality cleaning solvent. Note: If more than one machine is shipped and they are disassembled, the disassembled segments are tagged for identification as a unit. Insure that disassembled segments for a wrapper "a" go back together with wrapper "a".

PRE-STARTUP MACHINE REVIEW

If you have requested an AmeriPak Service Technician to install your machine, you will notice he will spend time going over the machine to tighten all fasteners and confirm component alignment.

If you have not elected this extra charge service, it is a good idea for you to go over the machine with tools to tighten all screws and fasteners. We use lock washers and chemical locking means when the machines are assembled, however the transport of the machine will often make machine assemblies or parts come loose or shift in their position. If parts seem to be out of visual alignment or there is any unusual noise coming from the wrapper upon start-up, stop the machine immediately and call AmeriPak service to discuss the situation.

It may be in your best interest to have an AmeriPak service technician come to your plant and review the wrapper, re-setting any component that is out of alignment. We do offer a 6-month part warranty, but this warranty does not cover parts that are damaged as a result of improper start-up.

WARRANTY

While we are speaking about warranty, let us review just what our machine warranty covers.

MANUFACTURER'S WARRANTY

In all instances where we purchase an assembled component, such as a gear box or electric eye module, the warranty that accompanies this product is the warranty we guarantee on the part. This will typically be 6 months to 1 year.

PART WARRANTY

Parts which we manufacture are guaranteed for 6-months from the shipment date of the wrapper. The warrantee covers a flaw in manufacture that was not detected. For example, if a shaft breaks and upon breaking reveals a small hole in the center of the shaft that caused the breakage...that would be a warranty part breakage. However, If the machine is mis-adjusted, then turned on and various components clash into each other causing damage...that is not a warranty breakage. Any part that breaks under a warranty condition should be returned to the factory for review. In the meantime, we will send you another part, crediting you for this part upon inspection of the part and confirmation the part broke because of a flaw.

WEAR PARTS

These are parts that are consumed as a function of their normal operation, such as light bulbs, drive belts, clutches and brakes. They are not covered by warranty replacement.

MACHINE SITE SELECTION

Careful consideration should be given to the machine installation site. The area you choose should have solid footing and be properly lit. Be sure to position the machine so that it is accessible from all sides for service and maintenance.

MACHINE HOOKUP REQUIREMENTS

The necessary electrical and air requirements should be available for the machine, as noted on the machine equipment order.

ELECTRICAL GROUNDING OF THE MACHINE

Take care to carefully ground the wrapper for safety purposes. This can be done by securing a ground wire to the frame of the wrapping machine.

OVERALL MACHINE DIMENSIONS

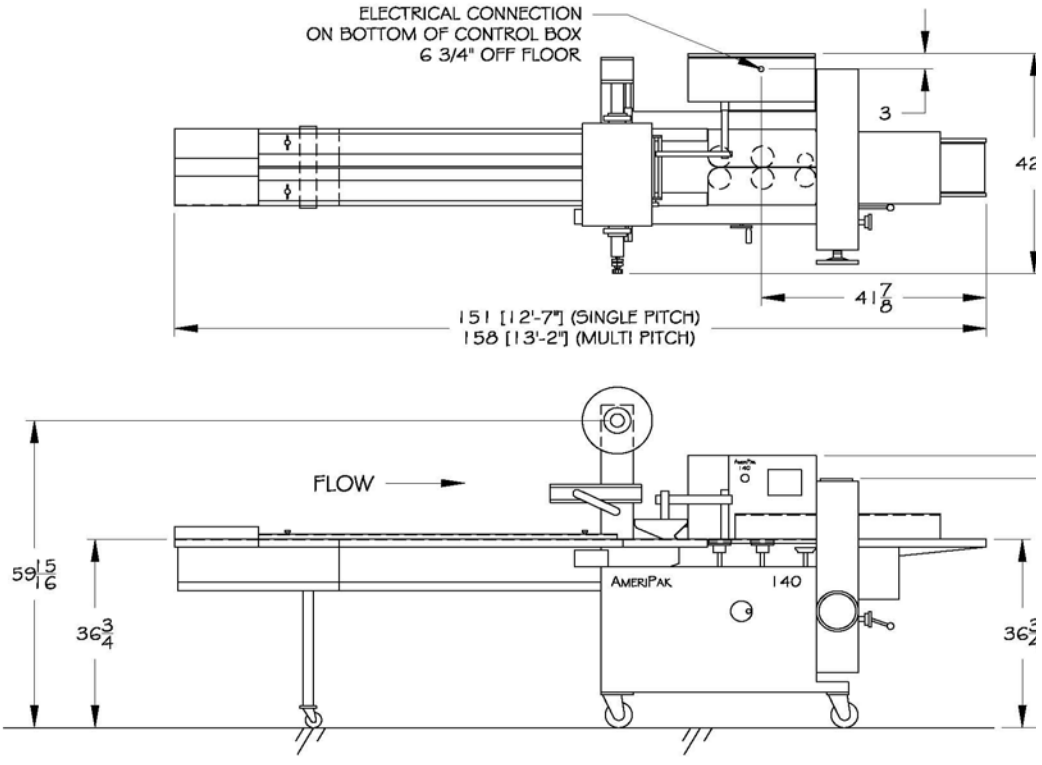


Figure 1-1

AMERIPAK MODEL 140 HORIZONTAL WRAPPER

STANDARD MACHINE SPECIFICATIONS

Length	151”-158”
Width	42 7/8"
Height	65"
Weight (Approx.)	1600 lbs. (726 KG.)
Working height (Approx.) from Floor	36 3/4"
Speeds	Up to 140 packages per minute, depending on package size, material feeding capability.
Pusher Chain Receiving conveyor	54" (1370 mm) Clear feeding space
Single parent roll-(Max. roll capacity) Width	20" (510 mm)
O.D.	13" (330 mm)
Package Size Parts	1 set
Fin Seal	3 sets of wheels: first pulling, second sealing, third pulling.
Crimpers	2-up (# & dia. to suit application)
Cut Length Adjustment	Touch Screen
Discharge	Conveyor
Heat Controls	Three solid state controls, one for each crimper and one for the fin seal.
Product Flow	Left to right, facing control Panel
Packaging Size	
Length	16" (406 mm)
Width	9.0" (230 mm)
Height	4" (100 mm)
Electrical Motor	1 HP variable speed drive A.C. 230 volt, 3 phase, 60 hertz
Finish	Powder Coat

Specifications subject to change without notice.

WRAPPING MATERIAL REQUIREMENTS & INSTRUCTIONS

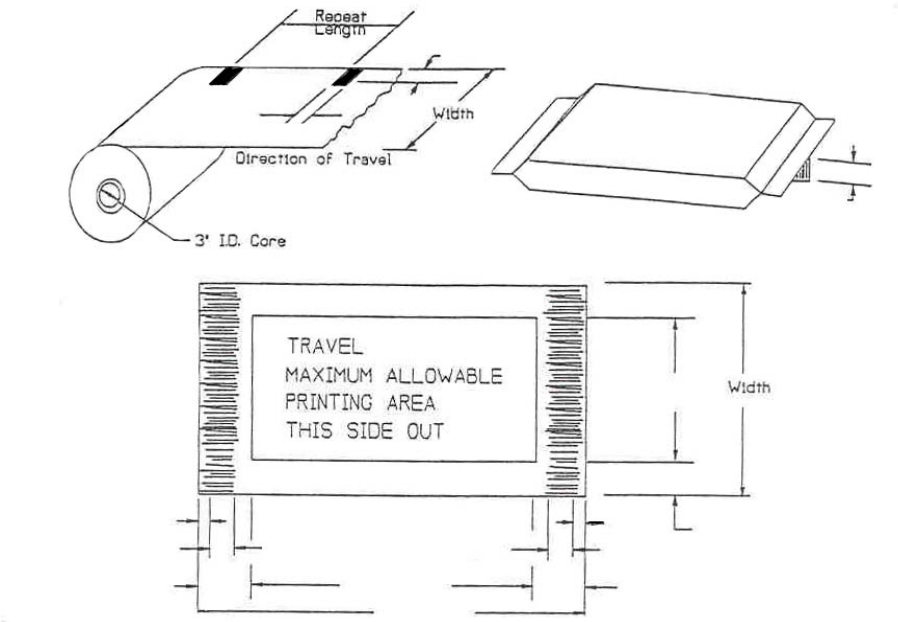


Figure 1-2 Package Layout Design

PRINTING INSTRUCTIONS

Registration mark must be located as shown. The printed mark must be opaque and not smaller than 3/8" x 7/8". It may be located anywhere along the edge.

All print other than that targeted for registration must be within the allowable printing area as shown. No printing ink should be applied to heated seal areas.

Production under actual working conditions may indicate a change in dimensions of the product, wrapping material or type of wrapping material. AmeriPak assumes no responsibility for the type and character of any packaging materials purchased to be used on this machine. We recommend the customer purchase only a trial order of wrapping material to confirm performance.

SAFETY INSTRUCTIONS

Be sure the following safety instructions are read, understood and become a part of daily practice when operating or maintaining AmeriPak equipment. Help prevent personal injury and/or property damage.

1. **Do not attempt to operate any machine until you understand how it functions. If you are not certain after studying the service manual, contact AmeriPak for assistance.**
2. **Never operate the machine unless all guards are in place and do not attempt to make any safety device inoperative.**
3. **Never start a machine until you are certain that all personnel and foreign objects are clear.**
4. **In cases where a machine cycles automatically, be sure everyone is aware of the automatic cycling.**
5. **Check all safety switches and other devices daily to be sure they operate.**
6. **Never perform maintenance or repair work until you are sure the power is turned off at the main control panel.**
7. **Do not operate or perform maintenance or repair on a machine when taking any kind of drug, sedative or when under the influence of alcohol or overly fatigued.**
8. **Never, never reach into moving parts to clear a jam of any type.**
9. **Do not wear loose clothing, long hair or jewelry of any kind which could get caught in moving parts.**
10. **Keep the floor around the machine clean and free of obstructions, such as loose film and water. If water is necessary at the machine, be sure to wear shoes that do not slip on wet floors.**
11. **Always wear safety glasses, hard hats, hearing protection and any other personal protective equipment in areas that require them.**
12. **Pay strict attention to all caution, warning, and danger signs.**
13. **Proper machine location has good sound footing, proper lighting and is accessible from all sides for service. Clutter of all types should be kept to a minimum. DO NOT place the machine in a combustible area or near combustible material.**
14. **Proper handling of your machine during installation to prevent damage and personal injury is an absolute necessity. Use proper tonnage hoists and forklifts to lift the machine. Also be sure adequate slings are used.**

Pictures in this manual may show the machine without guards. This is done for information only.

GUARDS ARE SUPPLIED WITH THE MACHINE AND MUST BE IN PLACE BEFORE OPERATING.

OPERATOR

IMPORTANT !!!

Read and understand the OPERATOR section of this manual *BEFORE attempting* to operate this horizontal wrapper. All operators must first understand the controls and features of the wrapper if you are to operate this machine in a safe manner.

CONTROLS AND INSTRUMENTS

Operation of the AmeriPak Model 140 Wrapper is controlled by an upper electric control panel, a remote electric control box at the side of the infeed conveyor, a crimper mechanical velocity control with lock located at the end of the machine under the discharge conveyor, and a crimper phasing control knob located at the front of the machine.

ELECTRICAL CONTROL PANEL

The main electrical control panel (Fig. 2-1) is located over the fin wheel guard and includes the operator interface touch screen "1", the power switch "2" and the optional registration control indicator lights "3".

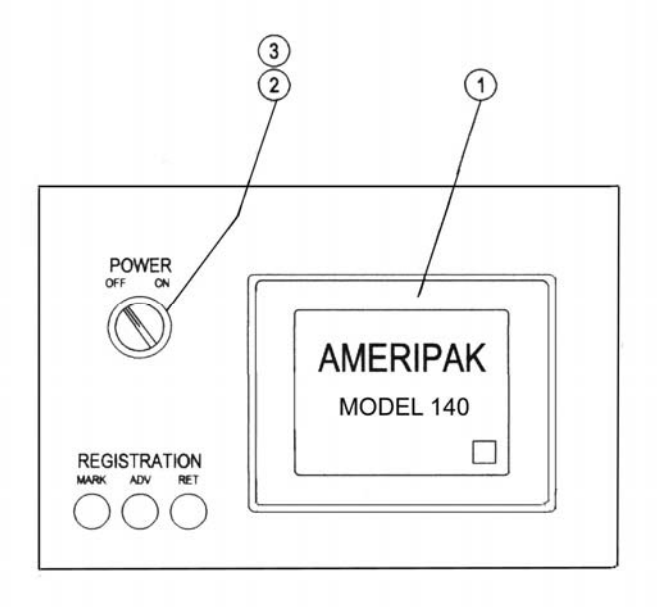


Figure 2-1

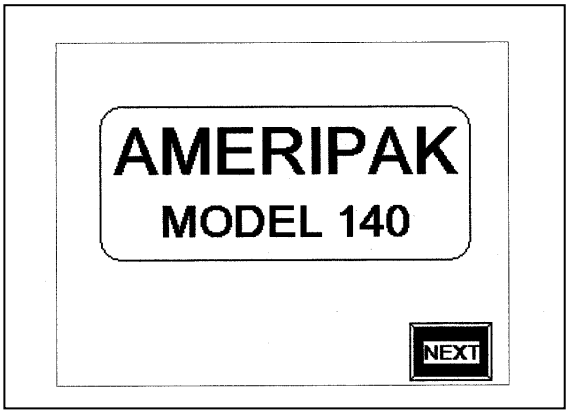
OPERATOR INTERFACE TOUCH SCREEN

The AmeriPak Model 140 is equipped with an electronically controlled touch screen. The touch screen allows you to control and monitor certain machine functions and store information for up to 15 products.

As an operator, you can select a product from the product list. Once selected, the operating parameters that are stored for this product are displayed.

OPENING SCREEN

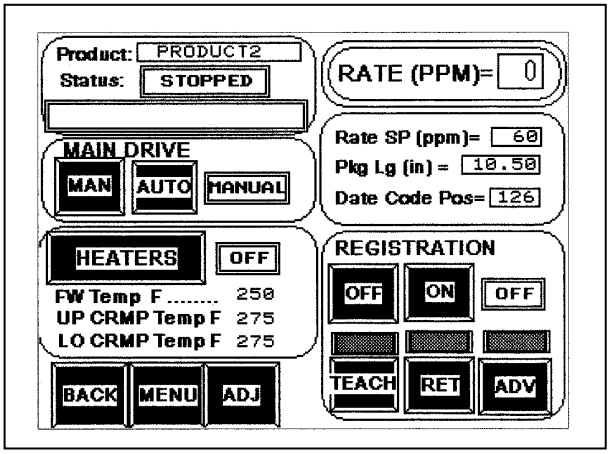
When the power for the machine is turned on, the OPENING SCREEN will be displayed. This screen indicates that power is on and machine operation can proceed.



Opening Screen

MAIN SCREEN

The MAIN SCREEN is your primary operating screen which controls the machine functions and shows machine status



Main Screen

FUNCTIONS

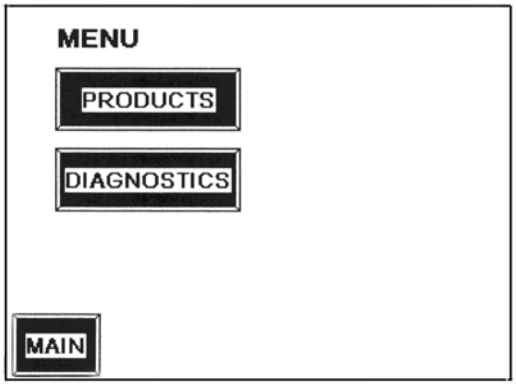
1. Heaters – Off/On
2. Main Drive – Manual (jog)/Auto
3. Registration (Optional)

STATUS

1. Selected Product
2. Machine Running or Stopped. If running, the machine speed in packages per minute (PPM).
3. Mode – Manual or Automatic. To start or stop machine, the buttons on the remote control box at the side of the infeed conveyor must be operated.
4. If machine is equipped with registration - Off/On.
5. Package Information
6. Fin Wheel and Crimper Temperatures
7. Machine Fault Messages

MENU SCREEN

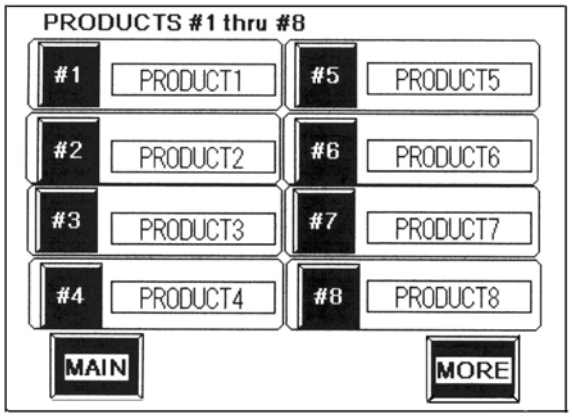
On the MENU SCREEN you can select to go to the MAIN SCREEN, the PRODUCTS SCREEN or the DIAGNOSTICS SCREEN.



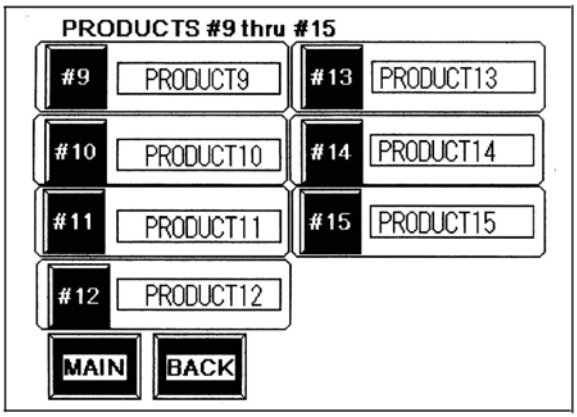
Menu Screen

PRODUCT SCREENS

Product screens allow you to list the products by description that you run repeatedly. Examples: Donut, Tablet, CD, etc. Product description cannot be more than twelve (12) characters. Two screens allow you to enter up to fifteen (15) products.



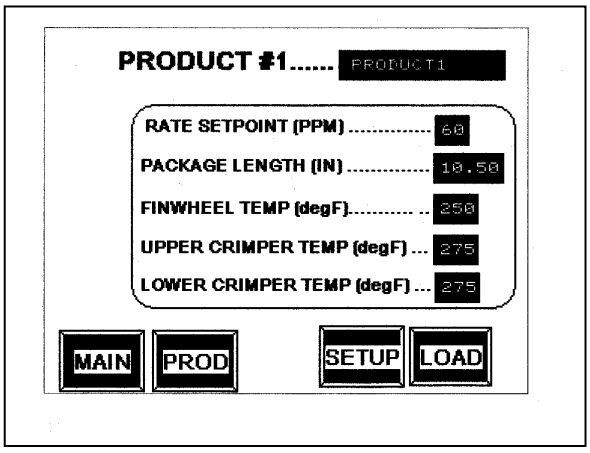
Products Screen (1 through 8)



Products Screen (9 through 15)

PRODUCT PARAMETER SCREEN

By pressing product #1 on the products screen, the PRODUCT PARAMETER SCREEN will appear.

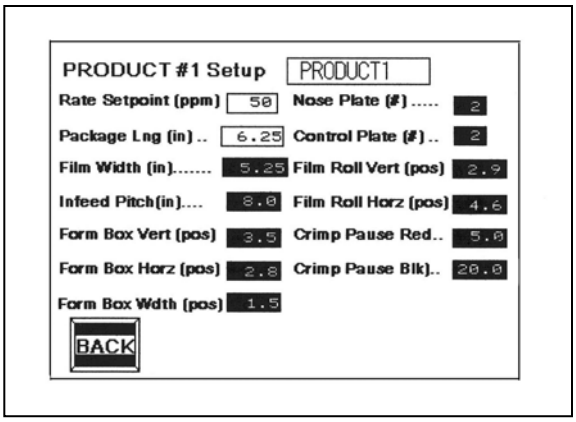


Product #1
Parameter Screen

Various parameters for product #1 can be entered by pressing the dark blocks. A key pad will be displayed to select this product and it's parameters. For machine operation, press "Load." This product 's parameter will then appear on the MAIN SCREEN.

PRODUCT SETUP SCREEN

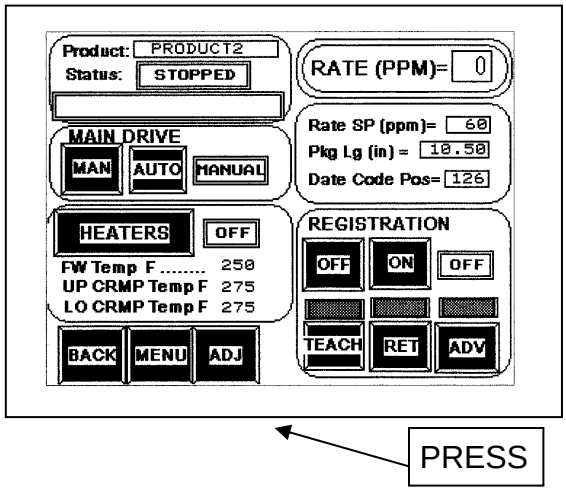
This screen allows you to save the various mechanical settings for product #1 for future reference.



Product #1
Product Setup Screen

By pressing a dark block, a keypad will be displayed. Enter the setting information to be saved.

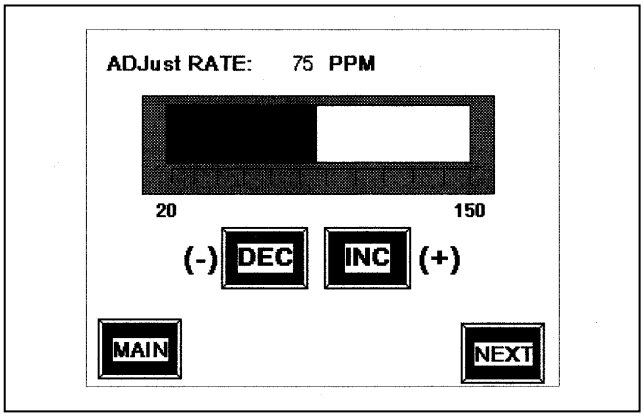
ADJUSTING MACHINE PARAMETERS



Main Screen

On the MAIN SCREEN press the ‘ADJ’ button, the Rate Adjust screen will appear.

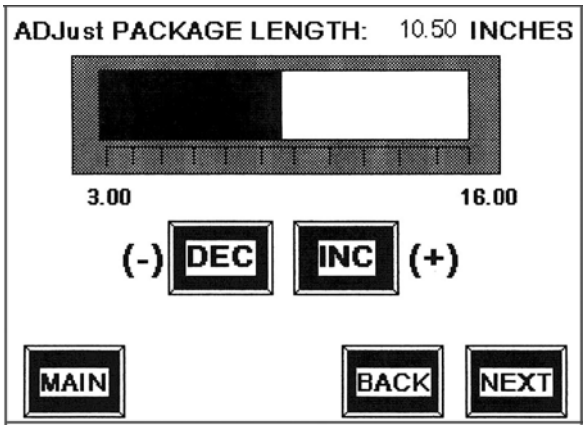
RATE ADJUST SCREEN



Rate Adjust Screen

Pressing the (+) button will increase the wrapper speed. The speed is displayed above in packages per minute. Pressing the (-) button will decrease the wrapper speed. To return to the Main Menu, press the "MAIN" button. Pressing the "NEXT" button will display the Package Length Adjust screen.

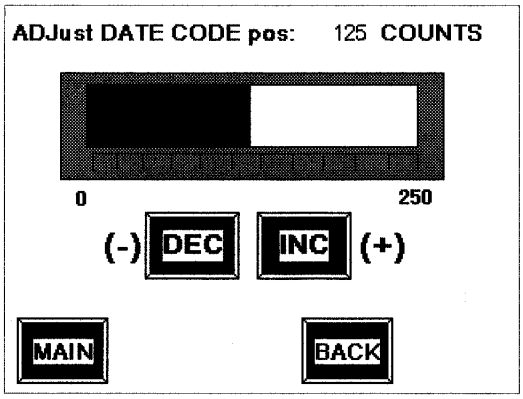
PACKAGE LENGTH ADJUST SCREEN



Package Length Adjust Screen

Pressing the (+) button will increase the package length. The package length is displayed above in inches. Pressing the (-) button will decrease the package length. To return to the Main Menu, press the MAIN button. Pressing the NEXT button will display the Date Code Adjust screen. To return to the previous screen, press the BACK button.

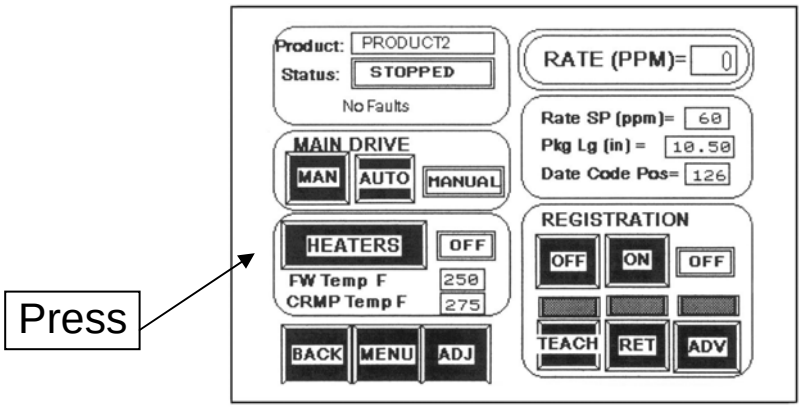
DATE CODE ADJUST SCREEN



Date Code Adjust Screen

Pressing the (+) button will move the date code position to the right. The date code position is displayed above in counts. Pressing the (-) button will move the date code position to the left. To return to the Main Menu, press the "MAIN" button. To return to the previous Adjust Screen, press the "BACK" button.

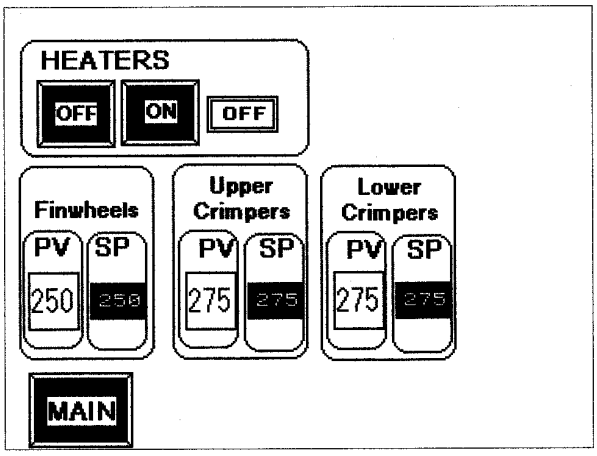
ADJUSTING HEATER SETPOINTS



Main Screen

Pressing the "HEATERS" button, the Heater Adjust screen will appear.

HEATER ADJUST SCREEN



Heater Set Up Screen

Pressing the "ON" or "OFF" button will toggle the heater on or off and will display the status. The temperatures of the heaters (PV) are displayed. The set point (SP) of the heaters can be changed by pressing the Finwheel or Crimper (SP) button, then inputting the temperature on the pop-up keypad, then pressing the "ENT" button on the keypad. Pressing the" MAIN" button will return you to the Main Screen.

PARENT ROLL INSTALLATION AND ADJUSTMENTS

To change a roll of wrapping material on the parent roll shaft, proceed as follows:

Turn the core adjusting knob "A" (Figure 2-5) clockwise to open the cones "B" and "C".

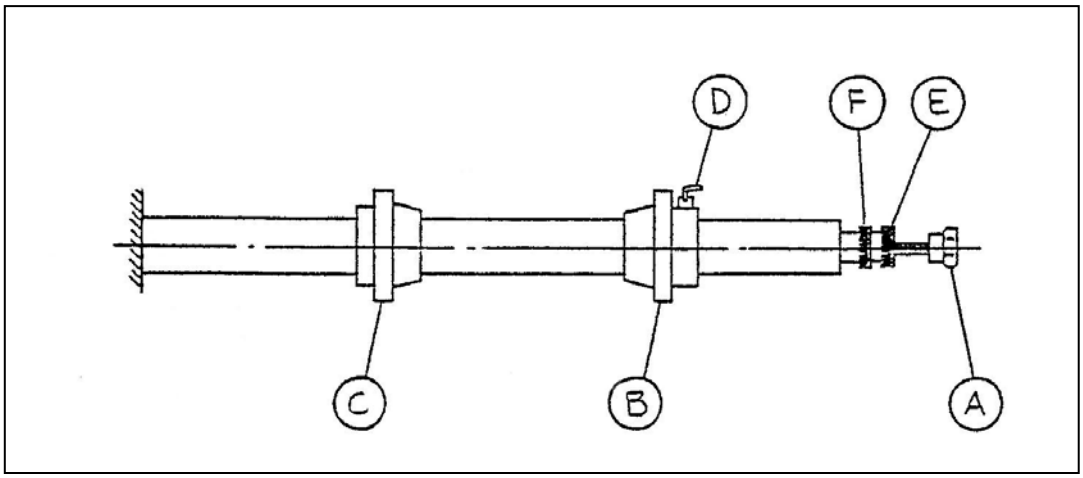


Figure 2-5 Parent Roll

1. Pull up on the cone release lever "D" to disengage the locking pin from the parent roll shaft. Slide the cone "B" off the parent roll shaft.

3. Remove the wrapping material roll and install the new roll so that the wrapping material comes off the top of the roll as it is unwinding.

4. Install cone "B" onto the shaft, sliding it up to the roll of material. Lift lever "D" so that the locking pin can be engaged into the adjusting block.

5. Turn adjusting knob "A" counterclockwise to close the cones on the wrapping material.

6. If the edges of the wrapping material are not even on the fin seal of the package, the roll of wrapping material may be moved in or out to even up the edges by loosening lock nut "E" from against adjusting knob "F" by turning "E" counterclockwise while holding "F" stationery. Now, by holding knob "A" and rotating knob "F", the roll of material can be moved in or out to obtain the correct roll centering. Tighten lock nut "E" against adjusting knob "F" after adjustment is completed.

LOWER CONTROL PANEL

CRIMPER PHASING

The crimper phasing hand wheel "A", Figure 2-2, is used to rotationally adjust the end crimper so that the crimper closes in the space between the products. To make this adjustment, have the wrapper set-up with the wrapping material for the product being run. Check that the length of the empty package made on the wrapper is a sufficient size for the product. Place products into the infeed conveyor and jog the machine until the first product is at the end crimper. Adjust the handwheel "A" to advance or retard the crimper so the crimper will close between the products. Jog the CRIMPER PHASING so products pass through the crimper and fine tune the crimper position. The product should be centered inside the bag when the crimper phasing is adjusted properly. This adjustment can be made while the machine is stopped or running.

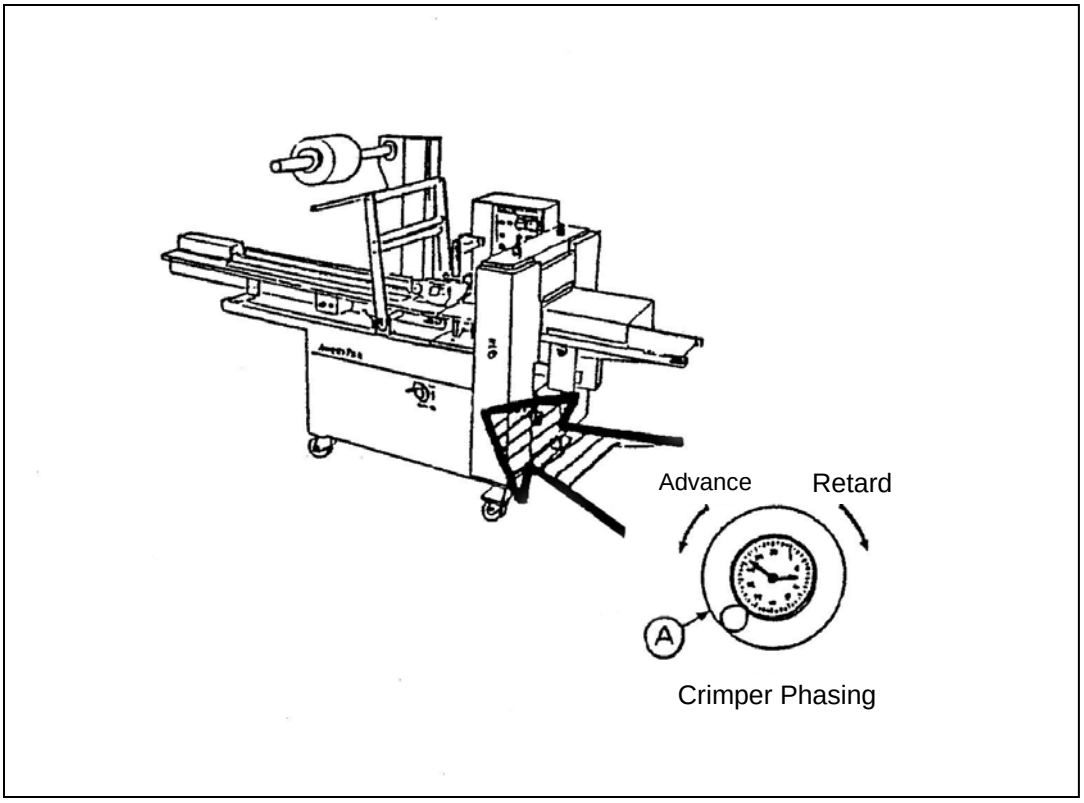


Figure 2-2 Lower Control Panel

FIRST WHEEL DISENGAGE AND PRESSURE SETTING

This lever "1", Figure 2-4, located at the first set of fin wheels is used to disengage, or to separate, the fin wheels. It will be necessary to use this lever to introduce the wrapper material between the fin wheels when you first begin to operate the machine. The wheel pressure can be increased or decreased by rotating the stop cam, "2", which lever "1" rests against.

SECOND WHEEL PRESSURE SETTING

The second set of fin wheels can be separated by moving lever "3", (Figure 2-4) to the left. The wheel pressure can be increased or decreased by rotating the stop cam "4" which lever "3" rests against.

PULL WHEEL PRESSURE SETTING

The pressure for the third set of fin wheels can be adjusted by loosening locknut "5" and adjusting screw "6" so that the wheel pressure on the film is great enough to pull the film (and product) but not too excessive as to cause wrinkles in the film.

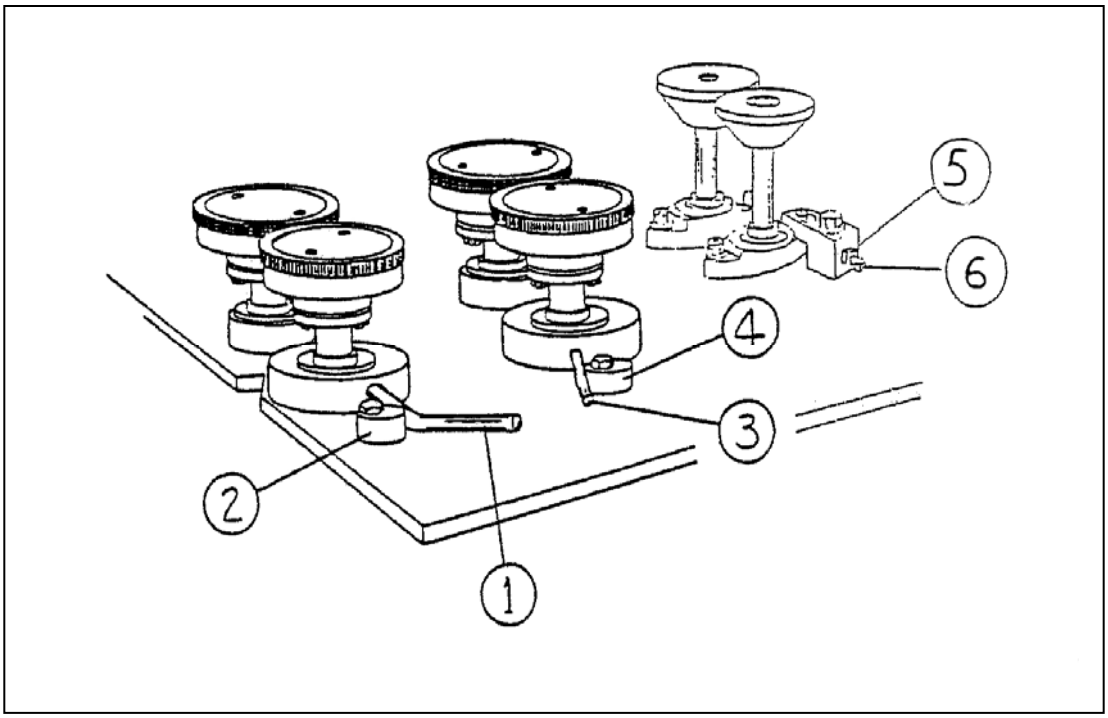


Figure 2-4

CRIMPER SPEED CONTROL

The crimper speed control knob "B", Figure 2-3, controls the speed of the crimpers when they come together to seal and cut off the wrapping material. If the crimper speed is adjusted improperly, the wrapping material will either be snapped by the crimpers as they seal and cut off the package, or the wrapping material will bunch up behind the crimpers when they close to seal. If the crimpers snap the film, unlock the mechanism by pushing the locking lever "A", Figure 2-3, to the unlocked position and turning knob "B" in the clockwise direction until the crimpers stop snapping the film. The machine should be running with wrapping material while making this adjustment. If the film is bunching up behind the crimpers as they close to seal, turn knob "B" in the counterclockwise direction until the film stops bunching up. After the adjustment is made, lock the mechanism by pulling lever "A" to the lock position. This adjustment should be made after adjusting the Bag Length to the proper size.

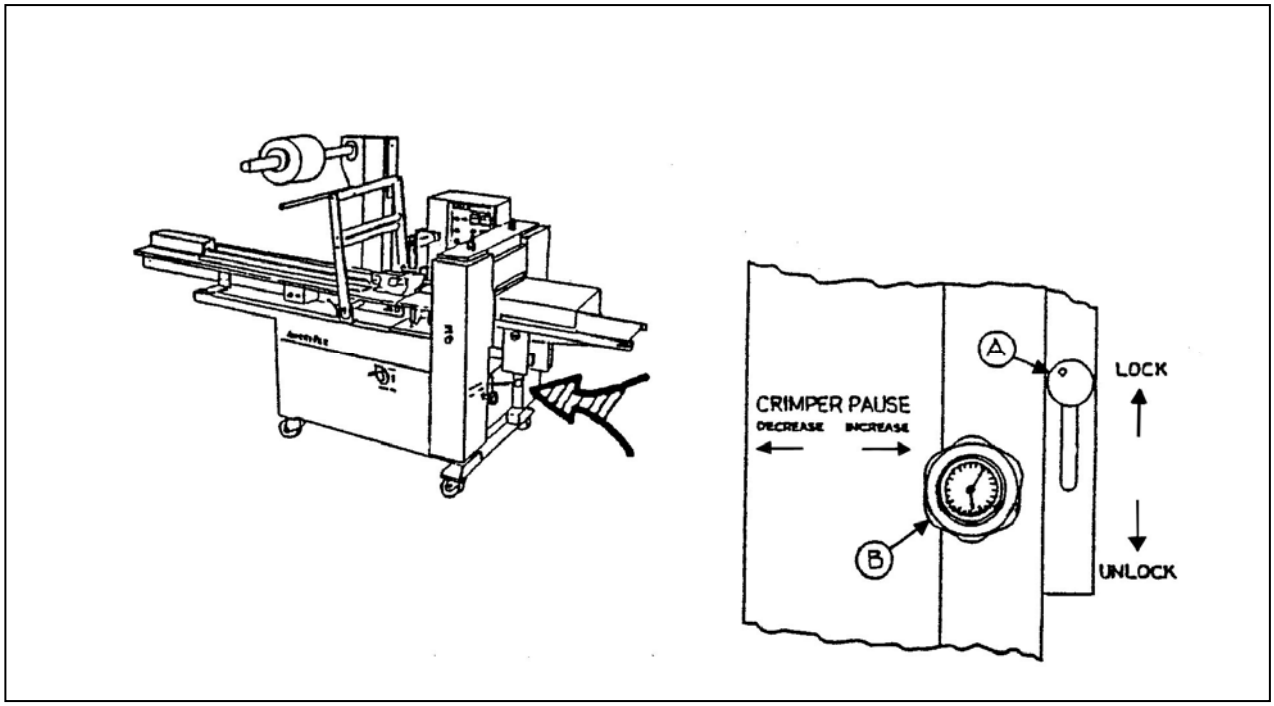


Figure 2-3

REMOTE ELECTRICAL BOX

EMERGENCY STOP ("A", Figure 2-6)
Depressing this button will stop the wrapper immediately. This button should be used to stop the wrapper in an emergency situation only, not for normal stopping.

STOP/RESET ("B", Figure 2-6)
Depressing this button will stop the wrapper by controlling the deceleration rate so the film will not come out of phase with the rest of the wrapper.

This button should be depressed for all normal non-emergency stops.

The STOP/RESET button must be depressed to reset the machine after a fault has been cleared.

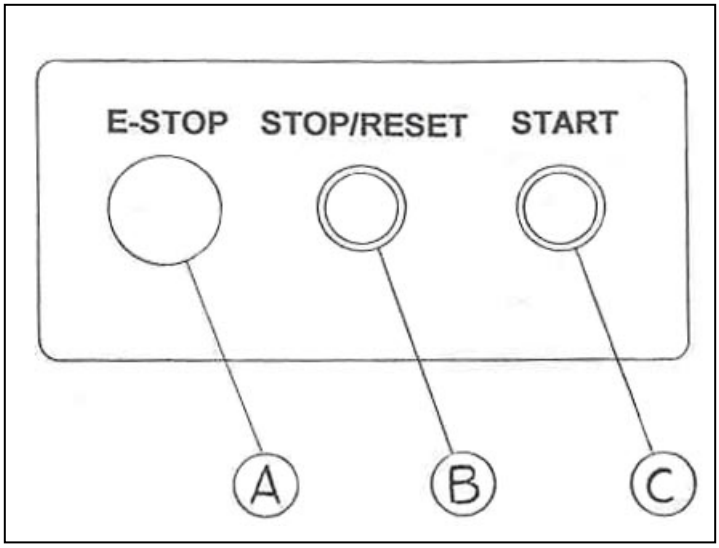


Figure 2-6

START ("C", Figure 2-6)
Depressing the black button will jog the wrapper if the selection switch on the touch screen is in the "manual" position, or it will allow the wrapper to run continuously if the selection switch is in the "auto" position and there are no faults to prevent the wrapper from running.

FILM THREADING THROUGH THE FORMER

Figure 2-7 shows the basic film path using the adjustable former. The approach angle "A" of the film as it enters the former will be approximately 70°, but can vary considerably depending on the former and guide roll setting.

For a fixed former (not shown), the approach angle "A" will be much less at approximately 30°.

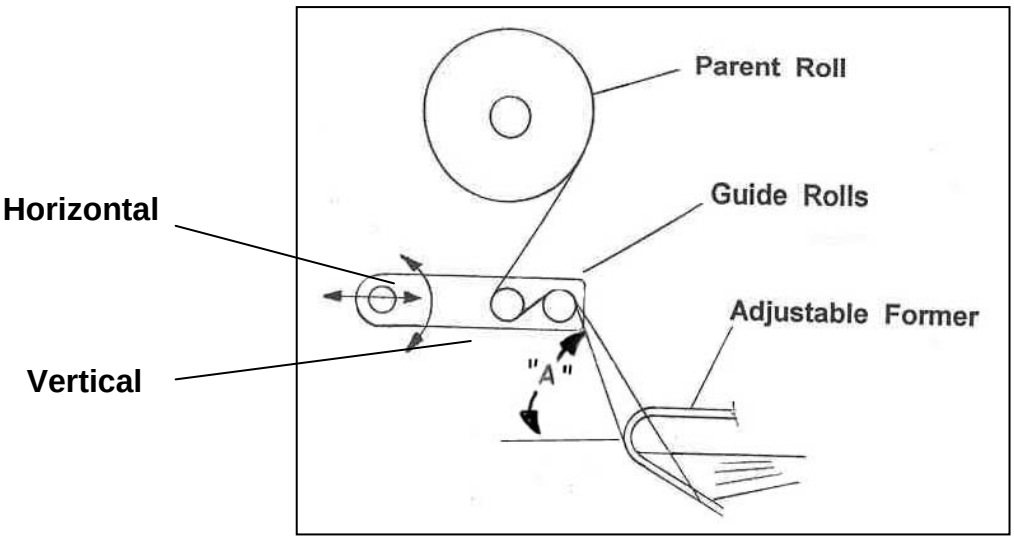


Figure 2-7

PRODUCT SIZE CHANGEOVER CHART

Following is a list of items which may or may not have to be changed when setting up the machine for a different product. Each product should be charted using the chart in Figure 2-8 so each set up can be repeated as accurately as possible.

1. Parent roll installation
2. Guide roll adjustments: Vertical, Horizontal
3. Former adjustments
4. Package length setting
5. Conveyor pitch change (for multipitch)
6. Conveyor side guide adjustment
7. Nose/control plate change
8. Crimper pause
9. Crimper phasing
10. Machine speed
11. Fin wheel/crimper temperature

PRODUCT CHANGEOVER CHART

PRODUCT #		***SETUP***	
Rate Set point [ppm.]		Nose Plate [#]	
Package Length [in.]		Control Plate [#]	
Film Width [in.]		Film Roll Vert. pos]	
Infeed Pitch [in.]		Film Roll Horz. [pos]	
Form Box Vert. [pos.]		Crimp Pause [Red]	
Form Box Horz. [pos.]		Crimp Pause [Black]	
Form Box Width [pos.]		Fin Wheel Temp.	
Date Code [pos.]		Crimper Temp.	

PRODUCT #		***SETUP***	
Rate Set point [ppm.]		Nose Plate [#]	
Package Length [in.]		Control Plate [#]	
Film Width [in.]		Film Roll Vert [pos]	
Infeed Pitch [in.]		Film Roll Horz. [pos]	
Form Box Vert. [pos.]		Crimp Pause [Red]	
Form Box Horz. [pos.]		Crimp Pause [Black]	
Form Box Width [pos.]		Fin Wheel Temp.	
		Crimper Temp.	

Figure 2-8

PRINTED FILM REGISTRATION SYSTEM (Optional)

Setting up the Model 140 to overwrap with register print film is done in the following manner.

SET PACKAGE LENGTH

Determine the PACKAGE LENGTH of the overwrapping film. To do this, simply measure the distance from the top of one eye mark on the printed film to the top of the following eye mark. This distance is the PACKAGE LENGTH. Enter the PACKAGE LENGTH information for the product into the product screen (see Edit Screen, Page(s) 1-12, 1-13 or the Adjust Screen pages 1-14, 1-15. The machine now knows the approximate length of film to dispense for each product.

FILM THREADING

Film threading from the parent roll to the former is shown on a threading diagram on the backstand column. Care should be taken to follow the film path of this diagram as improper threading of the film may cause excessive tension in the film, making it difficult to hold package length and print registration.

PHASE THE END CRIMPER

With wrapping film threaded through the wrapper, place a single product onto the infeed conveyor and jog the product to the end crimper. Using the CRIMPER PHASING CONTROL, rotate the end crimper so it closes between products.

TURN THE SYSTEM ON

On the Main Screen push the registration "ON" block. This provides power to the system to maintain film registration.

ADJUSTING THE ELECTRIC EYE SCANNER

The TRI-TRONICS "Smart Eye" photoelectric scanner features a contrast indicator to provide "visual verification" of actual performance during operation and for ease of setup. See Pages 2-10.

PRELIMINARY SET-UP PROCEDURE

Mount the scanner ¼" from the mark to be sensed so that the beam falls in the path of the registration mark. Set the LIGHT/DARK selector switch to correspond to the background color.

SENSING A DARK MARK ON A LIGHT BACKGROUND

Set the LIGHT/DARK switch to the LIGHT position "A" because of the LIGHTER BACKGROUND. Position the DARK MARK directly under the sensing beam. Rotate the OFFSET knob full counter clockwise. The MARK indicator should be "ON" and the CONTRAST indicator should show no indication. Slowly rotate the OFFSET knob clockwise until the CONTRAST indicator reads "1". Now during the transition from DARK to LIGHT, the CONTRAST indicator should swing from "1" to "10".

SENSING A LIGHT MARK ON A DARK BACKGROUND

Set the LIGHT\DARK switch to the DARK position "B" because of the DARKER BACKGROUND. Position the DARK BACKGROUND directly under the sensing beam. Rotate the OFFSET knob full counterclockwise. The MARK indicator should be "OFF" and the CONTRAST indicator should show no indication. Slowly rotate the OFFSET knob clockwise until the CONTRAST indicator reads "1". Now during the transition from DARK to LIGHT the CONTRAST indicator should swing from "1" to "10".

SPECIAL CONSIDERATIONS FOR HIGHLY REFLECTIVE FOILS

If you are using a highly reflective material and cannot complete the normal set-up procedures, the problem may be that the area of the web (either mark or background) reflects more light back to the scanner than would glossy white.

To compensate for the highly reflective nature of foils, we recommend that rather than pointing directly at the web, the scanner should be mounted at an angle to it (10-20 degrees off perpendicular). This will cause the scanner to receive indirect (diffused) reflection from the colored parts of the web and little or no reflection from the foil areas. This usually allows you to follow normal set-up procedures.

TEACH THE LOCATION

Be sure the registration eye mark on the wrapping material is scanned by the sensing eye located on the backstand. You can confirm the eye is sensing the eye mark by moving the film back and forth beneath the eye mark. Each passage of the eye mark should be sensed by the eye, as indicated by the indicator light in the eye going on and off and the indicator on the operator panel L.E.D. ("MARK").

Next, jog the machine to the point where the crimper is near closing. Use the "FILM ADV" control to advance only the film so it is at the point where the crimper will close at the proper position on the film.

Next, press the "TEACH" button which enables the machine to establish the relationship between the film eye spot and the position of the end crimper. Insert a small quantity of product into the infeed to confirm the product is in proper phase with the end crimper and that the position of the print on the film is in the proper location. Both crimper phasing and film print adjustment can be made while product is being wrapped. Once the proper location has been determined, the system will now hold this position.

Two methods of correction are utilized with our system. The "***MARK***" correction system can advance or retard the film for each package. This system comes into play automatically when a new roll of film is introduced, and it is necessary for the system to quickly adjust the position of the print with respect to the product. This is done automatically.

The "***TREND***" correction system monitors the location of the eye mark as a roll of film is depleted and will make changes in package length as required in the event the

registration mark repeat length changes as the film unwinds from a full to an empty roll. This is often due to varying tension at the time of film winding or to film with a lot of stretch.

ADVANCING THE PRINT LOCATION ON THE PACKAGE

Machine Set-Up:

To advance the position of the print on the package with respect to the position of the product, you want the print to advance in the direction of the discharge conveyor while the product stays stationary. Essentially, the system keeps the print in time with the point where the crimper jaws touch the film. Since you want to change that position, first note how much you want to advance the film. Next, jog the wrapper to the point where the crimper jaws are open. Using the "FILM ADV" button, advance the film the amount you want the position changed.

For example, if you wanted the film to advance ¼", following the above instructions, push the "FILM ADV" button until the film advances ¼". Now press the "TEACH" button and you have told the wrapper of a new relationship between the film and the point where the crimper touches the film.

RETARDING THE PRINT LOCATION ON THE PACKAGE

Machine Set-Up:

The system does not "back up", so to in effect retard the print location, you will follow the above instructions but now you need to measure the distance through one package length to the following package length to the point you want the correction to occur. For instance, if you want to retard the film location ¼" and you have a package length of 10", you need to advance the film ONE PACKAGE LENGTH, LESS THE AMOUNT OF CORRECTION, or in the above example 10" – ¼" or 9.75". Press the "FILM ADV" button until 9.75" of film has advanced, then press the "TEACH" button and you have retarded the position of the print on your product by ¼".

To advance the print with the machine running: Press the Advance Block until the print has moved forward to the desired location. The system automatically re-teaches itself.

"RET" with machine running: Press the Retard Block until the print has moved back to the desired location. The system automatically re-teaches.

TROUBLE SHOOTING THE ELECTRIC EYE

Refer to the Trouble Shooting Section of this Manual for suggestions to correct problems associated with the Film Print Registration System.

IMPORTANT!!!

The Registration System should be turned "*OFF*",
if the Registration System is not intended to be used.

MECHANIC

SETTING THE ADJUSTABLE FORMER

The adjustable forming box can be adjusted along three axis: vertically, transversely, and forwards/backwards with respect to the film feed direction.

The width of the forming box is determined on the basis of the width of the product to be wrapped, but is always greater than the product so as to allow the product to pass through the forming box. When wrapping products of heights greater than two inches, the blades of the forming box may be set considerably greater in width than the width of the product.

The height adjustment of the adjustable former is set so that the film will be just above the top of the product as the product is introduced into the former. The width of the film should be enough to wrap around the product and stick past the bottom of the fin wheels.

The former is adjusted backwards and forwards in the direction of film travel according to the width of the product. The narrower the product, the farther forward the adjustable former is positioned, and vice versa.

If the wrapping material comes out of the fin wheels during operation, proceed as follows:

Reduce the forming box width slightly (knob "A") without impeding the passage of the product. If this is not sufficient and the problem continues to occur, lower the forming box by means of handle "B".

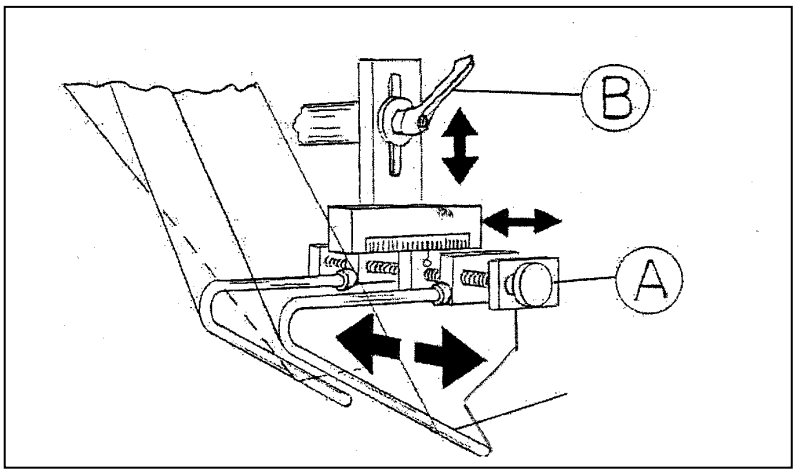


Figure 3-1

FILM THREADING THROUGH FORMER

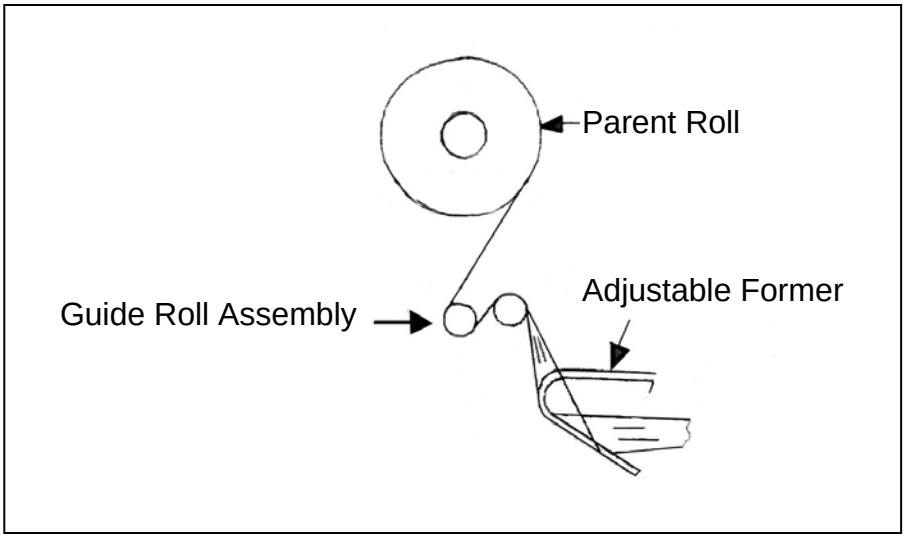


Figure 3-2

Please note there is a major difference in the angle of the film to the former between when a fixed former is used and when an adjustable former is used. In the case of the adjustable former, the film comes almost straight down from the guide roll assembly to the former. There should be slight tension on the outer edges of the film as it enters the adjustable former. If there is too much tension on the edges of the film, and the edges are curling up as they enter the fin wheels, move the guide roll assembly forward toward the discharge conveyor until the edges of the film remain flat with no curls. If the edges of the film are excessively loose, move the guide roll assembly in the opposite direction.

When a fixed former is used, a much more shallow angle is used with a long approach distance to the former. With the fixed former, the outside edges of the film will be taut and there should be no major wrinkles between the former and the guide roll assembly.

<u>The film should not extend past the wings of the former</u>.

The former was originally designed for use with a certain width film. If significantly larger film widths are used, and the width is such that it extends past the wings of the former, you will not be able to obtain consistent film tracking.

The wider the roll of film, the farther the distance between the guide roll assembly and formers.

INFEED CONVEYOR SIDE GUIDE ADJUSTMENT

The receiving conveyor side guides may be adjusted when multiple width products are overwrapped on the machine. For a product size change or when an adjustment is necessary, the rails can be moved to accommodate the product size. This can be made by loosening the locking knobs and moving the guides an equal distance from the center of the pusher chain.

Allow approximately 1/8" clearance on each side between the product and the rail to avoid interference. Once this adjustment has been made, tighten the lock knobs to the conveyor top plate. Check the width position of the side guides with respect to the opening of the former. The side guides should not be adjusted wider than the forming box or the product will stumble going into the former.

CRIMPER PAUSE

Crimper pause is an adjustment that can be made to match the speed of the wrapping material and crimpers as the crimpers seal and cut-off the package. As you increase the package length, you increase the speed of the wrapping material per one revolution of the crimpers. If the crimper speed at the time of seal and cut-off is slower than the wrapping material speed, the wrapping material will bunch up behind the crimpers.

As your package length gets shorter, the crimper speed must be adjusted so the crimpers slow down or "pause" when they seal the package and then accelerate just after sealing to a point just approaching the next package where they again slow down or "pause" while the package is sealed and cut-off. As the package length gets longer, the crimpers rotate at a more constant speed to match the increased speed of the film

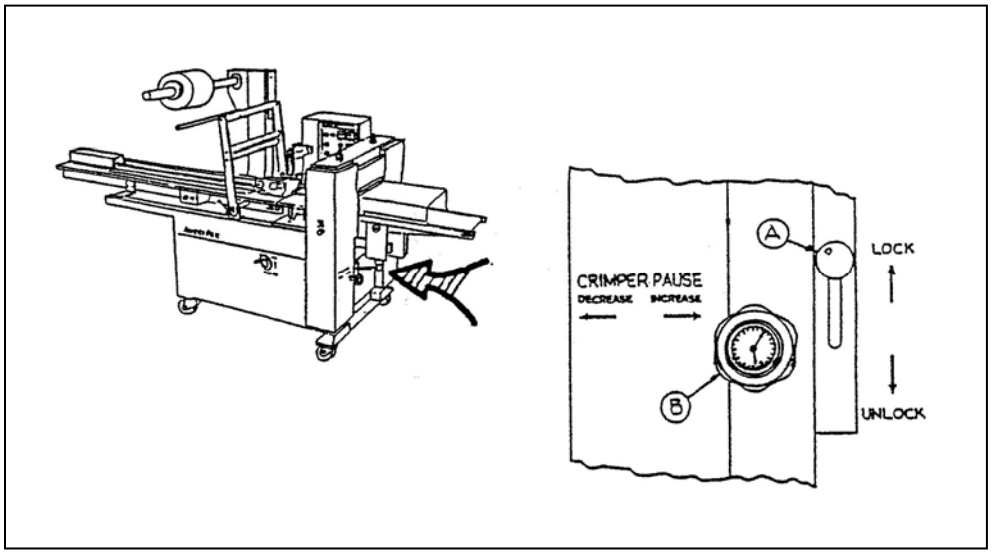


Figure 3-3

Once the crimper head timing has been made, a change in the speed of the end crimper during the time of sealing may be required.

First, it is necessary to produce a package length of the correct size for the new product to be run. Now, note the condition of the film as it enters the end crimper. If the speed of the end crimpers is faster than the speed of the film, the crimpers will "snap" the film as they come together. The crimper speed must be adjusted to add more "pause" to the end crimper speed.

If the film appears to bunch up at the face of the end crimper at the time of sealing, this indicates the crimper is slower turning than the rate of film speed and therefore the crimper should be increased in speed.

To make an adjustment in the speed of the end crimper, first unlock the mechanism by moving lever up to the unlock position.

Next insert product into the infeed conveyor and run the machine until the product approaches the crimpers.

Rotate the end crimper phasing control "A" (Figure 3-4) to an approximate crimper location where it appears the crimper will come between the products. Jog the machine through the first end crimping and cutting. Make repositioning adjustments of the end crimper as required. This adjustment can be made when machine is stopped or running.

CRIMPER PHASING CONTROL

The phasing control for the end crimper, knob "A" (Figure 3-4) is used to change the relative position of the end crimper with respect to the product in the film tube. This adjustment is often necessary when changing form one size product to another where there is a difference in height or length from the product. To make this adjustment, first produce packages of the proper bag length for the new product. This is done by adjusting the bag length until the proper package length is reached. Place product in the infeed chain and jog machine until the film tube, with the product inside, nears the crimper. Adjust the crimper position using the phasing control knob "A" to advance or retard the crimper position. This adjustment can be made when machine is stopped or running.

See Crimper Phasing Control diagram (Figure 3-4) on next page.

CRIMPER PHASING CONTROL

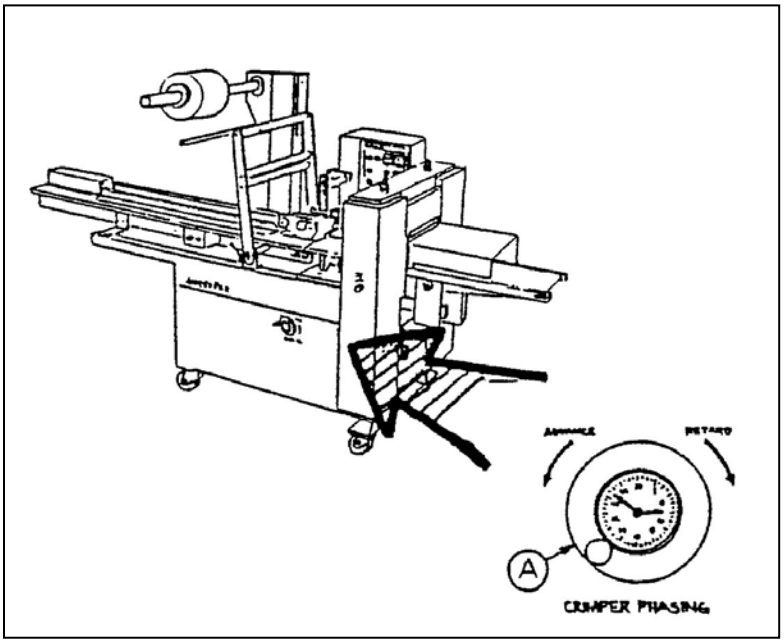


Figure 3-4

CONVEYOR CHANGE FOR A DIFFERENT PUSHER PITCH

Depending upon the application, it may be necessary to use a second infeed chain in order to accommodate a different size product. If the infeed pitch will not accommodate the product, a different pitch-chain may be required. AmeriPak recommends you contact our Service Department so they can evaluate your product and estimate what change parts will be required to run your product. Parts other than a conveyor chain may be required.

CUTTING HEAD ADJUSTMENT

There are several reasons why it may be necessary to make adjustments to the end crimper or cutting head. These conditions are:

1. Incorrect crimper pressure
2. The film is mashed or distorted by the crimpers
3. The crimper knife may not be cutting the film properly.

INCORRECT CRIMPER PRESSURE

If this condition occurs, an adjustment may be made to increase or decrease the distance between the upper and lower crimper shafts. The adjustment should be made as follows:

1. Turn on the crimper heat control and allow the crimpers to reach operating temperature.

2. Verify that the knife is properly adjusted and not causing the upper crimper shaft to jump.

3. Using two wrenches, loosen locknut "A", Figure 3-5, located directly over the upper crimper shaft bearing housings, on both sides of the crimper assembly. Turn nut "B" to raise or lower the upper crimper shaft. If you turn nut "B" in the clockwise direction, you increase the distance between the upper and lower crimper shafts, decreasing the crimper pressure. If you turn nut "B" in the counter clockwise direction, you decrease the distance between the upper and lower crimper shafts, increasing the crimper pressure. This adjustment must be done equally to both sides to keep the upper crimper shaft parallel to the lower shaft.

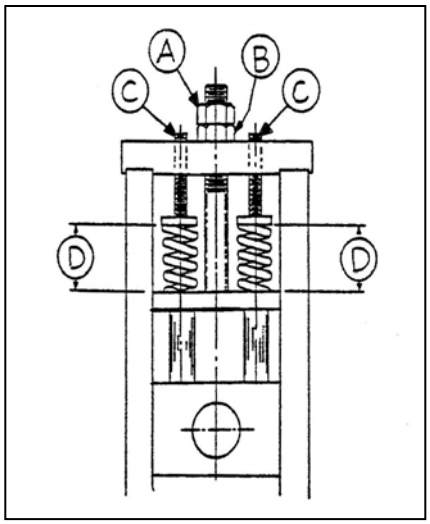


Figure 3-5

4. Jog the machine and observe whether the crimper pressure is sufficient enough to seal the film. After this adjustment has been made, tighten lock nut "A".

SMASHED OR DISTORTED FILM IN SEAL AREA

If the overwrapping material becomes smashed or distorted in the area of the end crimper, the condition is possibly due to too much heat and/or pressure. The adjustments to correct this condition are as follows:

1. Check the temperature setting for the crimpers to make sure it is proper for the type film being sealed. If the temperature is too high for the speed of operation, reduce the temperature and check the condition of the end crimp once the new temperature has been reached.

2. If too much pressure is causing the film distortion, adjust the upper crimper by referring to the previous adjustment, “Incorrect Crimper Pressure”.

CAUTION:
Anytime work is being performed near or on the end crimper cutting heads, use heat resistant gloves to avoid being burned.

CRIMPER SPRING PRESSURE

From time to time, it may be necessary to increase or decrease the spring pressure on the upper crimper. To INCREASE pressure, TURN SCREWS "C" (FIGURE 3-5) CLOCKWISE. After the adjustment is made, make sure all spring lengths "D" (Figure 3-5) are approximately equal. To DECREASE pressure, TURN SCREWS "C" COUNTERCLOCKWISE.

KNIFE AND ANVIL SETTING

The knife blade must contact the anvil to perform a cutting action of the package. The knife must be adjusted to strike the anvil with enough pressure to cut the film. The anvil, when properly secured, must remain slightly below the bottom pitch of the crimper surface. If it is set on or above the bottom of the crimper surface, little or no tube sealing will occur.

KNIFE ADJUSTMENT

The diagonal cut knife has been designed with an angle along the entire base. The crimper includes cone screws adjacent to the angle to permit the blade to be adjusted. Adjustment should be as follows:

1. Examine the knife edge and the anvil for damage or wear. If they show signs of wear, they should be returned to the factory for resurfacing.

2. Move the crimpers to where the adjustment is accessible on the discharge side of the machine.

3. The knife and anvil should be adjusted when they are hot at operating temperature.

4. Open the discharge conveyor guard.

CAUTION:
Anytime work is being performed near or on the end crimper cutting heads, use heat resistant gloves to avoid being burned.

5. If the anvil is being replaced, remove the old anvil (Fig. 3-6) by loosening set screws "A" and remove anvil. Install new anvil and adjust height using cone screws "B", so that the top of the anvil is just below the top of the crimper face.

6. Close the crimpers by jogging the machine so that the upper and lower crimper faces are directly together.

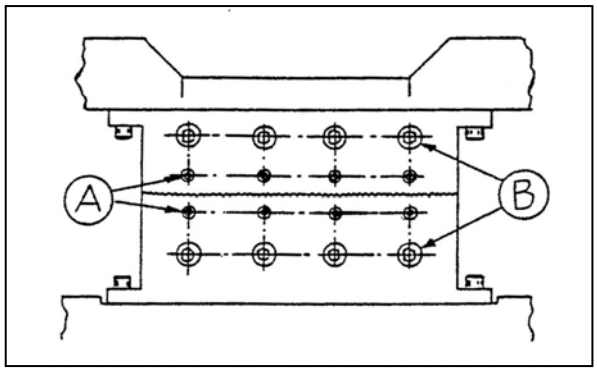


Figure 3-6

CAUTION: ***When making this adjustment, avoid personal injury.***

7. Visually examine the clearance between the crimper heads, if any, from the discharge side of the machine. There should be no light visible along the cutting surface.

8. To adjust the diagonal knife, loosen the set screws "A" (Figure 3-6), holding the knife in the crimper. Adjust knife by turning the cone screws "B" clockwise to bring the knife into contact with the anvil along the full length of the anvil.

9. When the adjustment has been made, re-tighten the set screws and lower the crimper guard.

10. Pass some wrapping material through the end crimper and observe the type of cut obtained, making additional adjustments to the point where the knife just cuts the wrapping material

It is important to take your time making this adjustment for it frequently takes 30 minutes to properly adjust the knife and anvil. When a good adjustment has been made, long life for the knife and anvil can be expected.

KNIFE AND ANVIL REPLACEMENT

If the knife and anvil show signs of wear or damage and fail to cut properly, the knife and/or anvil should be removed and returned to the factory for re-grinding. Depending upon the severity of the damage, they may be reground several times before replacement is required.

To remove the knife and anvil, proceed as follows:

1. Jog the machine until the knife and anvil locking set screws can be accessed from the discharge conveyor side of the machine.

2. Turn off power to machine so it cannot be accidentally cycled.

   CAUTION: Anytime work is being performed near or at the cutting heads, use heat resistant gloves.

3. Loosen the set screws securing the knife and/or anvil "B" (Figure 3-7) to the crimpers and remove.

4. To replace the knife, slide the knife into the crimper slot so that the knife angle is toward the adjusting screws. To replace the anvil, follow a similar procedure.

5. Refer to Page 2-7 for adjusting procedure.

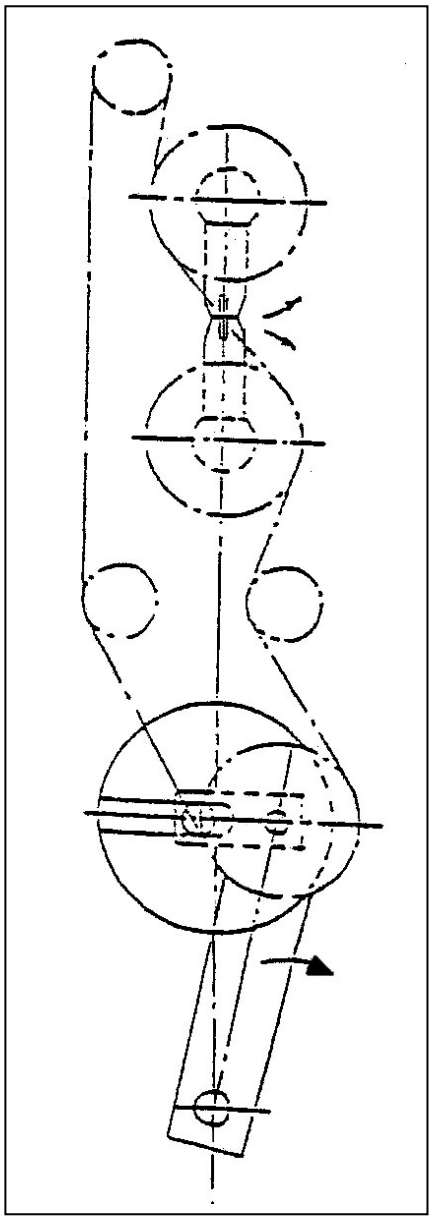


Figure 3-7

RE-TIMING THE END CRIMPER ASSEMBLY

If the drive chain from the slowdown unit to the crimping head is removed, it may be necessary to reposition the pause phasing when the chain is reassembled. To do this, jog the machine over until the slot in the metadiametric drive (Figure 3-7), is in the horizontal position and the opening of the slot is facing the infeed conveyor. At this position of the metadiametric drive, the crimper faces should be in the vertical or "closed" position.

With the crimper faces closed, the slot in the metadiametric drive in the horizontal position, and the pause set to the maximum "INCREASE" (see Figure 3-5), reconnect the drive chain between the crimper drive and crimpers. Now run the machine. You should notice that the pause occurs at the time the crimping faces are together.

AMERIPAK PRINTED FILM REGISTRATION SYSTEM (OPTIONAL)

ADJUSTING THE PHOTOELECTRIC SCANNER (Figure 3-8)

The TRI-Tronics “Smart Eye” photoelectric scanner features a contrast indicator to provide “visual verification” of actual performance during operation and for ease of setup.

1. PRELIMINARY SET-UP PROCEDURE

Mount the scanner one inch from the mark to be sensed so that the beam falls in the path of the registration mark. Set the "LIGHT/DARK" selector switch to correspond to the background color.

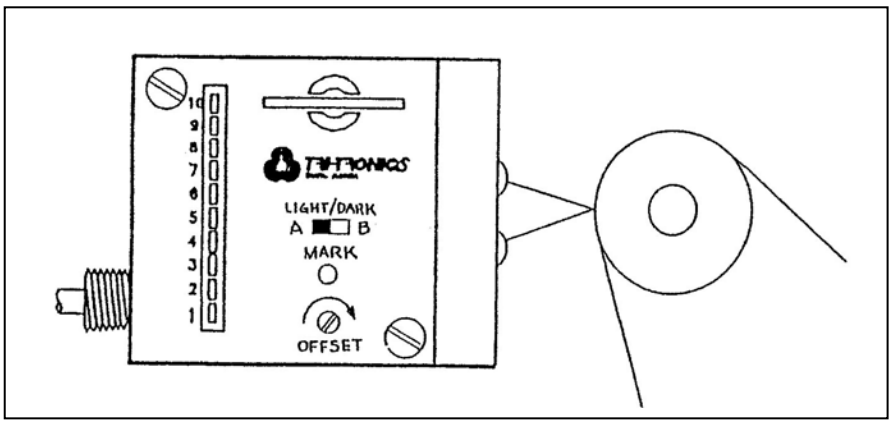


Figure 3-8

2. SENSING A DARK MARK ON A LIGHT BACKGROUND

Set the "LIGHT/DARK" switch to the "LIGHT" position "A" because of the LIGHTER BACKGROUND. Position the "DARK MARK" directly under the sensing beam. Rotate the "OFFSET" knob full counter clockwise. The "MARK" indicator should be "ON" and the "CONTRAST" indicator should show no indication. Slowly rotate the "OFFSET" knob clockwise until the "CONTRAST" indicator reads "1". Now during the transition from DARK to LIGHT, the "CONTRAST" indicator should swing from "1" to "10".

3. SENSING A LIGHT MARK ON A DARK BACKGROUND

Set the "LIGHT/DARK" switch to the "DARK" position "B" because of the DARKER BACKGROUND. Position the DARK BACKGROUND directly under the sensing beam. Rotate the "OFFSET" knob full counter clockwise. The "MARK" indicator should be "OFF" and the "CONTRAST" indicator showing no indication. Slowly rotate the "OFFSET" knob clockwise until the "CONTRAST" indicator reads "1". Now during the transition from DARK to LIGHT, the "CONTRAST" indicator should swing from "1" to "10".

4. SPECIAL CONSIDERATIONS FOR HIGHLY REFLECTIVE FOILS

If you are using a highly reflective material and cannot complete the normal set-up procedures, the problem may be that the area of the web (either MARK or BACKGROUND) reflects more light back to the scanner than would glossy white.

To compensate to the highly reflective nature of foils, we recommend that rather than pointing directly at the web, the scanner should be mounted at an angle to it (10-20 degrees off perpendicular). This will cause the scanner to receive indirect (diffused) reflection from the colored parts of the web and little or no reflection from the foil areas. This usually allows you to follow normal set-up procedures.

TROUBLESHOOTING THE ELECTRIC EYE

REGISTRATION MARK PROBLEMS:

The system should receive one, and only one, registration "MARK" signal for each machine cycle as indicated by the flashing of the "MARK" lights on both the registration scanner and the operator panel.

"NO" "MARK" indication problems:

- ***The registration system is not turned "ON":*** Turn "ON" the Registration System.
- ***There is no visible sensing beam being emitted from the scanner:*** There is a wiring problem to the scanner. Check wire connections and voltages as shown on the electrical schematic.
- ***The sensing beam is not focused:*** Rotate the scanner until it is perpendicular to the film.
- ***When the machine is running, the registration MARK does not pass under the sensing beam of the scanner:*** Move the scanner so the registration MARK passes under the sensing beam.
- ***When the film moves from background color to "MARK" color, the "MARK" light on the scanner is not "ON", but if the "OFFSET" knob on the scanner is turned from full "CCW" to full "CW", the "CONTRAST" indicator moves through***

the* "*1*" *to* "*10*" *area and the* "*MARK*" *light flashes: Adjust the registration scanner setup. Refer to the "**ADJUSTING THE REGISTRATION SCANNER**" instructions in this section of the manual.

"MULTIPLE MARK" indication problems:

- ***There are other* "*markings*"*on the printed film in the path which passes under the scanner sensing beam:*** Move the scanner in such a way that the only "marking" in the path of the sensing beam is the registration "MARK".

- ***When the sensing beam is on the background color, particularly clear or transparent film, and the roller beneath the film is manually rotated, the scanner* "*CONTRAST*" *indicator intermittently moves toward* "*5*"*:* Check the roller for dirt or discoloration that is being sensed by the scanner causing false signals, or the scanner "OFFSET" needs to be adjusted to keep the "CONTRAST" indicator more to the "OFF" condition.

- ***When the machine is running, the scanner* "*CONTRAST*" *indicator intermittently moves toward* "*5*" *while the background color passes under the sensing beam:*** The scanner "OFFSET" needs to be adjusted to keep the "CONTRAST" indicator more to the "OFF" condition.

OTHER PROBLEMS:

- ***The scanner* "*MARK*" *light flashes, but the* "*MARK*" *light on the operator panel does not flash*:** Either the light has failed and needs to be replaced, or there is a wiring problem.

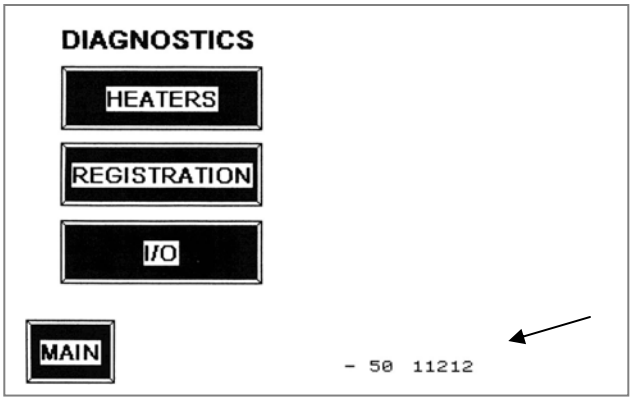
The registration system should be turned "OFF" if the registration system is not intended to be used.

DIAGNOSTICS

The touch screen provided on the AmeriPak 140 allows for the observation of certain machine conditions and functions. The diagnostic screens are accessed by first going to the **"**MENU SCREEN**"** and pressing the **"**DIAGNOSTICS**"** button.

DIAGNOSTICS SCREEN

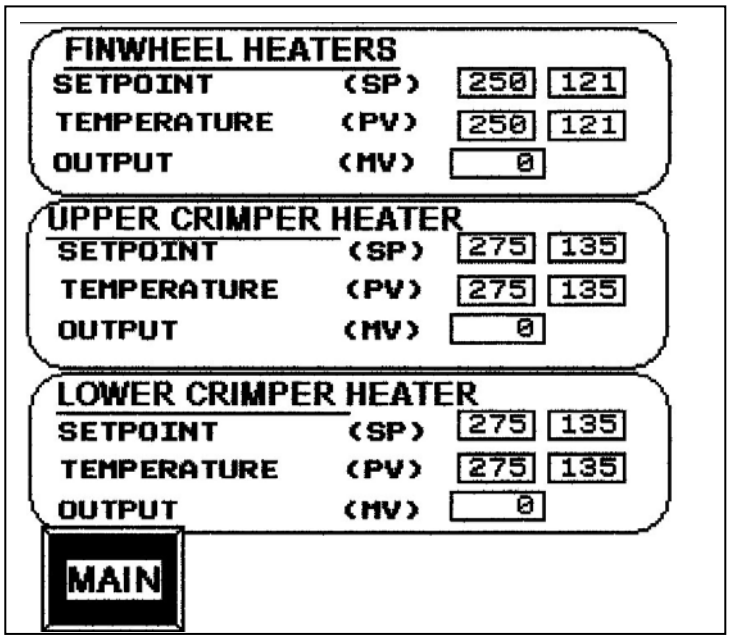
The "DIAGNOSTICS SCREEN" will appear. Select the function of the machine you wish to analyze and press "HEATERS", "REGISTRATION"or "I/O".



DIAGNOSTICS SELECTION

PROGRAM CODE

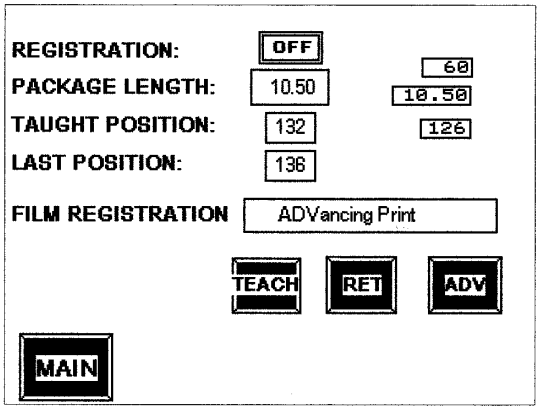
HEATERS DIAGNOSTIC SCREEN



HEATERS DIAGNOSTIC SCREEN

This screen shows you the various operating conditions of the fin wheel and the crimper heaters. The setpoints and the temperature at the thermocouple are displayed along with power output to the heaters. Power is displayed as a percentage – 0000 = 0%, 1000 = 100%. The "OUTPUT" should vary somewhere between 0% and 100%.

REGISTRATION DIAGNOSTIC SCREEN



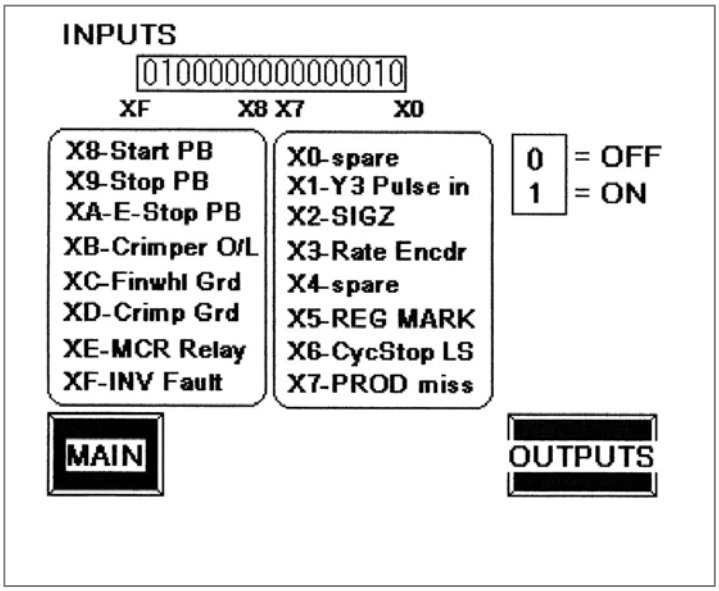
REGISTRATION DIAGNOSTIC SCREEN

This screen shows you the various operating conditions of the Electric Eye Registration System. The Registration Off-On status, the Package Length, the Taught Position, the Last Position, and the Correction Status are displayed. From this screen the relation of the printed film to the product can be changed. A new reference position is taught when the **"**TEACH**"** button is pressed. The print can be advanced by pressing the **"**ADV**"** button, or retarded by pressing the **"**RET**"** button. When the **"**ADV**"** or **"**RET**"** button is released, the new reference position is automatically taught. You can return to the **"**MAIN SCREEN**"** by pressing the **"**MAIN**"** button.

I/O DIAGNOSTIC SCREENS

Pressing the I/O button takes you to the "INPUTS SCREEN". From the "INPUTS SCREEN" you can go to the "OUTPUTS SCREEN" or return to the "MAIN SCREEN". From the "OUTPUTS SCREEN" you can return to either the "INPUTS SCREEN" or the "MAIN SCREEN".

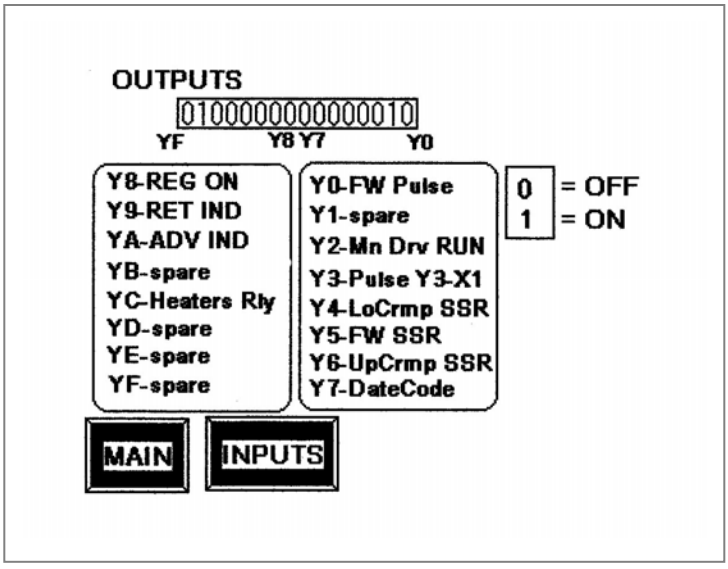
I/O INPUTS SCREEN



I/O INPUTS SCREEN

This screen shows you the status of the "INPUTS" of the PLC. If the "I/O" displays an "0", the "INPUT" is "OFF"; if the "I/O" displays a "1", then the "INPUT" is on.

I/O OUTPUTS SCREEN



I/O OUTPUTS SCREEN

This screen shows the status of the "OUTPUTS" of the PLC. If the "I/O" displays an "0", then OUTPUT is OFF; if the "I/O" displays a "1", the "OUTPUT" is "ON".

LUBRICATION

CUTTING HEAD

Lubricate the bearings for the end crimper **daily** by injecting a small amount of high temperature grease into the four fittings provided for this purpose. Only a small amount of grease needs be inserted to provide fresh grease to the bearing surfaces.

OTHER GREASE FITTINGS

Periodically (approximately once a week), grease the remaining grease fittings throughout the machine being careful to wipe off excess grease. Use a good grade of NLGI #2 grease.

GEAR REDUCER

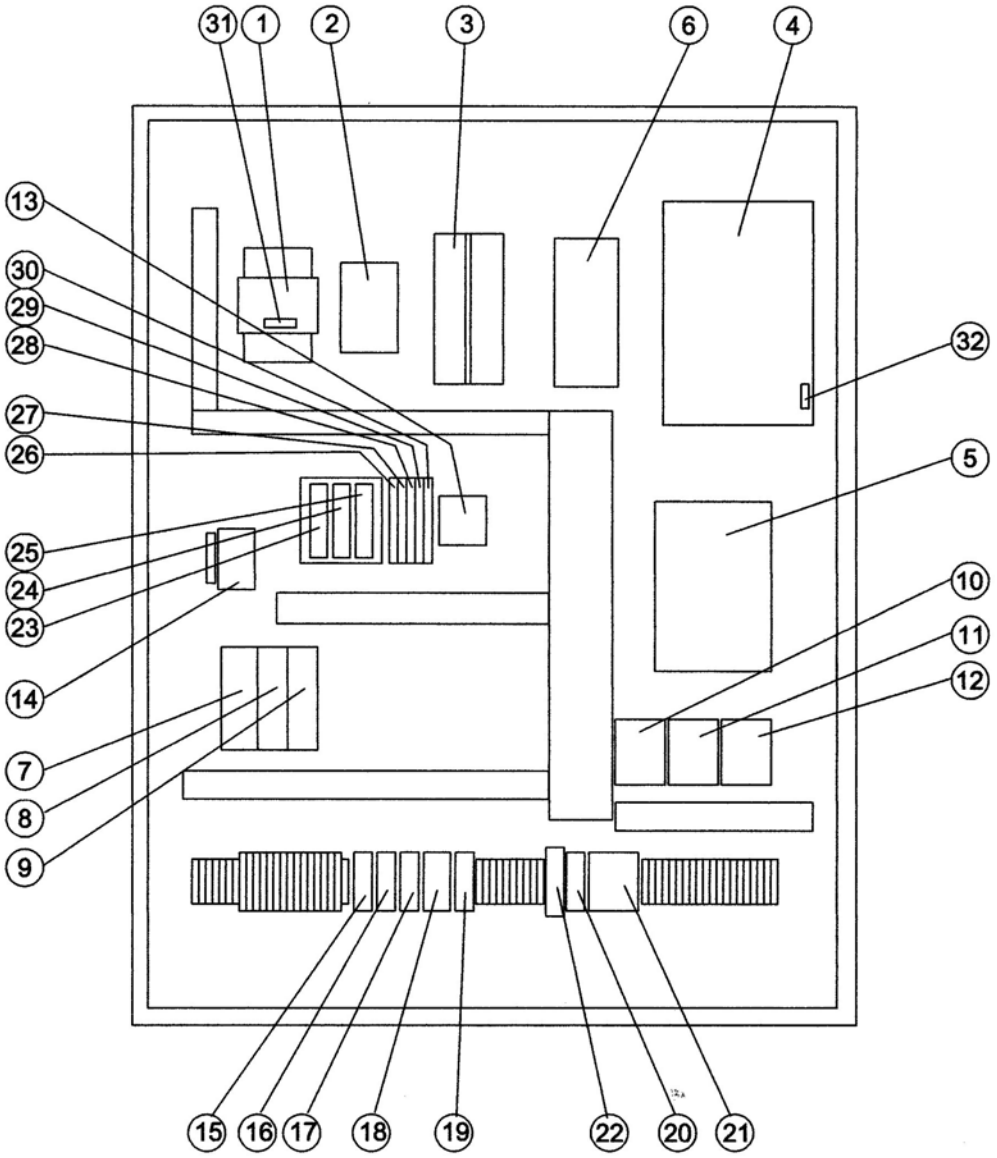
The gear reducers have been filled to the proper oil level at the factory. The oil level should be checked regularly and oil changed every 6 months or 2500 operating hours. Use a high grade oil AGMA compound No. 8 for ambient temperatures 50° to 125° F. or AGMA compound No. 7 for ambients 15° to 60° F.

OPERATING CHAINS

The chain should be lubricated with SAE 30 lubricating oil approximately once a week. Be sure not to lubricate excessively and to wipe off excess accumulated oil.

ELECTRICAL PHYSICAL DIAGRAM

Following is a diagram of the main electrical panel for the Model 140. Each electrical item is identified with an Alpha/Numeric identification which corresponds with the designations on the electrical schematic. Refer to this schematic (supplied separately) for more information.

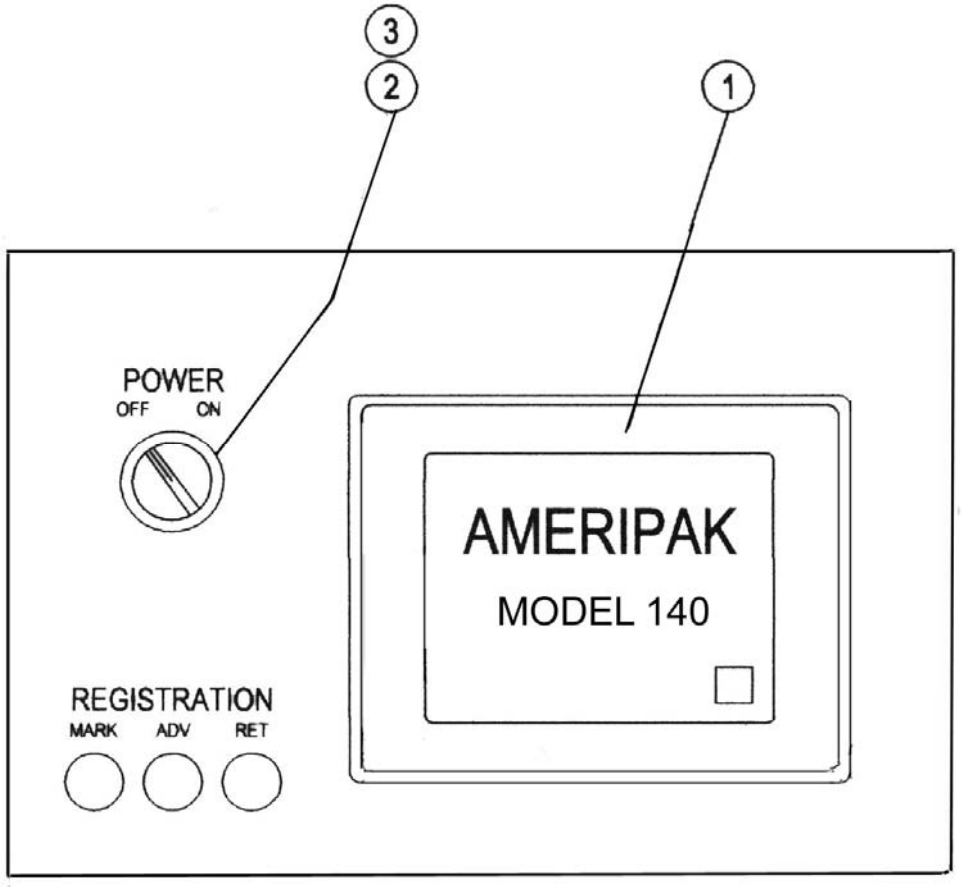


ELECTRICAL BOX

ITEM	SYMBOL	PART NUMBER	DESCRIPTION
1	T5	01-317-002-7	Transformer
2	CR42	01-230-007-7	Contactor
3	DRV84	01-235-039-7	Stepper Drive
4	PS81	01-274-512-7	Power Supply 47 VDC
5	DRV31	01-236-043 -7	AC Inverter
6	PS7	01-274-519-7	Power Supply 24 VDC
7	CPU1	01-234-097-7	CPU Module
8	MOD1A	01-234-098-7	Analog Module
9	MOD2A	01-234-098-7	Analog Module
10	SSR44	01-281-015-7	Solid State Relay
11	SSR54	01-281-015-7	Solid State Relay
12	SSR64	01-281-015-7	Solid State Relay
13	CR3	01-230-016-7	Contactor
14	SS1	01-300-014-7	Disconnect Switch
15	CRY2	01-280-017-7	R7elay SPDT 24VDC
16	CRY8	01-280-017-7	Relay SPDT 24VDC
17	CRYC	01-280-017-7	(Opt) Relay SPDT 24VDC
18	CR16	01-280-015-7	Relay DPDT 24VDC
19	CR17	01-280-017-7	Relay SPDT 24VDC
20	CR33	01-280-017-7	Relay SPDT 24VDC
21	PS73	01-274-501-7	Power Supply 90 VDC
22	BRDY7	01-281-009-7	(Opt) Opto-Coupler
23	FU2A	01-244-024-7	Fuse FRN R 20
24	FU2B	01-244-024-7	Fuse FRN R 20
25	FU2C	01-244-024-7	Fuse FRN R 20
26	FU4A	01-244-003-7	Fuse MDA 1
27	FU4C	01-244-003-7	Fuse MDA 1
28	FU15A	01-244-037-7	Fuse MDA 10
29	FU15B	01-244-037-7	Fuse MDA 10
30	FU15C	01-244-037-7	Fuse MDA 10
31	FU6	01-244-017-7	Fuse ABC2
32	FU81	01-244-037-7	Fuse MDA 10

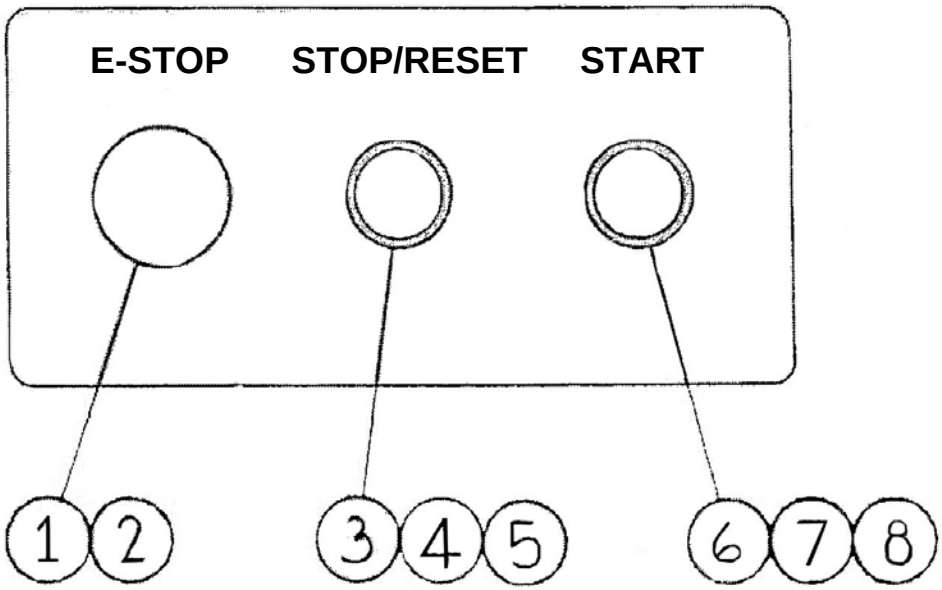
CONTROL PANEL

ITEM	SYMBOL	PART NUMBER	DESCRIPTION
1	KB1	01-260-027-7	Oper. Interface Touch Screen
2	SS3	01-305-050-7	Selector Switch
3	-	01-214-044-7	Contact - INO



REMOTE CONTROL BOX

ITEM	SYMBOL	PART NUMBER	DESCRIPTION
1	PBX2	01-305-053-7	Operator – E-Stop
2	-	01-305-046-7	Contact – INO-INC
3	PBX1	01-214-058-7	Operator
4	-	01-214-050-7	Cap-Flush P.B. – Red
5	-	01-305-044-7	Contact - INO
6	PBX0	01-214-058-7	
7	-	01-214-051-7	
8	-	01-305-044-7	



TROUBLESHOOTING

PROBLEM	SYMPTOM	CHECK
1.0	The OPENING SCREEN on the electrical control panel does not come on.	1.1 Check if machine is connected to a 220-240 VAC 3 phase power supply. 1.2 Check if Disconnect Switch SS1 is "On" 1.3 Check if Power Switch SS3 is "On" **WARNING!** **The following instructions should only be performed by a qualified technician trained to do electrical trouble shooting of machinery.** **Inadvertent touching of a live electrical circuit can cause bodily harm!** 1.4 With electrical box door open and disconnect switch SS1 "On" and power switch SS3 "On", check the power fuses FU2A, FU2B, FU2C, 220 VAC. 1.5 Check fuses FU4A, FU4C, 220 VAC. In put to T5. 1.6 Check fuse FU6 115 VAC 1.7 Check for 110-120 VAC Output from T5 1.8 Check for green LED on PS7 1.9 Check output wires 71A and 72 (24 VAC) from PS7. If no DC volts, replace power supply.

1.0 (con't)	The OPENING SCREEN on the electrical control panel does not come on.	1.10 Check that 24 VDC is connected to back of display screen.
2.0	When Start Push Button is pressed, there is no motion.	2.1 Check display for any fault messages. Clear fault by pushing the "STOP/RESET" button on the Start/Stop box. If all "0" 's on Run Screen Parameters, then check CPU1 for flashing red LED and check thermocouple connections, Item 4.1 of Trouble Shooting Section. **<u>WARNING!</u> The following instructions should only be performed by a qualified Technician trained to do electrical trouble shooting of machinery.** **Inadvertent touching of a live electrical circuit can cause bodily harm!** 2.2 With the electrical box door open and disconnect switch SS1 "ON" and Power Switch SS3 is "ON" , check AC Inverter DRV31 for any fault code(s) on the LED readout. See pages 4-11 and 4-12 for Fault Descriptions, or AC alarm N.O. contact. See Inverter Manual Section 6 - Trouble Shooting for Fault Description. If readout is not lit, go to 2.3 2.3 Check CR3 Main Drive Enable Relay. Check fuses for AC Inverter (DRV 31) FU15A, B, C (Items 23, 24, 25 page 4-1) for 220 VAC. Check CRYZ Main Drive Run Relay.

2.0 (Con't)	When Start Push Button is pressed there is no motion.	2.4 Check Master Control Relay (MCR) CR16 safety circuits, E-Stop Switch(s), guards and cover(s) switches. 2.5 Check that there is no mechanical jam (infeed pusher, bound chains, etc.).
3.0 The Finwheels/ Crimpers do not heat up and no heater fault message is on the Run Screen	On Heater Diagnostic Screen, the temperature (PV) value is less than the set point value and not increasing (film does not seal).	3.1 Check that the heaters are "ON" in the Run Screen. 3.2 Check that a valid number is in the Heater Screen Set Point Block (100-400º). 3.3 Check heater output block in the Heater Diagnostic Screen. 1 – 1000 MV should be showing. If 0 MV is showing, increase temperature by 20º to finwheels/ crimper. 1000 MV should appear in the output block. **<u>WARNING!</u> The following instructions should only be performed by a qualified technician trained to do electrical trouble shooting of machinery.** **Inadvertent touching of a live electrical circuit can cause bodily harm!** With Electric Box door open and Disconnect Switch SS1 "O" and Power Switch SS3 "ON". 3.4 Check the main power fuses FU2A, FU2B, FU2C. 3.5 Check CR42 for 120 VAC on the coil wires 142 (120 VAC) and 2 (0 VAC). If 120 VAC is present,

3.0 (Con't)	On Heater Diagnostic Screen, the temperature (PV) value is less than the set point value and not increasing (film does not seal).	check contacts L1, L2, L3 for 220 VAC and T1, T2, T3 220 VAC. If 220 VAC is present on L1, L2, L3 but not on T1, T2, T3 replace heater relay. If 220 VAC is present on T1, T2, T3, check item 3.7. 3.6 Check the solid state relay(s). To do this, raise the heater set point on the heaters screen 20° F. Check the low voltage side of relay(s) A1 VOLTS A2 VOLTS for 20-24 VDC). If OK, check the high voltage side on terminal strip. Check between terminals #41 and #42 for fin wheel heaters or between #42 and #43 for upper crimper heaters and #42 and #40 for lower crimper heaters. If 220 VAC is not present, replace solid state relay. If OK, check item 3.8. 3.7 With main power off, check the continuity of the heating elements. No continuity means the element(s) is burned out. Replace heaters. 3.8 With main power off, clean the brush contacts and slip rings on the fin wheel and crimper shafts with spray contact cleaner or a pencil eraser (<u>do not use</u> wire brush, sandpaper or steel wool. It will damage the brushes & rings.)
4.0 Fin Wheel or Crimper temperature is not constant about the set point	On Heater Diagnostic Screen, the temperature (PV) value swings above and below set point by greater than 10º F (inconsistent film seals)	4.1 With the main power switch (SS1) "Off" check all thermocouple connections. A loose connection will cause wide variations in temperature read out.

4.0 (Con't)	On Heater Diagnostic Screen, the temperature (PV) value swings above and below set point by greater than 10º F (inconsistent film seals)	**Note:** In machines built prior to mid-September 2001, a disconnected thermocouple would cause a flashing PLC fault. To clear the fault, turn "Off" the main power to the machine. After connecting thermocouple wires, power the machine back up. 4.2 Check the Mercotac. If the temperature stays constant when the machine is not running but changes drastically when running, replace Mercotac. 4.3 Check Heater Diagnostic Screen. Is the output (MV) turning "ON" and "OFF" the power supply to the heaters? See check point item 3.3 in this section of the manual. 4.4 Replace thermocouple. **Note:** This machine uses Type " J" ungrounded thermocouples.
5.0 Fin Wheel or Crimper Temperature does not turn off. **Note:** A temperature of over 400° F will cause a heater over-temp (O/T) fault.	On Heater Diagnostic Screen, Temperature (PV) stays ABOVE SET POINT BY MORE THAN 10° F AND OUTPUT (MV) IS "0"	5.1 With the Main Power SS1 Switch " OFF" check the continuity of the solid state relay(s) between L1, L2 on relay. If continuity is detected, replace solid state relay(s). 5.2 Check Heater Diagnostic Screen. Output (MV) should read "O". If not, check thermocouple connections (check item 4.0 of this section of the Manual.)
6.0 Wrapping Material Problems	Wrapping material does not stay in the fin wheels	6.1 Check that the film is wide enough to go around the product and stick below the bottom of the fin wheels.

6.0 (Con't)	Wrapping material does not stay in the fin wheels	6.2 Check that the forming box is centered and adjusted properly. 6.3 Check that the roll of film on the parent roll is centered. 6.4 Check the setting of the fin wheel pressure. Excessive pressure will force the film up and out of the fin wheels. Low pressure will give you a partial seal of the fin wheel. If you run several thicknesses, it will be necessary to set the fin wheel pressure for the different thicknesses provided there is more than one mil (001") thickness of film variation. See Mechanic Section of this Manual.
7.0 Bad Seals which tend to open	Fin Seals	7.1 Check to be sure that the temperature setting of the heat control is proper for the film being sealed. If you are not sure, raise the temperature of the heat control by 20° below the original point and run a test quantity of film. Compare the films to determine which setting is best. 7.2 Check to be sure you are getting the proper pressure from the fin seal wheels, as described in item 6.4. check point. Be sure the quality of the wrapping material is consistent. It may be necessary to have a representative from the packaging film supplier visit your plant to conduct tests to confirm wrapping material quality.
8.0 Bad Seals which Tend to Open	End Seal	8.1 Same as check point items 7.1 and 7.3 above.

8.0 (Con't)	End Seal	8.2 Check that there is sufficient pressure on the 2 crimper strings. See section 3 for pressure settings. 8.3 Adjust the crimper head pressure setting by increasing or decreasing the distance between the lower and upper crimper. See check point item 6.0. Decreasing the space between the crimpers increases pressure. Before making this adjustment, turn the machine to the position where the sealing jaws are closed. Place a piece of white paper on the opposite side of the sealing jaw, then look at the teeth on the sealing jaw to see that they are properly aligned and equally spaced. This adjustment should be done with the end seal at the operating temperature.
9.0 Package Cutoff	Package cut only in part.	9.1 See check point item 8.3. 9.2 It may be necessary to readjust the knife. Be sure the knife is adjusted when the end seal is at operating temperature. See Mechanic Section of this manual for this setting.
10.0 Crimper Head Timing	Crimper head badly timed, crimper contacts product.	10.1 Check to be sure the safety overload coupling is in the proper working location.

10.0 (Con't)	Crimper head badly timed, crimper contacts product.	10.2 Adjust the phasing of the end crimper. If the upper crimper is out of the phase with respect to the lower crimper, it may be necessary to jump one tooth on the chain drive between upper and lower crimp shaft. When properly adjusted, the slot for the knife on the upper crimper and slot for the anvil on the lower crimper should be in alignment when the jaws are in the closed position. (See Mechanics Section of this manual.)
11.0 Fin Wheels Do Not Run	Machine runs, but finwheels do not rotate.	11.1 With all power to the machine off, check jumpers and DIP switch setting on stepper drive DRV 84. **WARNING!** **The following instructions should only be performed by a qualified technician trained to do electrical trouble shooting of machinery.** **Inadvertent touching of a live electrical circuit can cause bodily harm!** 11.2 Check Fuse, 10A FU81, on PS81 for continuity. 11.3 With electrical box door open and disconnect switch SS1 "On" and power switch SS3 "On", check the voltage from Item 4, PS81 wires #81, #82 should read 47-57 VDC. 11.4 Check incoming wires #30, #32 for 230 VAC

11.0 (Con't)	Machine runs, but finwheels do not rotate.	11.5 If Incoming voltage is 230 VAC and fuse Item 27 is OK, but no VDC out, replace power supply. 11.6 If supply is OK and 81, 82 read 47-57 VDC, check that CR17 is "On" and there is 47-57 VDC between 81A and 82 at stepper DRV 84-J2. If OK, go to next checkpoint. Check for torque at the stepper motor, the large pulley attached to the motor shaft cannot be turned by hand with 47-57 volts applied at DRV 84, J2. If no torque at stepper motor, replace DRV 84. If torque is present, check item 11.7. 11.7 From the touch screen, select "MENU", "DIAGNOSTICS", and "FIN WHEEL". With the wrapper running, numbers should appear in the "50K Clock" window. The numbers should increase in value as the wrapper runs. If this is the case, proceed to Sec. 11.8. If no numbers appear in the window, or the numbers don't change in value, replace CPU1. 11.8 With the wrapper running, numbers should appear in the "Encoder Position" window. The numbers should increase from "0" to "250" each machine cycle. If this is the case, proceed to Sec. 11.9. If no numbers appear, or the numbers don't change in value, check for proper connection at the encoder and cable connection. If the connection appears in order, replace encoder ENCX3.

11.0 (Con't)		11.9 With the wrapper running, numbers should appear in the "Fin Wheel Pulse" window. The numbers should increase in value as the wrapper runs. If no numbers appear, or the numbers don't increase in value, power down the wrapper. Open the electrical box door and disconnect the 9-pin D-Sub connector from the stepper motor drive, DRV84 position J1 (the top most connector as you face the drive). Close the door and power up the wrapper. Return to the "Fin Wheel" diagnostic screen and check the "Fin Wheel Pulse" window again with the wrapper running. If numbers now appear and increase as the wrapper runs, replace DRV84. If not, replace CPU1.
12.0 Registration System is not Working **<u>NOTE:</u>** The system should receive only one Registration Mark per cycle of the machine.	No "MARK" Indication. The Sensing Beam is not focused.	12.1 The registration system is not turned on. 12.2 The eye mark of the film is not passing beneath the photo eye. Check for the presence of the eye mark on the film. Check to be sure the photocell beam is in the path of the eye mark. 12.3 Rotate the scanner until it is perpendicular to the film. 12.4 Adjust scanner to pick up <u>only</u> the eye mark.

12.0 (Con't)	There is no visible sensing beam being permitted from the scanner.	12.5 Check the roller for dirt or discoloration that is being sensed by the scanner causing false signals, or the scanner "OFFSET" needs to be adjusted to keep the "CONTRAST" indicator more to the "OFF" condition. **WARNING!** **The following instructions should only be performed by a qualified technician trained to do electrical trouble shooting of machinery.** **Inadvertent touching of a live electrical circuit can cause bodily harm!**
	No MARK Indication.	12.6 With electrical box door open, and disconnect switch SS1 "On" and power switch SS3 "On" check wire connections. See Electrical Schematic for wire numbers.
	No MARK Indication.	12.7 Check relay CRY8 for 24 VDC to coil side of relay wire #71and Y8 24 VDC. If 24 VDC is present, check contact side of relay wire #71 and #71B. Check #71 to #72 (24 VDC). If OK, Check #71B to #72 24 (VDC). If no DC VOLTS present, replace relay.

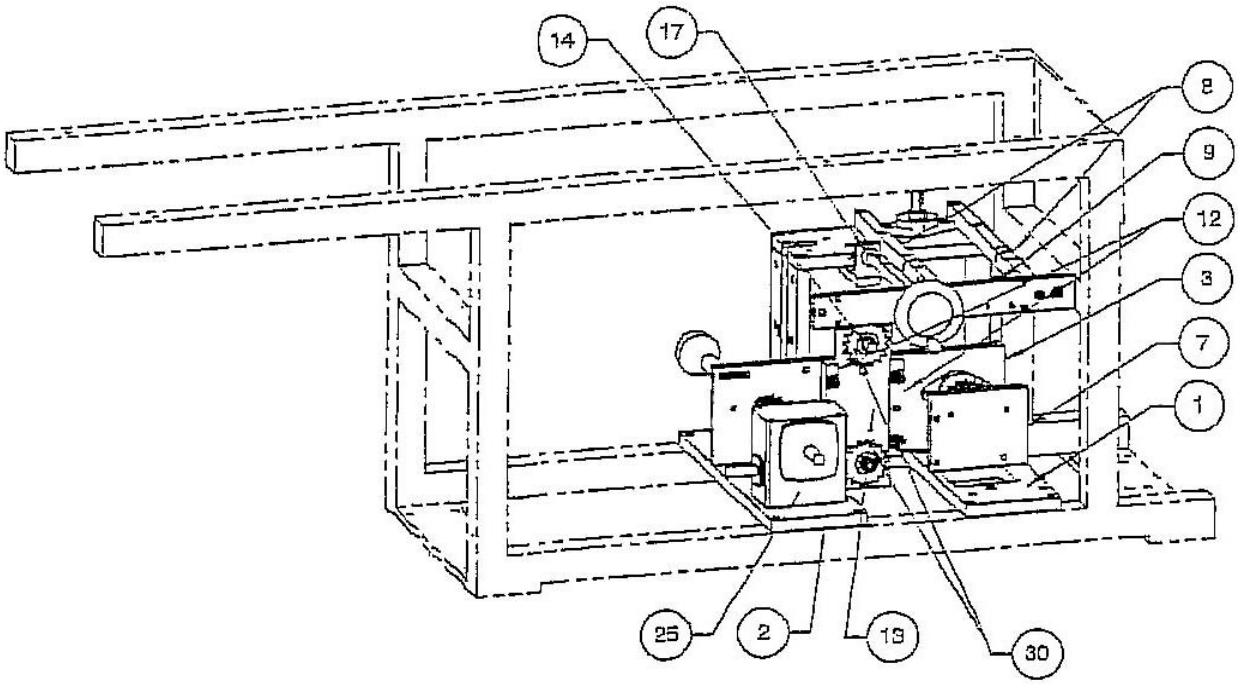
	The scanner "MARK" light flashes, but the "MARK" light on the operator panel does not flash.	12.8 Either the light has failed and needs to be replaced or there is a wiring problem. From the touch screen, select “MENU”, “DIAGNOSTICS”, and “I/O”. With the registration system turned on, input X5, REG MARK should toggle from 0 to 1 when the scanner is blocked. If the input does not change, replace the photo eye. 12.9 Check eye set-up, page 2-10 of Mechanic Section.
	Film won’t stay in registration.	12.10 From the touch screen, select “MENU”, “DIAGNOSTICS”, and “I/O”. With the wrapper running, Input X2 should change from “0” to “1” once every machine cycle. If so, go to 12.11. If the input does not change, replace PEX2. If replacing PEX2 does not cause the input to change state, replace CPU1. **IMPORTANT!** The registration system should be turned “OFF” if the registration system is not intended to be used.

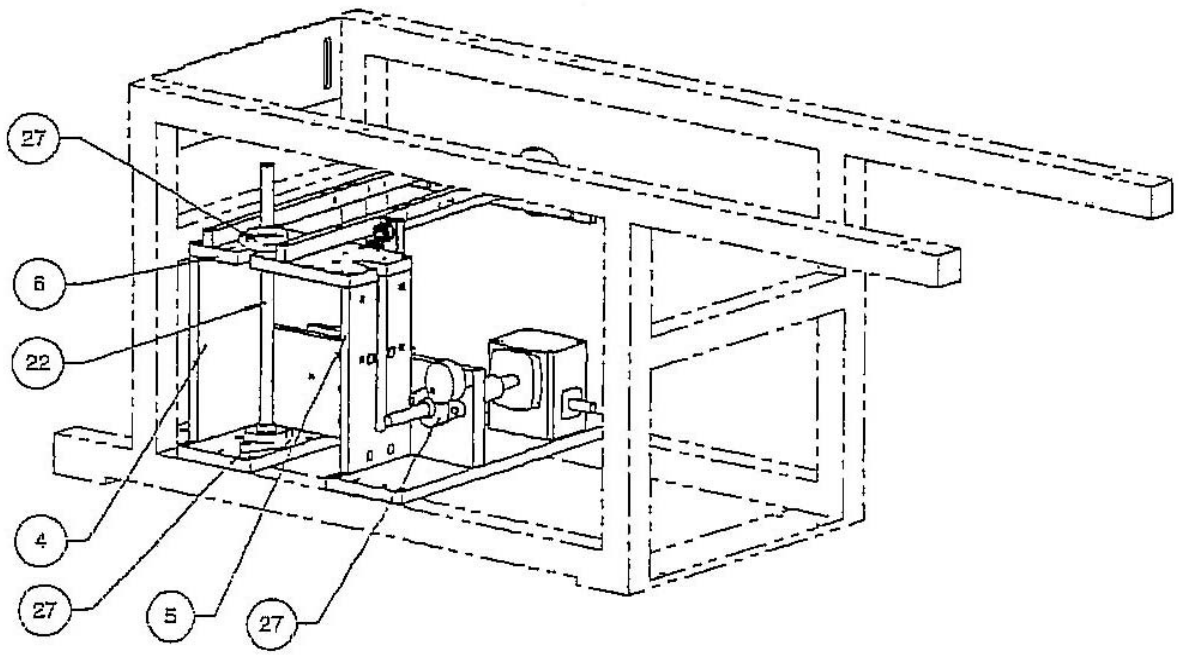
FAULT DESCRIPTIONS

Fault Name	Fault Descriptions	Corrective Actions
ocd	Over-current during deceleration: Short-circuit at motor output 1. Deceleration time too short AC drive output capacity is too small	 Check for possible poor insulation at the output line. 1. Increase the deceleration time. Replace with the AC drive with one that has a higher output capacity (next HP size).
ocn	Over-current during steady state operation. 1. Short-circuit at motor output Sudden increase in motor loading AC drive output capacity is too small	 Check for possible poor insulation at the output line. Check for possible motor stall. Replace the AC drive with one that has a higher output capacity (next HP size).
EF	The external terminal EF-GND goes from OFF to ON	When external terminal EF-GND is closed, the output will be turned off (under N.O. E.F.).
cF1	Internal memory IC cannot be programmed	1. Switch off power supply. 2. Check whether the input voltage falls within the rated AC drive input voltage. 3. Switch the AC drive back on.
cF2	Internal memory IC cannot be read	1. Check the connections between the main control board and the power board. 2. Reset drive to factory defaults.

Fault Name	Fault Descriptions	Corrective Actions
cF3	Drive's internal circuitry abnormal	1. Switch off power supply. 2. Check whether the input voltage falls within the rated AC drive input voltage. Switch on the AC drive.
HPF	Hardware protection failure	Return to the factory.
codE	Software protection failure	Return to the factory.
cFR	Auto accel/decel failure	Don't use the function of auto acceleration/ deceleration
GFF	Ground Fault: The AC drive output is abnormal. When the output terminal is grounded (short circuit current is 50% more than the AC drive rated current), the AC drive power module may be damaged. The short circuit protection is provided for AC drive protection, not user protection	Ground Fault: 1. Check whether the IGBT power module is damaged. 2. Check for possible poor insulation at the output line.
CEI	Communication Error: Please check on Page 73 for more details	1. Check the connection between the AC drive and computer for loose wires. 2. Check if the communication protocol is properly set.
bb	External Base Block: AC drive output is turned off.	1. When the external input terminal (B.B.) is active, the AC drive output will be turned off. 2. Disable this connection and the AC drive will begin to work again.

PARTS

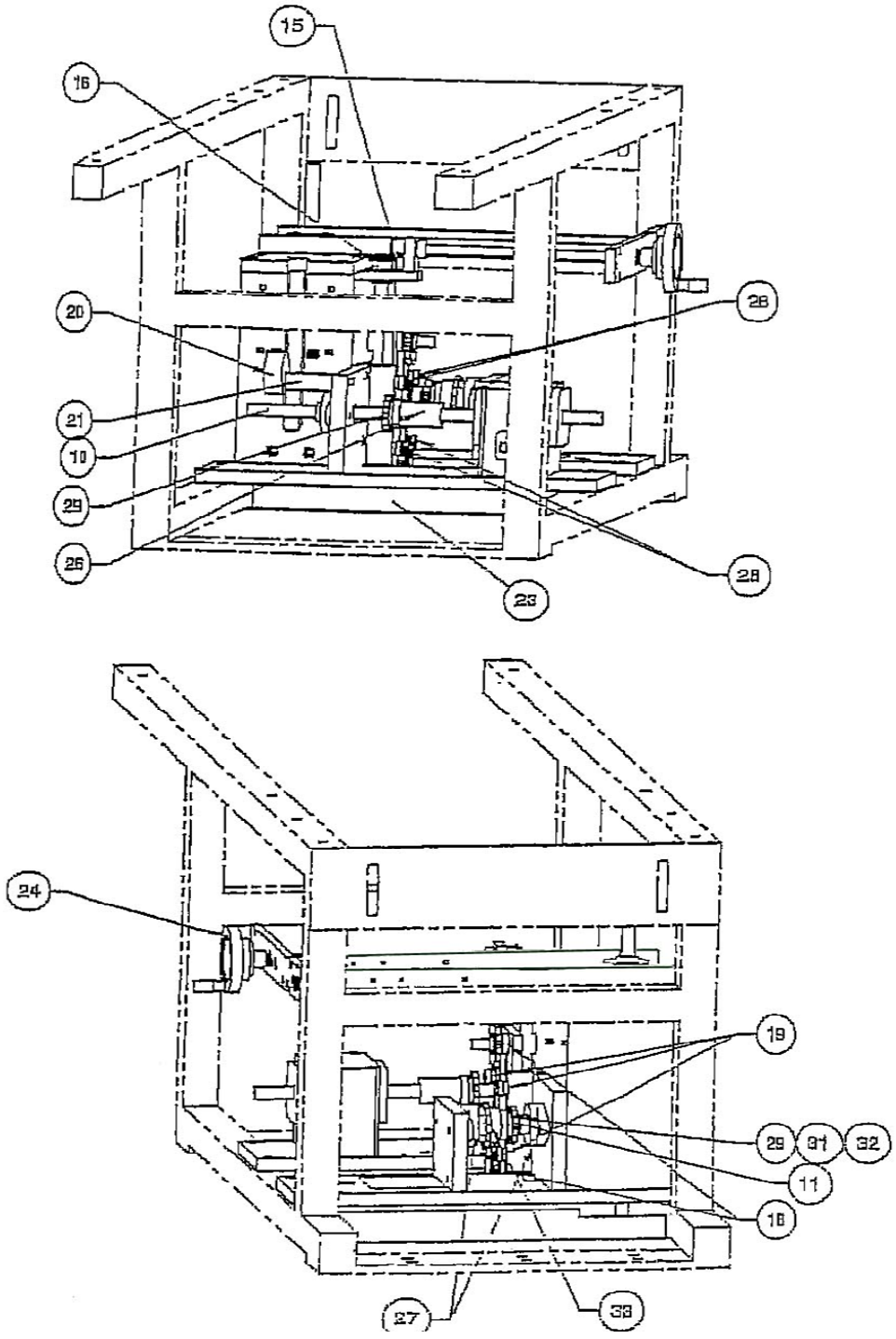




DRIVE ASSEMBLY
VIEW 1

DRIVE ASSEMBLY – VIEW 1

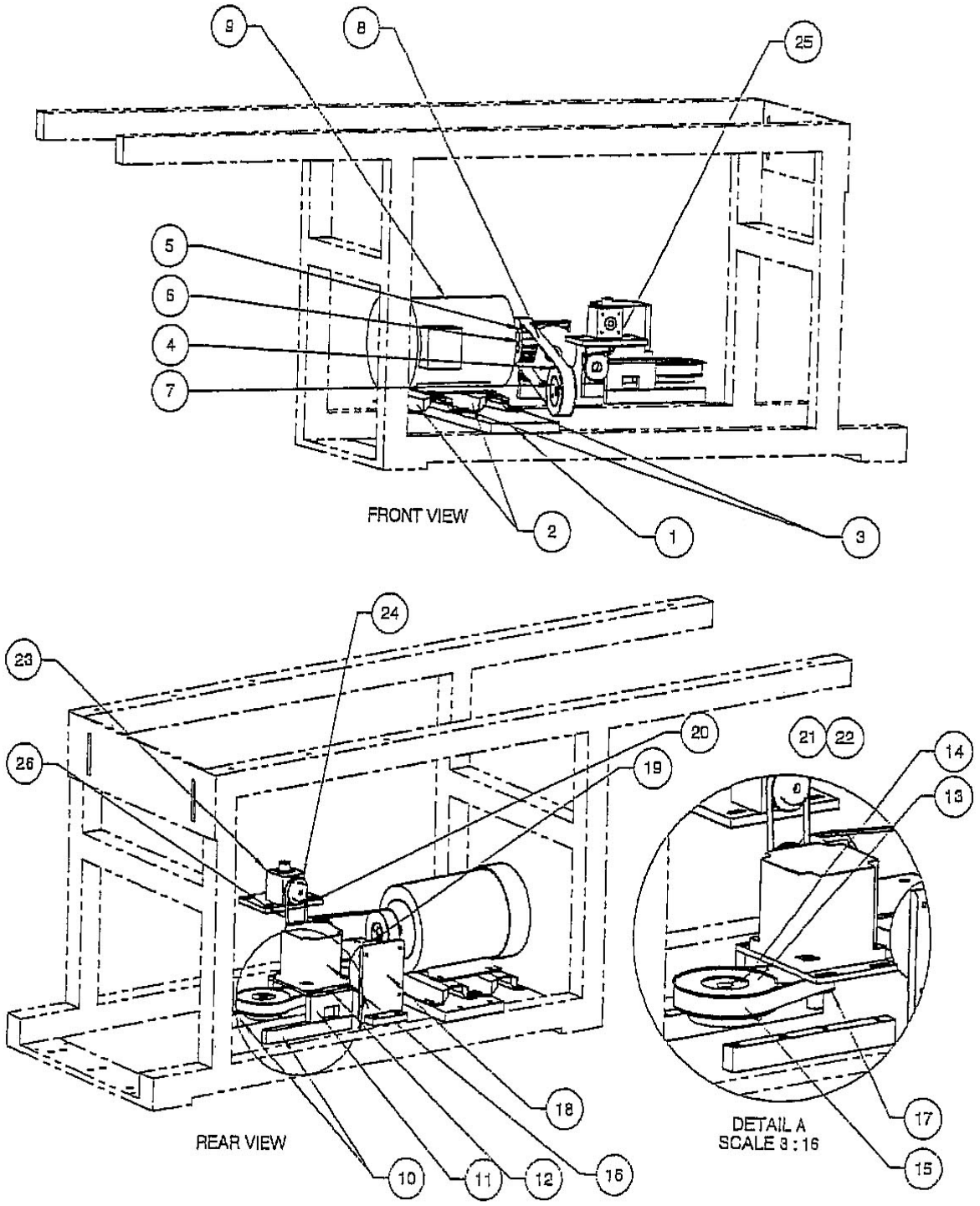
ITEM	PART NUMBER	DESCRIPTION	QTY
1	20-002-046-1	Plate	1
2	20-002-047-1	Motor Mount	2
3	20-002-048-1	Plate	2
4	01-113-323-7	Pulley	1
5	01-113-330-7	Pulley	1
6	01-032-051-7	Bushing”	1
7	01-032-015-7	Busing	1
8	01-015-033-7	Belt	1
9	01-262-051-7	Motor	1
10	20-003-073-1	Bar	2
11	20-003-074-1	Spacer	2
12	20-003-075-1	Plate	1
13	01-113-233-7	Pulley	1
14	01-032-061-7	Busing	1
15	01-015-042-7	Belt	1
16	01-263-014-7	Motor	1
17	20-012-102-1	Pulley	1



DRIVE ASSEMBLY
VIEW 2

DRIVE ASSEMBLY – VIEW 2

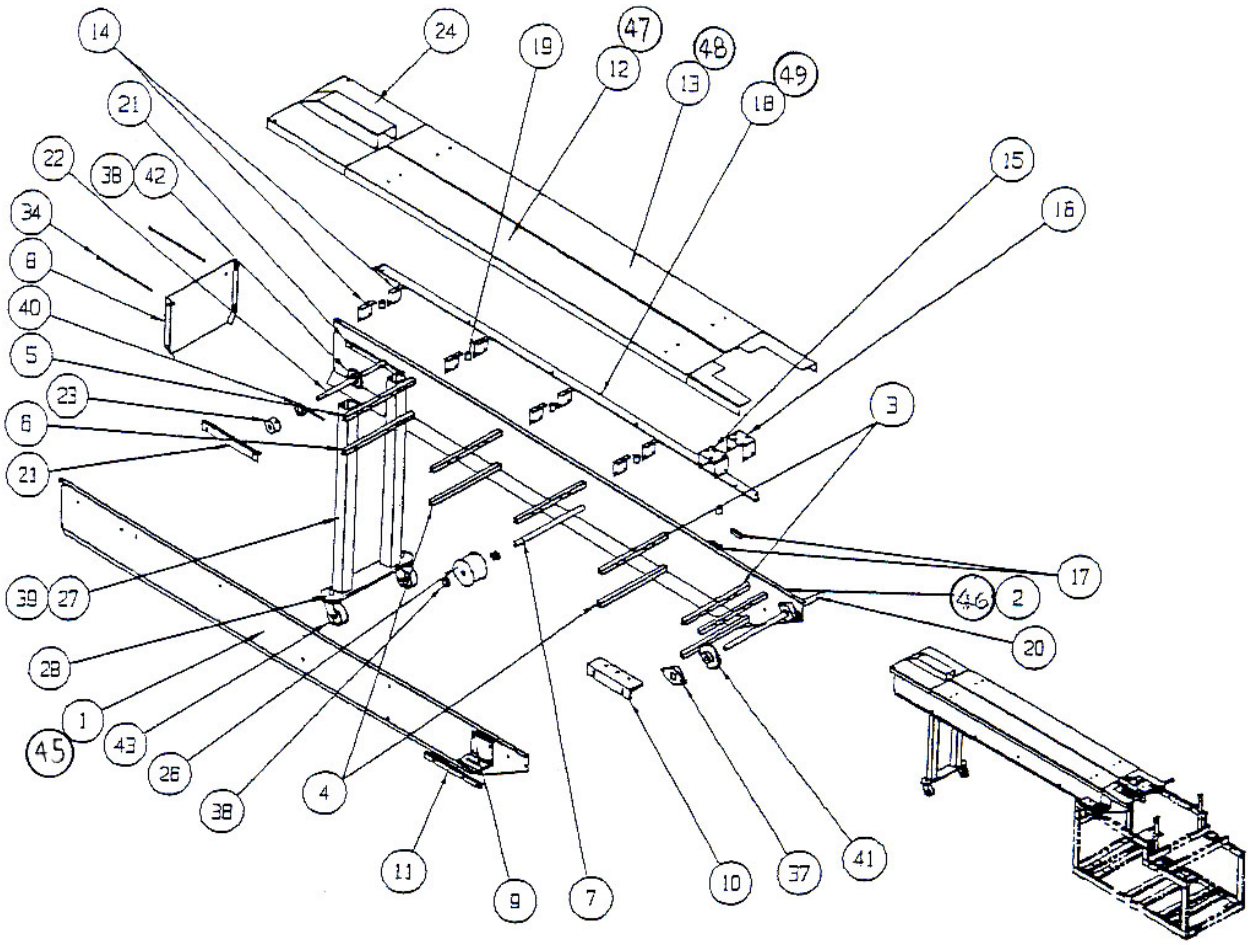
ITEM	PART NUMBER	DESCRIPTION	QTY
18	20-002-027-1	Spacer	2
19	20-002-028-1	Spacer	4
20	20-002-037-1	Disc	1
21	20-002-039-1	Spacer	1
22	20-002-079-1	Shaft	1
23	20-002-080-1	Guard	1
25	01-118-016-7	Reducer	1
26	01-064-004-7	Coupling	1
27	01-005-005-7	Bearing	5
28	01-002-082-7	Bearing	4
29	01-138-316-7	Sprocket	2
30	01-144-001-7	Idler	3
33	01-138-334-7	Sprocket	1



DRIVE ASSEMBLY
VIEW 3

DRIVE ASSEMBLY – VIEW 3

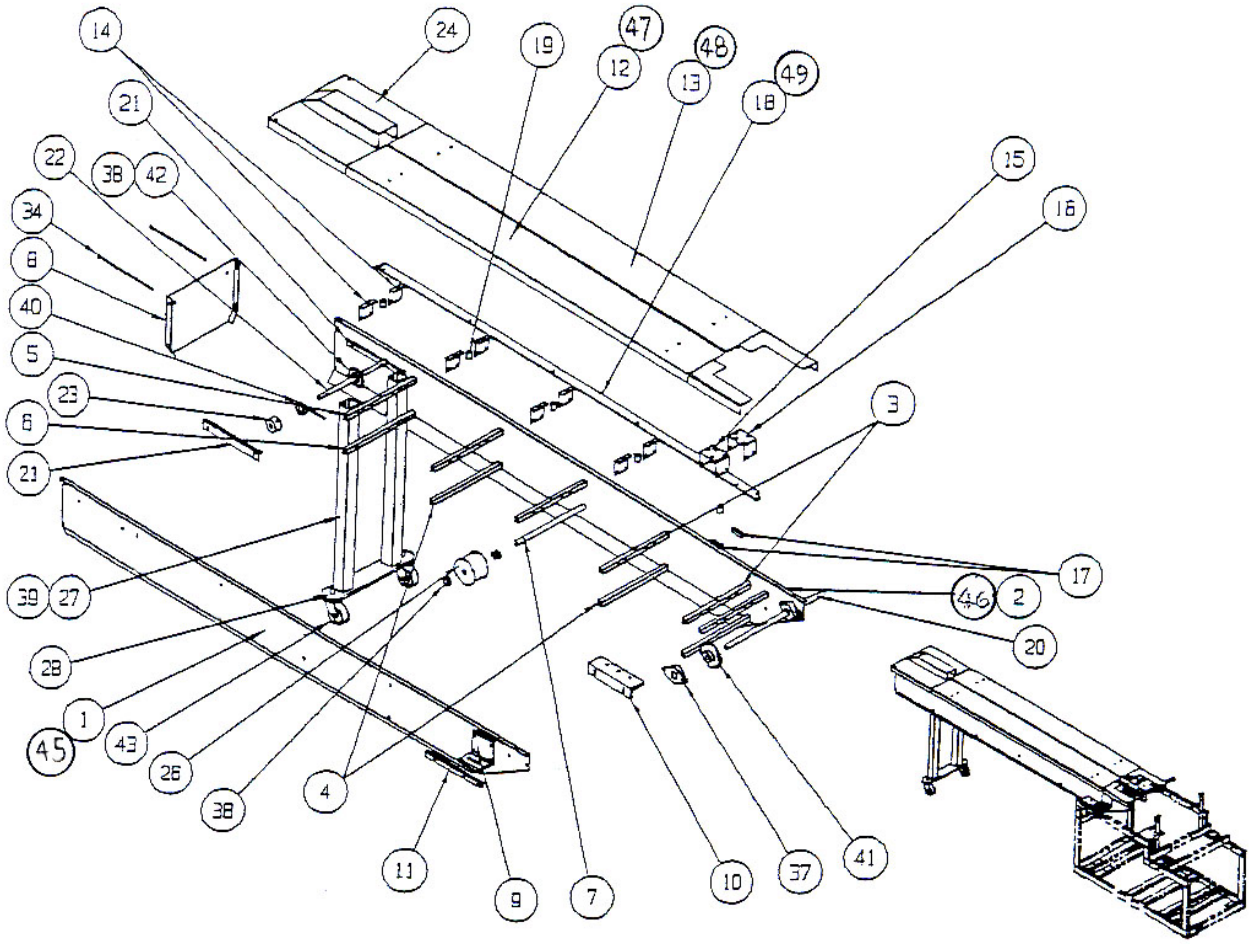
ITEM	PART NUMBER	DESCRIPTION	QTY
9	01-262-051-7	Motor	1
18	20-002-107-1	Bracket	1
19	01-051-010-7	Brake	1
20	20-002-093-1	Plate	1
21	20-002-094-1	Plate	1
22	20-002-096-1	Shim	1
23	01-309-006-7	Encoder	1
24	01-113-108-1	Pulley	1
25	01-113-109-1	Pulley	1
26	01-015-043-7	Belt	1



INFEED CONVEYOR ASSEMBLY

INFEED CONVEYOR ASSEMBLY

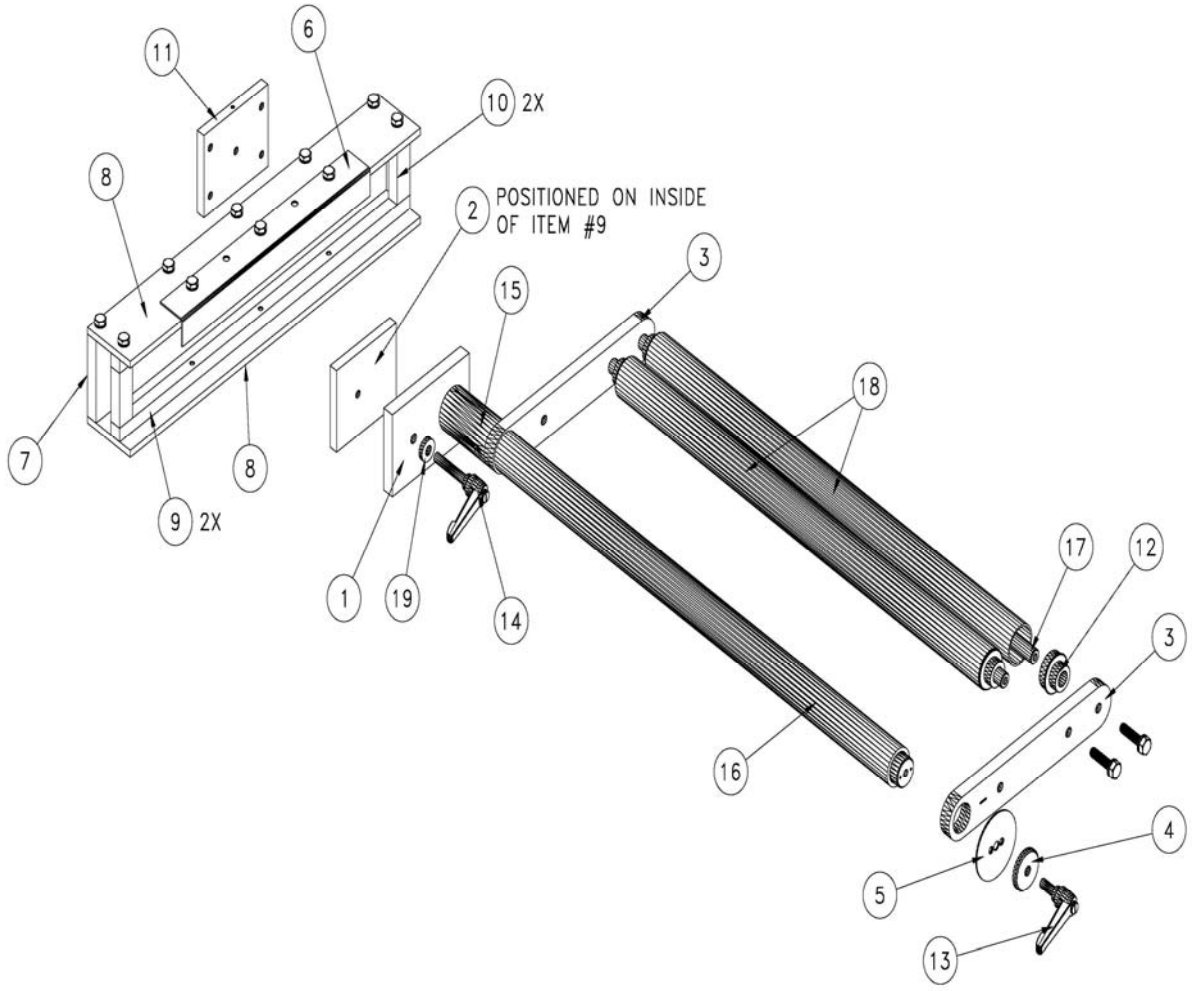
ITEM	PART NUMBER	DESCRIPTION	QTY
1	23-007-053-2	Frame	1
2	23-007-054-2	Frame	1
3	23-007-003-1	Bar	5
4	23-007-004-1	Bar	3
5	23-007-005-1	Bar	1
6	23-007-006-1	Bar	1
7	23-007-007-1	Shaft	1
8	23-007-008-1	Cover	1
9	23-007-062-1	Bracket	2
10	23-007-063-1	Bracket	2
11	23-007-064-1	Plate	2
12	23-302-046-1	Plate	1
13	23-302-047-1	Plate	1
14	23-007-014-1	Support	8
15	23-007-015-1	Support	1
16	23-007-016-1	Support	1
17	23-007-017-1	Nut	2
18	23-007-060-1	Rider	1
19	23-007-019-1	Spacer	5
20	23-007-057-1	Shaft	1
21	23-007-021-1	Guide	2
22	23-007-022-1	Shaft	1
23	23-007-023-1	Holder	1
24	23-007-024-1	House	1



INFEED CONVEYOR ASSEMBLY

INFEED CONVEYOR ASSEMBLY

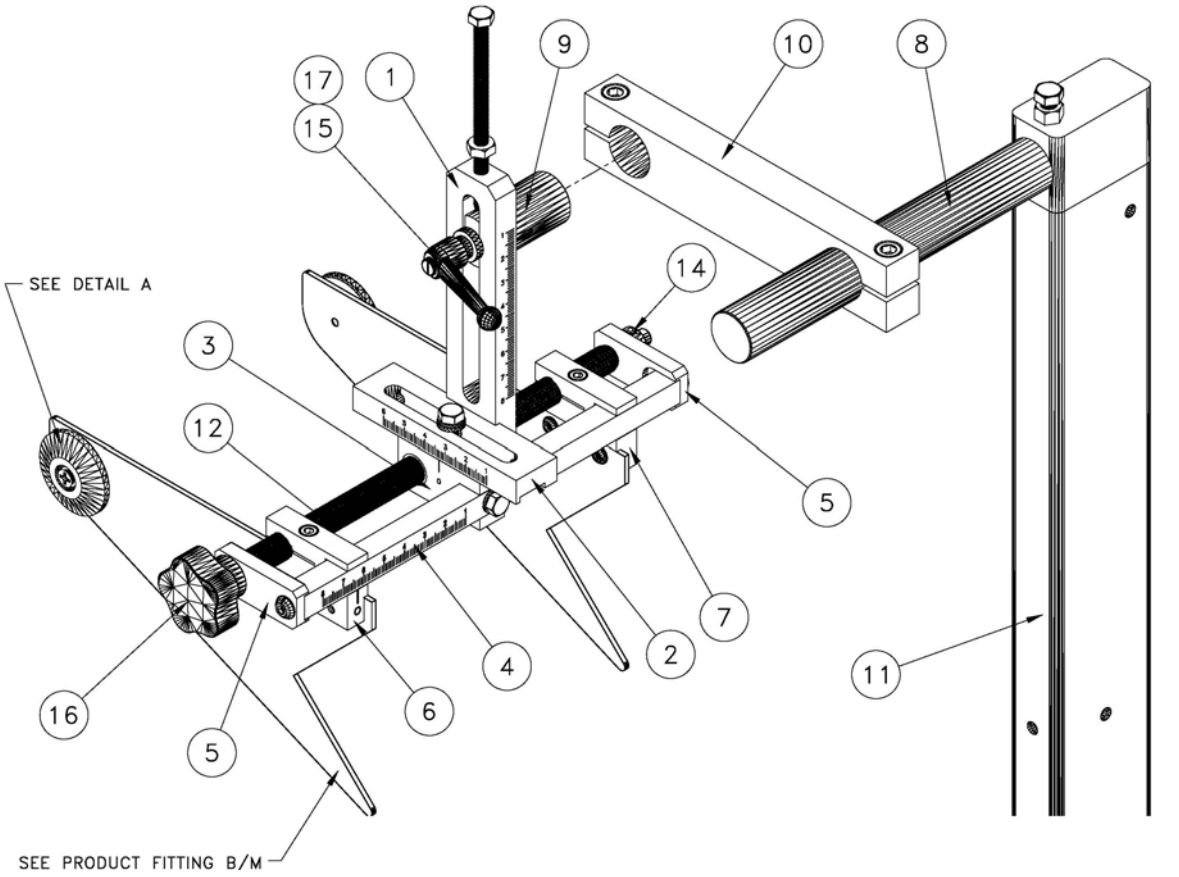
ITEM	PART NUMBER	DESCRIPTION	QTY
26	23-007-025-1	Guide	1
27	23-007-026-1	Leg	2
28	23-007-027-1	Plate	1
34	20-007-049-1	Screw	2
37	01-005-042-7	Bearing	2
38	01-056-011-7	Collar	3
39	01-104-108-7	Tube End	2
40	01-135-018-7	Spring	1
41	20-007-020-1	Sprocket	1
42	01-144-001-7	Sprocket	1
43	01-157-014-7	Caster	2
44	01-416-007-7	Nut	2
45	23-007-055-2	Frame	1
46	23-007-056-2	Frame	1
47	23-007-048-1	Plate	1
48	23-007-049-1	Plate	1
49	23-007-061-1	Rider	1

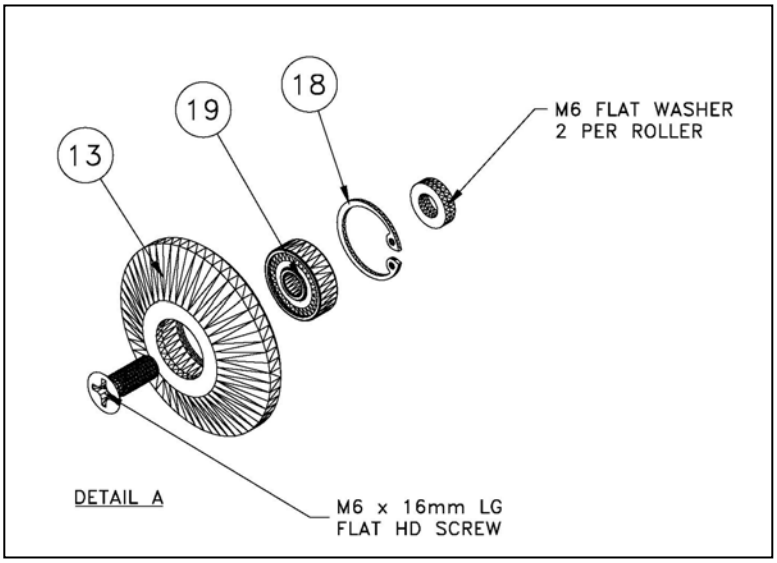


FILM GUIDE ROLL ASSEMBLY

FILM GUIDE ROLL ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	23-008-036-1	Plate – Outside	1
2	23-008-037-1	Plate – Inside	1
3	23-008-008-1	Arm	2
4	23-008-038-1	Washer	1
5	23-008-013-1	Plate	1
6	23-008-014-1	Bracket	1
7	23-008-030-1	Plate	1
8	23-008-003-1	Plate	2
9	23-008-004-1	Gib	2
10	23-008-012-1	Spacer	2
11	23-008-031-1	Plate	1
12	01-002-130-7	Ball Bearing	4
13	01-090-020-7	Handle	1
14	01-090-034-7	Handle	1
15	23-008-007-1	Guide Roll Shaft	1
16	23-008-009-1	Spacer	1
17	23-008-041-1	Roller Shaft	2
18	20-008-012-1	Tube	2
19	01-498-014-7	Washer	1

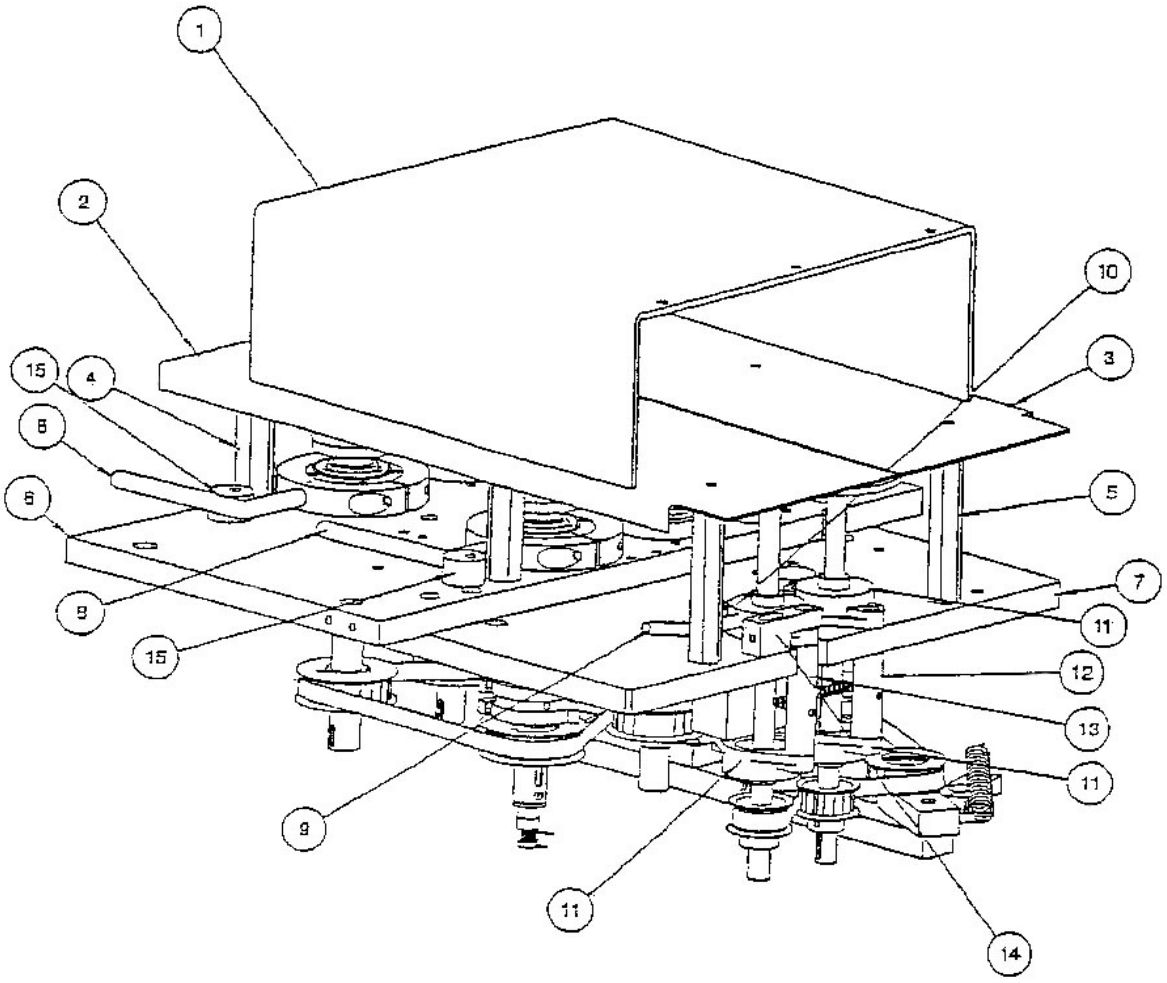




ADJUSTABLE FORMER

ADJUSTABLE FORMER

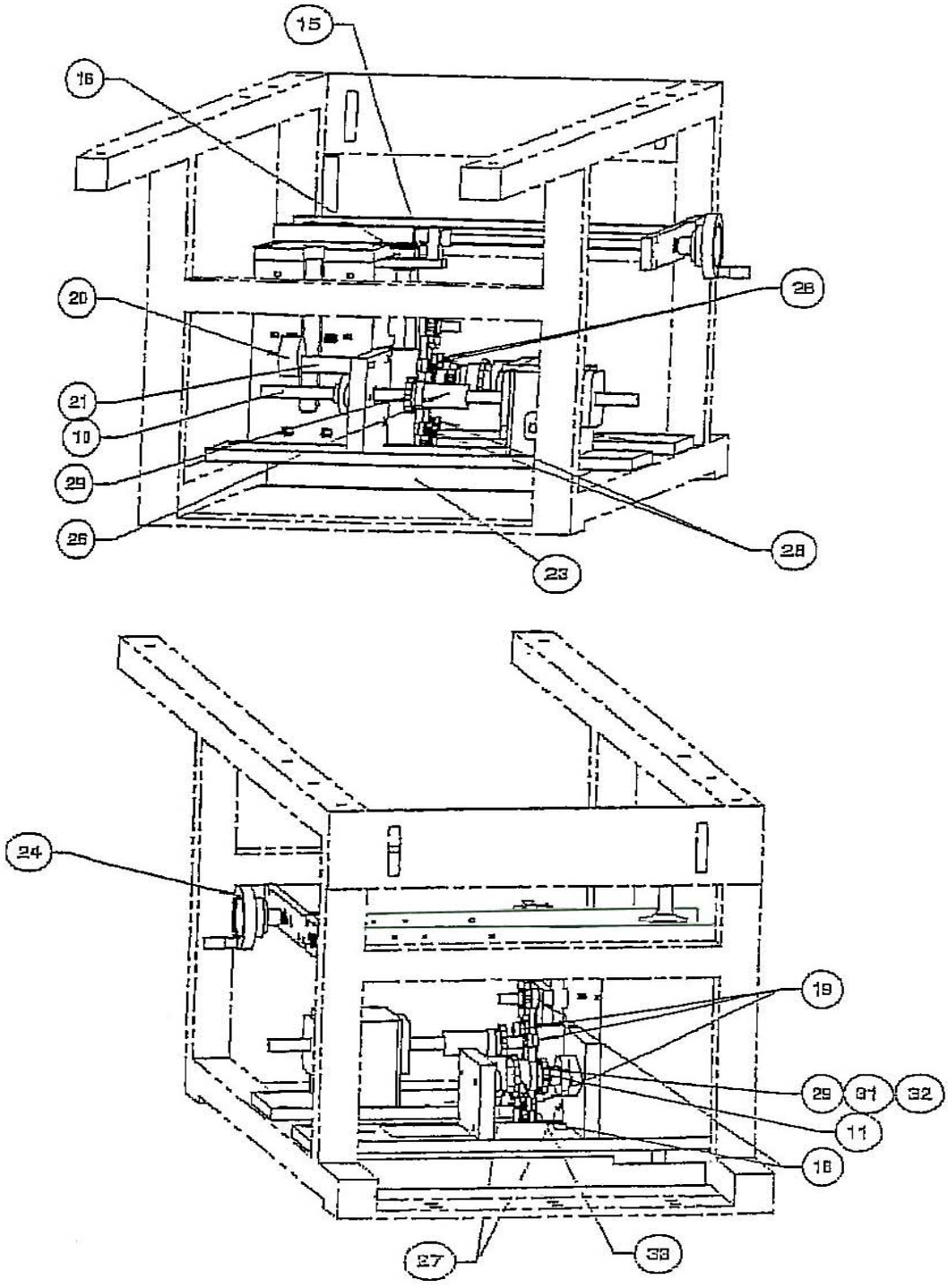
ITEM	PART NUMBER	DESCRIPTION	QTY
1	23-009-007-1	Plate	1
2	23-009-008-1	Plate	1
3	23-009-009-1	Block Assembly	1
4	23-009-011-1	Guide Bar	1
5	23-009-012-1	Assembly	2
6	23-009-014-1	Block RH	1
7	23-009-015-1	Block LH	1
8	20-009-013-1	Shaft	1
9	20-009-015-1	Shaft	1
10	20-009-041-1	Arm	1
11	20-010-032-2	Post	REF
12	20-009-007-1	Screw	1
13	20-009-097-1	Roller	2
14	01-056-005-7	Collar	1
15	01-090-015-7	Handle	1
16	01-096-007-7	Knob	1
17	01-498-027-7	Washer	1
18	01-121-067-7	Ring	2
19	01-002-003-7	Ball Bearing	2



FIN WHEEL ASSEMBLY
FRONT VIEW 1

FIN WHEEL ASSEMBLY – FRONT VIEW

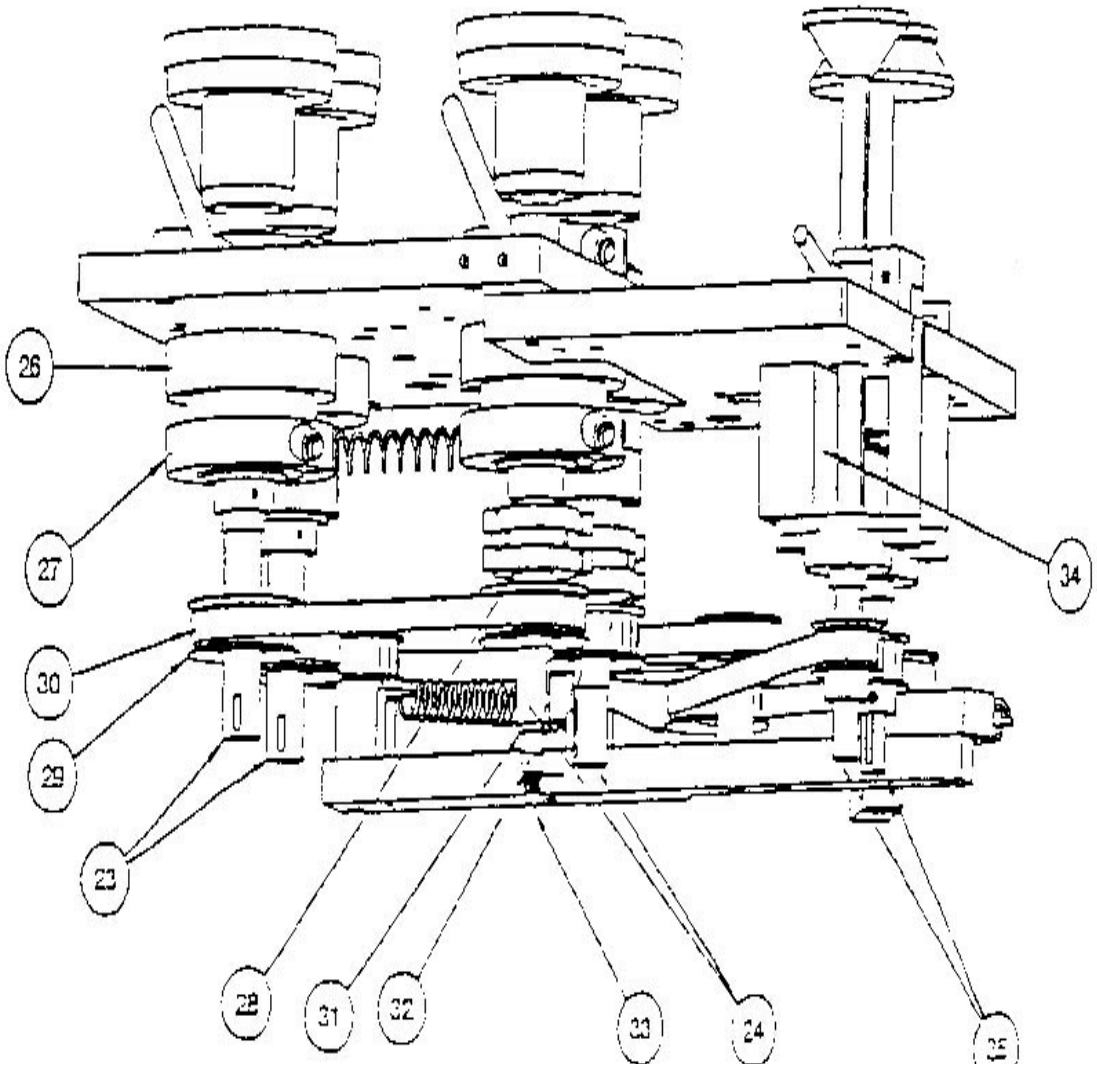
ITEM	PART NUMBER	DESCRIPTION	QTY
1	20-011-073-1	Guard	1
2	20-003-110-1	Top Plate.	1
3	20-003-111-1	Top Plate	1
4	20-003-032-1	Support	4
5	20-012-050-1	Support	2
6	20-012-035-3	Plate	1
7	20-012-085-3	Plate	1
8	20-003-009-1	Handle	2
9	20-003-119-1	Handle	1
10	20-003-118-1	Bearing	1
11	01-005-023-7	Bearing	3
12	20-003-049-1	Spacer	1
13	20-003-050-1	Spacer	2
14	20-003-063-1	Arm	1
15	20-003-010-1	Eccentric	2



FIN WHEEL ASSEMBLY
FRONT VIEW 2

FIN WHEEL ASSEMBLY – FRONT VIEW

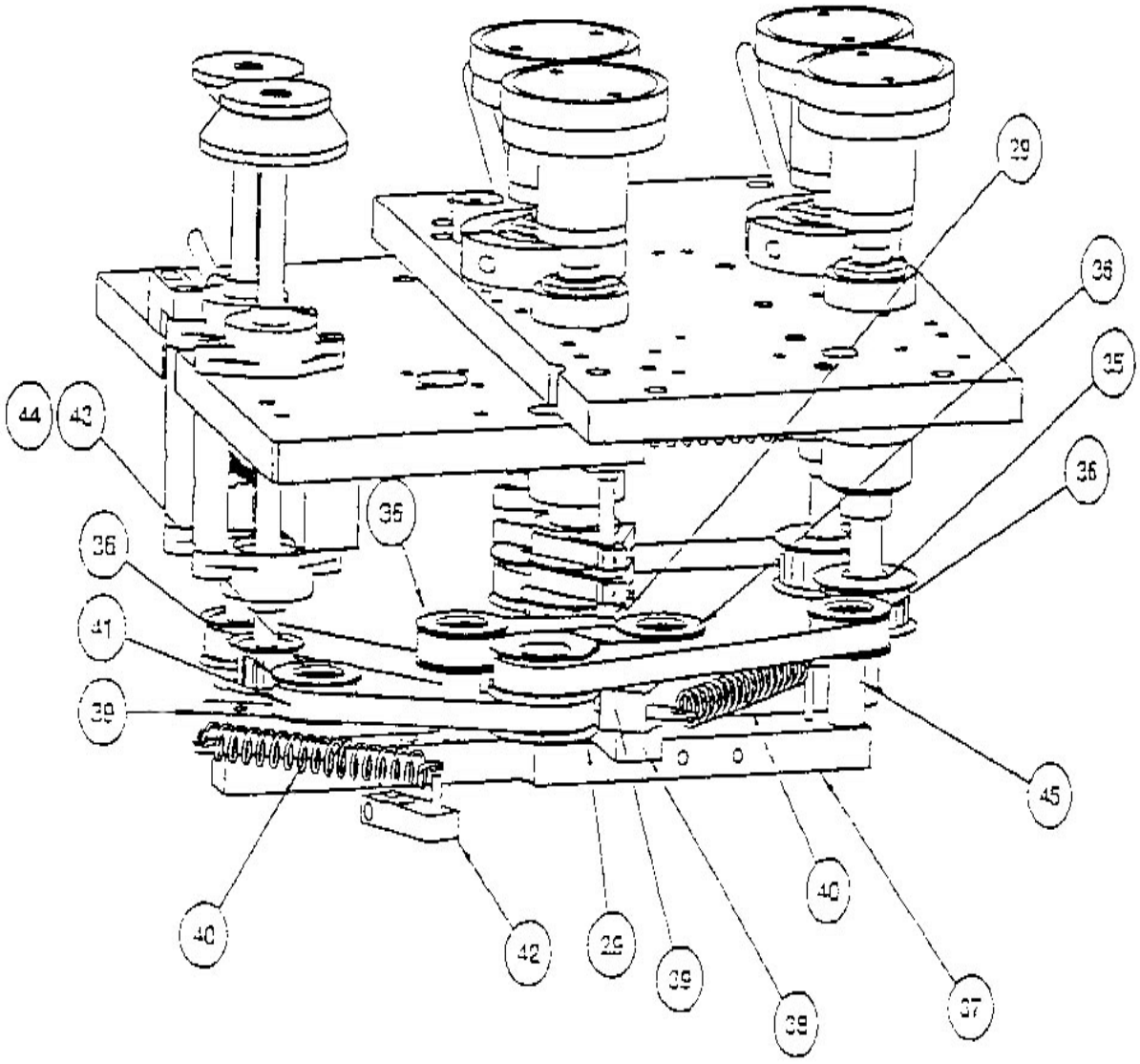
ITEM	PART NUMBER	DESCRIPTION	QTY
16	20-003-006-1	Cover	4
17	20-003-036-1	Collar	2
18	20-003-033-1	Hub	2
19	20-003-081-1	Wheel	1
20	20-003-082-1	Wheel	1
21	20-003-046-1	Washer	2
22	01-135-006-7	Spring	8



FIN WHEEL ASSEMBLY
FRONT BOTTOM VIEW

FIN WHEEL ASSEMBLY – FRONT BOTTOM VIEW

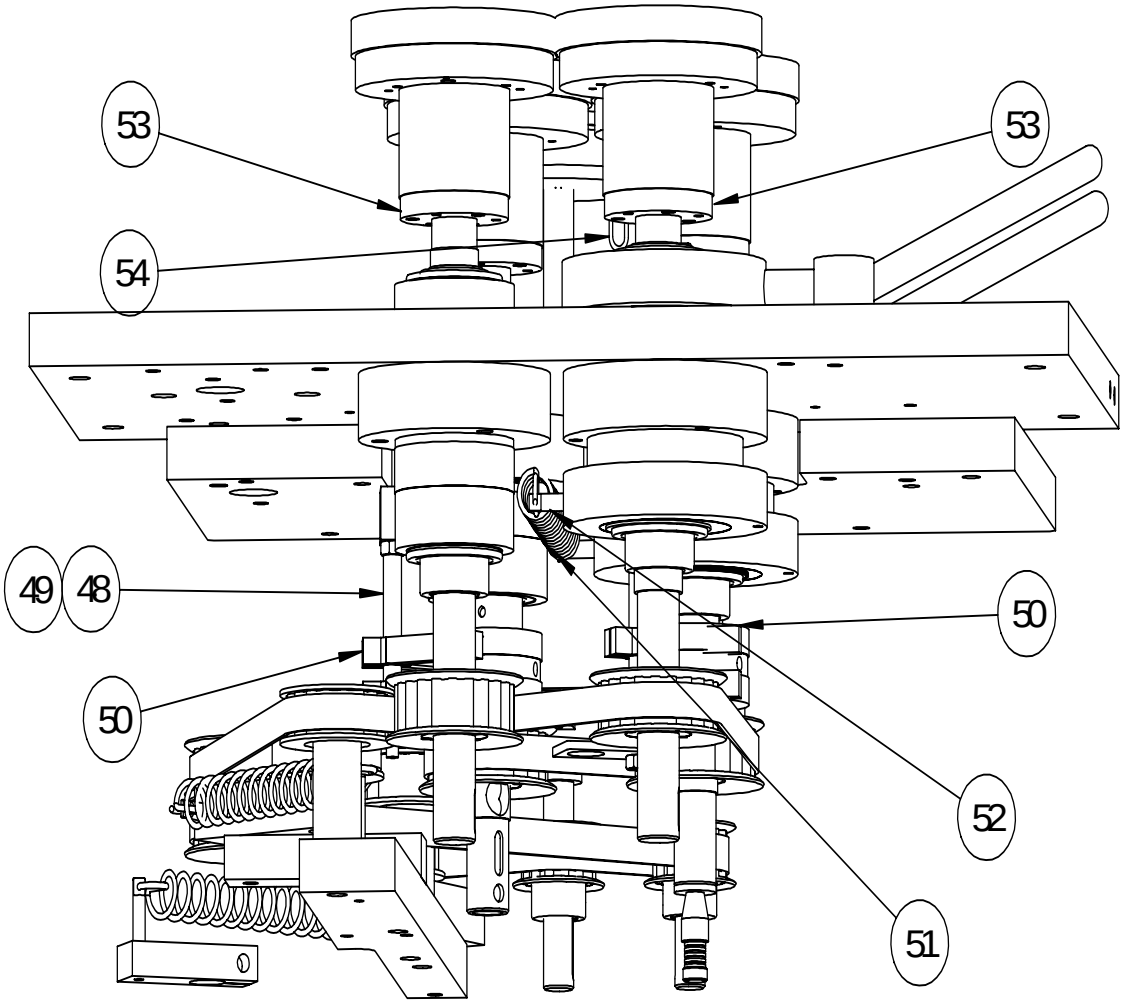
ITEM	PART NUMBER	DESCRIPTION	QTY
23	20-012-009-1	Shaft	2
24	20-012-008-1	Shaft	2
25	20-012-092-1	Shaft	2
26	20-003-034-1	Bushing	2
27	20-003-037-1	Collar	2
28	20-003-014-1	Slip Ring	2
29	01-113-222-7	Pulley	6
30	01-015-053-7	Belt	1
31	20-003-015-1	Holder	1
32	01-227-005-7	Mercotac	1
33	01-227-006-7	Mercotac	1
34	20-003-072-1	Block	1



FIN WHEEL ASSEMBLY
REAR VIEW

FIN WHEEL ASSEMBLY – REAR VIEW

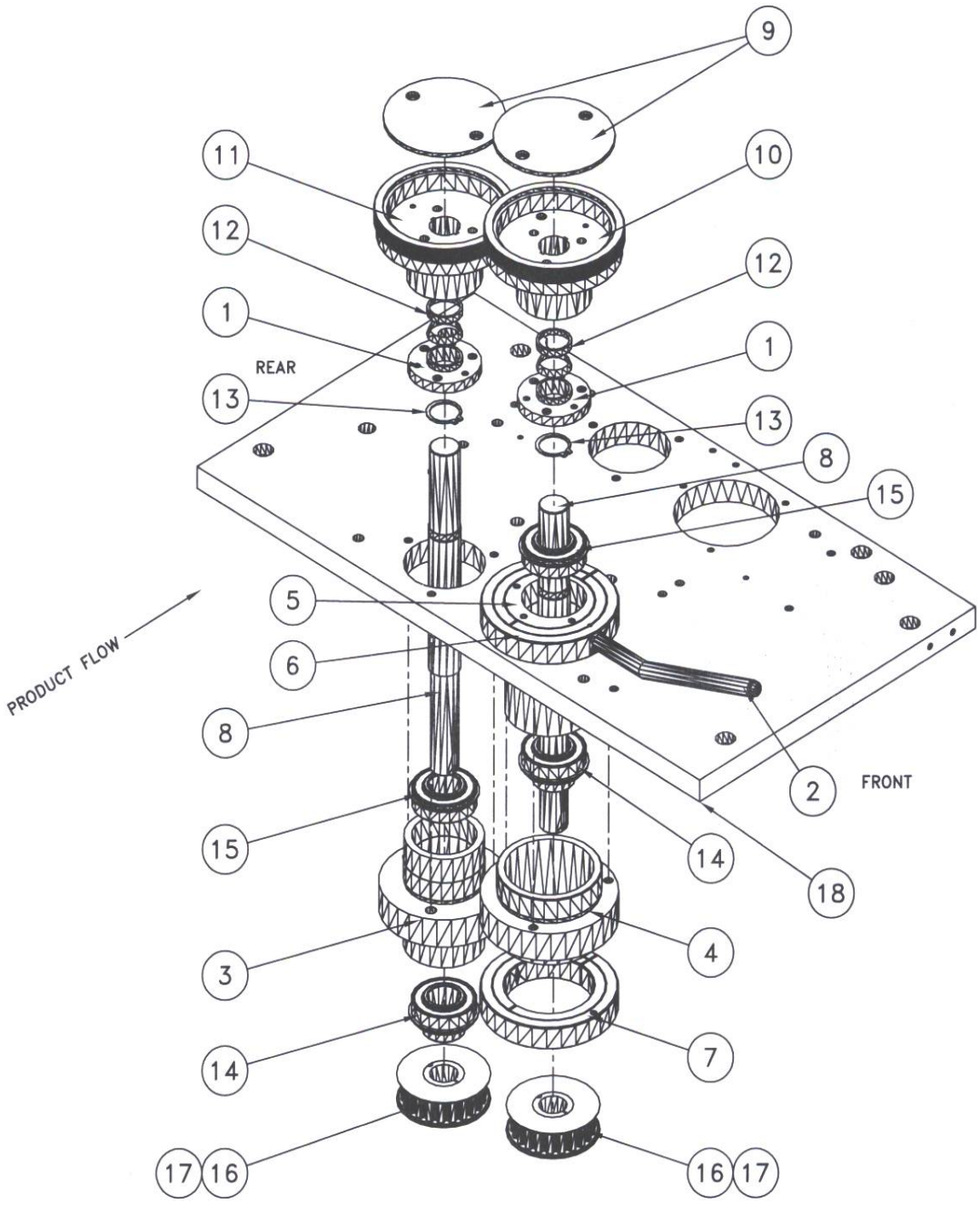
ITEM	PART NUMBER	DESCRIPTION	QTY
35	01-032-052-7	Bushing	4
36	20-012-099-1	Pulley	4
37	20-012-093-1	Bar	1
38	20-012-094-1	Plate	1
39	20-003-093-1	Bar	2
40	01-133-021-7	Spring	2
41	01-015-045-7	Belt	1
42	20-003-097-1	Arm	1
43	01-002-152-7	Bearing	4
44	01-121-044-7	Ring	8
45	20-012-097	Spacer	2



FIN WHEEL ASSEMBLY
INFEED SIDE

FIN WHEEL ASSEMBLY – INFEED SIDE

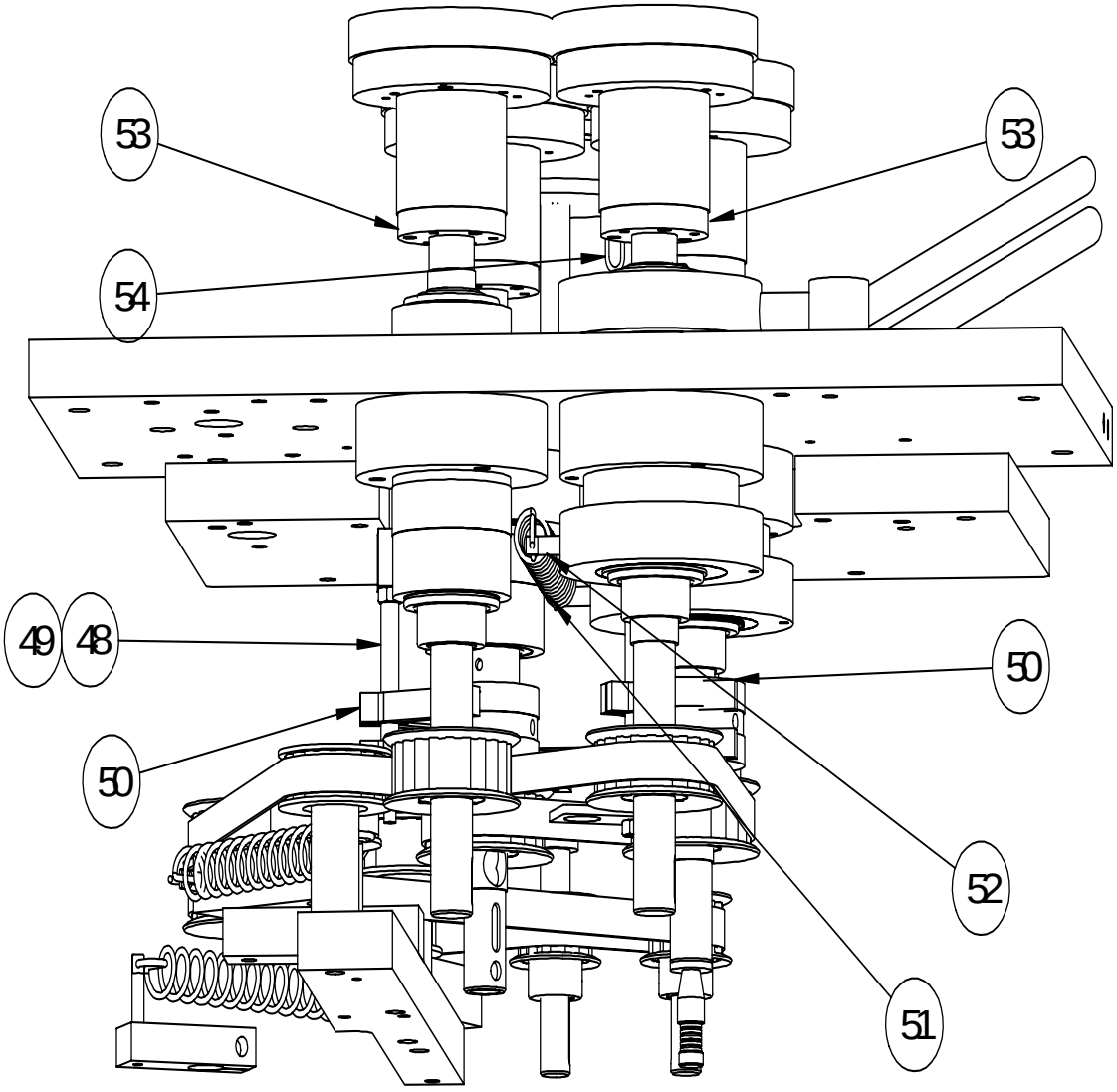
ITEM	PART NUMBER	DESCRIPTION	QTY
46	20-003-013-1	Holder	4
47	20-003-028-1	Brush	8
48	01-312-010-1	Thermocouple	1
49	20-003-040-1	Insulator	2
50	20-003-041-1	Rod	2
51	01-133-018-7	Spring	1
52	20-003-003-1	Ring	4
53	20-003-038-1	Block	1



1ST FIRST FIN WHEEL ASSEMBLY

1ST FIN WHEEL ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	21-003-046-1	Plate	2
2	20-003-009-1	Handle	1
3	20-003-033-1	Hub	1
4	20-003-034-1	Bushing	1
5	20-003-035-1	Sleeve	1
6	20-003-145-1	Collar	1
7	20-003-146-1	Collar	1
8	20-012-123-1	Shaft	2
9	20-003-006-1	Cover	2
10	Customer Spec	Fin Wheel	1
11	Customer Spec	Fin Wheel	1
12	01-032-047-7	Ring	2
13	01-121-005-7	Ring	2
14	01-002-075-7	Bearing	2
15	01-002-040-7	Bearing	2
16	01-113-222-7	Pulley	2
17	01-032-052-7	Bushing	2
18	20-012-035-3	Plate	1



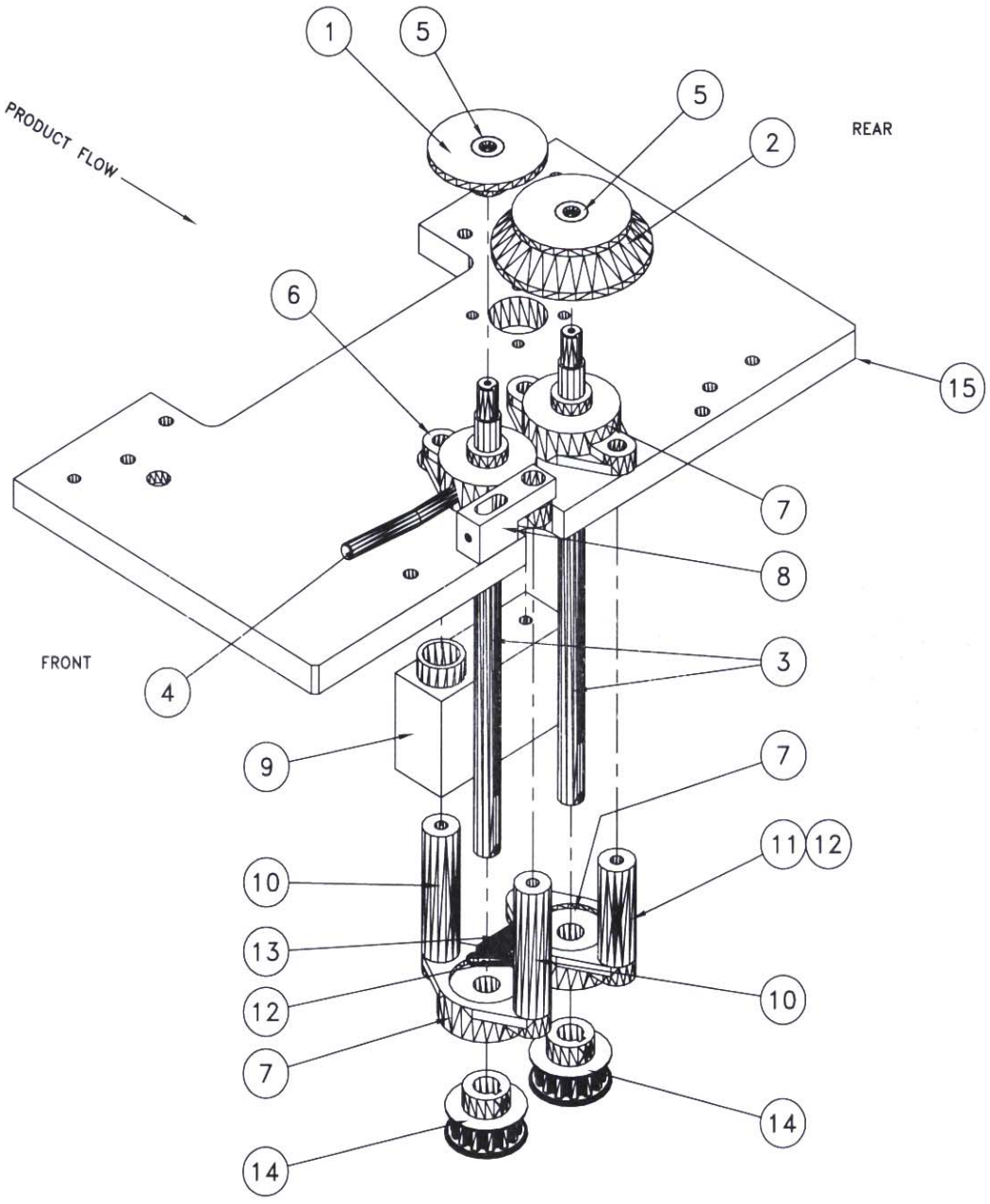
2nd FIN WHEEL ASSEMBLY

2ND SECOND FIN WHEEL ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	21-003-046-1	Plate	2
2	20-003-009-1	Handle	1
3	20-003-033-1	Hub	1
4	20-003-034-1	Bushing	1
5	20-003-035-1	Sleeve	1
6	20-003-145-1	Collar	1
7	20-003-146-1	Collar	1
8	20-012-008-1	Shaft	2
9	20-003-006-1	Cover	2
10	Customer Spec	Fin Wheel	1
11	Customer Spec	Fin Wheel	1
12	01-032-047-7	Ring	2
13	01-121-005-7	Ring	2
14	01-002-075-7	Bearing	2
15	01-002-040-7	Bearing	2
16	01-113-222-7	Pulley	2
17	01-032-052-7	Bushing	2
18	20-003-038-1	Block	1
19	20-003-041-1	Rod	2
20	20-003-040-1	Insulator	2
21	20-003-013-1	Holder	4
22	20-003-014-1	Ring	2
23	20-003-028-1	Brush	8
24	20-003-067-1	Connector	1

2ND FIN WHEEL ASSEMBLY (Con't)

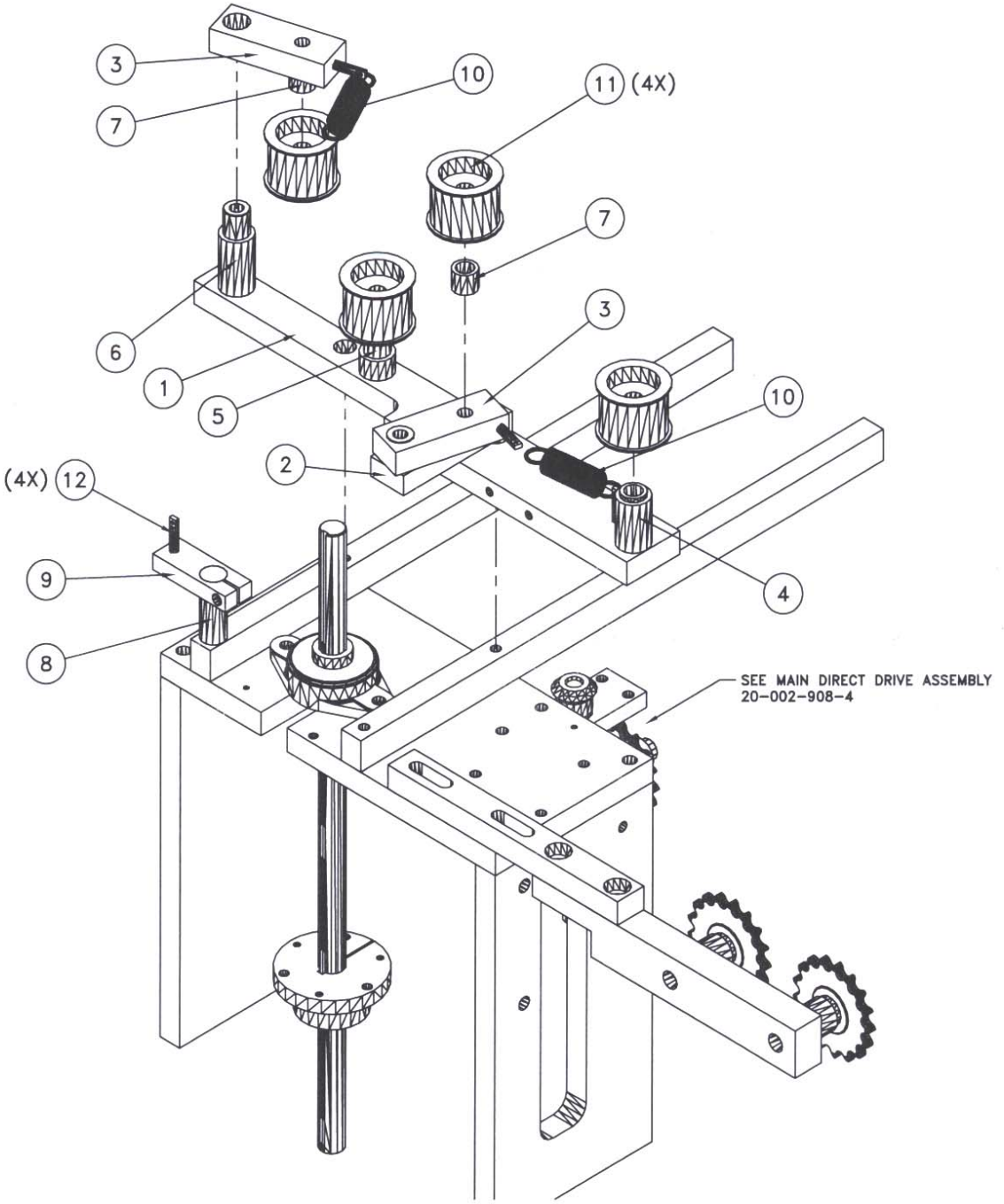
ITEM	PART NUMBER	DESCRIPTION	QTY
25	20-003-015-1	Holder	1
26	01-227-005-7	Mercotac	1
27	01-227-006-7	Connector t	1
28	01-227-007-7	Connector	1
29	11-100-353-8	Heater	2
30	01-312-011-1	Thermocouple	1
31	20-012-035-2	Plate	1



TURN OVER FIN WHEEL ASSEMBLY

TURN OVER FIN WHEEL ASSEMBLY

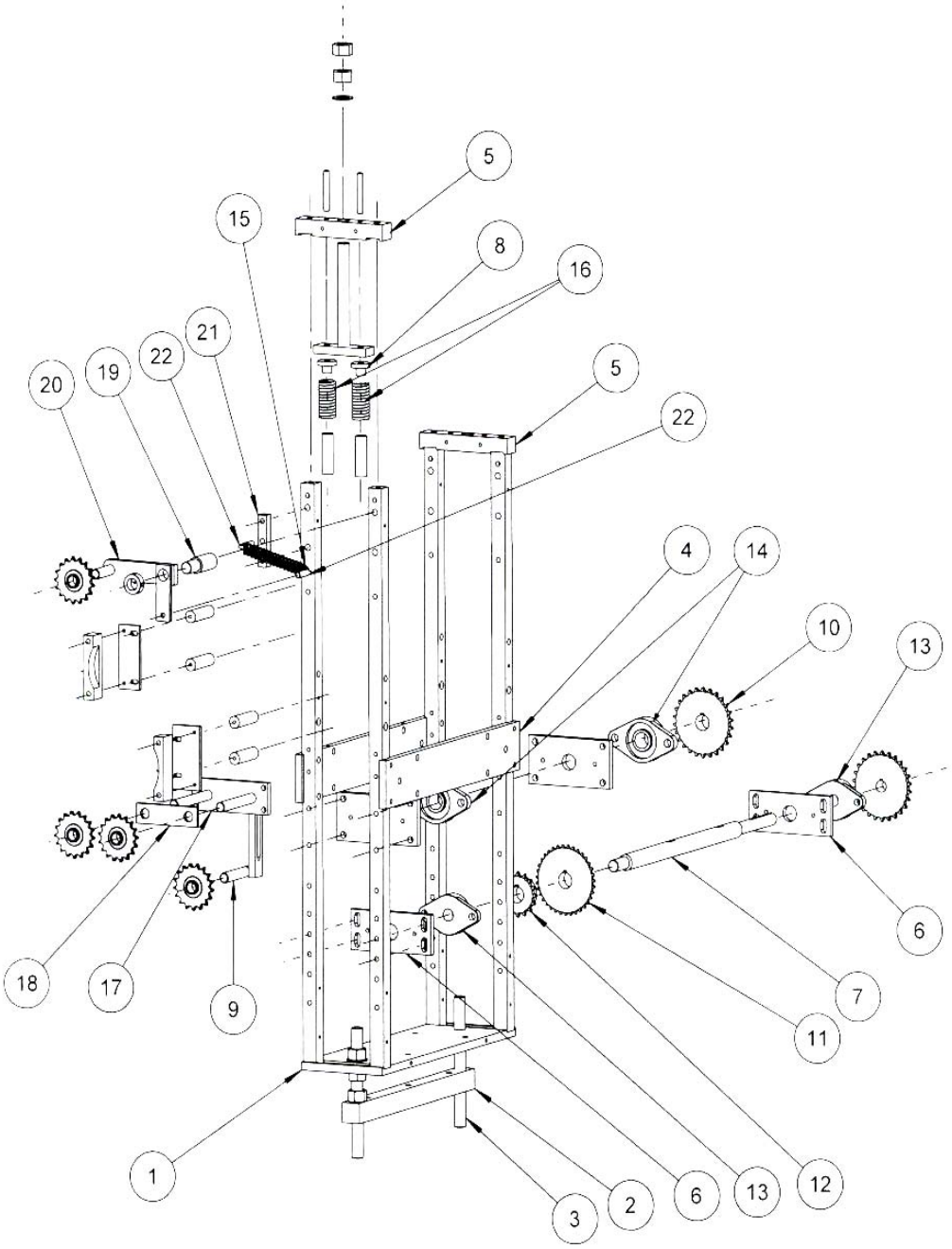
ITEM	PART NUMBER	DESCRIPTION	QTY
1	20-003-081-1	Wheel	1
2	20-003-082-1	Wheel	1
3	20-012-124-1	Shaft	2
4	20-003-119-1	Handle	1
5	20-003-046-1	Washer	2
6	20-003-118-1	Bearing	1
7	01-005-023-7	Bearing	3
8	20-003-148-1	Arm	1
9	20-003-072-1	Block	1
10	20-003-147-1	Spacer	2
11	23-003-065-1	Spacer	1
12	01-135-006-7	Spring	2
13	01-133-018-7	Spring	1
14	20-012-100-1	Pulley	2
15	20-012-085-3	Plate	1



FIN WHEEL IDLER BAR ASSEMBLY

FIN WHEEL IDLER BAR ASSEMBLY

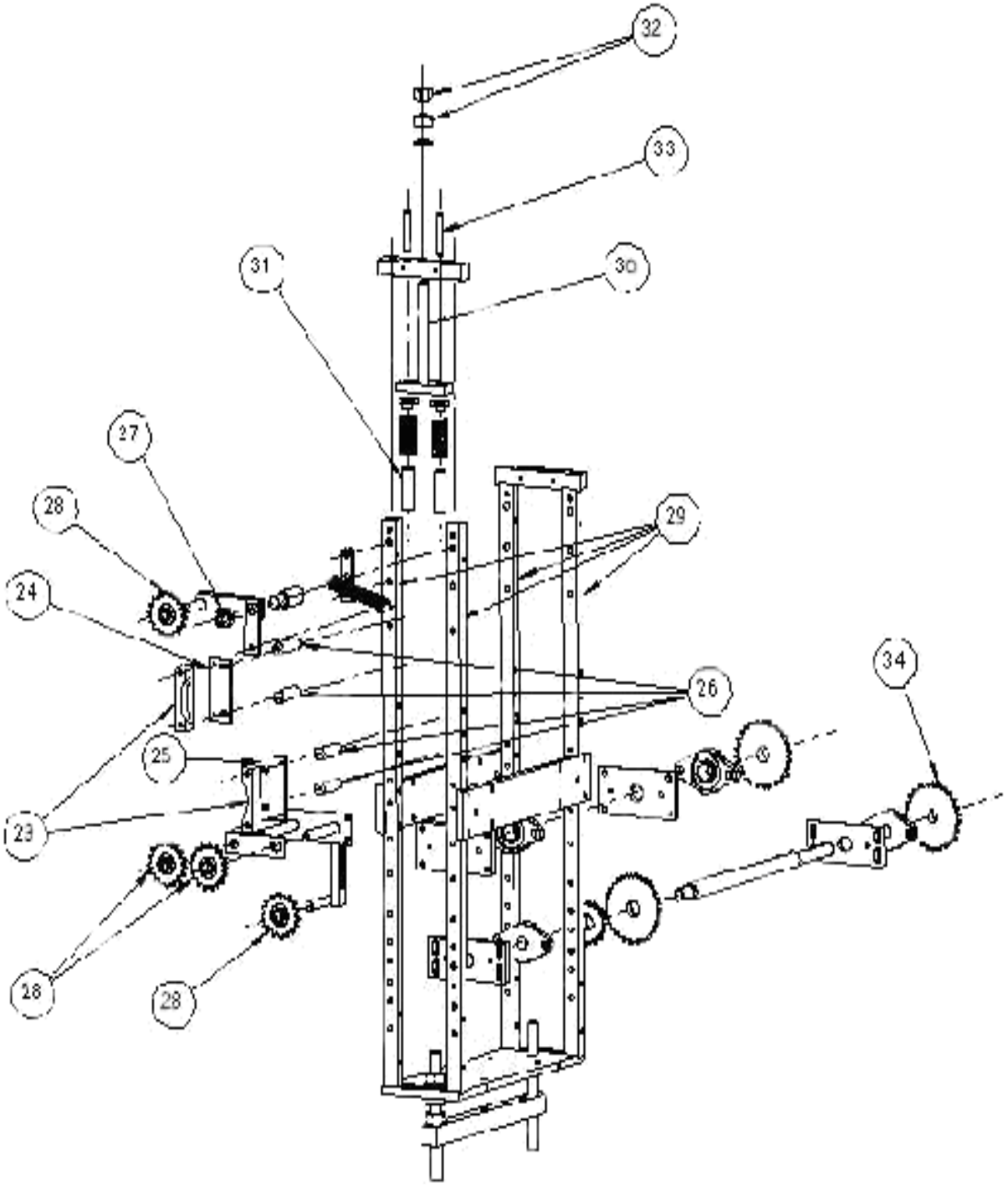
ITEM	PART NUMBER	DESCRIPTION	QTY
1	20-012-093-1	Bar	1
2	20-012-094-1	Plate	1
3	20-003-093-1	Arm	2
4	20-012-097-1	Spacer	1
5	20-003-109-1	Spacer	1
6	20-012-095-1	Pivot	1
7	20-012-098-1	Spacer	2
8	20-003-149-1	Post	1
9	20-003-097-1	Arm	1
10	01-133-021-7	Spring	2
11	01-112-002-7	Pulley	4
12	01-135-006-7	Spring	4



CRIMPER FRAME

CRIMPER FRAME

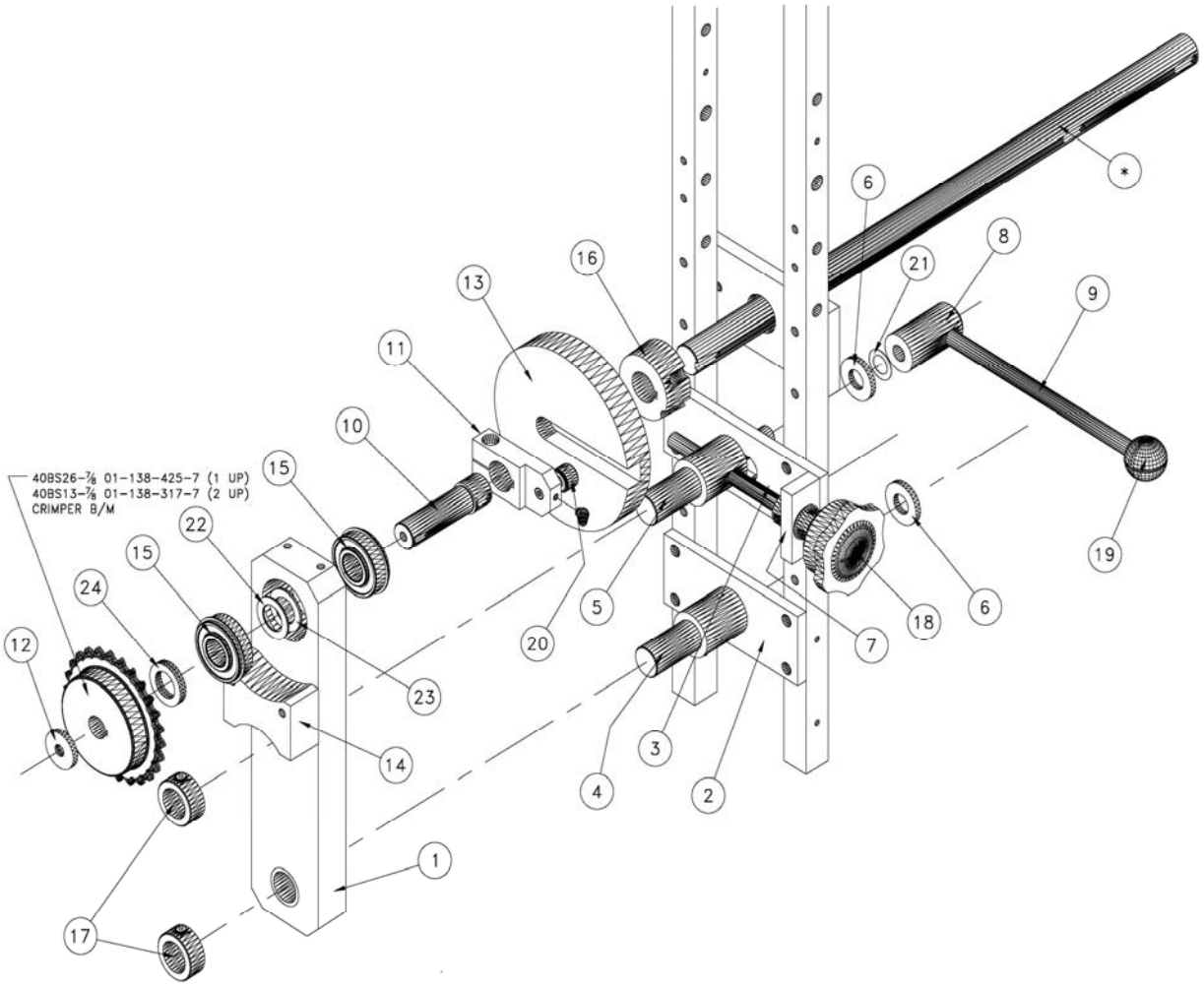
ITEM	PART NUMBER	DESCRIPTION	QTY
1	20-004-057-1	Plate	1
2	01-032-058-1	Bar	1
3	20-004-059-1	Stud	2
4	20-004-003-1	Plate	2
5	20-004-005-1	Bar	2
6	20-004-008-1	Plate	2
7	20-004-029-1	Shaft	1
8	20-004-049-1	Retainer	4
9	20-004-081-1	Bracket	1
10	01-138-427-7	Sprocket	1
11	01-137-373-7	Sprocket	1
12	01-138-336-7	Sprocket	1
13	01-005-005-7	Bearing	2
14	01-005-004-7	Bearing	2
15	01-133-017-7	Spring	1
16	01-132-025-7	Spring	4
17	20-004-030-1	Bracket	1
18	20-004-031-1	Plate	1
19	20-004-032-1	Lever	1
20	20-004-033-1	Lever	1
21	20-004-034-1	Bar	1
22	20-004-035-1	Anchor	2



CRIMPER FRAME

CRIMPER FRAME

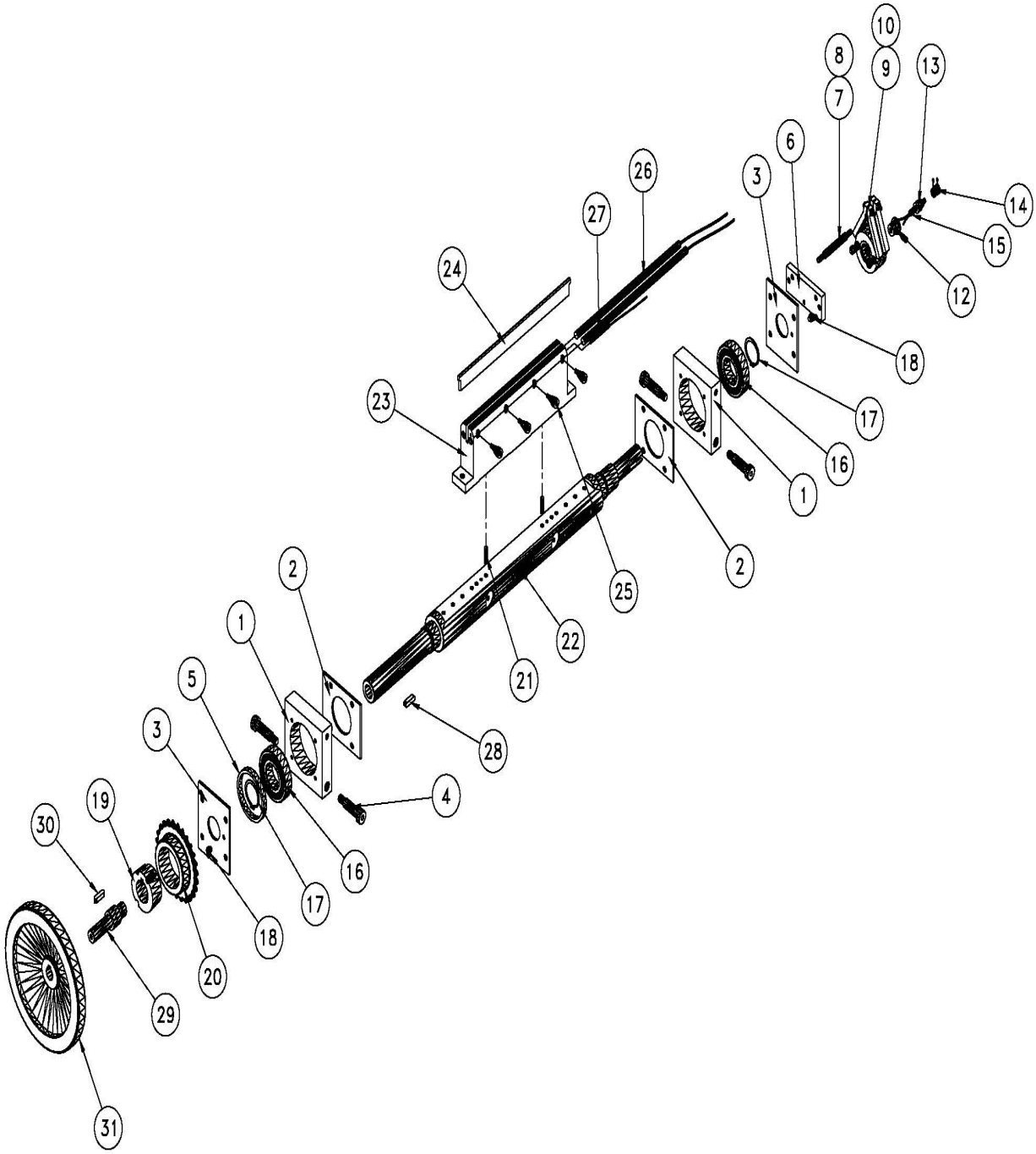
ITEM	PART NUMBER	DESCRIPTION	QTY
23	20-004-073-1	Guide – Chain	2
24	01-004-074-1	Plate	1
25	20-004-075-1	Plate	1
26	20-004-076-1	Stand Off	4
27	01-055-011-7	Collar	1
28	01-144-001-7	Sprocket	4
29	20-004-055-2	Bar	4
30	20-004-045-1	Bracket	2
31	20-004-054-1	Spacer	4
32	20-004-094-1	Nut	4
33	---	Screw	4
34	01-138-425-7	Sprocket	1



CRIMPER DRIVE

CRIMPER DRIVE

ITEM	PART NUMBER	DESCRIPTION	QTY
1	20-004-010-1	Assembly	1
2	20-004-006-1	Plate	1
3	20-004-007-1	Plate	1
4	20-004-193-1	Stud	1
5	20-004-194-1	Stud	1
6	20-004-195-1	Washer	2
7	20-004-196-1	Assembly	1
8	20-004-199-1	Hub	1
9	20-004-019-1	Handle	1
10	20-004-200-1	Stud	1
11	20-004-201-1	Lever	1
12	20-004-202-1	Washer	1
13	20-004-026-1	Disc	1
14	20-004-132-1	Guide	1
15	01-002-120-7	Bearing	2
16	01-032-001-7	Bushing	1
17	01-055-015-7	Collar	2
18	01-091-010-7	Handwheel	1
19	01-096-019-7	Knob	1
20	01-123-002-7	Cam	1
21	01-126-004-7	Spacer	8
22	01-126-006-7	Shim	1
23	01-126-007-7	Shim	1
24	01-126-008-7	Shim	2



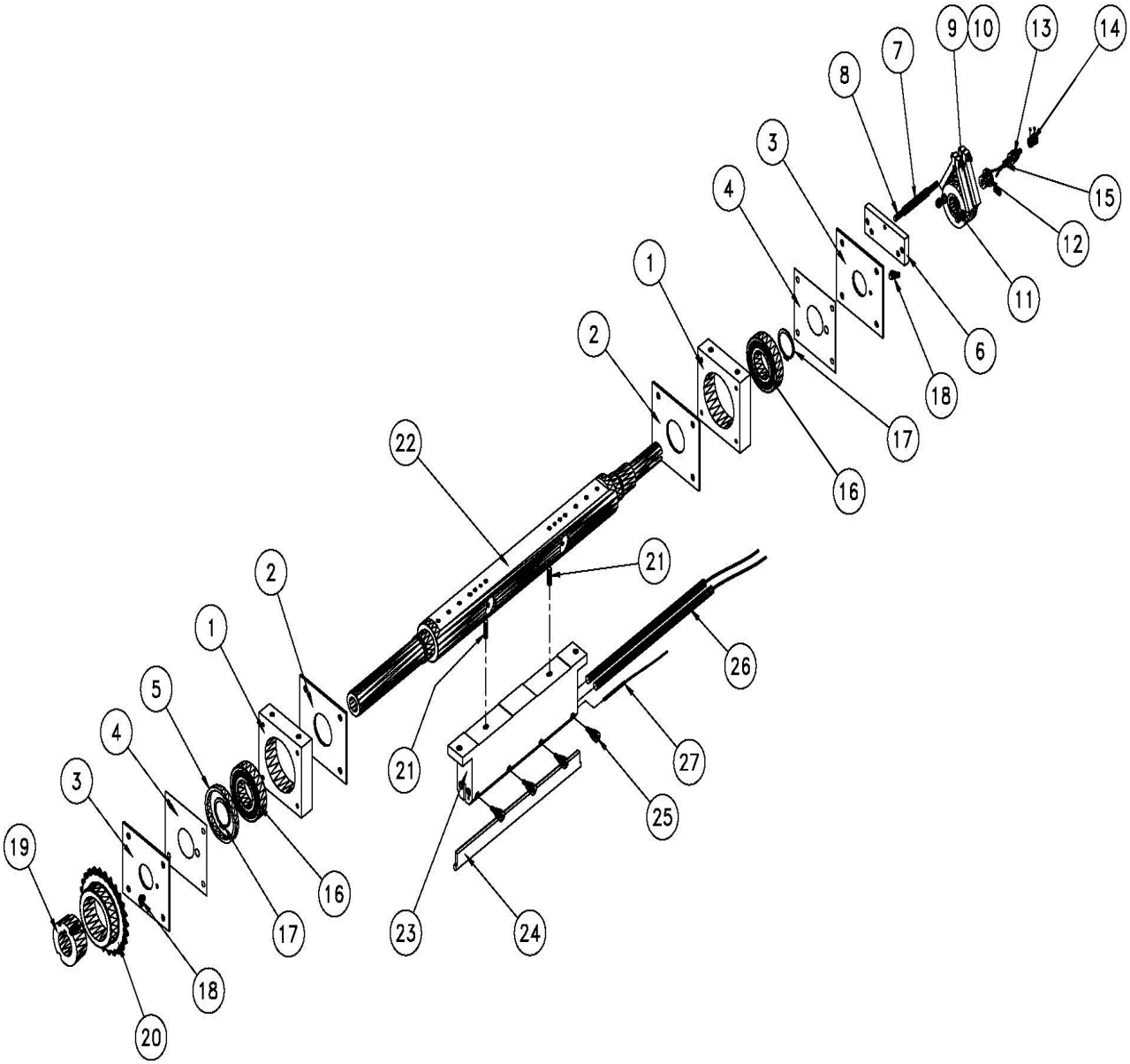
LOWER CRIMPER SHAFT

LOWER CRIMPER SHAFT

ITEM	PART NUMBER	DESCRIPTION	QTY
1	21-004-173-1	Block-Lower Bearing	2
2	21-004-174-1	Cap-Inside Lower	2
3	21-004-175-1	Cap-Outside Lower	2
4	20-004-101-1	Screw-Shoulder	4
5	20-004-045-1	Spacer-Bearing	1
6	20-004-050-1	Plate-Brush Support	1
7	20-004-051-1	Insulator	1
8	21-004-183-1	Rod-Insulator	1
9	20-003-028-1	Brush	4
10	20-003-013-1	Holder-Brush	2
11	20-003-014-1	Slip Ring	1
12	20-003-015-1	Holder-Mercotac	1
13	01-227-005-7	Mercotac	1
14	01-227-006-7	Connector-External	1
15	01-227-007-7	Connector-Internal	1
16	01-002-119-7	Bearing-Ball	2
17	01-121-047-7	Ring-Retaining	2
18	01-077-005-7	Fitting-Grease	2
19	01-032-048-7	Bushing-Taper Lock	1
20	01-138-812-7	Sprocket	1
21	01-433-541-7	Pin-Dowel	2
22	20-004-XXX-4	Shaft-Lower Crimper	1
23	20-615-XXX-7	Crimper-Lower	1/2
24	20-617-XXX-7	Anvil	1/2
25	20-004-068-1	Screw-Adjusting	7/14

LOWER CRIMPER SHAFT

ITEM	PART NUMBER	DESCRIPTION	QTY
26	01-148-XXX-1	Heater	2/4
27	01-312-013-1	Thermocouple	1
28		Key-1/4”	1
29	20-301-003-1	Shaft-Extension	1
30		Key-M6	1
31	01-091-008-7	Handwheel	1



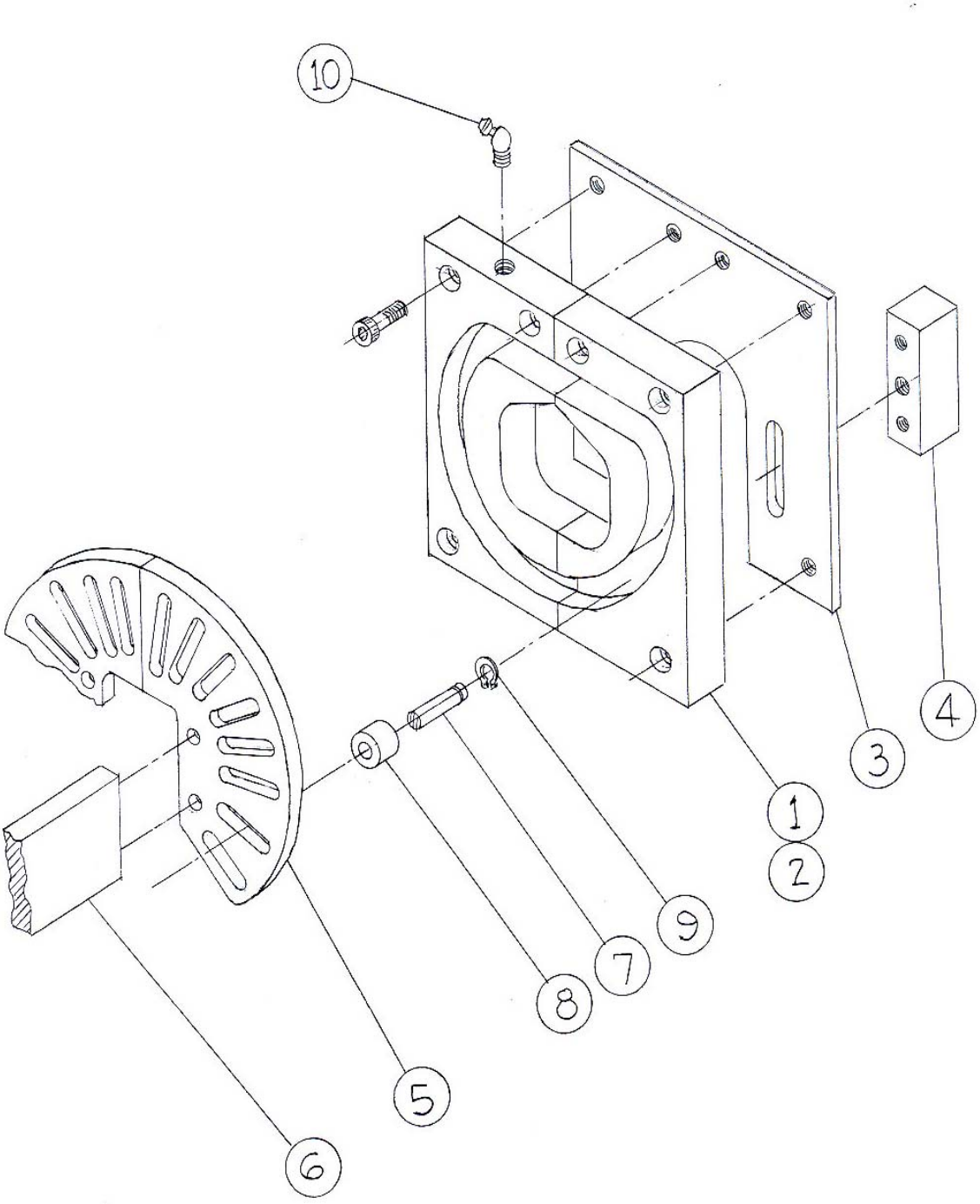
UPPER CRIMPER SHAFT

UPPER CRIMPER SHAFT

ITEM	PART NUMBER	DESCRIPTION	QTY
1	21-004-176-1	Block-Upper Bearing	2
2	20-004-180-1	Cap-Inside	2
3	21-004-178-1	Cap-Outside	2
4	20-004-044-1	Shim	2
5	20-004-045-1	Spacer	1
6	20-004-050-1	Plate-Brush Support	1
7	20-004-051-1	Insulator	1
8	21-004-183-1	Rod-Insulator	1
9	20-003-028-1	Brush	4
10	20-003-013-1	Holder-Brush	2
11	20-003-014-1	Slip Ring	1
12	20-003-015-1	Holder-Mercotac	1
13	01-227-005-7	Mercotac	1
14	01-227-006-7	Connector-External	1
15	01-227-007-7	Connector-Internal	1
16	01-002-119-7	Bearing-Ball	2
17	01-121-047-7	Ring-Retaining	2
18	01-077-005-7	Fitting-Grease	2
19	01-032-048-7	Bushing-Taper Lock	1
20	01-138-812-7	Sprocket	1
21	01-433-541-7	Pin-Dowel	2/4
22	20-004-XXX-4	Shaft-Upper Crimper	1
23	20-614-XXX-7	Crimper-Upper	1/2
24	20-616-XXX-7	Knife	1/2
25	20-004-068-1	Screw-Adjusting	7/14

UPPER CRIMPER SHAFT

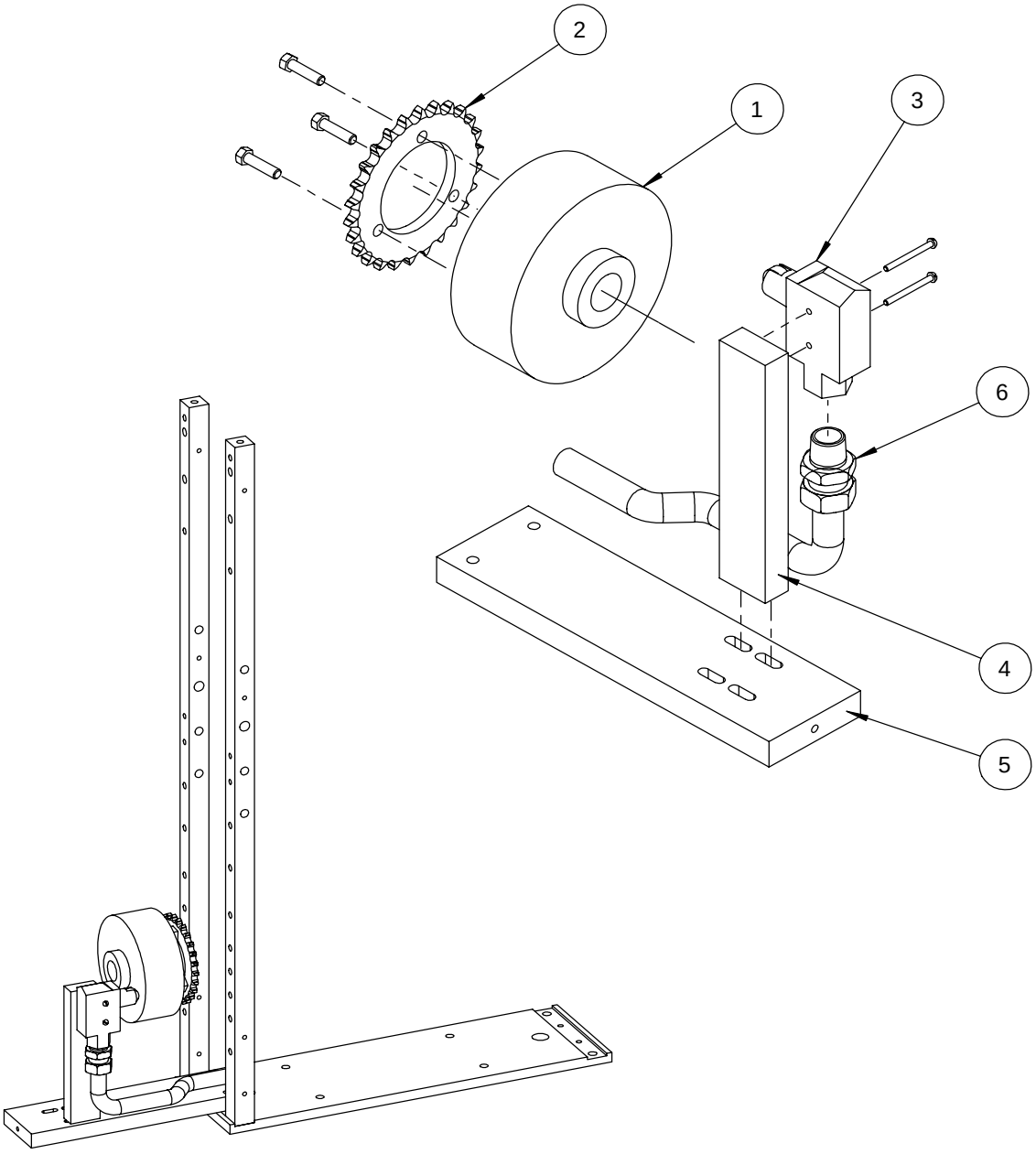
ITEM	PART NUMBER	DESCRIPTION	QTY
26	01-248-XXX-1	Heater	2/4
27	01-312-013-1	Thermocouple	1



BRIDGING CONVEYOR

BRIDGING CONVEYOR

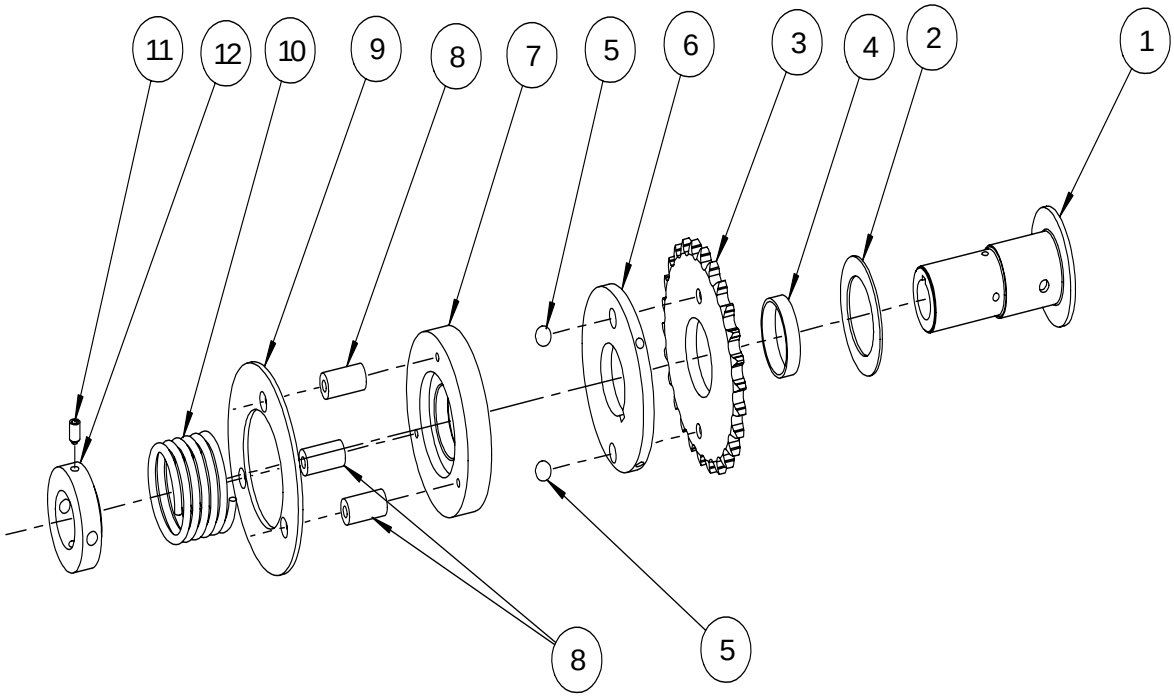
ITEM	PART NUMBER	DESCRIPTION	QTY
1	23-303-009-2	Cam	2
2	23-303-010-2	Cam	2
3	23-303-011-1	Plate	2
4	23-303-012-1	Spacer	4
5	23-303-0XX-1	Cage	4
6	23-303-015-1	Plate	2
7	23-303-016-1	Rod	16
8	23-303-007-1	Roller	32
9	01-121-033-7	Ring	32
10	01-077-006-7	Fitting	2



CRIMPER OVERLOAD CLUTCH

CRIMPER OVERLOAD CLUTCH

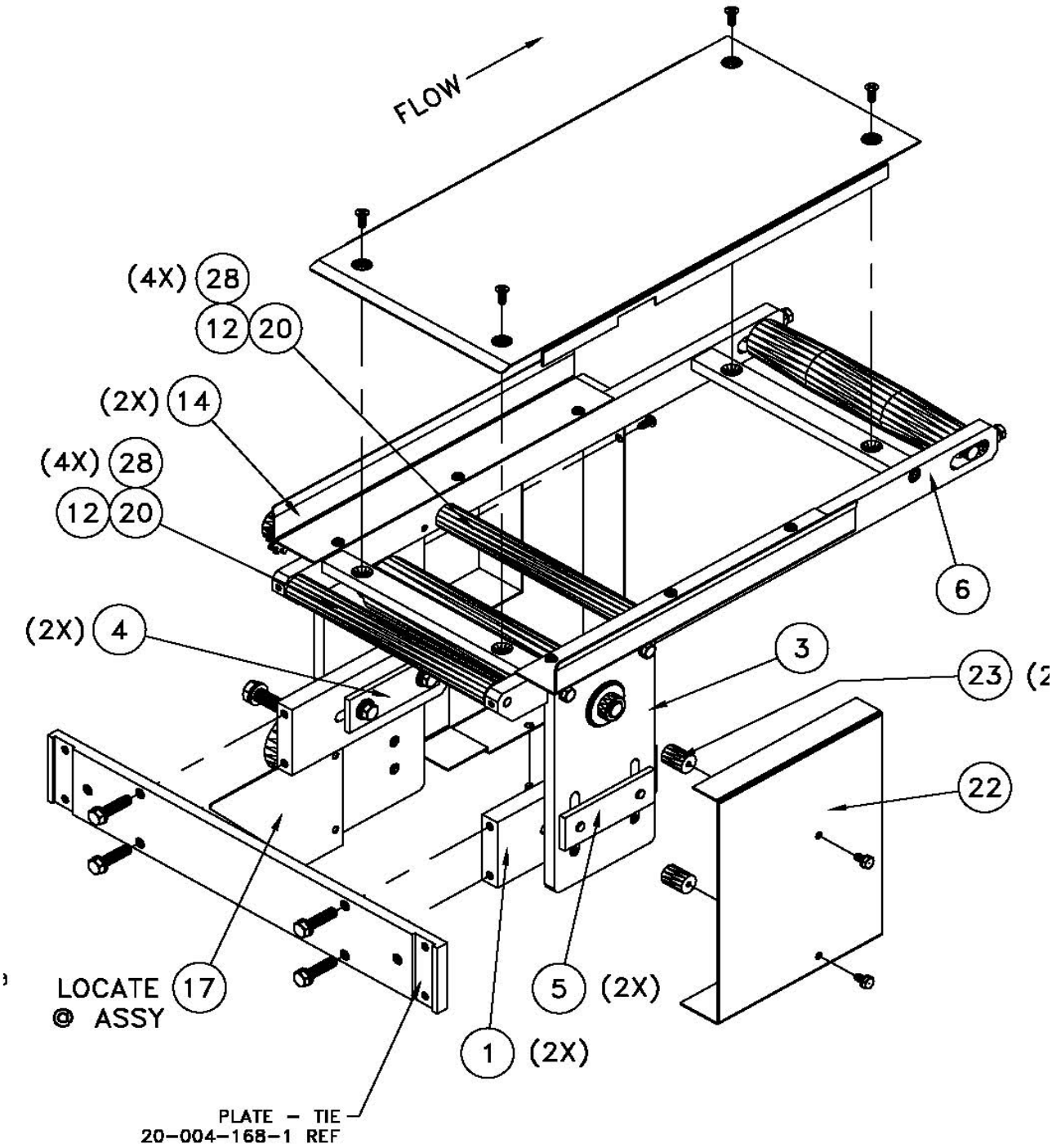
ITEM	PART NUMBER	DESCRIPTION	QTY
1	01-050-009-7	Clutch	1
2	01-138-947-7	Sprocket	1
3	01-302-009-7	Switch	1
4	20-301-002-1	Bar	1
5	20-011-032-1	Plate	1
6	20-016-000-10	Cable	1



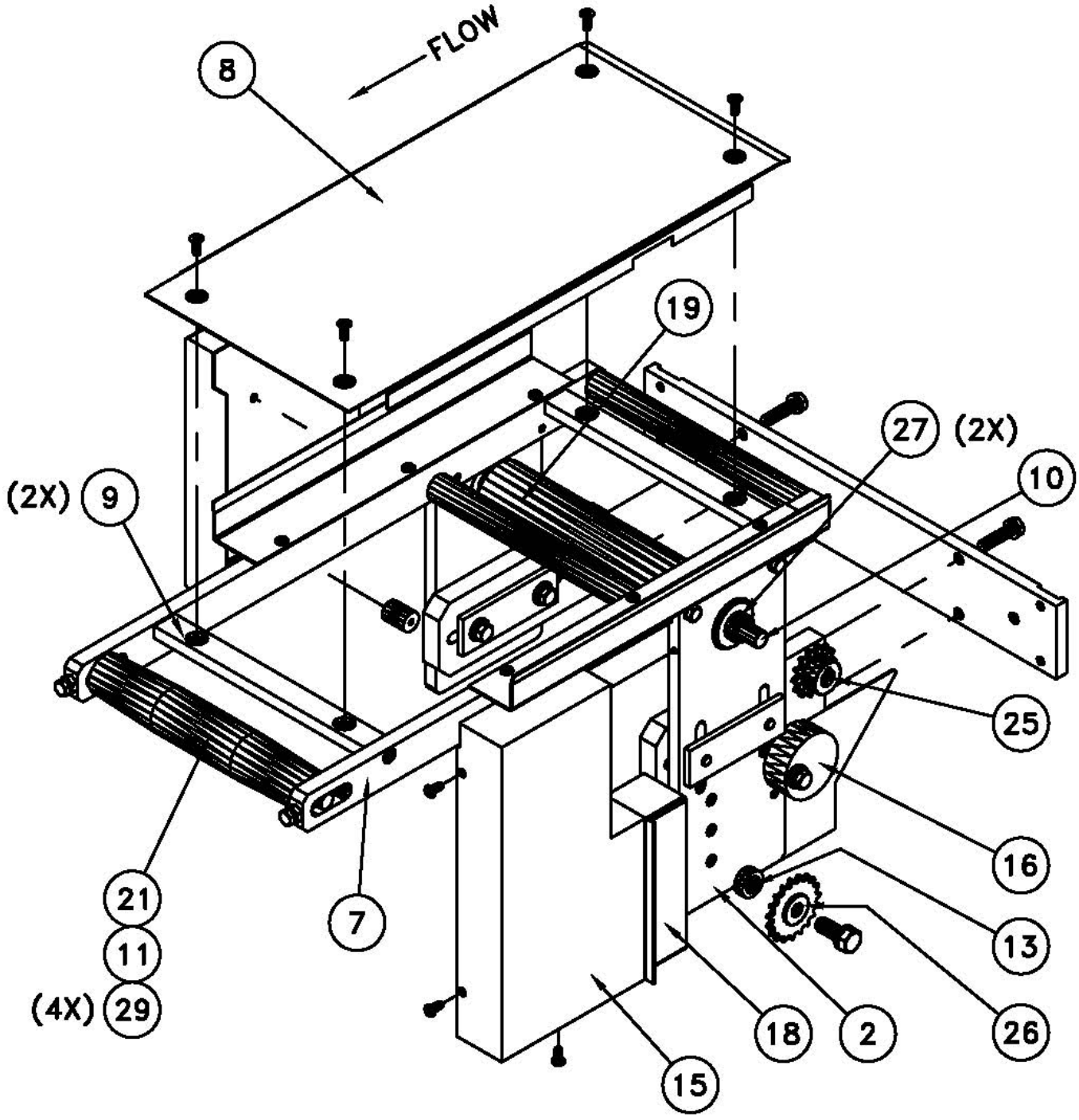
CRIMPER OVERLOAD CLUTCH

CRIMPER OVERLOAD CLUTCH

ITEM	PART NUMBER	DESCRIPTION	QTY
1	20-301-013-1	Hub	1
2	20-301-007-1	Bearing	1
3	20-301-005-1	Sprocket	1
4	20-301-015-1	Bushing	1
5	01-001-002-7	Ball	2
6	20-301-014-1	Cage	1
7	20-301-008-1	Flange	1
8	20-301-010-1	Spacer	3
9	20-301-011-1	Cam	1
10	01-132-051-7	Spring	1
11	20-301-012-1	Screw	1
12	20-301-009-1	Nut	1



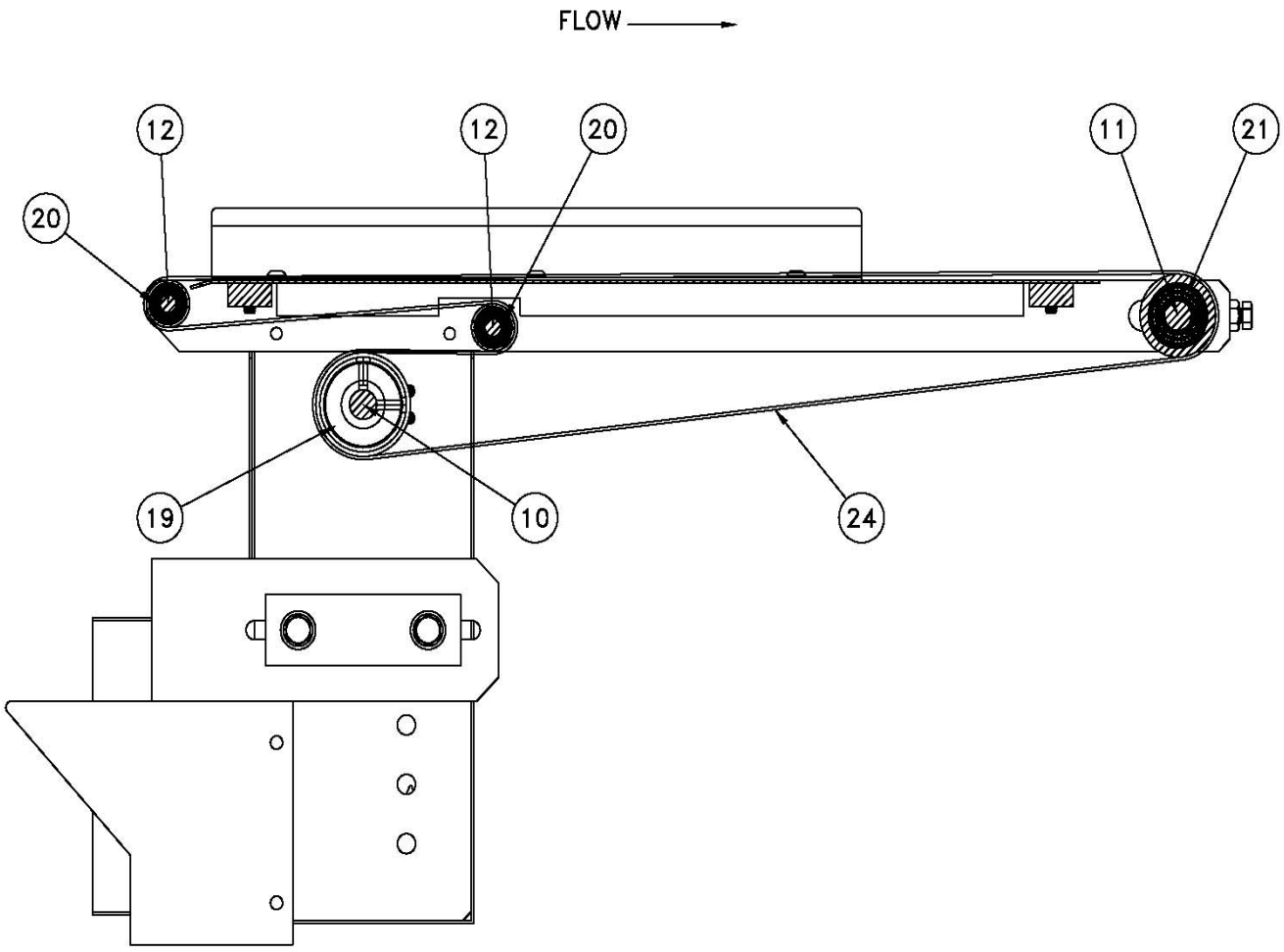
DISCHARGE CONVEYOR-FRONT VIEW



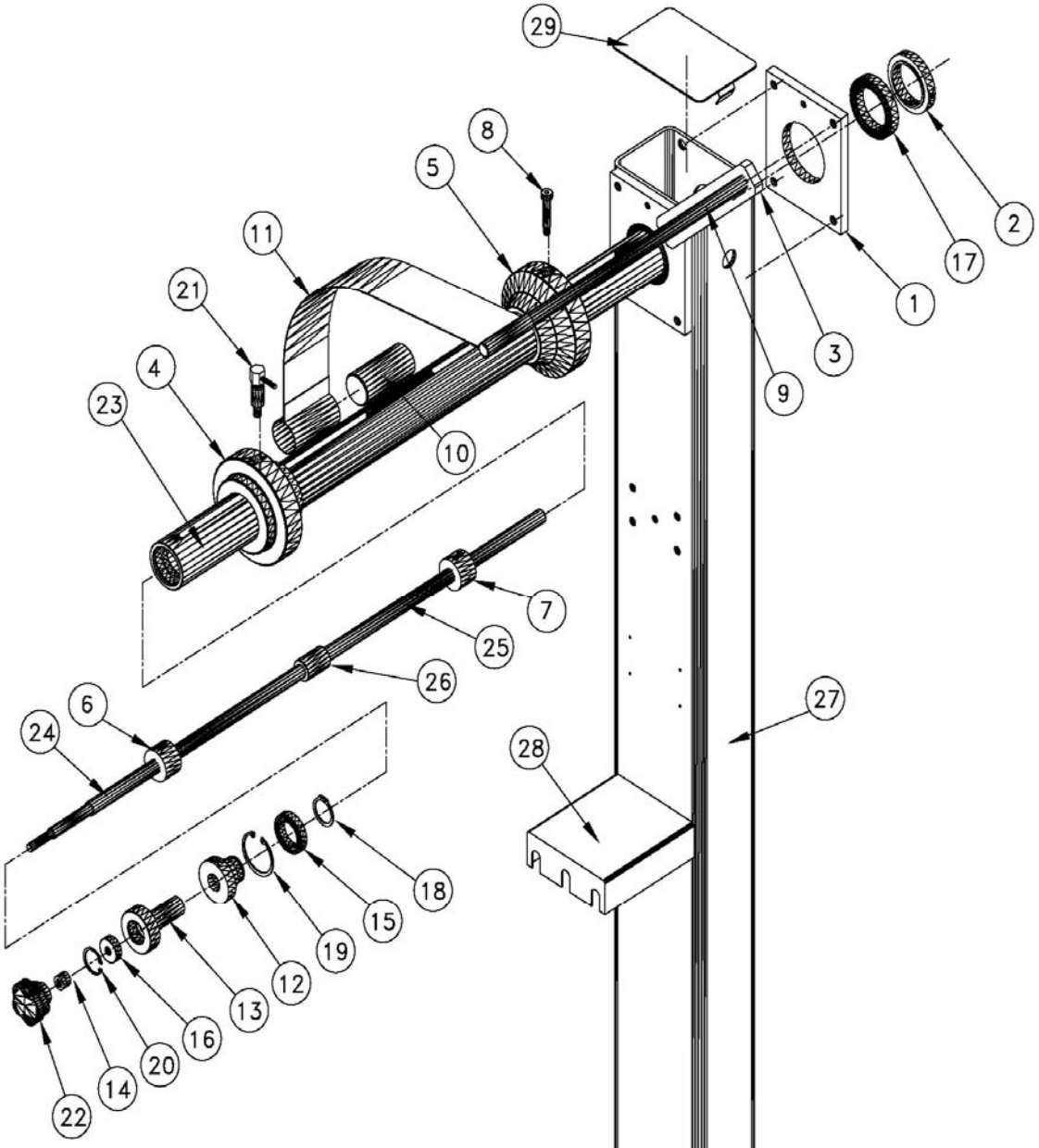
DISCHARGE CONVEYOR-REAR VIEW

DISCHARGE CONVEYOR

ITEM	PART NUMBER	DESCRIPTION	QTY
1	20-300-001-1	Bar-Support	2
2	20-300-002-1	Plate-Drive Support	1
3	20-300-003-1	Plate-Support	1
4	20-300-004-1	Plate-Inside Clamp	2
5	20-300-005-1	Plate-Outside Clamp	2
6	20-300-006-1	Plate-Side-RH	1
7	20-300-007-1	Plate-Side-LH	1
8	20-300-008-1	Pan	1
9	20-300-009-1	Bar-Conveyor Cross	2
10	20-300-271-1	Shaft-Drive	1
11	20-300-272-1	Shaft-Takeup Roll	1
12	20-300-273-1	Shaft-Roll	2
13	20-300-015-1	Spacer	1
14	20-300-016-1	Support-Guard	2
15	20-300-017-1	Guard	1
16	20-002-037-1	Disc-Takeup	1
17	20-300-021-1	Guard	1
18	20-300-022-1	Guard	1
19	20-300-105-1	Pulley-Drive (Assembly)	1
20	20-300-274-1	Roller-Conveyor Idler (Assembly)	1
21	20-300-182-1	Roller-Conveyor Takeup	1
22	20-300-099-1	Cover-Bracket	1
23	20-606-009-1	Spacer	2
24	01-014-074-1	Belt-Conveyor	1
25	01-137-316-7	Sprocket	1
26	01-144-002-7	Sprocket-Idler	1
27	01-002-085-7	Bearing-Ball	2
28	01-498-011-7	Washer-Nylon	8
29	01-498-012-7	Washer-Nylon	4



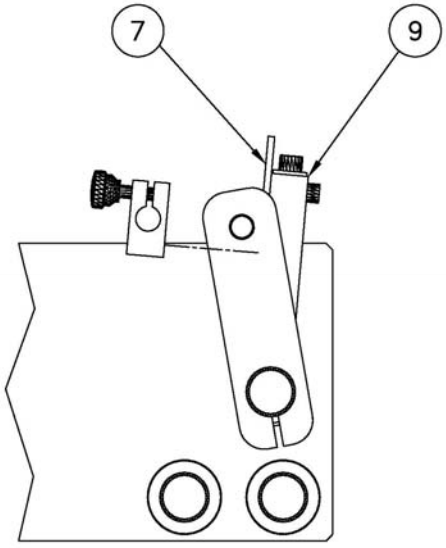
CROSS SECTION FOR BELT PATH

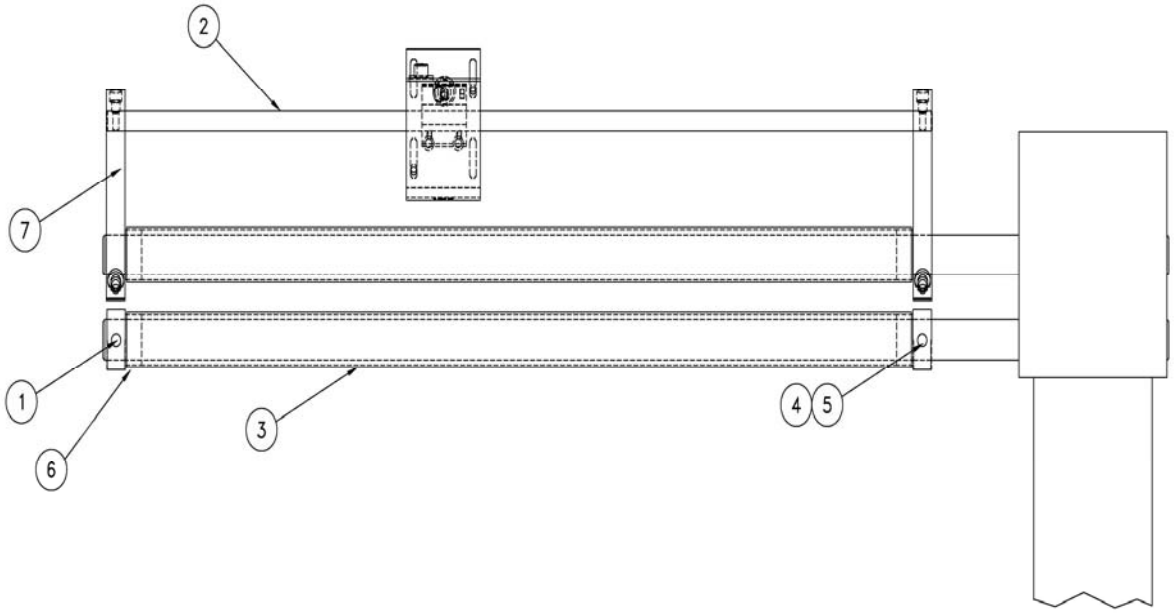


PARENT ROLL BACKSTAND

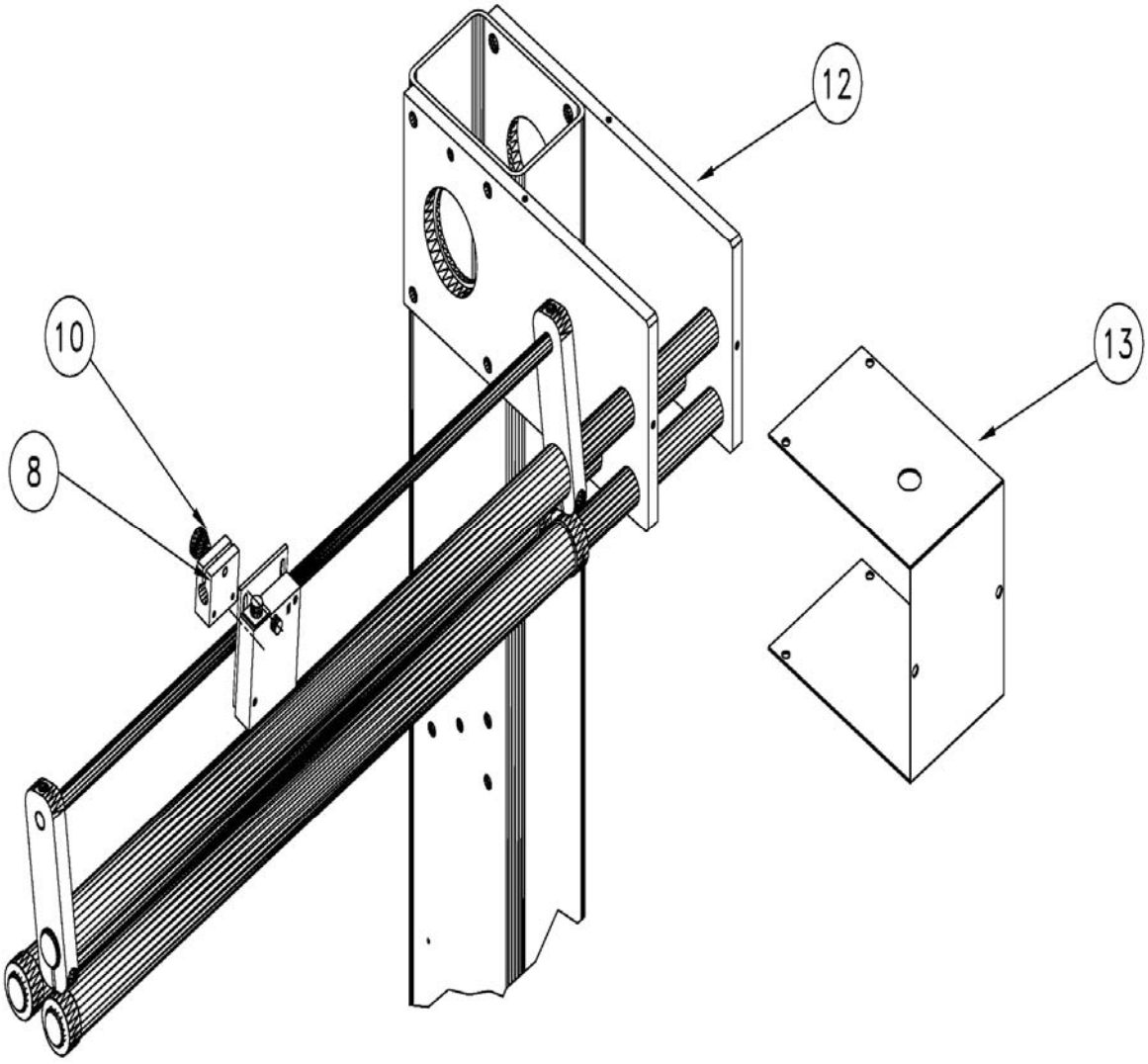
PARENT ROLL AND BACKSTAND

ITEM	PART NUMBER	DESCRIPTION	QTY
1	20-014-094-1	Flange	2
2	20-014-095-1	Collar	1
3	20-014-091-1	Arm	1
4	20-014-011-1	Chuck	1
5	20-014-012-1	Chuck	1
6	20-014-016-1	Nut	1
7	20-014-017-1	Nut	1
8	20-014-018-1	Screw	1
9	20-005-035-1	Rod	1
10	20-005-036-1	Weight	1
11	20-005-032-1	Strap	1
12	21-005-019-1	Knob	1
13	21-005-020-1	Knob	1
14	21-005-075-1	Spacer	1
15	21-002-128-7	Bearing	1
16	01-002-145-7	Bearing	1
17	01-002-156-7	Bearing	2
18	01-121-027-7	Ring	1
19	01-121-050-7	Ring	1
20	01-121-052-7	Ring	1
21	01-108-006-7	Plunger	1
22	01-096-007-7	Knob	1
23	20-014-097-2	Roll	1
24	21-005-022-1	Screw	1
25	21-005-023-1	Screw	1
26	01-064-005-7	Coupling	1
27	20-014-147-2	Column	1
28	20-014-086-1	Bracket	1
29	20-014-088-1	Cover	1





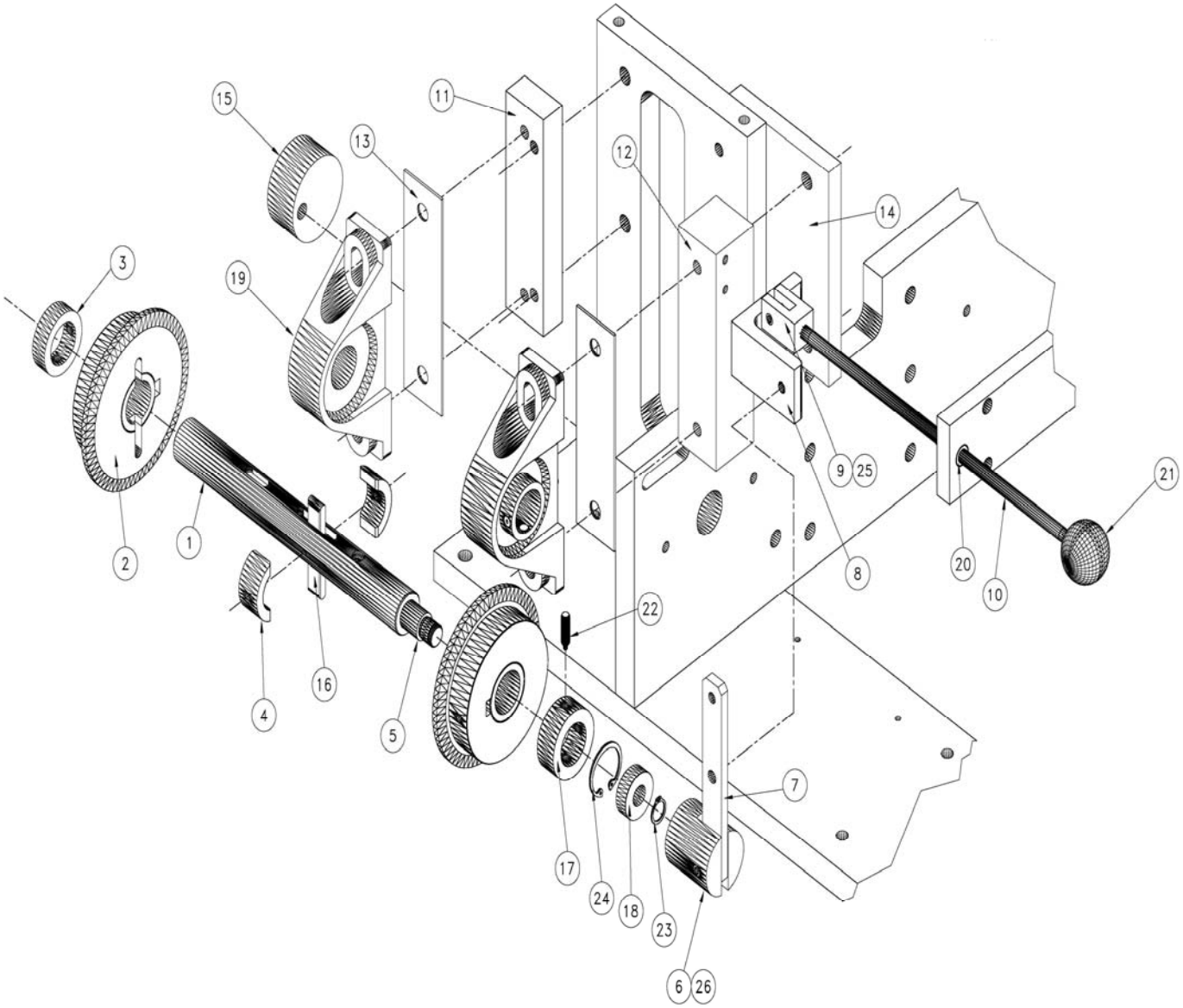
FILM REGISTRATION ASSEMBLY



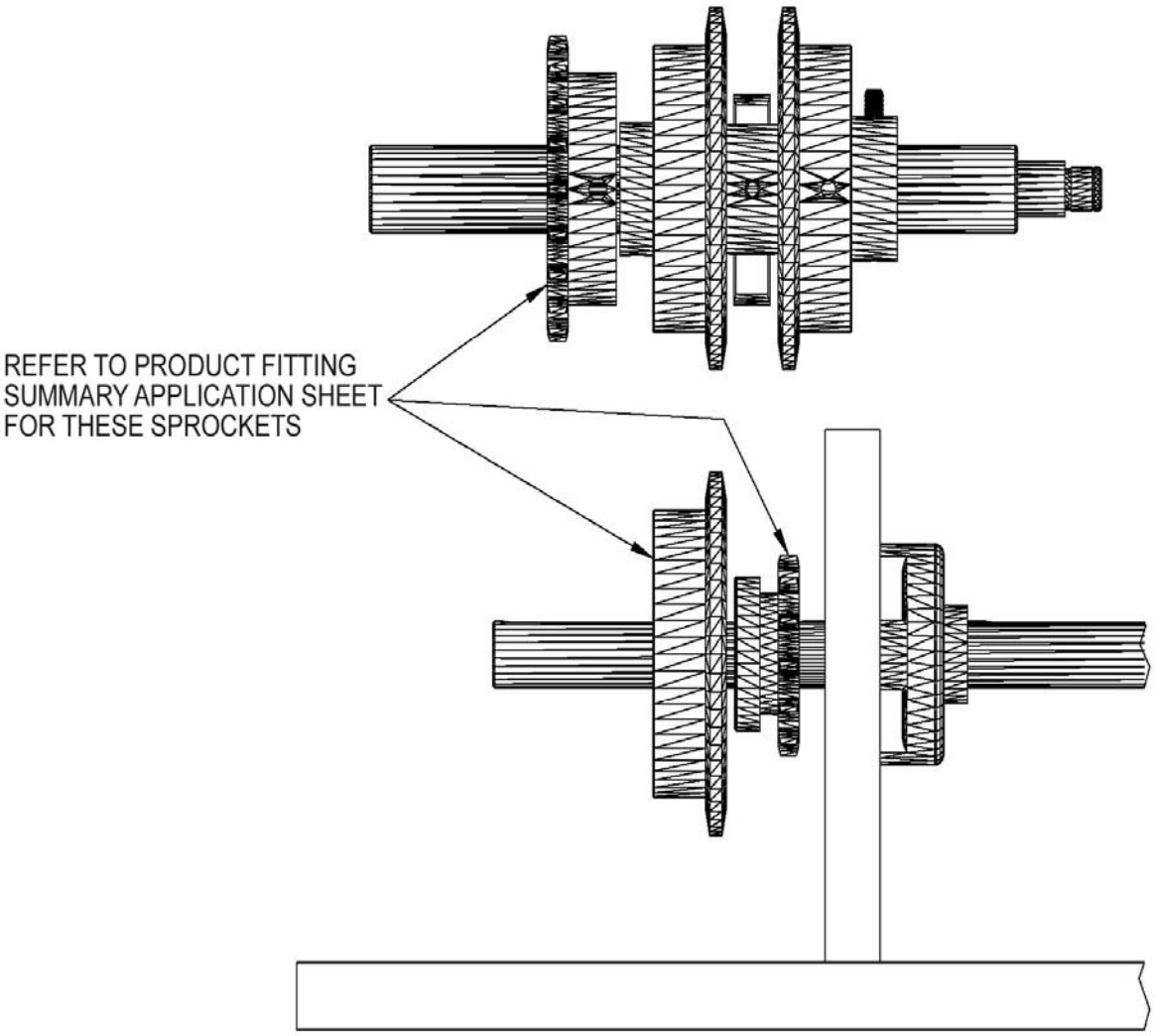
FILM REGISTRATION ASSEMBLY

FILM REGISTRATION ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	20-302-061-1	Shaft – Roll Support	3
2	21-300-034-1	Shaft – Eye Support	1
3	21-005-039-1	Roller	3
4	01-008-019-7	Bearing	6
5	01-498-025-7	Washer	6
6	21-005-040-1	Collar	4
7	21-300-031-1	Arm	2
8	21-300-033-1	Plate	1
9	01-267-040-7	Photo Eye	1
10	01-096-021-7	Knob	1
11	01-267-047-7	Cable-PE (Not Shown)	1
12	20-302-041-1	Plate	2
13	20-302-042-1	Cover	1



SINGLE POSITION MULTI-PITCH CLUTCH ASSEMBLY



SINGLE POSITION MULTI-PITCH CLUTCH ASSEMBLY

SINGLE POSITION MULTI-PITCH CLUTCH ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	20-304-019-1	Shaft	1
2	20-304-051-1	Clutch	2
3	20-304-022-1	Spacer	1
4	20-304-205-1	Segment	2
5	20-304-206-1	Rod	1
6	20-304-025-1	Clevis – Driver Rod	1
7	20-304-026-1	Lever	1
8	20-304-027-1	Bracket	1
9	20-304-028-1	Clevis – Shifting Rod	1
10	20-304-029-1	Rod – Shifting	1
11	20-304-030-1	Spacer	1
12	20-304-031-1	Spacer	1
13	20-304-032-1	Shim	2
14	20-304-033-1	Plate	1
15	20-304-065-1	Disc	1
16	20-304-215-1	Plate	1
17	20-304-202-1	Collar	1
18	01-002-115-7	Bearing	1
19	01-006-004-7	Bearing	2
20	01-024-069-7	Bushing	1
21	01-096-023-7	Knob	1
22	01-108-001-7	Plunger	1
23	01-121-003-7	Ring	1
24	01-121-052-7	Ring	1
25	01-434-130-7	Pin	1
26	01-434-138-7	Pin	1

NOTES

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