

BARTELT®

**INTERMITTENT MOTION
PACKAGER**

SERVICE MANUAL

BARTELT



TABLE OF CONTENTS

	Page
CHAPTER 1. INTRODUCTION AND DESCRIPTION	1-1
Section I. Introduction	1-1
Section II. Functional Description	1-3
CHAPTER 2. INSTALLATION	2-1
CHAPTER 3. SETUP, ADJUSTMENTS, AND CHECKOUT	3-1
Section I. Base Assembly	3-1
Section II. Variable Drive and Cycle Shaft	3-2
Section III. Web Tensioning Assembly	3-4
Section IV. Web Forming Assembly	3-9
Section V. Bottom Seal	3-13
Section VI. Side Seal Assembly	3-16
Section VII. Photo Registration	3-21
Section VIII. Feed Roll and Cutoff Mechanism	3-26
Section IX. Feed Roll Drive Assembly	3-32
Section X. Pouch Handling Mechanisms	3-35
Section XI. Pouch Openers	3-42
Section XII. Model B Product Filler	3-51
Section XIII. Paddle and Top Seal	3-63
Section XIV. Pouch Pickoff	3-65
Section XV. Conveyor Drive and Chain Assembly	3-69
Section XVI. Electrical System	3-73
Section XVII. Sequence Switch Assembly	3-78
Section XVIII. Packager Checkout	3-82
CHAPTER 4. OPERATING INSTRUCTIONS	4-1
CHAPTER 5. PERIODIC INSPECTION, MAINTENANCE, AND LUBRICATION	5-1
Section I. Inspection and Cleaning	5-1
Section II. Maintenance Procedures	5-2
Section III. Lubrication	5-4
CHAPTER 6. REPAIR INSTRUCTIONS	6-1
Section I. Repair of Variable Speed Drive	6-1
Section II. Repair of Web Tensioning Assembly	6-2
Section III. Repair of Web Forming Assembly	6-3
Section IV. Repair of Bottom Seal Rocker Assembly	6-4
Section V. Repair of Side Seal Rocker Assembly	6-5
Section VI. Repair of Feed Roll and Cutoff	6-6
Section VII. Repair of Pouch Clamps	6-11
Section VIII. Repair of Model B Product Filler	6-11
Section IX. Repair of Pouch Pickoff	6-15
Section X. Repair of Conveyor Drive and Chain Assembly	6-17
Section XI. Repair of Sequence Switch Assembly	6-21
INDEX	I-1
ACCESSORIES	

CHAPTER 1

INTRODUCTION AND DESCRIPTION

Section I. Introduction

1-1. GENERAL.

This manual is published as a service guide to provide the user with information for installing, adjusting, operating, and maintaining Bartelt Intermittent Motion Packagers. The manual is divided into chapters for quick reference to instructions on the basic Packager. Complete instructions for optional equipment supplied with the machine will be found at the back of the manual. Illustrations used throughout the manual represent a typical intermittent packager and not a specific unit.

1-2. PURPOSE.

The Bartelt Intermittent Packager (Figure 1-1) is designed to form, fill, and seal a pouch from laminated web material. The machine can handle products in the food, pharmaceutical, chemical, tobacco, and hardware fields. Its range covers almost any product of liquid, granular, powder, or paste form. Using intermittent motion and a horizontal work flow, this machine is easily adapted to and can be changed over, with change parts and adjustment, to produce several pouch styles.

1-3. CAPABILITIES.

The Intermittent Packager can handle most supported thermo-sealing web materials, registered and non-registered, in roll sizes of 18 inches maximum outside diameter (24 inch outside diameter roll may be run with special equipment) and widths ranging from 4 inches minimum to 21 inches maximum. The machine can take this web material and form fin or gusset type pouches in sizes ranging from 2 inches wide by 2 inches high minimum (with special parts) to 7-3/4 inches by 9-1/2 inches maximum and a maximum gusset of 2 inches wide. Pouches can be produced as fast as 200 per minute by running them tandem and slitting apart depending upon product, web, and machine size (see specification table). The machine is capable of a multitude of operations when equipped with some of the following optional components.

- a. Powered web feed attachment.
- b. Code dater.
- c. Special seal bars.
- d. Preheat seal bars.
- e. Cooling bars.
- f. Vertical and horizontal perforating attachments.
- g. Notcher and hole punch.
- h. Multiple compartment pouch fabricating.
- i. Tear string applicator.
- j. Saddle label applicator.
- k. Gas packing provisions.
- l. Pouch vacuumizing equipment.
- m. Special filling equipment.
- n. Product settling devices.
- o. Pouch stretcher and creaser.
- p. Top seal cleaner.
- q. Pouch counters.
- r. Pouch stacker.
- s. Pouch slitter.
- t. Pouch folder.
- u. Dust collecting manifold.
- v. Special equipment for washdown.

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

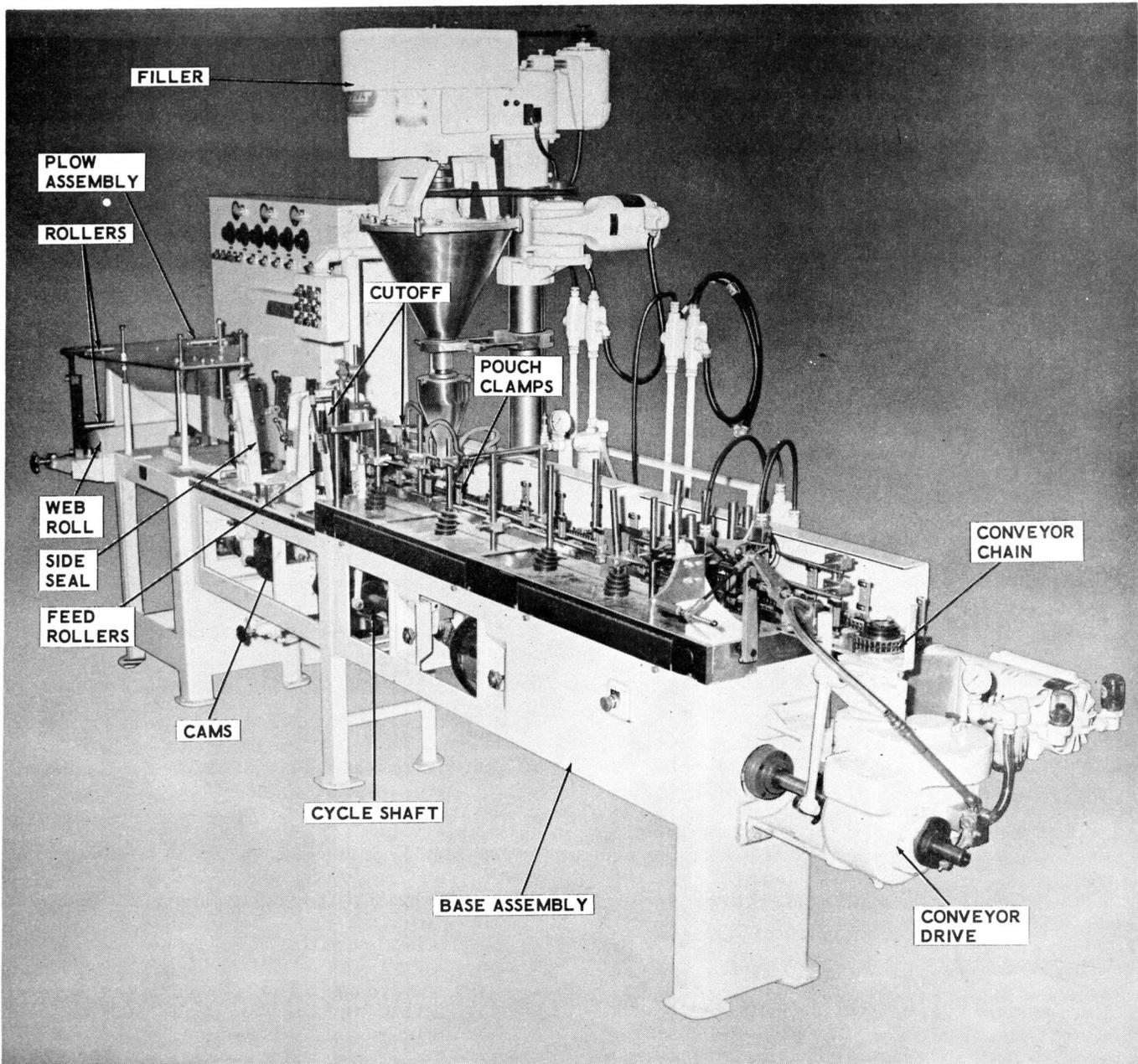


Figure 1-1. Packager Components

1-4. SPECIFICATIONS.

The following table summarizes the leading specifications of the Bartelt Intermittent Packagers.

SPECIFICATION TABLE

ITEM	MODEL IM6	MODEL IM7	MODEL IM9
Maximum cycle rate per minute	120	100	60
Minimum pouch size	2 in. x 2 in.	2 in. x 2 in.	3 in. x 3 in.
Maximum pouch size	4-3/4 in. x 9-1/2 in.	5-3/4 in. x 9-1/2 in.	7-3/4 in. x 9-1/2 in.
Maximum gusset thickness	2 in.	2 in.	2 in.
Operating voltages	220/440 v, 60 cps, 3 phase	220/440 v, 60 cps, 3 phase	220/440 v, 60 cps, 3 phase
Control	110 v, 60 cps, 1 phase	110 v, 60 cps, 1 phase	110 v, 60 cps, 1 phase
Drive Motor	Total enclosed variable speed, 3/4 to 1-1/2 hp	Total enclosed variable speed, 3/4 to 1-1/2 hp	Total enclosed variable speed, 3/4 to 1-1/2 hp
Compressed air	60 psi at 3 cfm (most models)	60 psi at 2 cfm (most models)	60 psi at 2 cfm (most models)
Vacuum motor	1/2 hp or 3/4 hp	1/2 hp or 3/4 hp	1/2 hp or 3/4 hp
Weight (crated) (lbs)	3000 (approx)	3250 (approx)	3600 (approx)
Web Roll Accommodation:			
Core diameter	3 in.	3 in.	3 in.
Standard diameter roll	18 in.	18 in.	18 in.
Minimum width roll	4 in.	4 in.	6 in.
Maximum width roll	21 in.	21 in.	21 in.

Section II. Functional Description

1-5. The Intermittent Packager is designed for a horizontal work flow; right hand machines from left to right and left hand machines from right to left.

NOTE

A right hand machine is described in this manual however, the operating principles and mechanisms are the same for either machine.

All functions of the machine are operated or timed from the cycle shaft which makes one complete revolution for each pouch produced. During part of this revolution or cycle, the web and formed pouches are moved forward one station then stopped for perform-

ing individual operations such as sealing and filling the pouch. The name Intermittent Packager is derived from this moving and stopping sequence.

1-6. This machine produces a pouch of laminated stable web consisting of at least a two layer laminate. A material such as aluminum foil or craft paper, which is not affected by the heat of sealing bars is used as the outer laminate. The inner layer, or sealing material, is made of a material which will melt and then bond to itself when cooled below the melting point. The fusing of these materials is dependent on three variables: (1) heat, (2) pressure, and (3) dwell time. Dwell time is the total time that heat and pressure are applied to the web.

BARTELT IM PACKAGER

OPERATION MANUAL 4-68

1-7. At the left or plow end of the machine, the web is unrolled and tensioned over a series of three rollers one of which is movable and spring loaded. The web then passes over the plow assembly where it is changed from a flat sheet on a roll into a folded vertical standing sheet (Figure 1-2) ready to be sealed into individual pouches. The pouches are formed by a side seal assembly using heat and pressure for about 50 percent of the cycle time. The web is pulled through the forming section of the machine by feed rollers. Located to the right of these feed rollers is a cutoff mechanism which cuts the web into individual pouches. The pouches are now inserted into clamps mounted on a conveyor chain. This chain moves the pouch through a series of operating stations. The conveyor chain stops at each station where the pouch is opened, filled, and sealed as it progresses down the horizontal work path.

1-8. The Intermittent Packager consists of a base assembly (Figure 1-1) which contains a variable speed drive unit, cycle shaft, cam mechanisms and conveyor drive. The mechanisms for forming, filling, and sealing the pouches are mounted on top of the base assembly. These mechanisms include web handling, pouch forming, pouch cutoff and clamping, pouch opening devices, pouch filling devices, top sealing mechanisms, and pouch pickoff mechanisms. Each of these mechanisms and assemblies are described in detail in the following sections. For purpose of discussion, the left end of the machine is the web roll end as seen facing the front or operator side of the unit. The conveyor drive mechanism is at the right end of the machine.

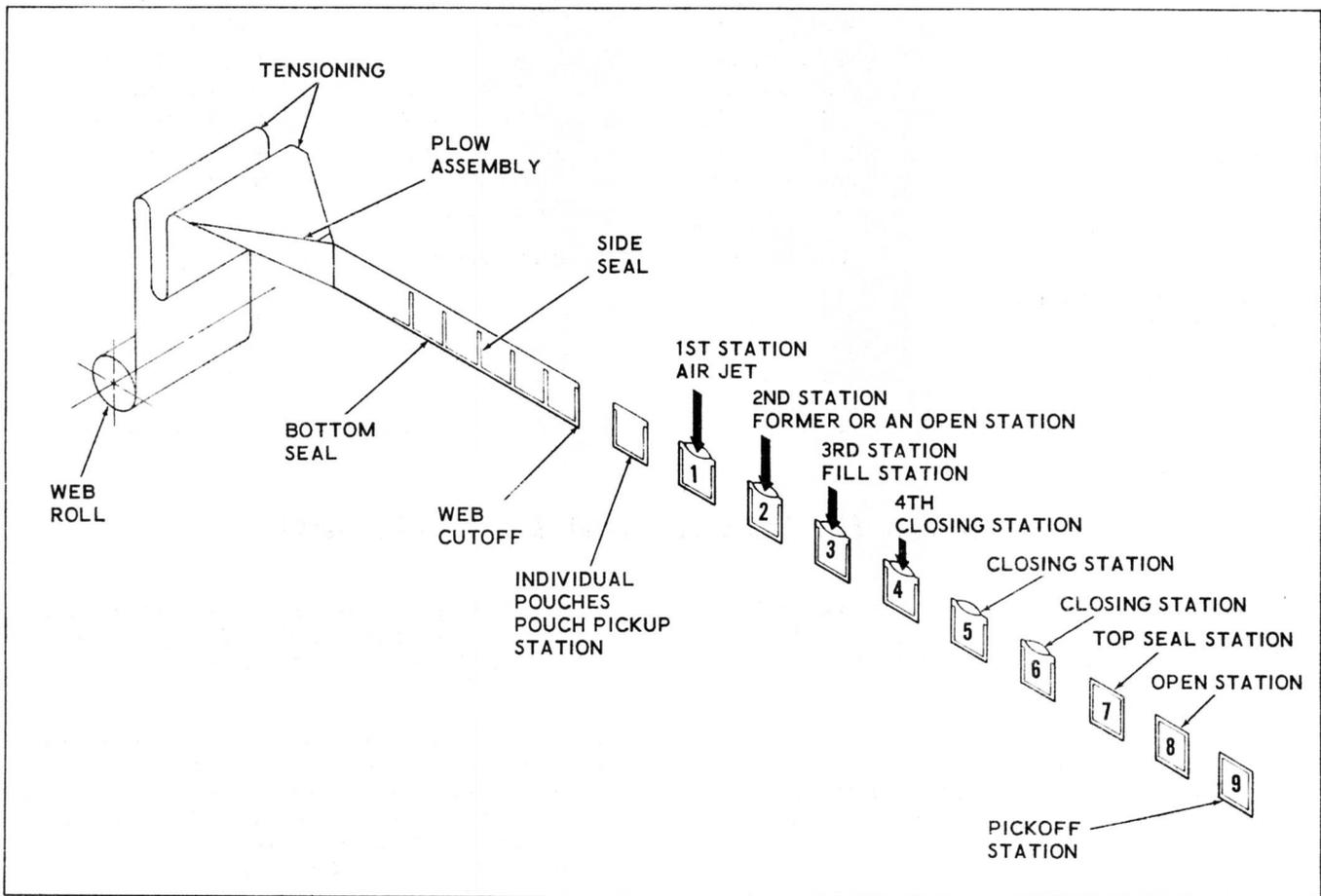


Figure 1-2. Typical Pouch Forming, Filling, Closing and Sealing Flow Chart

CHAPTER 2 INSTALLATION

2-1. GENERAL.

The following instructions will serve as an aid to the installation of the Bartelt Intermittent Packager and should be used in combination with the FLOOR PLAN. A WIRING DIAGRAM supplied with the Packager is located in a holder on the inside of the electrical control box.

2-2. UNPACKING.

The Packager is usually shipped from the factory in one crate and partially disassembled. The Model B fillers are located in the large rectangular crate secured to the main skid base. Hoppers are packed in a cardboard container strapped to the main skid base. Arbor shaft assemblies are not packaged but are strapped to the main skid base as well as the vacuum pump(s). Unpack the machine as follows:

- a. Check the exterior of the shipping container for signs of smashed or broken crate which may have occurred during transit. If such damage is noted, check machine in these areas for damage.
- b. Remove the outer crating structure and large plastic protective covering. Do not remove bottom skid. Do not continue unpacking until machine is moved to installation site.
- c. After the machine has been moved to the installation site, remove arbor shaft assemblies and vacuum pumps from main skid (Figure 2-1). Remove cardboard box and rectangular wooden box from main skid and remove filler and hopper parts from these boxes. Inspect all parts for damage.
- d. A packing list is inserted in one of the pouch clamps at the front of the machine. Remove the packing list and check against equipment.
- e. Remove all protective tape from gages, cables, etc.

2-3. TRANSPORTING PACKAGER.

The weight of the packager attached to the main skid is approximately 2500 to 3500 pounds.



Do not disassemble any portion of the packager without approval of the Bartelt Engineering Co. Inc.

At the installation site, complete the unpacking (paragraph 2-2). Remove the hardware securing packager legs to main skid and lift packager off main skid. If fork lift trucks are used to lift unit off skid, use caution to avoid damage to piping and valves located under the base of the machine.



Use extreme care in lifting. The machine is top heavy.

2-4. LEVELING PACKAGER.

Refer to FLOOR PLAN and move Packager to final installation location. It is recommended that the base legs of the packager be securely mounted to the floor of the installation area after the Bartelt serviceman has checked the installation. Level the machine as follows:

- a. Insert screws through the holes provided in the base legs and obtain a number of shims to be used for leveling.
- b. Place a good spirit level on the machined ways of the rear base. Check the level of the machine along the long horizontal dimension and horizontally across the width of the machine at right angle to first level check.
- c. Use shims under the base legs as required to level the Packager in both horizontal axes. The machine may be secured to the floor after the Bartelt serviceman has checked the installation.

2-5. ATTACHING VACUUM PUMPS.

The vacuum pumps are marked to correspond with similar markings on the mounting brackets. Match the vacuum pump code to the bracket code. Attach the vacuum pumps at the rear of the packager as follows:

- a. Hardware for mounting the vacuum pumps are shipped in the mounting brackets (Figure 2-1) at the rear of the machine. Remove the mounting hardware.
- b. Position pickoff vacuum pump with attached gage, on its mounting bracket near conveyor end with the gage end toward the conveyor drive assembly. Secure vacuum pump to the bracket with the supplied hardware.

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

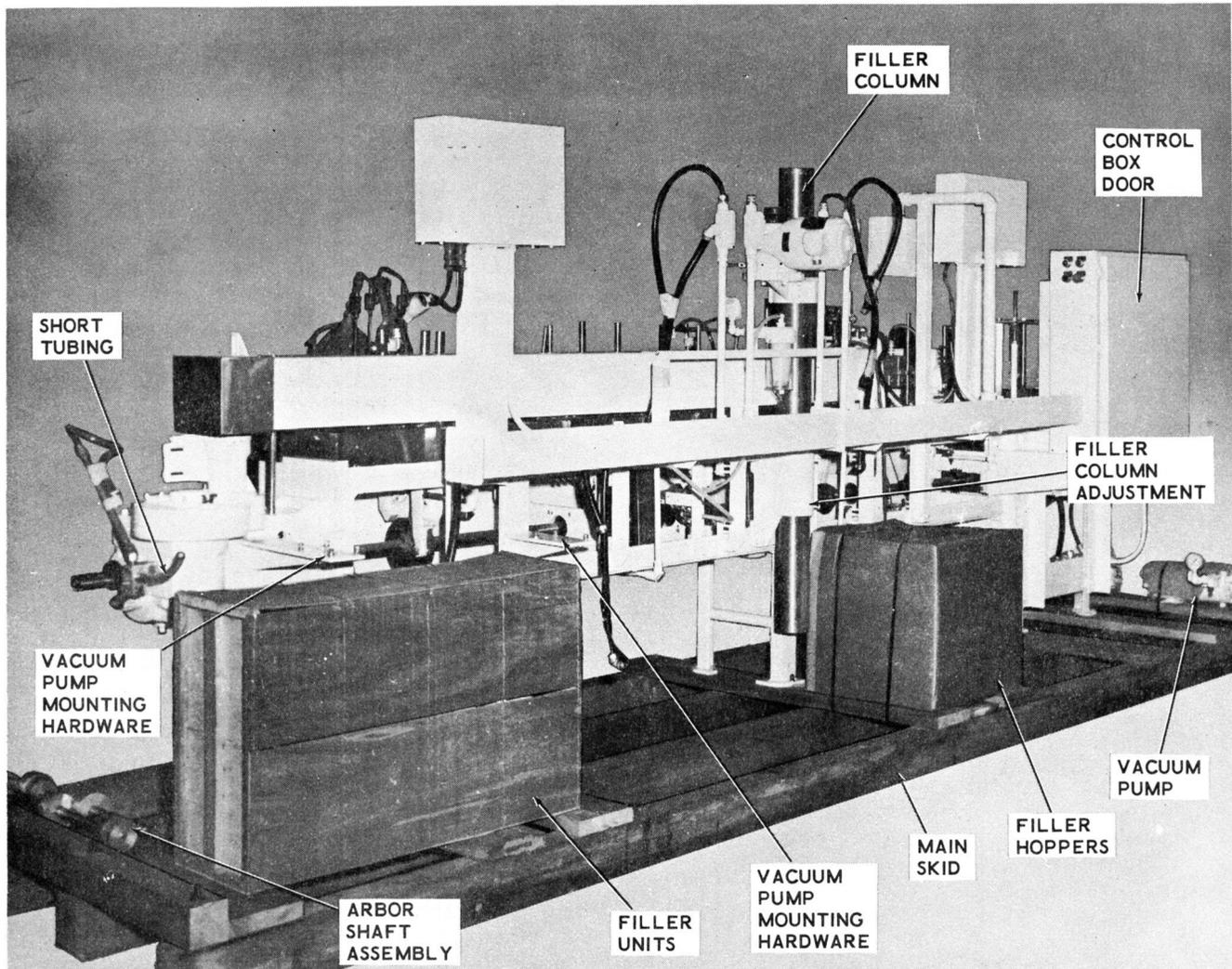


Figure 2-1. Skid Mounted Packager

c. Check inlet and outlet tubing for dirt before connecting. Connect short clear tubing (Figure 2-1) to downward connection near gage. Make electrical connections.

d. Position vacuum opener vacuum pump on other mounting bracket with filter end facing away from conveyor drive end of packager. Secure vacuum pump to bracket with supplied hardware. Check inlet and outlet tubing for dirt before connecting. Make inlet tubing connection at filter (Figure 2-2).

e. Install filters and jars if removed for shipping.

f. Install oiler jars.

g. Check motor nameplate of pump for electrical specifications and connect wiring to each vacuum pump motor per motor nameplate instructions.

2-6. MOUNTING MODEL B FILLER.

a. Install filler head to the top of the filler column (Figure 2-1) and secure in position with hardware supplied with the filler head.

b. Loosen filler column adjusting screws in the mounting bracket.

c. Install filler drive motor on filler drive assembly.

d. Make electrical connections to filler as shown in electrical diagram supplied with packager.

2-7. ELECTRICAL SUPPLY CONNECTIONS.

Connect electrical power source to the packager as shown in the **ELECTRICAL DIAGRAM**. It is recommended, that a master switch be installed between the power source and the packager.

2-8. AIR SUPPLY CONNECTIONS.

The air jet splitter blade requires an outside air supply to operate. Connect a 60 psi, 2 cfm air supply to the inlet at the back of the air pressure regulator on the lower front of the packager.

2-9. CLEANING.

Clean the packager thoroughly to remove shipping dirt and grease. At this point, the machine is ready for

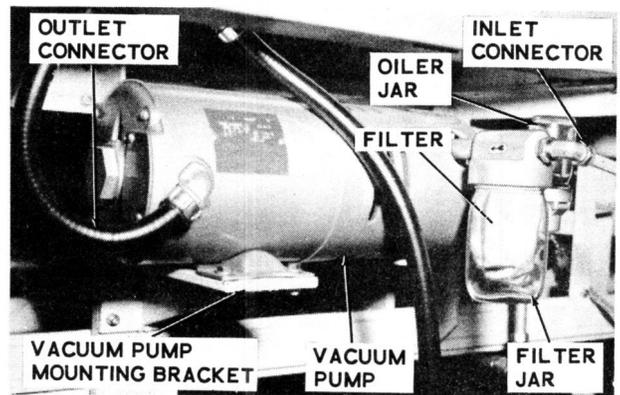


Figure 2-2. Vacuum Opener Pump

initial setup and checkout. This procedure is done with a Bartelt serviceman present.

CHAPTER 3

SETUP, ADJUSTMENTS, AND CHECKOUT

3-1. GENERAL.

The following sections contain procedures for setup, adjustments, and checkout of the Packager after installation. These procedures should be accomplished with a Bartelt Service Instructor present.

3-2. INSPECTION.

Inspect the packager for proper installation as follows.

a. Check packager for proper lubrication at all points. Check all oil levels, vacuum pump filter bowls, and visually check for loose parts.

b. Check packager for level as instructed in Chapter 2, Installation.

c. Place all switches in OFF position and all red buttons depressed. Plug in (or turn on) outside electrical power supply.

Section I. Base Assembly

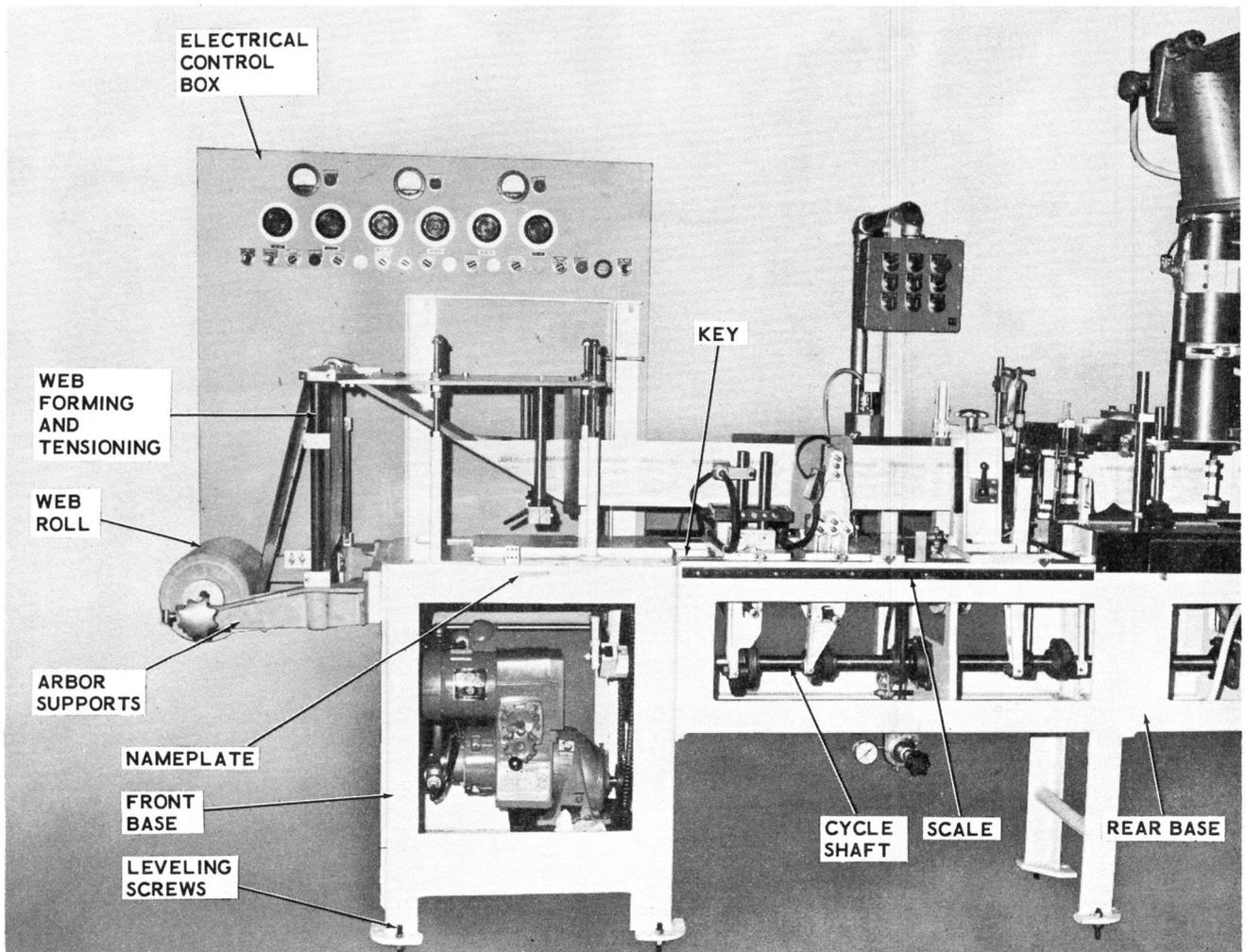


Figure 3-1. Base Assembly

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

3-3. BASE ASSEMBLY.

The base assembly (Figure 3-1) of the packager consists of a front base (to the left) and a rear base (to the right). The front base is bolted and welded to the rear base to provide perfect alignment. The length of the front base is the same on all packagers. Lengths of rear bases vary with the size of packager.

3-4. FRONT BASE.

The front base houses the variable speed drive, feed roll drive shaft assembly, and left portion of the cycle shaft. Mounted on top is the web forming and tensioning mechanism. Web arbor supports mounted to the left end of the front base, support the web roll. The electrical control box is mounted to the rear of the front base. A nameplate attached to the front of the base indicates the serial number of the machine.

3-5. REAR BASE.

The rear base houses the cycle shaft and lower portion of the various unit assemblies that are mounted to the machine ways. The conveyor drive assembly is mounted at the right end of the base. Provision is made at the rear of the base for installing Bartelt filling units. Electrical conduit and other piping is routed along the rear of the base to the necessary stations. Vacuum pumps are also mounted at the rear of the base. A scale is attached to the front surface of the base and extends from the cutoff area to the front base. This scale is used in conjunction with pointers on the various pouch forming mechanisms, as an aid in adjusting the position of the mechanisms involved in the pouch forming operations. There is a 1/2 by 3/8 inch key running the full length of the front of the rear base way to position the actuating assemblies in relation to the centerline of the packager. Adjustable screws are installed in the mounting feet of the base for leveling and mounting purposes.

Section II. Variable Drive And Cycle Shaft

3-6. GENERAL.

The power unit of the packager is the variable speed drive. The variable speed drive transmits its rotary

power by means of a sprocket and chain to turn the cycle shaft sprocket. As the cycle shaft rotates at the speed selected by the variable drive it operates all the movable components of the Packager at the correct time.

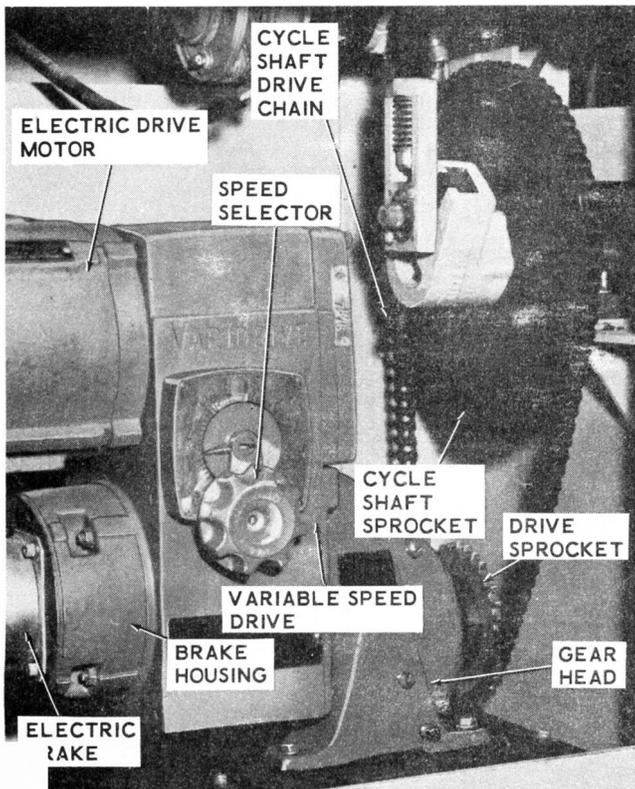


Figure 3-2. Variable Speed Drive Assembly

3-7. VARIABLE SPEED DRIVE.

The unit is powered by an electric motor (Figure 3-2). A two piece varidisc within the drive housing is attached to the shaft of the electric motor. Rotary power is transferred from the driving varidisc on the electric motor shaft to a driven varidisc on the output shaft by a varibelt. The speed control of the unit changes the distance between discs of each varidisc assembly thus changing the ratio between the driving and driven varidisc to increase or decrease the output speed. The output force of the varidrive is applied through a gear head assembly, sprocket, and chain to the drive sprocket on the cycle shaft. An electric brake is installed at the end of the output shaft to stop the drive unit abruptly. This electric brake is controlled by a cam actuated micro switch on the sequence timing switch assembly in the electrical control box to stop the drive unit and the cycle shaft in a positioned stop, whereby mechanisms such as seal bars are in the opened position.

NOTE

Refer to Chapter 6, Section I for repair instructions.

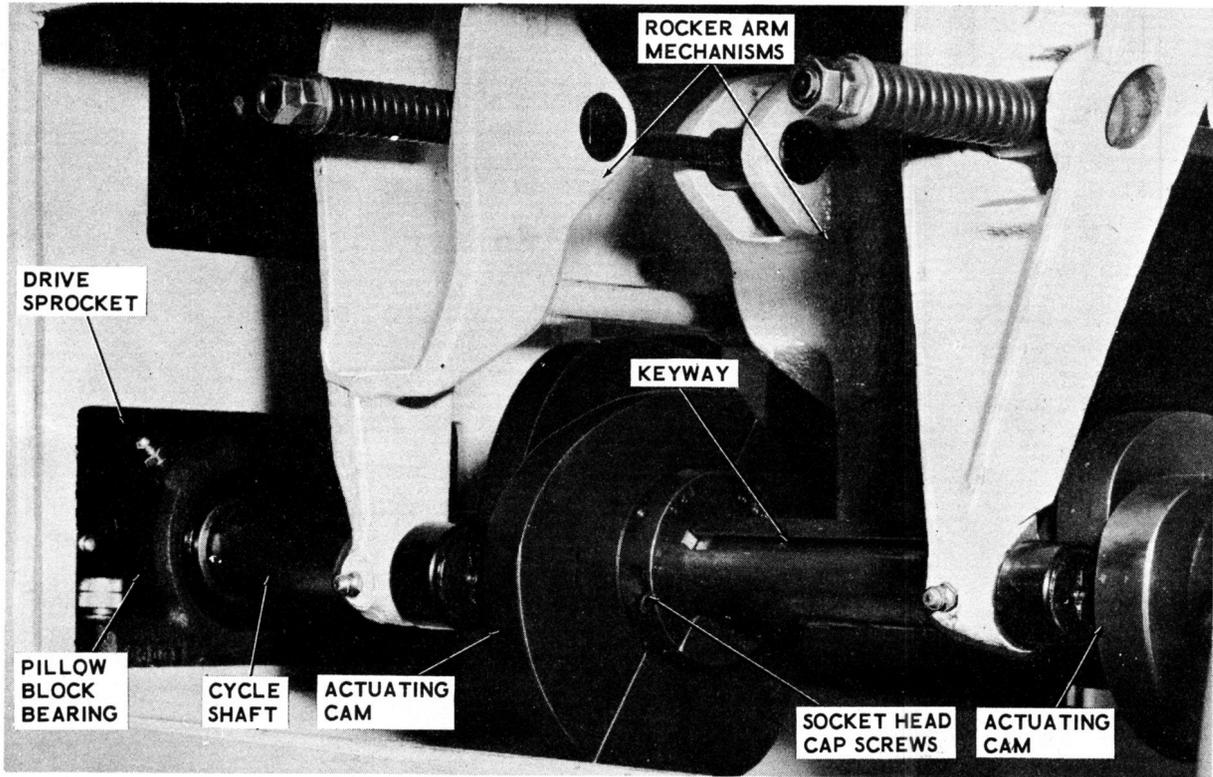


Figure 3-3. Cycle Shaft

3-8. CYCLE SHAFT.

The cycle shaft (Figure 3-3) is driven by the variable drive through a sprocket mounted at the left end of the shaft. Pillow block bearings at each end support the shaft with help from flange type bearings mounted to vertical supports of the base assembly between the two ends. The shaft has a keyway running its full length. Split cams are attached to the cycle shaft to operate rocker arm mechanisms for the pouch forming, sealing, and handling stations. The keyway in the cycle shaft normally insures that the cams will always be in time. The cams are split to allow removal and replacement without the necessity of pulling the entire cycle shaft from the machine. Socket head cap screws secure the cams to the cycle shaft. These split cams are designed to transmit the required motion to the cam followers for the particular product station they are actuating. Seals, cutoff, pouch clamp openers, pouch openers, and pickoff mechanisms are all oper-

ated by cams mounted to the cycle shaft. A coupling mounted to the right end of the cycle shaft connects the shaft to the input shaft of the conveyor drive unit. A sprocket attached to the cycle shaft at the left end near the pillow block bearing operates, through a chain drive, the sequence switch assembly in the electrical control box.

3-9. CHANGING MACHINE SPEED.

The speed of the packager is controlled by the variable speed drive unit. Speed may be increased or decreased by rotating the speed selector knob clockwise to increase or counterclockwise to decrease.

CAUTION

Change speed setting only when variable speed drive is running.

BARTELT IM PACKAGER

OPERATION MANUAL 4-68

Section III. Web Tensioning Assembly

3-10. GENERAL.

The purpose of the web tensioning mechanism is to hold and payout the web while maintaining a constant back pressure on the web.

3-11. DESCRIPTION.

The roll of web is secured to the arbor shaft (Figure 3-4) by two arbors. One arbor is smooth and the other is splined. Each arbor is tapered at one end to fit into a standard three inch web core and is secured to the arbor shaft by a square head setscrew. The arbor shaft is supported by two web arbor supports which act as bearings at the left end of the machine. The arbor shaft is held in the bearings of each web arbor support by its own weight. The arbor shaft rotates in

these bearings as web is drawn from the roll. An oil cup is provided at each bearing for lubrication. Adjustment to center the web is provided by an adjusting knob attached to a screw, which acts upon a groove in the arbor shaft to move the shaft small increments to the right or left.

A web roll brake (Figure 3-4) is located at the left end of the arbor shaft to maintain the proper tension on the web by applying a braking action to the web roll. This brake (Figure 3-5) consists of two steel pressure plates keyed to the arbor shaft with a flat piece of brake material held between them. The arbor shaft is turned down at this end therefore, one of the pressure plates hits against the shoulder of the shaft. A compression spring is installed between the second pressure plate and a tension adjusting nut threaded

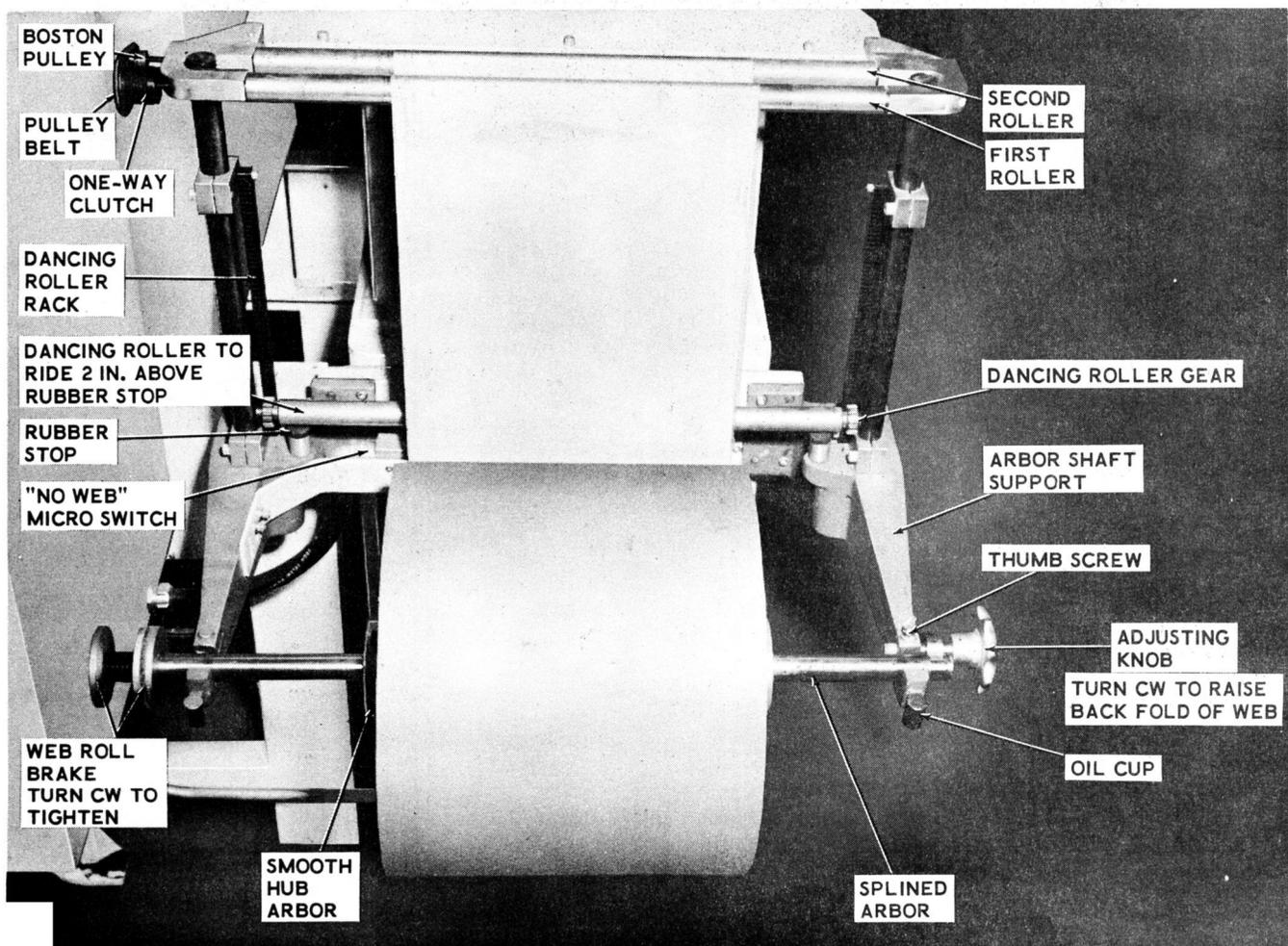


Figure 3-4. Web Tensioning

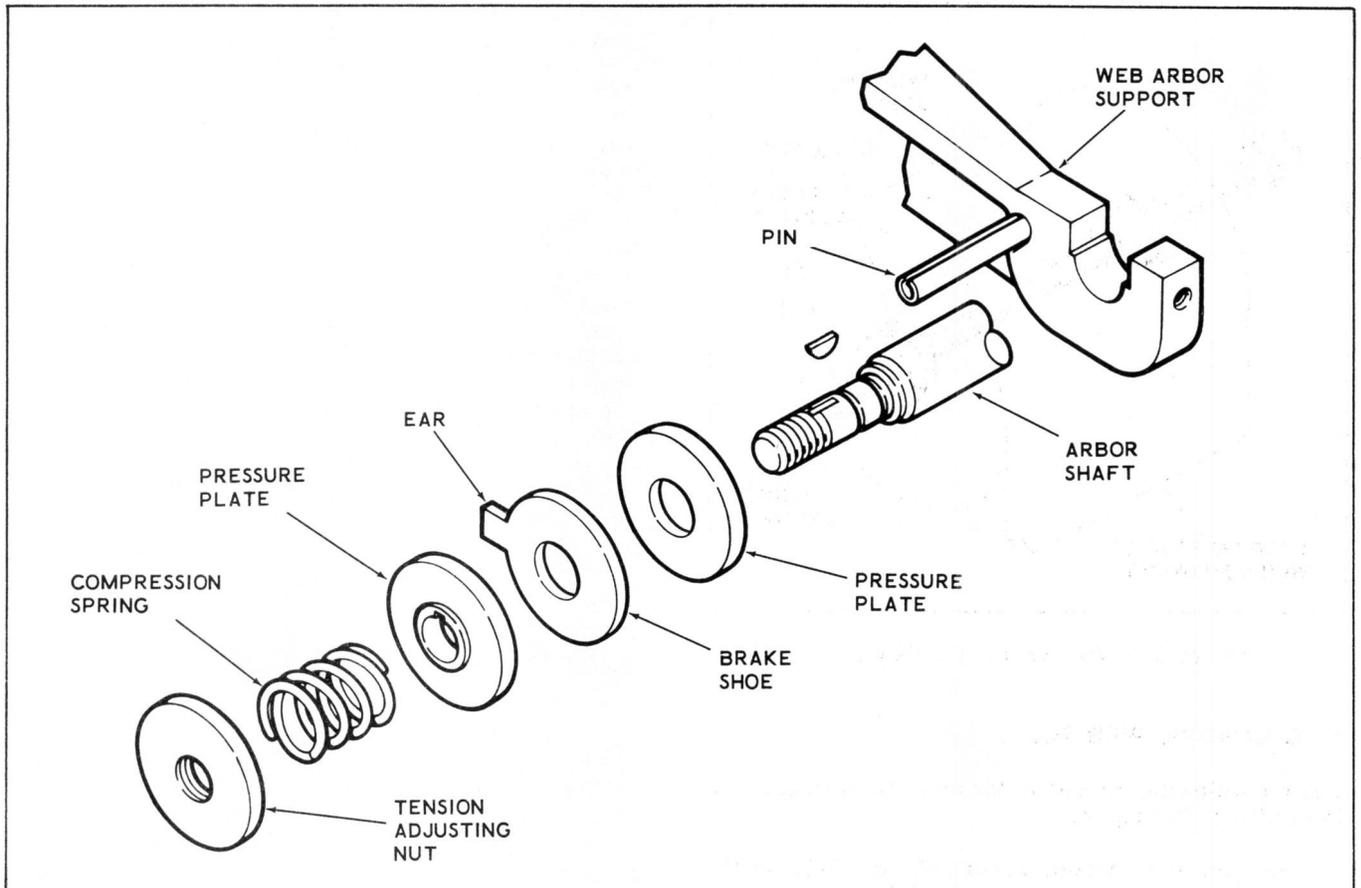


Figure 3-5. Web Roll Brake

onto the end of the arbor shaft. The force applied by the compression spring holds the two pressure plates against the brake shoe. This force is adjusted by tightening or loosening the adjusting nut. When a full roll of web is installed on the machine, the adjusting nut is tightened to increase braking. As the roll diminishes in size, less braking force is required and the spring tension is loosened. This is not a continuous or automatic process, however, the operator need only adjust the tension about three or four times for each roll. When a new roll is installed, the brake is then tightened to the previously determined setting. The brake shoe is kept from turning by an ear which engages a pin in the support arm of the machine.

Two upper rollers are connected by a small pulley belt running from a Boston pulley on the second roller

to a Curtis one way torsion spring clutch on the first roller. This clutch aids the forward web feed and keeps the web from moving backward.

The dancing roller has a gear at each end which rides on a vertical rack. The dancing roller is spring loaded downward and applies tension on the bottom loop of the web. If the web is run out, breaks, or there is insufficient back pressure the dancing roller will drop downward to contact a micro switch at the bottom of the roller travel area to shut the machine down.

NOTE

Refer to Chapter 6, Section II for web tensioning repair instructions.

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

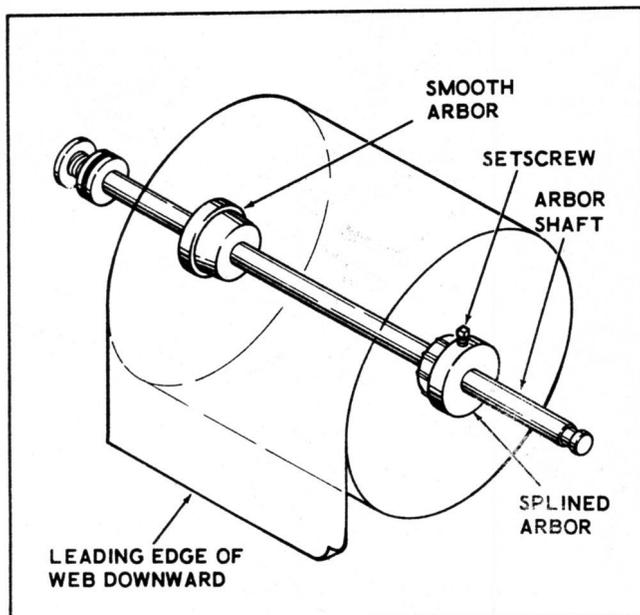


Figure 3-6. Web Roll and Arbor Shaft

3-12. LOADING WEB ROLL.

Use the following method to load a roll of web onto the Intermittent Packager:

a. Position the smooth arbor (Figure 3-6) on the arbor shaft toward the brake end and tighten setscrew. The smooth arbor is always placed to the left or rear of the machine as viewed facing the feed roll end. The tapered portion of the arbor is to the right. Position the web roll so the leading edge faces toward you and downward. Insert the arbor shaft and smooth arbor into the web roll core from the left side.

b. Insert the splined arbor onto arbor shaft with tapered side toward the web roll. Using a mallet, tap splined arbor into core firmly until a good grip is insured.

NOTE

It is not necessary to drive hub in completely; only far enough for a good grip.

c. Loosen setscrew of smooth arbor and slide arbor shaft in arbors until web roll is approximately in center of shaft. Tighten setscrew of each arbor. Check that adjusting knob (Figure 3-4) is preset to approximately the middle of its adjusting range. Place arbor shaft with web roll attached, into bearings of web arbor supports.

d. Thread the web from under the roll upward over the first top roller (Figure 3-7) so that the sealing surface of the web is facing you as viewed from the end of the Packager. Continue threading the web by running it downward from the first top roller under the dancing roller and back upward over the second top roller, under the plow nose and through to the feed roll mechanism. Tighten feed roll mechanism to hold web.

e. Turn web roll brake (Figure 3-4) clockwise to apply braking pressure on the arbor shaft. Sufficient back pressure should be applied to keep the dancing roller about 2 inches above the rubber stops. The brake should be loosened (turn counterclockwise) as the roll diameter becomes smaller. After this initial adjustment, the brake tension should be checked and adjusted about every 15 minutes of running time.

f. Check the web for proper centering (Figure 3-7) after it leaves the plow assembly. Major centering of the web should be done by moving the web roll on the arbor shaft. Loosen the arbor setscrews and move web roll to the left to raise the back fold or to the right to raise the front fold. The adjusting knob (Figure 3-4) is used for fine centering of the web. Turn the adjusting knob clockwise to raise the back fold of the web or counterclockwise to raise the front fold. After the fine adjustment has been made, lock thumbscrew (Figure 3-4) to retain adjusting knob position.

g. If web rolls of the same width are run often, the smooth arbor should be left in position and just the splined arbor used for replacing a new roll. This will save setup time by minimizing the centering operation.

3-13. SPLICING WEB.

The web being run in the machine should not be run completely out. When enough material remains on the

web roll to make 15 to 20 pouches, shut down the machine and splice a new web roll into the old one as follows:

a. The butt type splice is recommended. Cut the new web roll square across through the center of printed pouch area.

b. Cut the old web square across through the corresponding printed pouch area.

c. Butt ends of the two webs together and attach with colored light weight tape that will show up readily and the pouch easily detected.

3-14. TROUBLESHOOTING WEB TENSIONING ASSEMBLY.

The following chart is provided as an aid in locating and determining probable causes of malfunction and possible solutions to each problem.

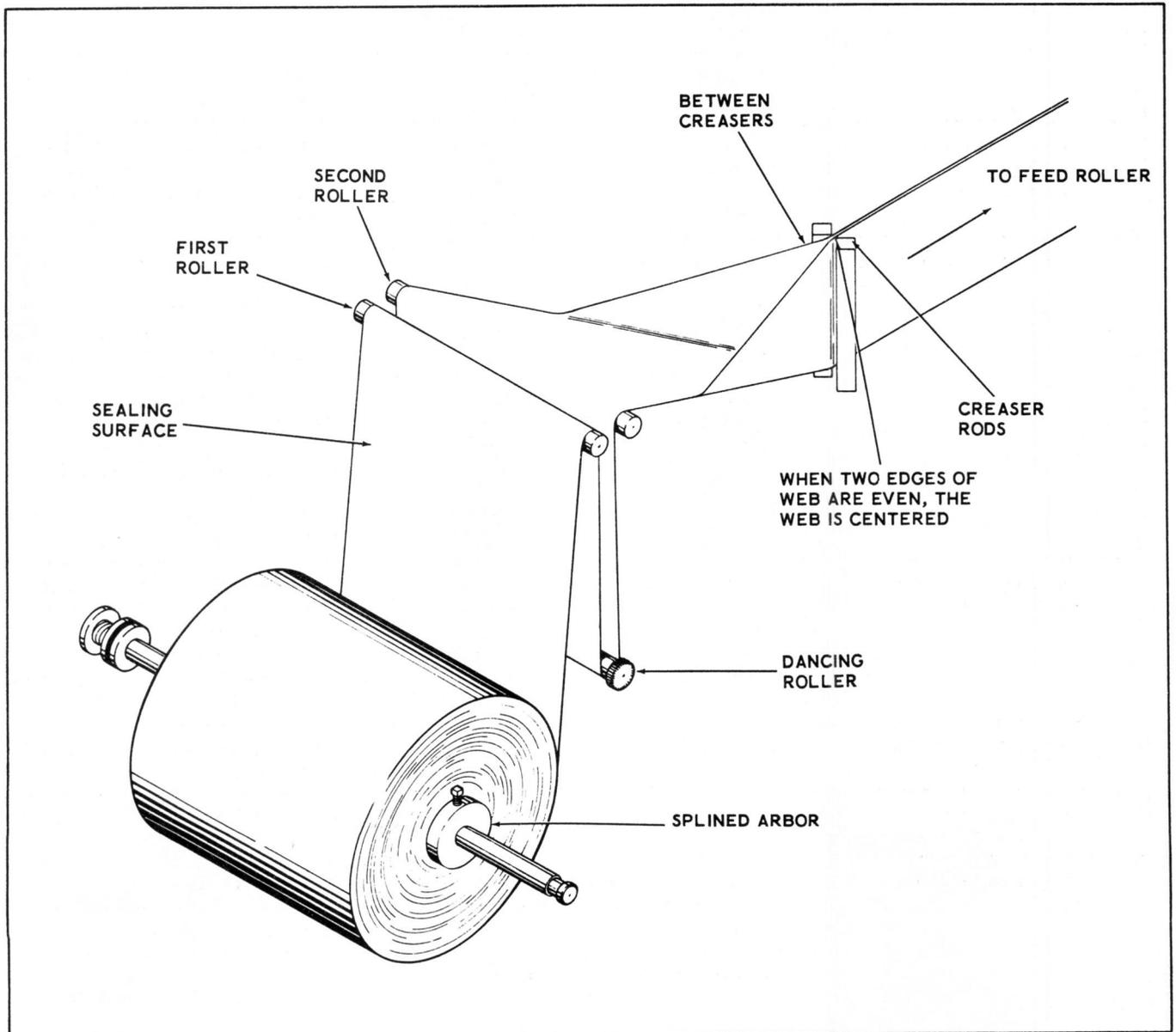


Figure 3-7. Threading Web in Packager

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

TROUBLESHOOTING GUIDE (WEB TENSIONING)

Trouble	Probable Cause	Possible Remedy
1. Web too loose.	a. Web roll brake set too light.	a. Adjust web roll brake. Clean with carbon tetrachloride.
	b. Web roll slipping on arbor.	b. Tighten arbors in core. Tighten setscrews in arbors. Install new web roll if web is not secure on core or core ID is not 3 inch.
2. Web too tight. (Web breakage)	a. Arbor shaft binding	a. Free arbor shaft and oil.
	b. Dancing roller at top limit of travel.	b. Adjust web roll brake.
	c. Dancing roller binding.	c. Free dancing roller and correct cause of bind.
3. Web off center.	a. Web roll not centered.	a. Adjust web roll on arbor shaft.
4. Wrinkles in web.	a. Web roll brake too tight.	a. Decrease tension on web roll brake.
5. Top of web moving up	a. Wrinkles in web.	a. Decrease tension on web roll brake.
	b. Dancing roller spings out of adjustment.	b. Clean springs or replace fatigued springs. (See Chapter 6.)
	c. Dancing roller rack and pinions out of adjustment.	c. Loosen gear and level. (See Chapter 6.)
	d. Bronze buttons worn or dirty.	d. Replace buttons or clean. (See Chapter 6.)
	e. Defective web.	e. Install new web.
6. Dancing roller too high or low.	a. Web roll brake too tight or loose.	a. Adjust web roll brake so dancing roller rides about 2 inches above rubber stops.
	b. Oil or dirt in web roll brake.	b. Clean web roll brake with carbon tetrachloride.
7. Leakers in side and/or bottom seal.	a. Contaminate on web.	a. Check dancing roll for contaminate of area of contact.
8. Photo registration unit operates erratic.	a. Web slipping.	a. Adjust web roll brake.
9. Feed rolls slipping	a. Web roll brake too tight.	a. Adjust web roll brake.
	b. Arbor shaft binding.	b. Lubricate arbor shaft.
	c. Dancing roll at top limit of travel	c. Adjust web roll brake to lower dancing roll.
10. Wrong size pouch.	a. Top uneven.	a. Adjust web, adjust knob.
11. Panel indicator lights; machine stops.	a. No web or broken web.	a. Install new web roll or repair broken web by splicing.

Section IV. Web Forming Assembly

3-15. WEB FORMING ASSEMBLY DESCRIPTION.

The web forming assembly (Figure 3-8) consists of a top plate, plow bottom plate, plow nose, and creaser rods. The top plate must always be level with the Packager and the interior angle between the top plate and plow bottom plate must be 30 degrees.

NOTE

Refer to Chapter 6, Section III for web forming repair instructions.

3-16. ADJUSTING AND LEVELING PLOW ASSEMBLY.

The plow assembly should be adjusted to form a 30 degree interior angle between the top plate and plow bottom plate. After this angle has been set the top plate should be leveled in both directions.

a. The interior angle between the plow assembly plates is adjusted by angle adjust screw (Figure 3-8).

b. Use a GOOD mechanics level to level the plow assembly. Check the level of the plow assembly both longitudinally and laterally and adjust as necessary using plow leveling screws and nuts (Figure 3-8).

c. The height of the plow assembly in relation to the Packager base is adjusted by using the retaining nuts on the plow leveling screws.

3-17. ADJUSTING PLOW ASSEMBLY FOR POUCH SIZE CHANGE.

When changing to a different size pouch, raise the level of the plow assembly for a shorter pouch than that presently set for. Lower the level of the plow assembly for a longer pouch.

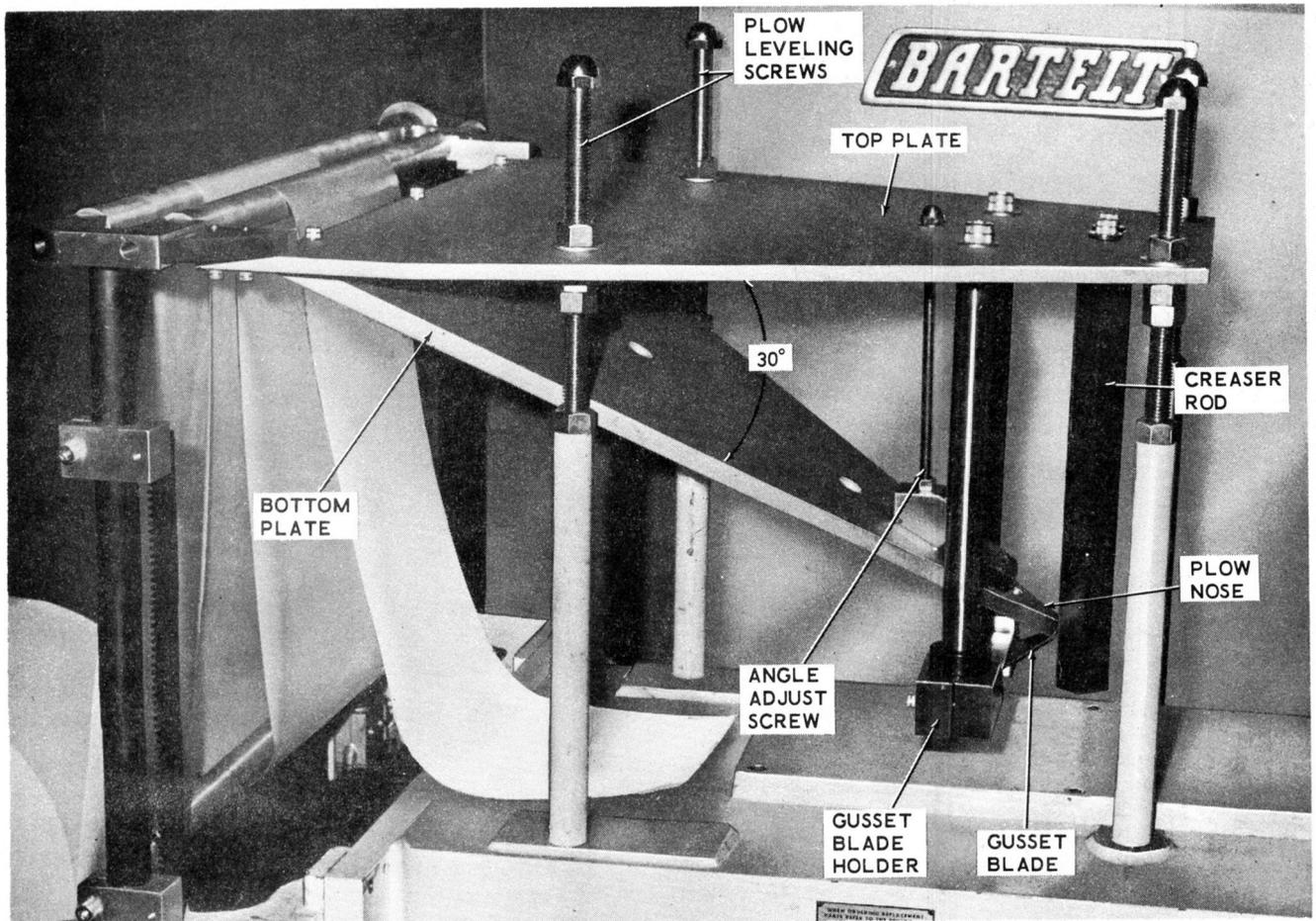


Figure 3-8. Web Forming

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

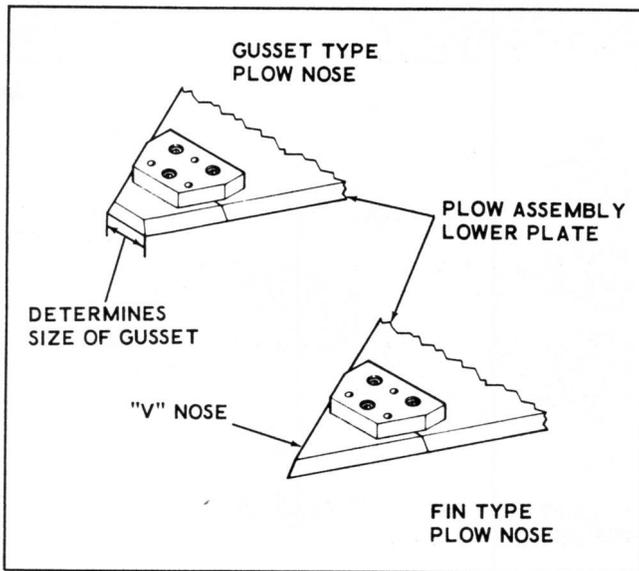


Figure 3-9. Plow Noses

3-18. FIN TYPE PLOW NOSE.

Two types of pouch bottom folds may be formed on the web forming assembly; fin type and gusset type. To form a fin type pouch, a plow nose with a Vee point (Figure 3-9) is attached to the plow bottom plate.

3-19. GUSSET TYPE PLOW NOSE.

A gusset pouch is formed by a plow nose that is cut back square (Figure 3-9). The plow nose is cut back the amount required to make a certain dimension gusset. For example, a one inch gusset is formed by a plow nose that is cut back until the width of the flattened point is one inch. A gusset blade must be used in conjunction with a gusset plow nose to produce a gusset type pouch. This gusset blade is Vee shaped (Figure 3-8) and mounted to a holder which is suspended by posts from the top plate. The gusset blade forms the bottom half of a fixture (plow nose is top half) to form and fold the web. To change the size of gusset pouch, a new gusset plow nose must be installed to suit the new size.

3-20. ADJUSTING GUSSET BLADE.

Adjust the gusset blade in relation to the plow nose as follows:

- a. Loosen socket head screws holding gusset blade to holder. Move gusset blade forward or backward to line up with plow nose as shown in Figure 3-10. Tighten socket head screws.
- b. Adjust the distance between the top of gusset blade and bottom of plow nose for $1/32$ to $1/16$ inch as shown in Figure 3-11.

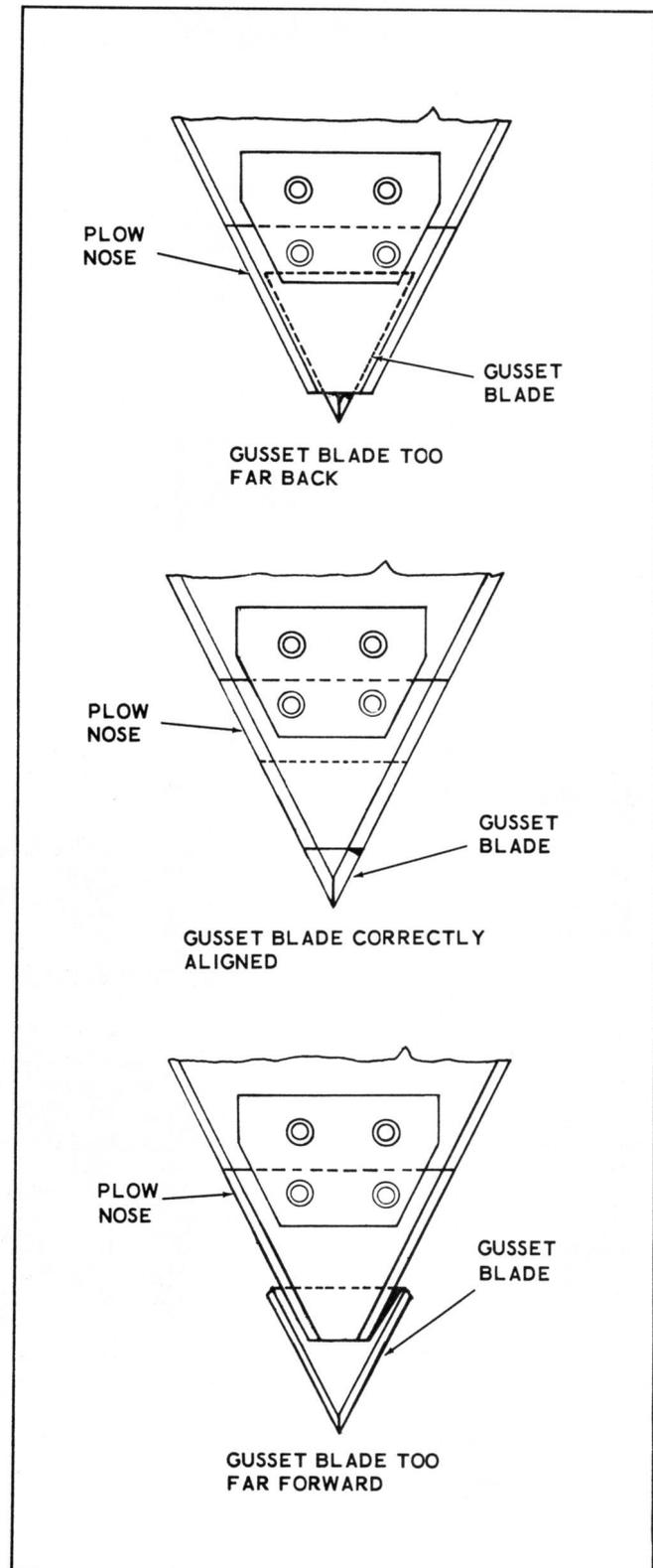


Figure 3-10. Aligning Gusset Blade with Plow Nose

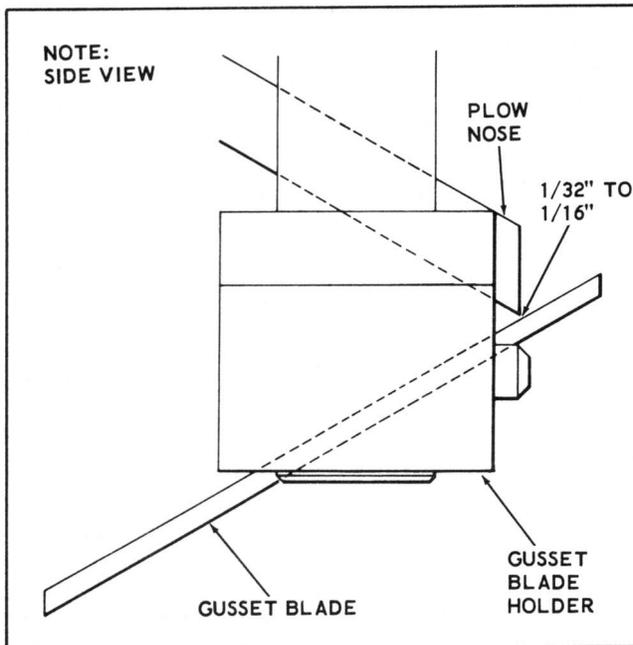


Figure 3-11. Adjusting Distance Between Gusset Blade and Plow Nose

3-21. CHANGING PLOW NOSE.

Plow noses are interchangeable. They are attached to the plow assembly bottom plate by a retaining plate and a socket head screw. To change or replace a plow nose proceed as follows:

- a. Remove socket head screw (Figure 3-12) and remove plow nose.
- b. Temporarily install new plow nose and check alignment of nose with plow bottom plate. The bottom of the plow nose and the bottom of the plow assembly bottom plate must be flush to insure proper web flow.
- c. If the bottom surface of the plow nose does not come up to the level of the bottom plate, insert shims as required between the plow nose and retaining plate to bring the nose flush with the bottom plate. Tighten socket head screw securely.
- d. If the bottom surface of the plow nose extends beyond the bottom plate, remove two socket head screws and insert shims as required, between the retaining plate and the top surface of the bottom plate to bring the nose flush with the bottom plate. Tighten socket head screws securely.

3-22. CREASER RODS.

Two square creaser rods (Figure 3-8) are installed on the plow top plate to complete the forming of the gusset or fin pouch. One edge of each creaser rod is positioned on each side of the apex of the fin nose or the gusset blade to complete the creasing of the web as it is pulled through toward the side seal station.

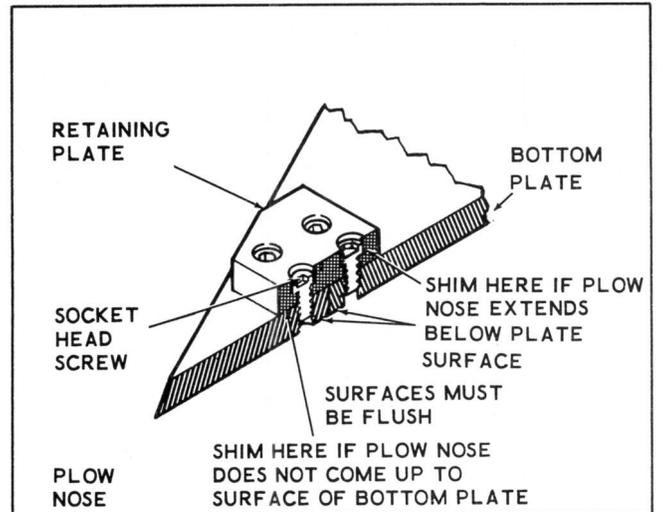


Figure 3-12. Changing Plow Nose

3-23. ADJUSTING CREASER RODS.

- a. Loosen socket head screws retaining creaser rods.
- b. Move creaser rods to within 1/32 to 1/16 inch of point of gusset blade (or Vee plow nose) as shown in Figure 3-13. The view shown in Figure 3-13 is found by looking downward through slot in top plate of plow assembly.

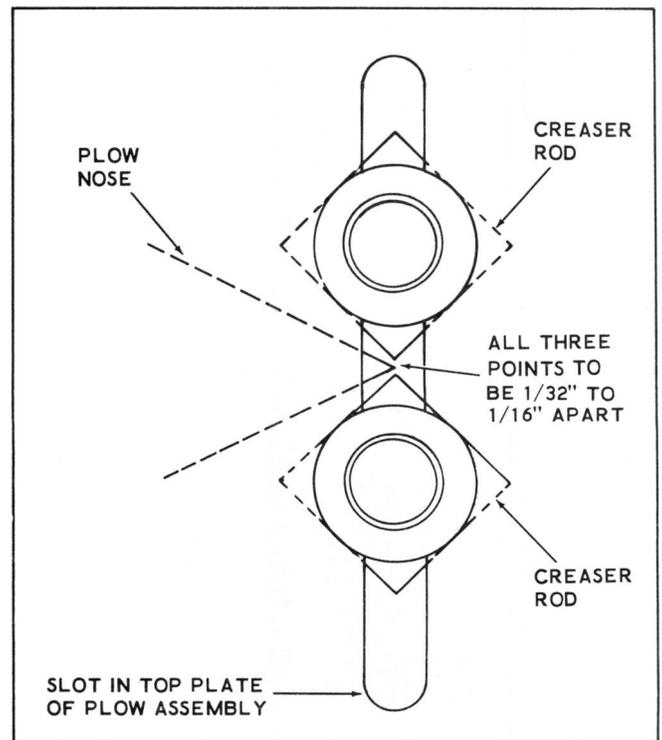


Figure 3-13. Adjusting Creaser Rods

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

c. Tighten socket head screws firmly to secure creaser rods in position.

3-24. TROUBLESHOOTING WEB FORMING ASSEMBLY.

The following chart is provided as an aid in locating and determining probable causes of malfunction and possible solutions to each problem. Also refer to web tensioning, Section III, Chapter 3.

TROUBLESHOOTING GUIDE (WEB FORMING)

Trouble	Probable Cause	Remedy
1. Web too tight. (Web breakage)	a. Nicks in plow.	a. Remove nicks.
2. Web off center.	a. Creaser rods not centered.	a. Center creaser rods on plow nose point.
3. Wrinkles in web.	a. Plow not aligned.	a. Adjust plow assembly.
	b. Worn plow assembly bottom plate.	b. Replace worn bottom plate. (See Chapter 6.)
	c. Creaser rods not centered.	c. Center creaser rods on plow nose point.
	d. Worn creaser rods.	d. Replace creaser rods.
4. Top of web moving up or down.	a. Improper plow angle.	a. Adjust plow angle.
5. Web too high or too low.	a. Plow too high or low.	a. Adjust plow assembly up or down as required.
6. Gusset not even.	a. Plow assembly not level.	a. Level plow assembly.
	b. Creaser rods not centered.	b. Center creaser rods on gusset blade.
	c. Gusset nose off center.	c. Center gusset plow nose.
7. Gusset too wide or narrow.	a. Gusset blade not aligned with plow nose.	a. Align gusset blade with plow nose.
	b. Wrong size gusset nose.	b. Install proper size nose.
8. Top edges of web hunting; will not stay adjusted.	a. Interior angle of plow assembly not correct.	a. Adjust interior angle to be 30 degrees.
	b. Plow assembly not level.	b. Level plow assembly.
9. Leaking bottom, side, or top seal.	a. Web too low.	a. Adjust plow level.
10. Air jet splitter blade does not open pouch.	a. Web too low.	a. Raise plow level.

Section V. Bottom Seal

3-25. BOTTOM SEAL.

The bottom seal station is the beginning operation for the sealing of pouches. The seal bars apply heat to the folded web being fed through the packager to form the bottom of each package. The seal bars are made from a special heat conducting alloy. Electric heating elements in each bar supply the necessary heat. All seal bars are mounted on and actuated by a seal bar mechanism assembly. This assembly is

mounted on the rear base and aligned by a square key on the machine ways. The bottom seal is used on fin type pouches. By applying heat, and pressure, the bottom seal bars (Figure 3-14) produce a continuous seal along the bottom fold of the web. The pressure applied to the web by the bottom seal bars is preset and not adjustable. Bottom seals up to 1/2 inch high maximum can be formed. Each bottom seal bar is usually fitted with a sheet of teflon coated, fiber glass material approximately 0.008 inch thick to protect the seal bars from picking up printing from the web.

NOTE

Bottom seal is not required for a gusset type pouch.

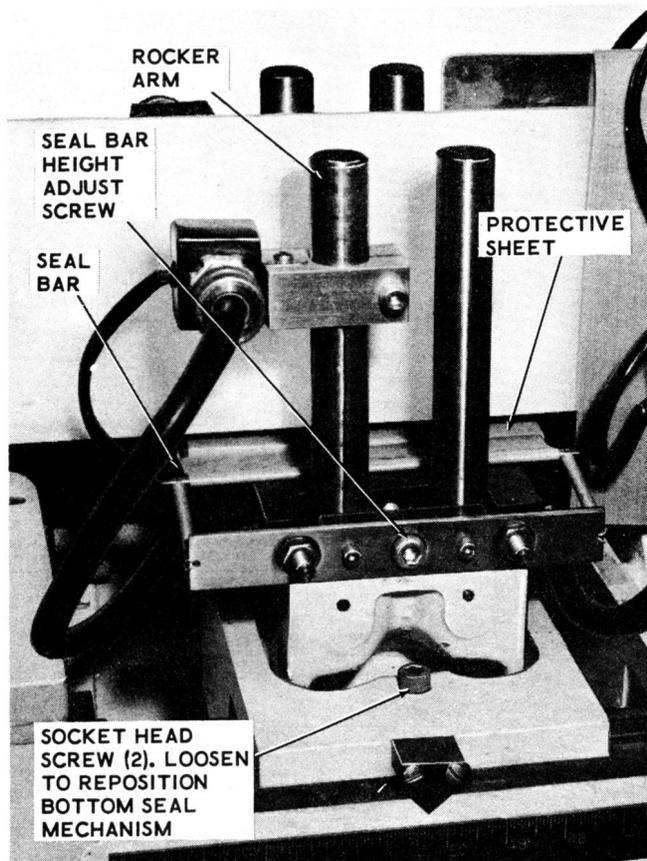


Figure 3-14. Bottom Seal

3-26. ADJUSTING BOTTOM SEAL MECHANISM.

Position bottom seal mechanism assembly as follows:

- a. Loosen two socket head screws (Figure 3-14). Loosen screws retaining bottom seal mechanism actuating cam on cycle shaft.
- b. Move seal mechanism left or right as desired. When position of mechanism is obtained, tighten the two socket head screws.
- c. Move actuating cam on cycle shaft to a position corresponding with the bottom seal mechanism rocker arm cam follower. Tighten screws of actuating cam to secure it in position on the shaft.
- d. The vertical position of bottom seal bars is adjustable to suit the height of bottom seal desired and to adapt for different size pouches running through the machine. Perform this adjustment as follows:

- (1) Loosen each bottom seal bar height adjustment screw (Figure 3-14).

- (2) Raise or lower rear seal bar on rocker arms until desired position is reached. Align front bar with rear and tighten height adjustment screws.

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

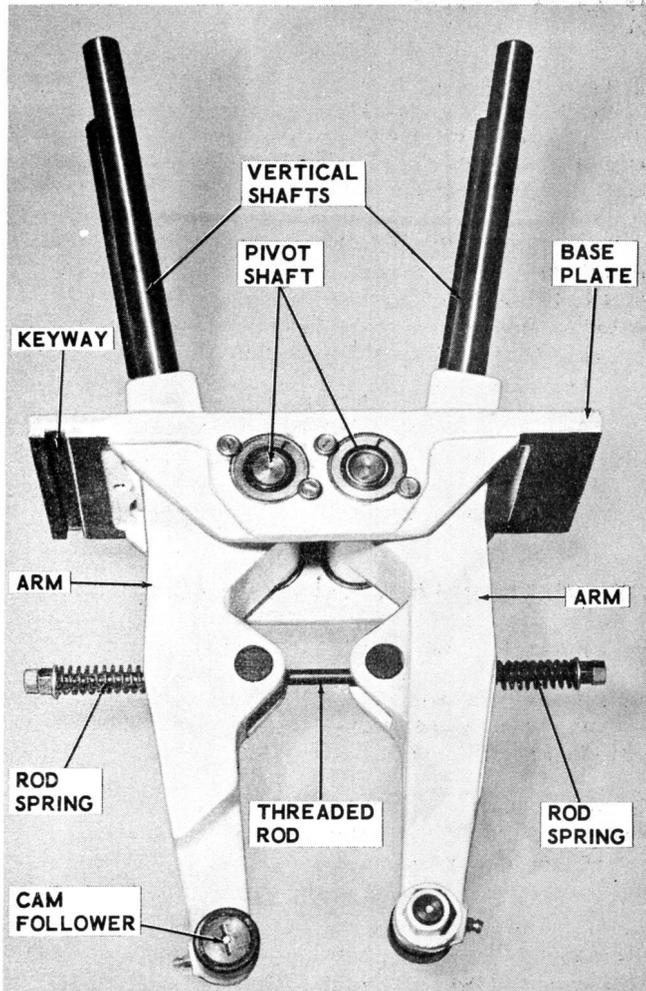


Figure 3-15. Bottom or Top Seal Rocker Assembly

3-27. BOTTOM SEAL DOUBLE ROD ROCKER ASSEMBLY.

The bottom seal double rod rocker assembly (Figure 3-15) is used to mount and actuate the bottom seal

bars, top seal bars, and some optional equipment. The action of the cycle shaft actuating cam spreads the low portion of each arm apart and due to the pivoting action, the top portions of the arms come together. The mechanisms to be operated are clamped to the vertical shafts and their position can be adjusted up and down on the shafts.

NOTE

Refer to Chapter 6, Section IV for rocker assembly repair instructions.

3-28. SEAL BAR HEAT CONTROLS.

There is one set of heat controls for each set of bottom seals, side seals and top seals. Controls are located on the control panel (Figure 3-16) of the electrical cabinet. A set of controls consists of two variable transformers with dials, one thermocouple pyrometer, and a light indicator. The pyrometer is used only as a visual check on temperatures and a guide in establishing the correct heat sealing temperatures. Each of the two variable transformers has a definite function; one (RUN) controls heat when the packager is cycling while the other (STOP) controls heat when the packager is not cycling. Heat control is switched from one variable transformer to the other automatically by a relay in the main panel. Another relay, located in the main panel, is a power relay, and carries current to the heating elements in the seal bars. By adjusting the variable transformers, the operator can control the voltage and maintain a constant heat under set conditions.

3-29. TROUBLESHOOTING BOTTOM SEAL ASSEMBLY.

The following chart is provided as an aid in locating and determining probable causes of malfunction and possible solutions to each problem.

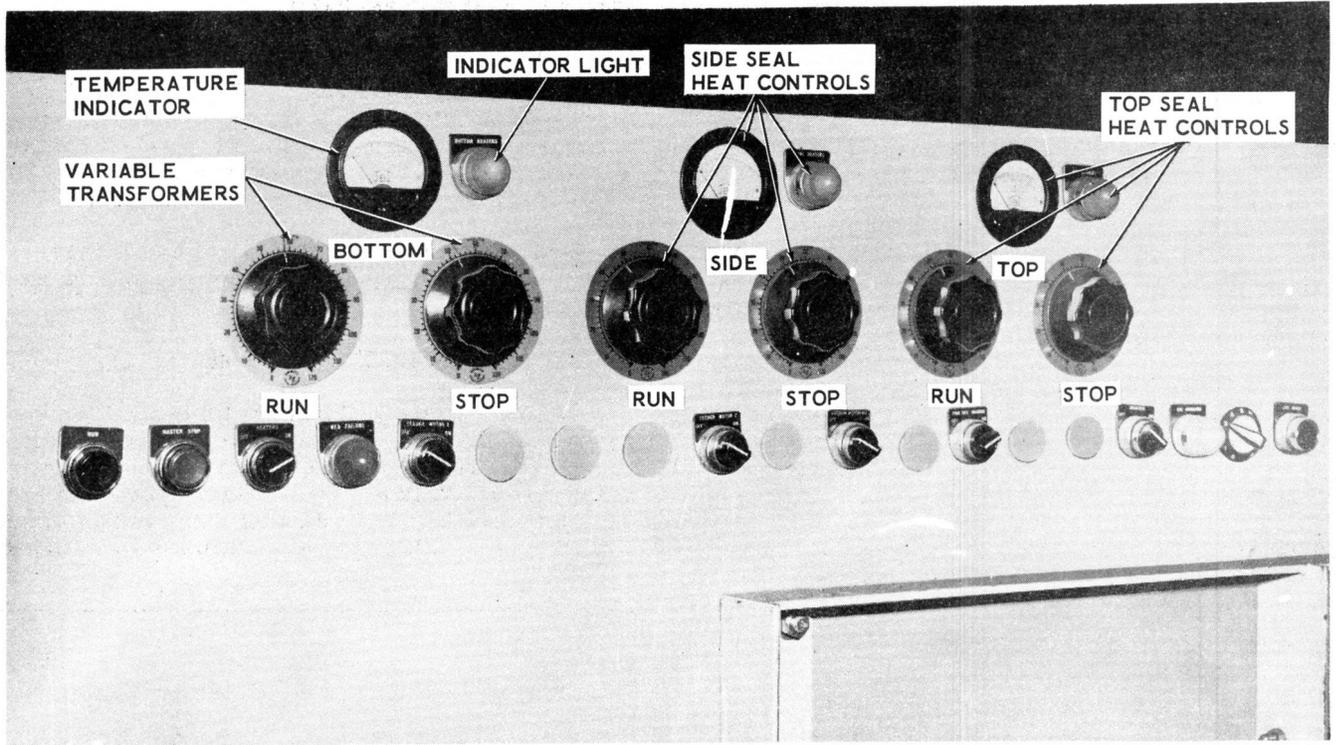


Figure 3-16. Seal Heat Controls

TROUBLESHOOTING GUIDE (BOTTOM SEAL)

Trouble	Probable Cause	Possible Cause
1. Leakers.	a. Warped seal bars.	a. Grind seal bar flat and recenter on machine.
	b. Only one seal bar heating.	b. Check both seal bars with a pyrometer. Check electrical connections. Replace heat element.
	c. Excessive change in room temperature.	c. Check seal temperature meters and change heat settings to compensate.
	d. Erratic power supply.	d. Add voltage stabilizer in power supply.
	e. Increase in machine speed.	e. Heat must be increased when machine speed is increased.
	f. Dwell time too short.	f. Increase heat; slow down machine.
	g. Dirty seal bars.	g. Clean seal bars.
	h. Teflon protector worn.	h. Replace teflon protector.
	i. Contaminate on web.	i. Check dancing roll and plow for contaminate of areas contact; dirt or oil falling on web.
	j. Web too low.	j. Adjust level at plow assembly.

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

Section VI. Side Seal Assembly

3-30. SIDE SEAL.

The side seal bars (Figure 3-17) form the leading and trailing side of each pouch by applying heat and pressure to the web. Each application of the seal bars produces a seal approximately 1/2 inch wide which, when cut at the feed roll mechanism, produces a 1/4 inch trailing side seal on the first pouch and a 1/4 inch leading side seal on the second pouch. Unlike the bottom seal bars, the pressure of the side seal bars is adjustable by spring loaded screws in the mechanism casting. The side seal bars are usually protected by a sheet of teflon coated fiber glass clamped to the first splitter blade. A 3/8 inch high area is left unsealed at the top of each pouch. Heat controls for the side seals are shown in Figure 3-16.

There are four types of side seal bars; plain, gusset, "T" bar and tandem. Each type of side seal bar is used for a specific purpose.

a. Plain Seal Bar. The plain seal bar (Figure 3-18) is used to make fin type pouches.

b. Gusset Seal Bar. The gusset seal bar (Figure 3-18) is used to make gusset type pouches only. Only one size pouch can be made with any one set of gusset seal bars. One gusset seal bar has a relief cut in, to allow for the double thickness of web material.

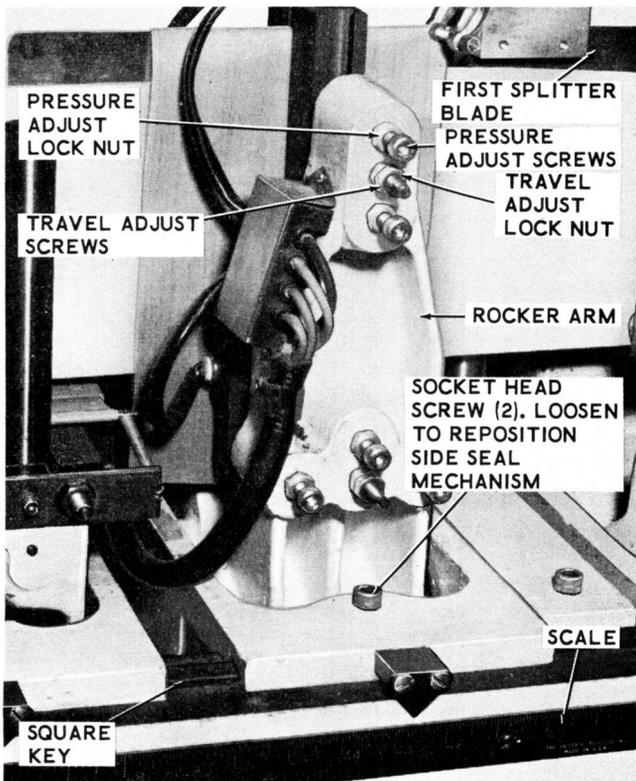


Figure 3-17. Side Seal Assembly

c. "T" Bar Seal Bar. The "T" Bar seal bar (Figure 3-18) is used with fin type pouches requiring bottom seal. These bars form a side and bottom seal simultaneously, eliminating the bottom seal station. The "T" Bar can be used for one height pouch only.

d. Tandem Seal Bar. Tandem bars (Figure 3-18) are used to make double compartment pouches of fixed width and height.

3-31. SIDE SEAL ROCKER ASSEMBLY.

The rocker assembly (Figure 3-19) is used to mount and actuate the side seal bars. Two casting type arms pivoted on a base plate make up the major components of this assembly. Holes are provided at the top of each arm for mounting and adjusting the position of the side seal bars. A keyway in the base plate corresponds

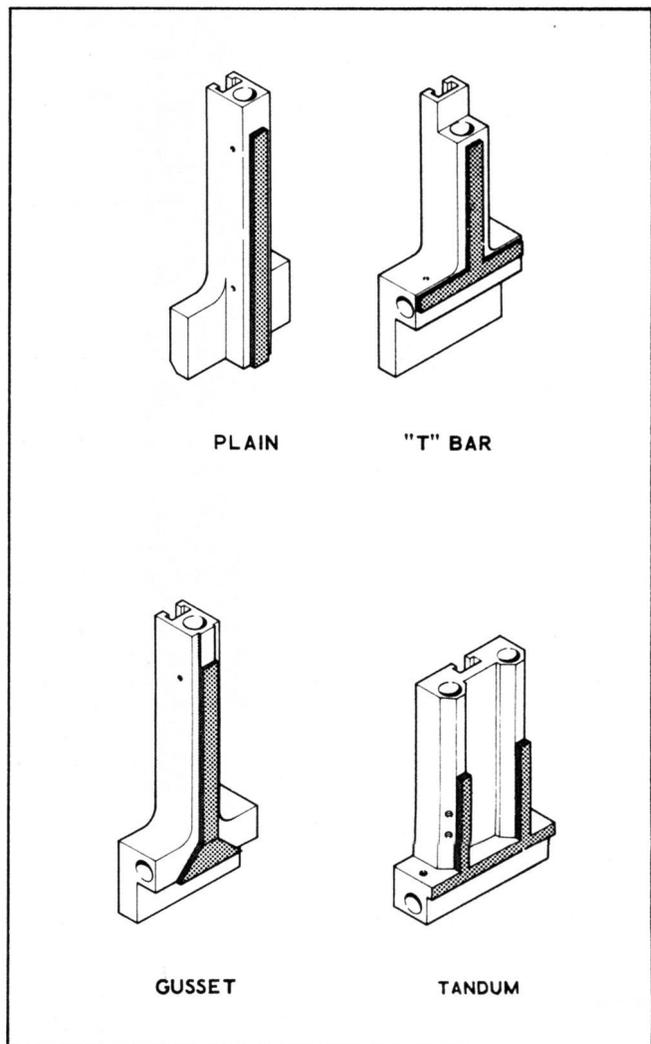


Figure 3-18. Side Seal Bars

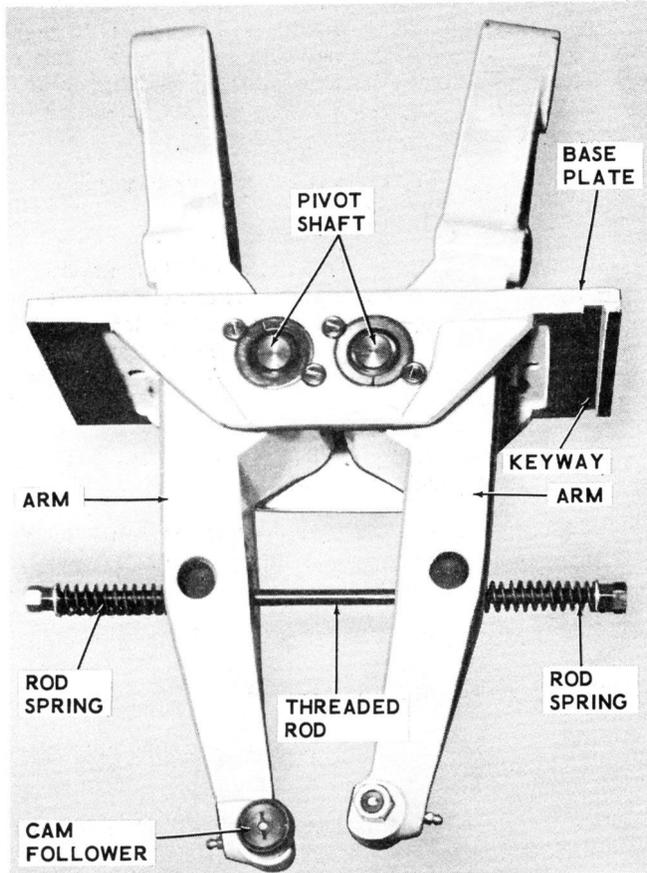


Figure 3-19. Side Seal Rocker Assembly

with a key on the machined base and ensures proper alignment of the mechanism with the centerline of the machine. A roller type cam follower is installed at the lower end of each arm. As the actuating cam is rotated between the two cam followers, the lower portion of the actuating arms are moved apart. The arms pivot on the pivot shaft and the top of each arm is moved toward each other and the centerline of the packager. As the actuating cam continues to rotate, the lower portion of the arms are brought back toward each other and the top portions move away from each other.

NOTE

Refer to Chapter 6, Section V, for rocker assembly repair instructions.

3-32. POSITIONING SIDE SEAL MECHANISM.

When positioning the side seal mechanism horizontally on the packager base, the width of the pouch must be considered. If an unprinted web is being run, the cutoff mechanism must be adjusted first for pouch size, then the side seal mechanism moved to the left or right as required. If a printed web is being run, the cutoff mechanism must be adjusted for pouch size and the photo registration device setup first. Position the side seal mechanism as follows:

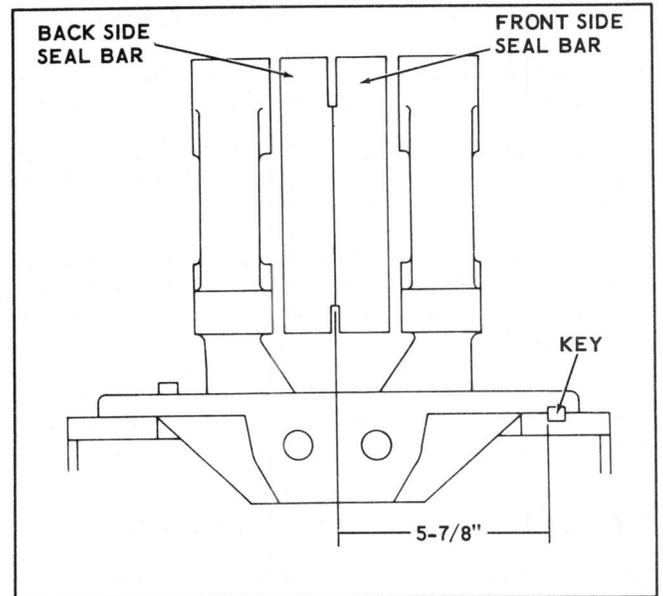


Figure 3-20. Centering Side Seal Bars

a. Loosen two socket head screws (Figure 3-17) holding mechanism in position on packager bed. Loosen screws retaining side mechanism actuating cam on cycle shaft.

b. Move mechanism to the left or right as required to obtain proper position. The mechanism must be moved in increments of pouch width using the scale (Figure 3-17) on the front of the unit and the pointer on the cutoff mechanism as a reference.

c. When position of mechanism is obtained, tighten the two socket head screws to secure mechanism in position.

d. Move actuating cam on cycle shaft to a position corresponding with the side seal mechanism rocker arm cam follower. Tighten screws of actuating cam to secure it in position on the shaft.

e. The side seal mechanism position obtained in the preceding steps is only approximate. Final position must be obtained by trial and error method by checking pouch cutoff and moving mechanism assembly slightly until cutoff assembly cuts pouch in exact center of side seal area.

3-33. CENTERING SIDE SEAL BARS.

The front face of the back seal bar must be on the center line of the Packager. Use a machinist scale and measure 5-7/8 inches (Figure 3-20) from the inside of the square key of packager base (Figure 3-17) to the front face of the back seal bar. Turn travel adjusting screws (Figure 3-17) until the 5-7/8 inch dimension is obtained.

NOTE

Bars must be perpendicular to the machine bed.

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

3-34. ADJUSTING SIDE SEAL BAR PRESSURE.

The amount of pressure applied by the side seal bars during the sealing process is adjustable as follows:

a. Jog Packager until side seal bars are in fully closed position. Loosen lock nuts (Figure 3-17) on each pressure adjusting setscrew.

b. Turn each pressure adjusting setscrew in (Clockwise) until a definite spring back pressure is felt, then turn screws in three more complete revolutions. Tighten all lock nuts.

c. Further pressure adjustment may be necessary after observing the condition of side seals as they are formed.

3-35. ADJUSTING SIDE SEAL BAR TRAVEL.

The amount of travel of the side seal bars perpendicular to the web is adjustable as follows:

a. Jog Packager until side seal bars are in fully closed position. Loosen outer lock nut (Figure 3-21) on each travel adjusting screw.

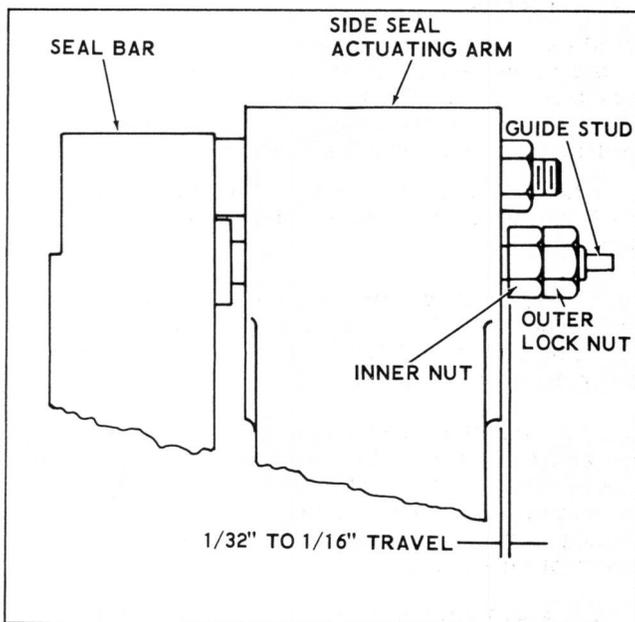


Figure 3-21. Adjusting Side Seal Bar Travel

b. Turn inner nut on each travel adjusting screw in or out as required to obtain a 1/32 to 1/16 inch dimension (Figure 3-21) between the face of rocker arm casting and inner face of inner nut. When dimension is obtained, tighten lock nut against inner nut to secure setting.

3-36. ADJUSTING SEAL BARS TO SUIT POUCH SIZE OR STYLE CHANGE.

a. Changing Fin Type Pouch Height. On machines equipped with two spring, pouch clamps, the bottom of the pouch is usually run on the guide plate. Raise the side seal bar for a taller pouch or lower for a shorter pouch. Change the side seal bars if adjustment is too great.

b. Changing Pouch Style. Change side seal bars to suit the type of pouch to be run.

c. Changing Pouch Width (Same Style Pouch). Reposition side seal mechanism along machine bars to suit new pouch dimension.

d. Adjust heat controls as required to suit new pouch.

3-37. CHANGING SIDE SEAL BARS.

a. Loosen setscrews and remove heating elements from the seal bar.

b. Loosen pressure lock nuts (Figure 3-22) and turn pressure adjust screws in side seal actuating arm to relieve spring pressure against seal bar.

c. Loosen travel adjust screw. Slide seal bar off travel adjust screw retainers which ride in groove of seal bar.

d. Install new seal bar by inserting travel adjust screw retainers in seal bar groove. Align seal bar and tighten travel adjust screw.

e. Install heating elements in holes of seal bar and secure with setscrews.

f. Adjust position, travel, and pressure of side seal bars.

3-38. TROUBLESHOOTING SIDE SEAL ASSEMBLY.

The following chart is provided as an aid in locating and determining probable causes of malfunction and possible solutions to each problem.

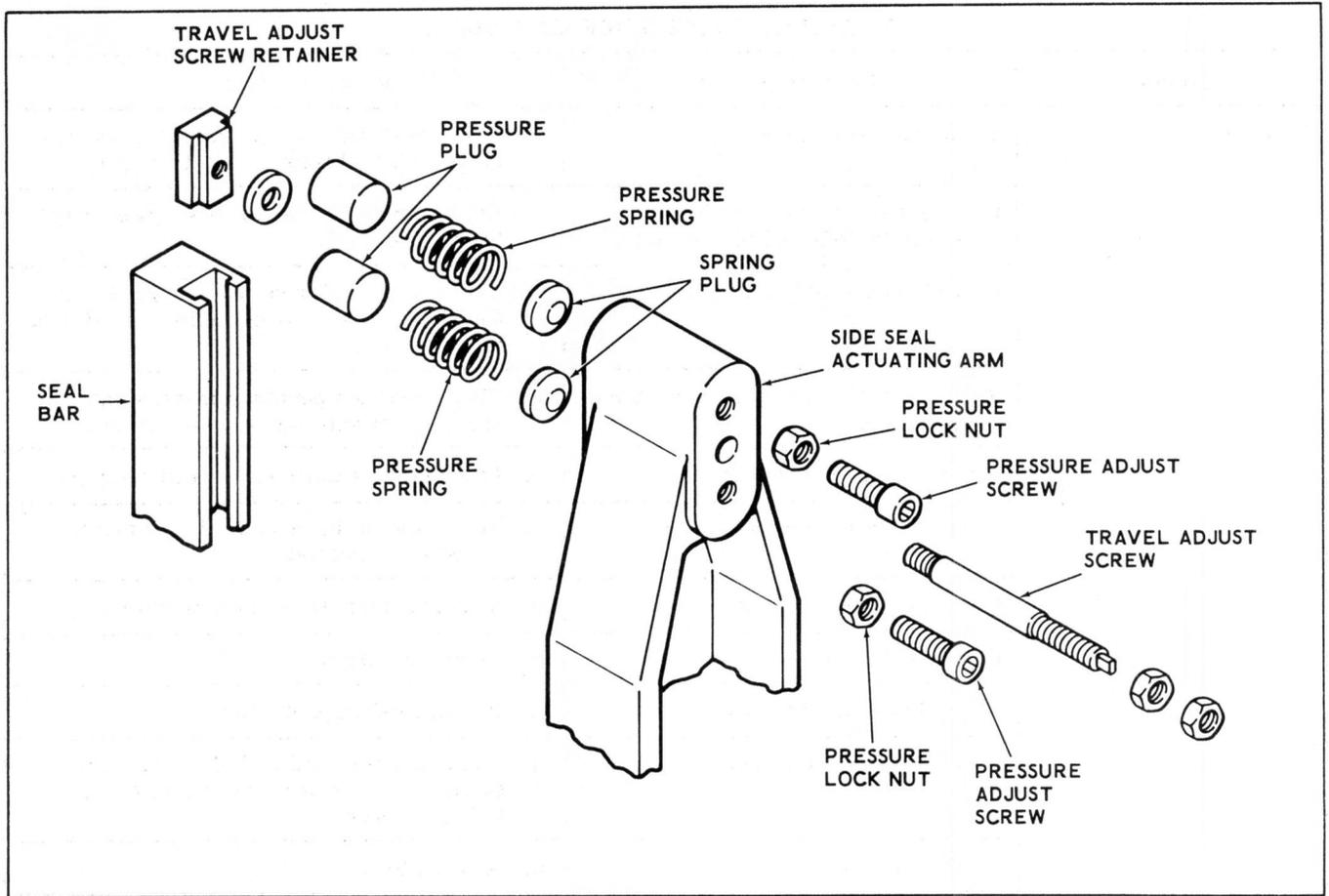


Figure 3-22. Replacing Side Seal Bars

BARTELT IM PACKAGER

OPERATION MANUAL 4-68

TROUBLESHOOTING GUIDE (SIDE SEAL)

Trouble	Probable Cause	Possible Remedy
1. Leakers.	a. Warped seal bars.	a. Grind seal bar flat and recenter on machine. (See Chapter 4, Section II.)
	b. Uneven pressure on side seal top to bottom and side to side.	b. Adjust pressure on springs. (See Chapter 4, Section II.)
	c. Only one seal bar heating.	c. Check both seal bars with a pyrometer. Check electrical connections, or replace heat element.
	d. Excessive change in room temperature.	d. Check seal temperature meters and change heat settings to compensate.
	e. Erratic power supply.	e. Add voltage stabilizer in power supply.
	f. Increase in machine speed.	f. Heat must be increased when machine speed is increased.
	g. Dwell time too short.	g. Increase heat; slow down machine.
	h. Dirty seal bars.	h. Clean seal bars.
	i. Teflon protector worn.	i. Replace teflon protector.
	j. Contaminate on web.	j. Check dancing roll and plow for contaminate of areas contact; dirt or oil falling on web.
	k. Web too low.	k. Adjust plow.
	l. Seal bars hitting splitter blade.	l. Raise splitter blade and/or lower seal bars.
	m. Back side seal bar not reaching centerline.	m. Recenter back seal bar.
	n. Side seal pressure not sufficient.	n. Increase pressure of movable bar; increase heat setting; slow down machine.
	o. Gusset relief on side seal not correct.	o. Grind gusset relief to twice thickness of web minus 0.001 inch.
	p. Relief of side seal bar not aligned with gusset.	p. Adjust gusset bars up or down.
	q. Improper side seal movable bar travel.	q. Adjust travel to 1/16 inch. (See Chapter 4, Section II.)
r. Side seal bars not aligned.	r. Adjust position of seal bars to be exactly opposite each other.	
2. Pouch wrinkles.	a. Timing or alignment incorrect.	a. Check and adjust.
3. Air jet splitter blade does not open pouch.	a. Defective side seal.	a. See 1 above.
4. Air jet splitter blade explodes pouch.	a. Weak side seal.	a. See 1 above.

Section VII. Photo Registration

3-39. GENERAL.

The photo registration unit consists of two major components; a phototube scanner and an amplifier unit. The photo registration scanner head is located on the rear base and is mounted on an adjustable bracket with the scanning head facing the web. A back-up plate is placed on the opposite side of the web relative to the scanning head. The amplifier is located in the main control box. The photo registration unit is used with printed web to control the amount of web fed through the feed rollers. The mounting of the photo registration scanner head is adjustable in all directions. The scanning head (Figure 3-23) may be raised and lowered on its mounting post to provide vertical adjustment. The base mount permits screw adjustment for finer linear adjustment (parallel to web) of the eye to the cutoff point.

3-40. OPERATION.

The phototube scanner (Figure 3-24) creates a signal voltage when light intensity on the phototube changes. This signal voltage is sent to the amplifier (Figure 3-25) where it is increased to fire a thyatron tube. The thyatron tube energizes a magnetic DPDT relay to apply the feed roll drive electric brake. The thyatron tube remains locked in and the relay energized until a reset switch (LSR) is operated by the cam of the sequence switch assembly. The scanner requires no adjustment for focus settings which allows immediate replacement of burned out bulbs. The scanner body is tapered to a point to allow setting the path of registration with the light beam.

The electronic circuit of the photo registration unit begins with a power input of 110 vac, 60 cps with a fuse protection of 1-1/2 amp. The alternating current enters the primary windings of the transformer (Figure 3-26) after passing through the SPST switch. The secondary windings supply the following voltages:

Windings	Volts	Amperes
1-2	5	2
3-5 CT4	450	90 MA
6-7	6.3	5.15

The 450 volts at 90 MA, CT plate voltage is rectified by the tube 5Y3 which is a full-wave rectifier. From this tube, the voltage is filtered by capacitor CO-1. The voltage is now ready to be used to supply the plate circuit of thyatron tube 2050. Under normal operation, the thyatron is non-conducting. At this time, the amplifier tube 6SK7 is receptive to a negative signal from phototubes 5582. The current drawn by the thyatron and amplifier stages is low, thereby

allowing the filter network to supply ripple free voltage. When the thyatron is conducting, it draws more heavily and the ripple component in the plate current increases. However, the thyatron locks in and is not affected by the added ripple.

The thyatron voltage comes directly from the rectifier output across capacitor CO-1. Resistor R-1 and capacitor CO-2 further filter the voltage before it reaches the amplifier stage. The phototube voltage supply is obtained by rectification from tube 6X5 which serves as a half wave rectifier. The rectified voltage is filtered by capacitor CO-8. This voltage is fed into the control grid of thyatron 2050 and through additional filtering by capacitor CO-7 is sent to the external phototube circuit. Because bias voltage rectification and filtering is independent it is stable under varying load conditions and reasonably safe from slight line variations. Due to the negative bias voltage on the control grid, the thyatron is normally non-conducting. The value of this bias is controlled by the balancing potentiometer and the 250,000 ohm

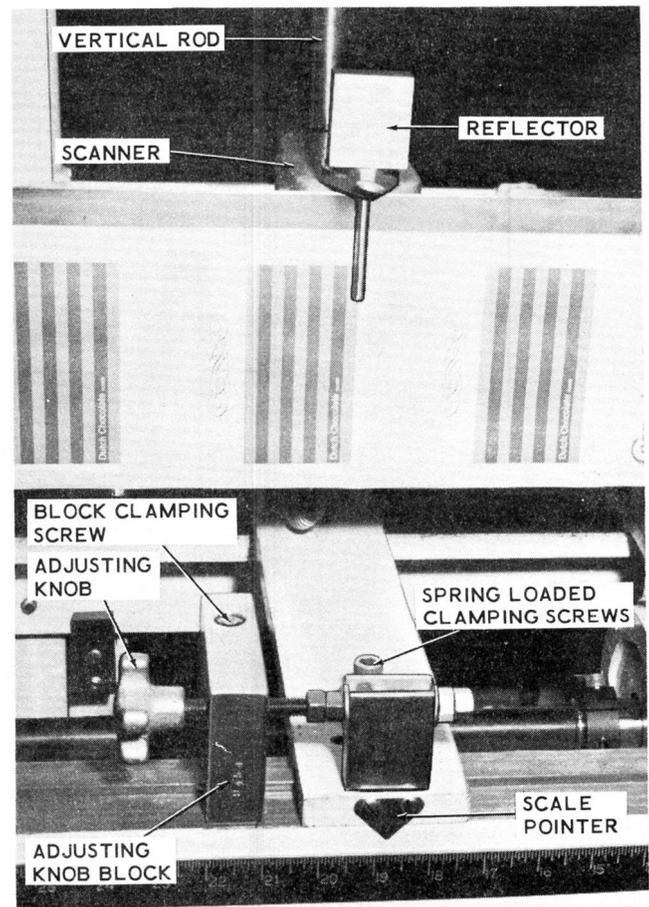


Figure 3-23. Scanner Head Mounting

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

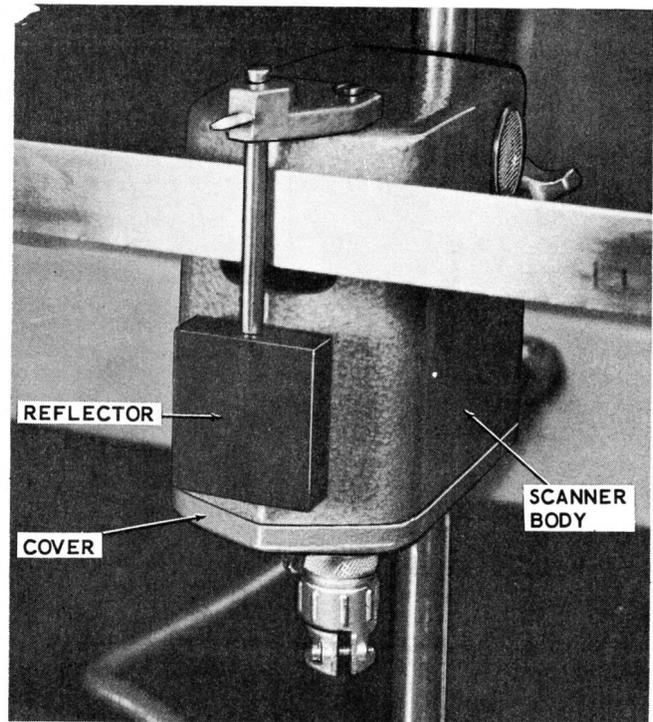
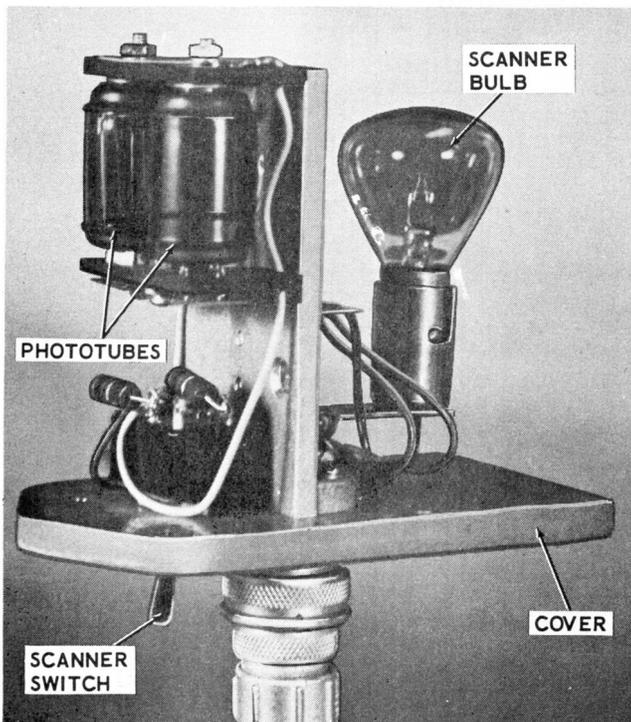


Figure 3-24. Scanner Head

volume control marked "S" on the control panel. This is the sensitivity control; as it is rotated in a clockwise direction, the control grid of the thyatron

becomes less negative or, in terms of sensitivity, more sensitive. The thyatron control grid is directly connected to the amplifier stage by means of a resistor network.

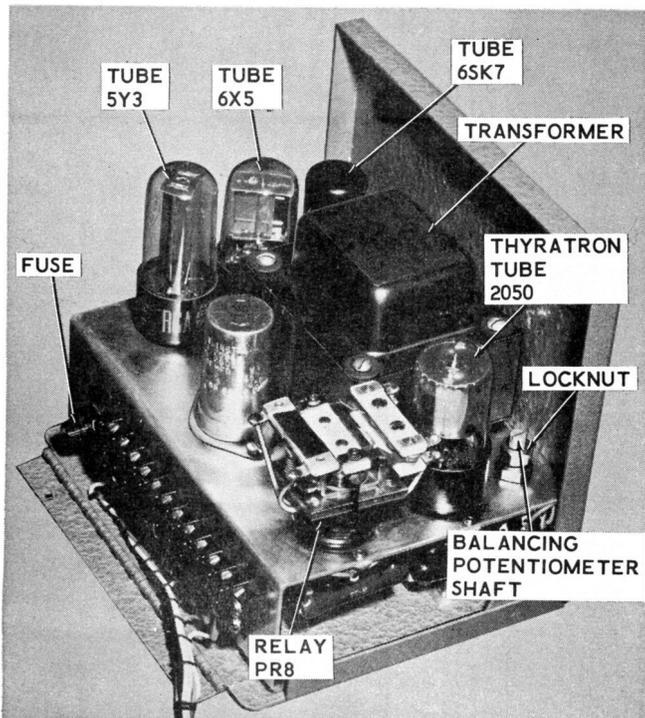


Figure 3-25. Photo Registration Amplifier

A 6SK7 Pentode tube is used in the amplifier stage. When a negative signal from the phototube is coupled through capacitor CO-9 into the control grid of the amplifier tube 6SK7, it causes a reduction in plate current and a decrease in the voltage drop across the plate load resistor. The voltage between plate and ground increases. This increase, in a positive direction is coupled through the resistor network. The resistor network will convey this increased voltage signal to the control grid of the thyatron. The thyatron will then commence to conduct current, closing DPDT relay.

The plate voltage to the thyatron is connected in series through relay, switch LSR and a manual reset switch. If either or both of these are open, the plate voltage is cutoff. This cutoff will either reset the thyatron or not allow it to fire.

The scanner of the photo registration device can utilize two types of phototubes; a blue sensitive phototube which sees red against white, and a red sensitive phototube which sees blue against white. The following chart lists the seeing ability of a blue sensitive phototube in relation to color of register mark on the web to background color of web.

**BASIC COLORS OF REGISTER MARKS VS BACKGROUND
COLORS FOR REFLECTED LIGHT OPERATION**

BLUE SENSITIVE PHOTOTUBE							
(SEES RED) REGISTER MARK							
BACKGROUND	WHITE	YELLOW	GREEN	BLUE	RED	BLACK	SILVER
WHITE	P	G	G	P	E	E	E
YELLOW	G	P	P	G	G	P	P
GREEN	G	P	P	P	G	F	G
BLUE	P	G	P	P	E	E	E
RED	E	G	G	E	P	P	P
BLACK	E	P	F	E	P	P	P
SILVER	E	P	G	E	P	P	P

RED SENSITIVE PHOTOTUBE							
(SEES BLUE) REGISTER MARK							
BACKGROUND	WHITE	YELLOW	GREEN	BLUE	RED	BLACK	SILVER
YELLOW	P	P	P	G	P	E	G
WHITE	P	P	F	G	P	E	E
GREEN	F	P	P	F	G	G	P
BLUE	G	G	F	P	G	P	P
RED	P	P	G	G	P	G	G
BLACK	E	E	G	P	G	P	P
SILVER	E	G	P	P	G	P	P

E-Excellent

G-Good

F-Fair (Not recommended)

P-Poor (Not to be used)

The EMP Register device is about two points more sensitive on a light decrease than on a light increase; therefore, a light decrease should be used if possible. A light increase usually results in a marginal operation.

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

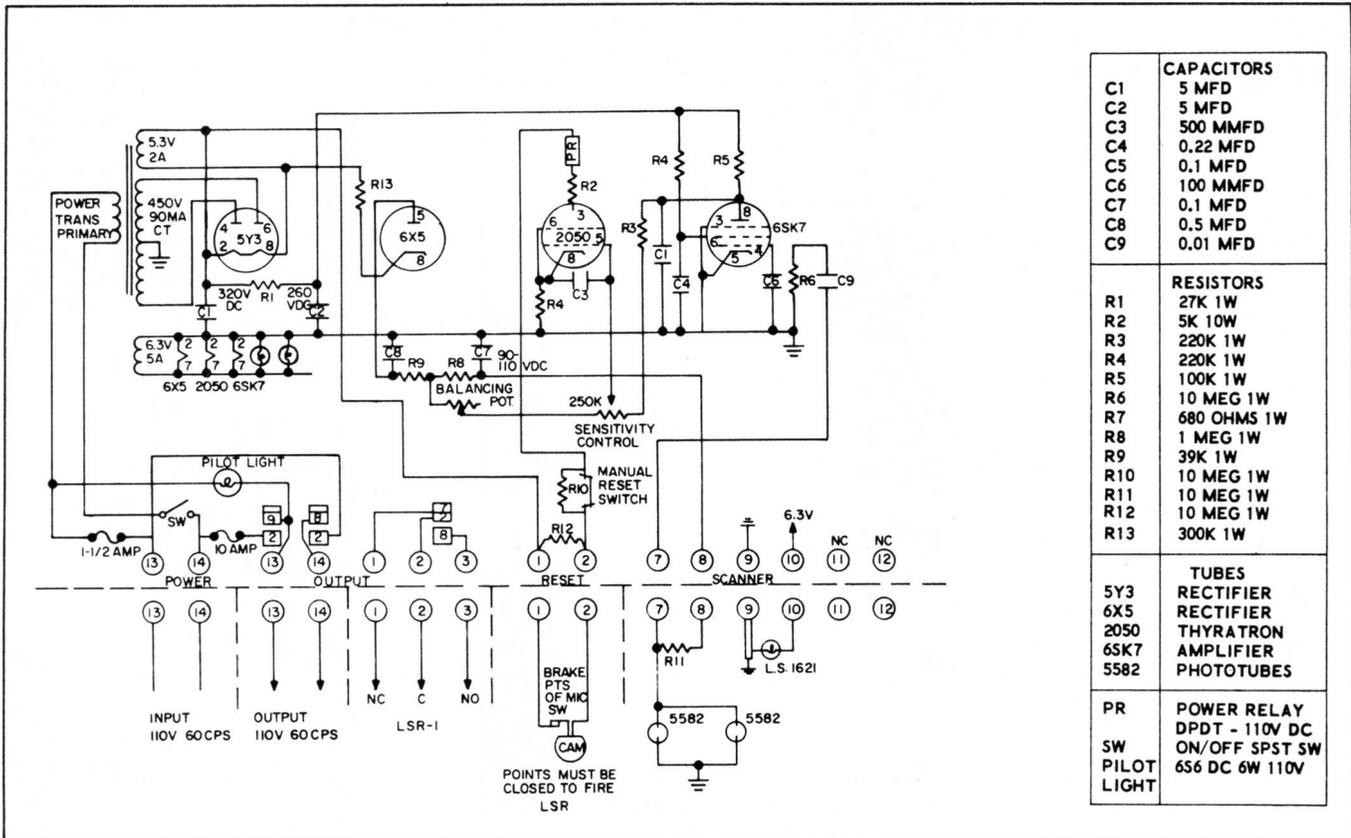


Figure 3-26. Photo Register Schematic

3-41. SETTING SENSITIVITY.

Set the sensitivity of the photo registration unit as follows:

- Set sensitivity switch on large control panel to 2.
- Loosen locknut (Figure 3-25) on balancing potentiometer and adjust potentiometer using a screwdriver, while flashing a card or other object in front of the scanner. Set the potentiometer to the minimum required to excite the photo eye. Tighten locknut.
- Turn sensitivity switch on large control panel to 3 for operation.
- The scanner switch (Figure 3-24) should be set in DECREASE position when running web with white background and dark register mark. Set the switch to INCREASE when running web with dark background and white register mark.

3-42. POSITIONING SCANNER MECHANISM ASSEMBLY.

Position the scanner mechanism assembly as follows:

- Loosen the screw in the adjusting knob block (Figure 3-23). Move the mechanism assembly along the bed of the Packager until the desired position is

obtained. This assembly should be located as close as possible to the cutoff assembly and in increments of pouch width.

- Tighten screw in adjusting knob block.
- Loosen setscrew in scanner and move scanner up or down on vertical rod of mechanism assembly until it is in line with horizontal path of register marks. Be sure scanner is perpendicular to web and tighten the scanner clamp screw.
- A reflector (Figure 3-23) is provided with the scanner to assist in maintaining the web a proper distance of 1/4 inch from the scanner face. The square reflective portion is used when running transparent web. With registration marks light in color (white, yellow, etc) use black side of reflector toward the light. Use white side of reflector for dark registration marks (red, black, etc). This is done to offer maximum contrast to the phototube of the scanner.

- Turn the register switch on. Jog machine until dial of sequence switch assembly in electrical control box indicates 150 degrees or, on machines without dials, until the keyway on the cycle shaft is approximately 30 degrees from being straight out toward operator side of machine. Adjust the cam on switch LSR of the sequence switch assembly so the switch is just closed.

f. Rotate the feed rolls and bring web in proper position for knife cutoff. Using the adjusting knob (Figure 3-23) move the scanner head so the light is on approximate center of the register spot. Adjust "S" switch to 5.

g. Start the packager and note if machine holds web in register. If the first pouch or two are off, readjust scanner head in relation to register mark. After running several pouches, note position of printed pouch in relation to the cut, and move scanner head accordingly.

3-43. REPLACING BULB IN SCANNER HEAD.

To replace or change a bulb in the scanner head, remove retaining screws and detach cover from scanner body. Refer to chart for proper bulb to be used. Install cover on scanner body after bulb is replaced.

3-44. TROUBLESHOOTING PHOTO REGISTRATION.

The following chart is provided as an aid in locating and determining probable causes of malfunction and possible solutions to each problem.

TROUBLESHOOTING GUIDE (PHOTO REGISTRATION)

Trouble	Probable Cause	Possible Remedy
1. Photo registration unit operates erratic.	a. Electrical failure.	a. Check for blown fuse loose connections; defective tube, defective bulb.
	b. Web too close to scanner eye.	b. Keep web approximate 1/4 inch from scanner head opening.
	c. Pouch too long due to improper setting of feed roll drive crank.	c. Pouch should be set 1/64 to 1/32 inch longer than distance from spot to spot on printed web.
	d. Web slipping.	d. Adjust web roll brake. Clean and adjust pressure of feed rolls.
	e. Scanner at wrong station.	e. Position scanner between side seal and cutoff if possible and as close to knife as possible.
	f. Feed roll brake not timed correctly.	f. Check timing of feed roll brake.
	g. Micro switch malfunction.	g. Replace or readjust position of sequence switch micro switch relative to cam.
	h. Extraneous light entering scanner.	h. Cover source of light or web area near scanner.
	i. Overly reflective web confusing scanner.	i. Angle position of scanner head.
	j. Wrong color bulb for web and registration mark.	j. See bulb chart; replace bulb.
	k. Scanner too high or low relative to register mark.	k. Adjust scanner up or down to suit.
	l. Sensitivity too high or low.	l. Adjust sensitivity switch.
	m. Main drive chain too loose.	m. Adjust position of varidrive to tighten main drive chain.
	n. Wavy web confusing scanner.	n. Stabilize web with paddle.
o. Timing chain too loose.	o. Tighten chain.	

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

Section VIII. Feed Roll and Cutoff Mechanism

3-45. FEED ROLL AND CUTOFF MECHANISM.

The feed roll and cutoff mechanism (Figure 3-27) advances the web past the cutoff knife into the pouch clamp and cuts the web to produce a pouch of the correct width.

Web is fed through the machine by two rubber covered feed rollers that are geared together and driven by a pair of bevel gears located in the housing of the feed roll mechanism. These bevel gears are in turn driven by the feed roll drive shaft. One feed roller is spring loaded and can be separated by the feed roll release handle. Spring pressure may be regulated by the adjustment of pressure adjusting screw. The rollers can be manually operated (in web advance direction only) by the hand wheel on top of the unit.

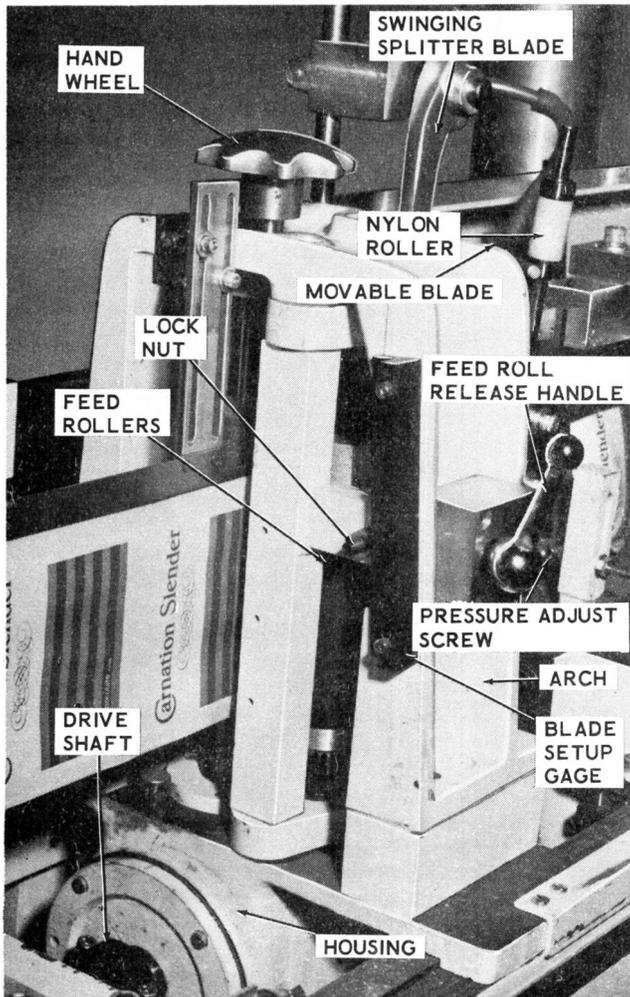


Figure 3-27. Feed Roll and Cutoff Mechanism

A pair of knife blades are mounted on the feed roll housing to cut the web into pouches. The stationary blade is mounted on feed roll arch. The movable blade is mounted to a cam operated arm. The cam is keyed to ensure proper timing. The knife blades should always be returned to Bartelt for sharpening.

NOTE

Refer to Chapter 6, Section VI for feed roll and cutoff mechanism repair instructions.

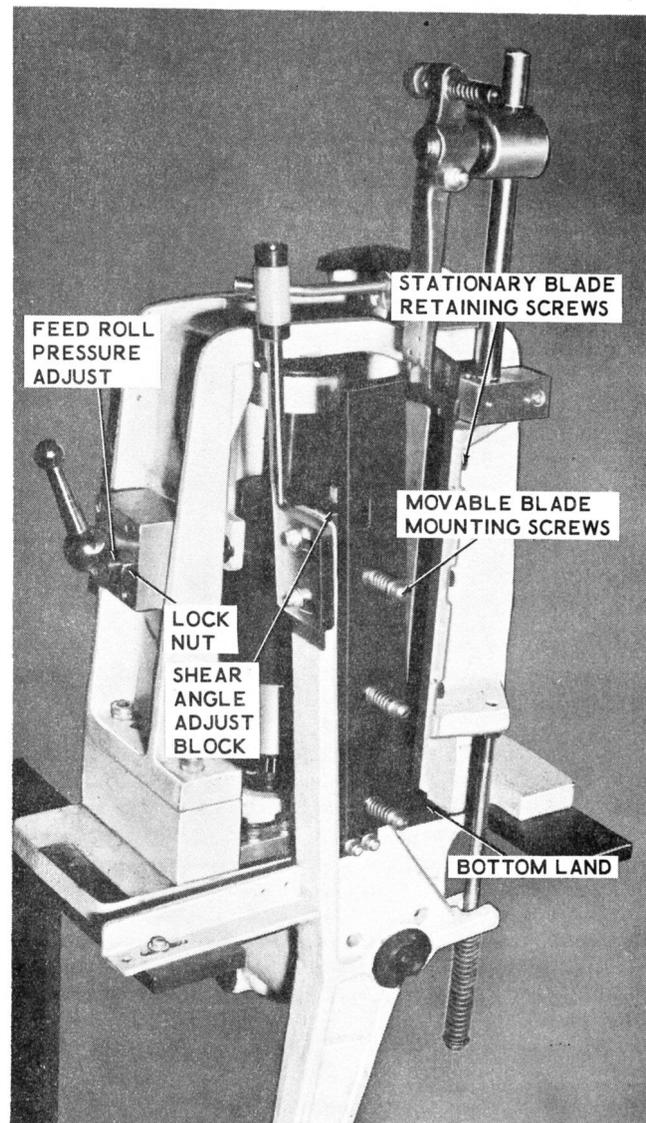


Figure 3-28. Installing Cutoff Knives

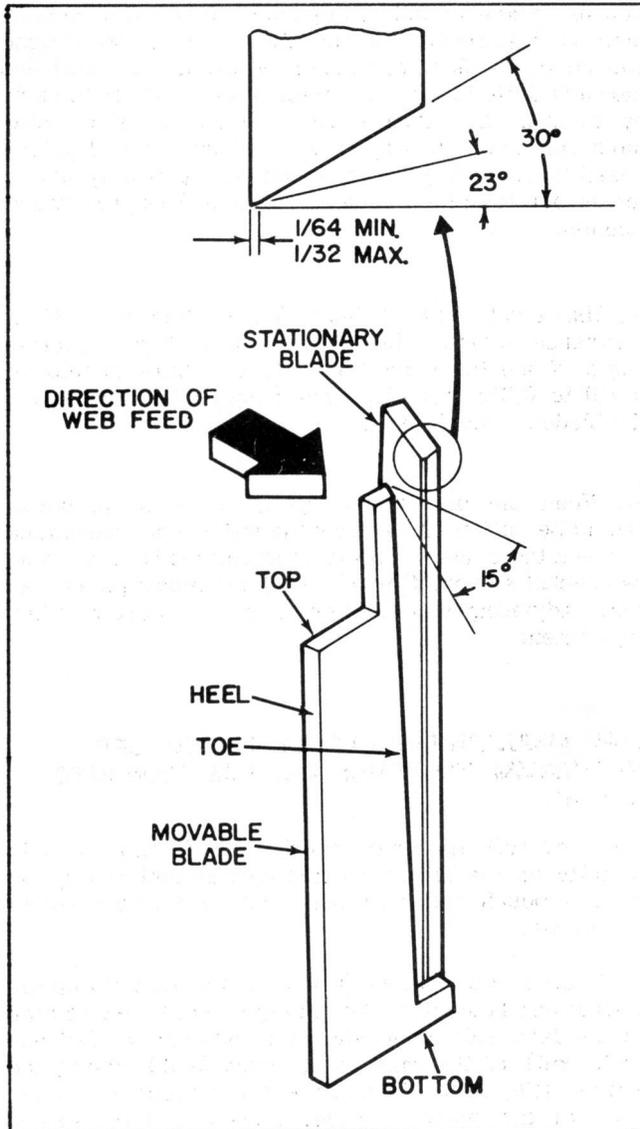


Figure 3-29. Cutoff Knives

3-46. ADJUSTING FEED ROLL PRESSURE.

The feed roll pressure rarely requires adjustment. This pressure is adjusted by loosening lock nut (Figure 3-27) and turning the setscrew. The pressure that the feed rolls apply to the web is adjusted by loosening lock nut (Figure 3-28) and turning the setscrew clockwise until the spring pressure is felt. After feeling spring back pressure, turn the setscrew three complete turns. Tighten lock nut after setscrew adjustment has been made.

NOTE

Only enough pressure should be applied so that the web does not slip.

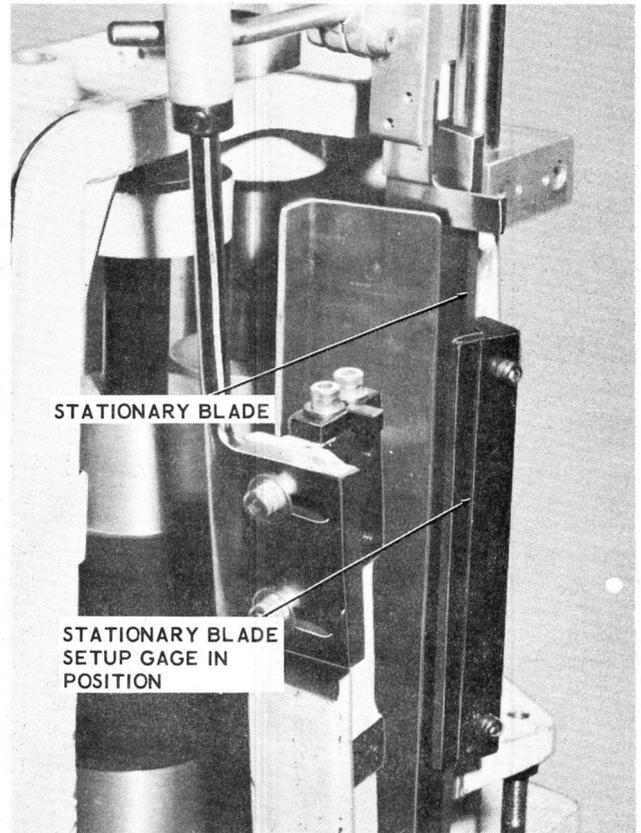


Figure 3-30. Installing Cutoff Knife Gage

3-47. ALIGNING KNIVES.

The stationary blade cutting edge has compound angles (Figure 3-29); the 23 degree surface is the shearing plane, and the 30 degree surface is for clearance. The width of the 23 degree surface is 1/64 inch minimum and 1/32 inch maximum. The cutting edge should be vertical. The cutting edge of the movable blade is ground with a 15 degree relief angle. To produce a clear and accurate cutoff and maintain a minimum of cutting edge wear, the movable blade must be positioned to produce a single point of contact between itself and the stationary blade. To insure this action proceed as follows:

- a. Attach stationary blade to feed roll casting with three screws (Figure 3-28). Do not tighten screws. Remove setup gage (Figure 3-27) from its storage position on front side of feed roll casting. Attach gage with its two mounting screws to holes provided in casting near stationary blade (see Figure 3-30). Slide stationary blade until cutting edge is against gage and tighten the three stationary blade mounting screws. Detach gage and return to stored position.

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

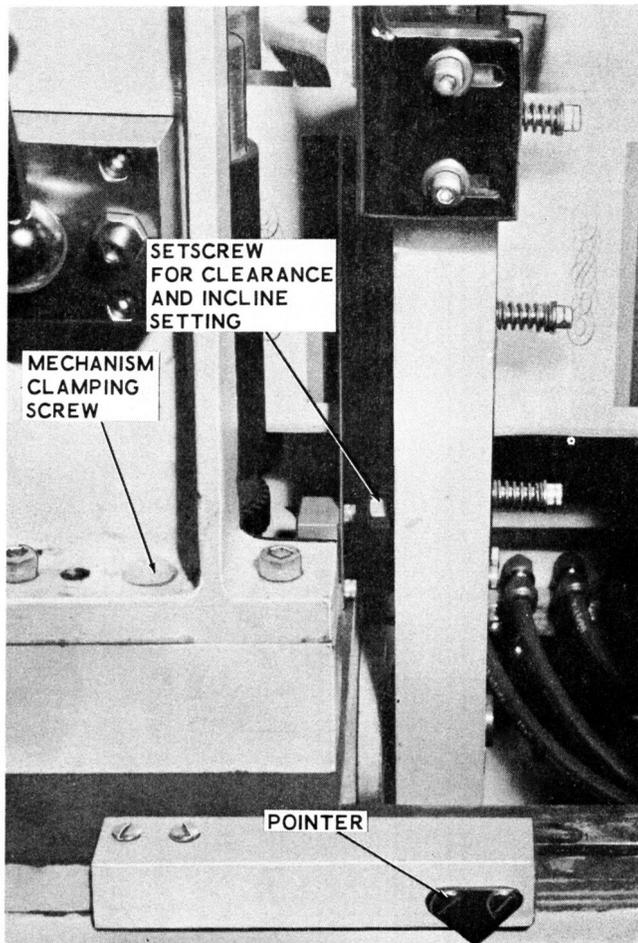


Figure 3-31. Knife Clearance Setscrew

b. Jog the machine until movable arm is wide open. Attach movable knife blade to arm using three spring loaded screws (Figure 3-28). The bottom land of the

movable blade should be aligned perfectly flat with the land at the bottom of the fixed blade. Use a light source to check this. Using hand pressure, close the movable knife to cut off a piece of web. Adjust tension by turning the three spring loaded movable knife mounting screws. Adjust tension until the slightest possible amount of tension that will properly shear the web is obtained. Heavier web will require more tension.

c. Using setscrews (Figure 3-31) adjust the bottom clearance between blades and the 3 degree incline angle. When the blades are closed, there should be 0.010 to 0.015 inch clearance (Figure 3-32) between the blades at the bottom.

d. When the blades are open, the angle of shear should be sufficient to allow the web proper clearance between the blades. This is accomplished by loosening two socket screws (Figure 3-28) and moving the shear angle adjusting block. Tighten the two screws after adjustment.

3-48. ADJUSTING FEED ROLL AND CUTOFF MECHANISM FOR POUCH AND INSERTION INTO CLAMP.

The feed roll and cutoff mechanism is moved horizontally on the bed of the packager as dictated by the width of pouch to be produced. Position the mechanism as follows:

a. Loosen two screws (Figure 3-31) that clamp the mechanism housing to the packager bed. Loosen clamp on the feed roll drive shaft located near the left end (web roll) of the machine (Figure 3-33). Using the pointer (Figure 3-31) and the scale mounted on the front of the machine base, move the feed roll and cutoff mechanism until the pointer is one pouch width from the bag clamp pickup point.

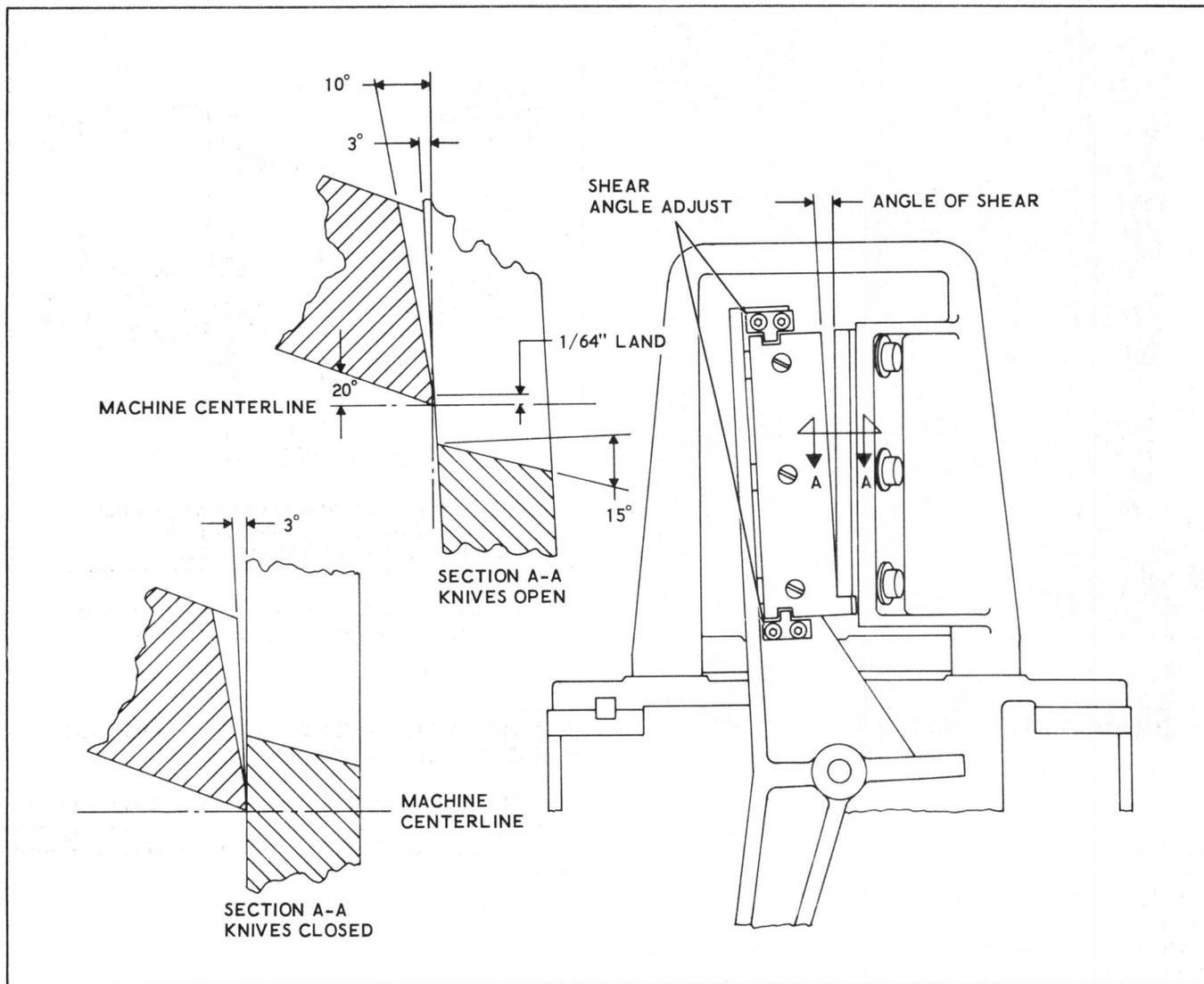


Figure 3-32. Cutoff Knife Angles

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

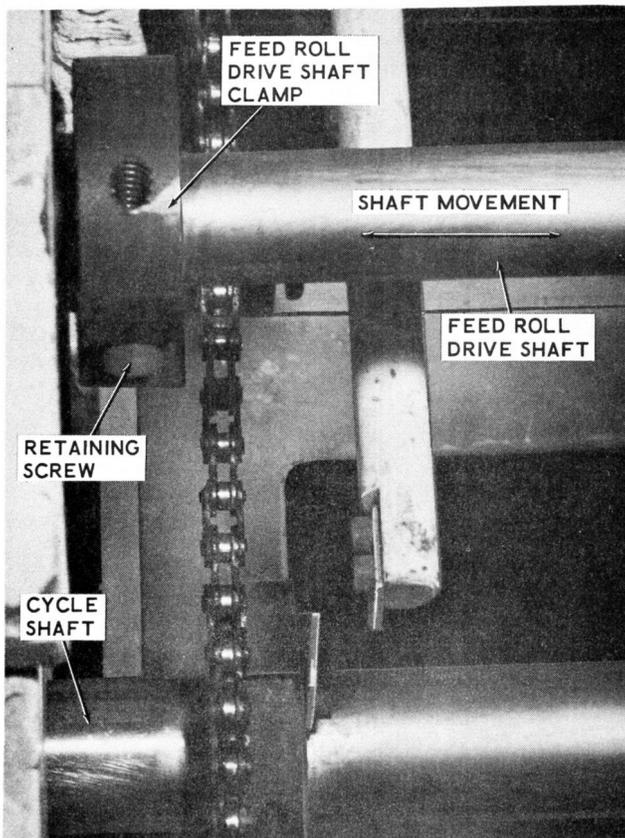


Figure 3-33. Feed Roll Drive Shaft Clamp

b. Fine adjustment of the feed roll and cutoff mechanism for pouch width is now accomplished by placing a scale against the fixed cutoff blade and measuring the pouch width to a point $1/16$ inch beyond the hook of the pouch clamp (Figure 3-34) that is in position to receive the pouch. Move the mechanism to left or right to obtain the proper dimension.

c. Tighten two screws (Figure 3-31) to clamp feed roll and cutoff mechanism in position on packager bed. Tighten clamp on feed roll drive shaft (Figure 3-33).

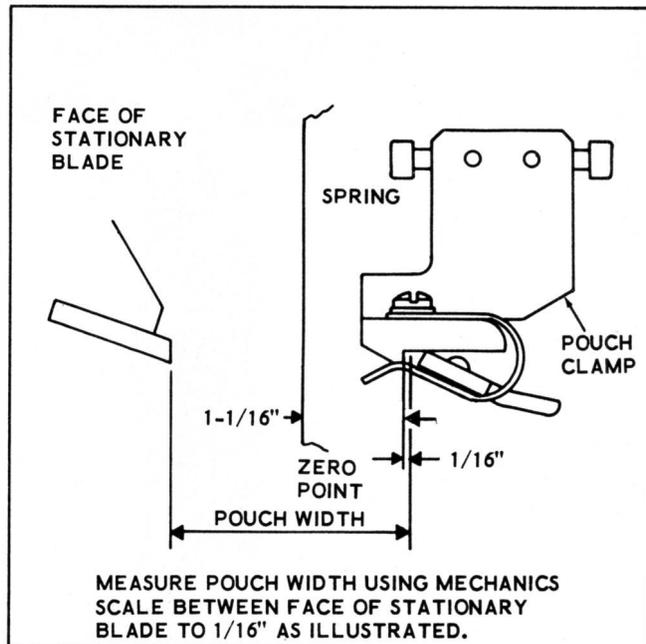


Figure 3-34. Measuring Pouch Width from Stationary Knife to Pouch Clamp

3-49. ADJUSTING FEED ROLLS TO SUIT POUCH SIZE OR STYLE CHANGE.

When changing pouch height or style, it may be necessary to change the feed rolls to suit the new pouch. Refer to Chapter 6 for instructions on replacing feed rolls.

3-50. TROUBLESHOOTING FEED ROLL AND CUTOFF ASSEMBLY.

The following chart is provided as an aid in locating and determining probable causes of malfunction and possible solutions to each problem.

TROUBLESHOOTING GUIDE (FEED ROLL AND CUTOFF)

Trouble	Probable Cause	Possible Remedy
FEED ROLLS		
1. Feed rolls slipping.	a. Feed rolls too loose.	a. Adjust pressure on movable roll.
	b. Wax or dirt build up on rolls.	b. Clean with alcohol.
	c. Rolls worn.	c. Replace feed rolls. (See Chapter 6.)
	d. Feed roll gears not meshed.	d. Release handle and re-engage.
	e. Web roll brake too tight.	e. Adjust web roll brake.
	f. Arbor shaft binding.	f. Lubricate arbor shaft.
	g. Dancing roll at top limit of travel.	g. Adjust web roll brake to lower dancing roll.
	h. Timing off.	h. Rolls reversing or over traveling when normally at rest. Check timing. Check collar on drive shaft for tightness.
	i. Gears bottoming.	i. Replace gears. (See Chapter 6.)
2. Feed rolls will not turn.	a. Defective feed roll drive shaft brake.	a. Clean and repair brake.
	b. Defective feed roll drive shaft clutch.	b. Clean and grease.
	c. Drive shaft collar loose.	c. Tighten drive shaft collar.
	d. Worn gears.	d. Replace worn gears in housing. (See Chapter 6.)
CUTOFF		
1. Ragged cut.	a. Dull knife.	a. Recommend replacement. Return to Bartelt for sharpening.
	b. Pivot bearings worn.	b. Replace worn pivot bearings. (See Chapter 6.)
	c. Knives off center; not aligned.	c. Adjust cutoff knives.

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

Section IX. Feed Roll Drive Assembly

3-51. GENERAL.

The left hand portion of the packager from the web roll arbor shaft to the cutoff mechanism is the pouch forming section of the machine. Movement of the web through this portion of the machine is provided by the two feed rollers in the feed roll and cutoff mechanism. The feed roll and cutoff mechanism is driven by the feed roll drive shaft and feed roll drive assembly. The drive shaft is rotated by the cycle shaft acting through a crank (Figure 3-35), clutch, and brake. Through this arrangement, the drive shaft actuates the feed rollers to advance the web the width of one pouch for each machine cycle. This is accomplished during one-half of one revolution of the cycle shaft; the drive unit dwells during the other one-half of the cycle shaft revolution. The rotary motion of the feed roll drive shaft provides the necessary intermittent motion to the pouch forming portion of the packager.

3-52. CRANK ARM ASSEMBLY.

The crank arm assembly (Figure 3-35) transmits the circular motion of the cycle shaft into an up and down motion to rotate the feed roll clutch shaft. The assembly has two major parts; a hub and an arm. The position of the arm on the hub controls the stroke and

therefore the amount of web that is moved each revolution. The hub and sprocket are assembled then keyed and pinned to the sprocket of the cycle shaft. The crank arm is retained in a slot by a socket head screw threaded into a sliding retainer in the inside of the slot. An adjusting screw and lock nut located on the side of the hub opposite the offset is used to adjust the position of the sliding retainer. When the adjusting screw is turned in, the sliding retainer and therefore the position of the crank arm is moved toward the outside end of the offset and the stroke is made longer. Conversely, if the adjusting screw is turned out, the sliding retainer is moved closer to the center of the hub and the stroke is shortened. The crank arm has a ball bearing at both connecting ends for smooth operation. The crank arm is made of two pieces; the top and bottom portions being tied together by a compression spring held in place by a nut threaded to the shaft of the top portion. This spring comes into play when registered web is being run and the movement of the web is controlled by the photo registration device. As the crank arm moves downward and is almost at the end of the feed cycle, the photo register device may activate the feed roll brake to stop the drive shaft before the feed is completed. However, the adjustable crank arm is going to finish the cycle, trying to complete the web feed. The compression spring on the crank arm will compress and allow the crank to pass over the balance of the feed cycle without moving the web. The top end of the crank arm is attached to a lever extending from a one-way clutch mounted on the feed roll clutch shaft.

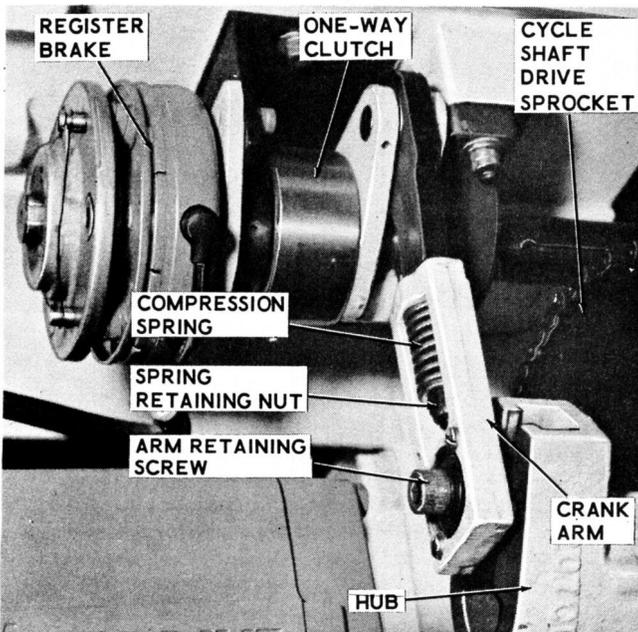


Figure 3-35. Feed Roll Drive Assembly

3-53. ONE-WAY CLUTCH.

The one-way clutch (Figure 3-35) receives the up and down motion of the crank arm and transmits the downward pull to the clutch shaft to rotate the feed roll drive shaft one pouch width. The clutch acts as a self-contained ratchet with an infinite number of teeth. When the crank arm is on the up sweep, the clutch is free wheeling and will rotate counterclockwise without moving the clutch shaft. As the crank arm begins its downward stroke, the clutch is turned clockwise and will engage to turn the clutch shaft to which it is keyed. The heart of the clutch is a duo cam-duo cage assembly. The cams are mechanically held in place by two cages; an inner and an outer cage (Figure 3-36). The outer cage controls the cams near the outer race contact point, and the inner cage controls the cams near the inner race contact. A light spring insures that the cams are always in contact with the races. Basic operation of the cam is shown in Figure 3-36. In "A" the cams are in a position to allow the outer race to free wheel. In "B" the inner race has rotated (pulled by the crank arm) and has forced the cams to rotate partially loading the clutch. In "C" the

cams are fully loaded and the load can be transmitted through the cams to the inner race to turn the clutch shaft.

3-54. REGISTER BRAKE.

The electric register brake (Figure 3-35) is mounted at the end of the clutch shaft. This brake is actuated electrically upon a signal from micro switches mounted on the sequence switch assembly in the electrical control box. When the feed rolls have just stopped moving the web and the crank arm is at the bottom of its stroke, the electric brake is applied to hold the clutch shaft from rotating. The clutch shaft is held from turning by the electric brake at this point to prevent its turning backward (counterclockwise) as the crank arm moves through the upward stroke. The electric brake is timed to release the shaft when the crank arm begins its downward pull stroke. The electric brake is also actuated by the photo registration device when running printed web. The photo registration device triggers the electric brake to stop the advance of web at the proper point for cutoff even though the crank arm has not completed its full downward cycle. The brake is comprised of two basic sections; a magnet section and an armature hub assembly (Figure 3-37). The magnet section is mounted to a rigid bracket of the machine. The hub assembly section is keyed to the drive shaft and rotates with it when the brake is not applied. When the brake is energized, the armature attached to the hub is attracted to the stationary mounted brake magnet and held from turning by the magnet. The armature slides toward the magnet and away from the hub on screws inserted through the flange of the hub and threaded into the armature. As the armature is held from turning by the magnet, the hub is stopped from rotating by the armature screws and the clutch shaft is held from rotating. When the magnet is deenergized, tension springs between the armature and hub pull the armature away from the magnet and the brake is released.

3-55. CLUTCH SHAFT.

The feed roll drive shaft is supported by, and turns in, a pillow block bearing (Figure 3-35) mounted under the top deck of the packager base. On the right end, the shaft is hollow for approximately 5-5/8 inches and is split for most of this length. The feed roll drive shaft fits into the hollow section and is held in position by a clamp around the outside of the hollow shaft. This provides a telescoping ability to the two shaft and is necessary to permit changing the position of the feed roll and cutoff mechanism horizontally along the top bed of the machine base. The right end of the feed roll drive shaft is clamped to the gear box assembly of the feed roll and cutoff mechanism and transmits the turning motion of the clutch shaft through bevel gears in the gear box to the feed rollers.

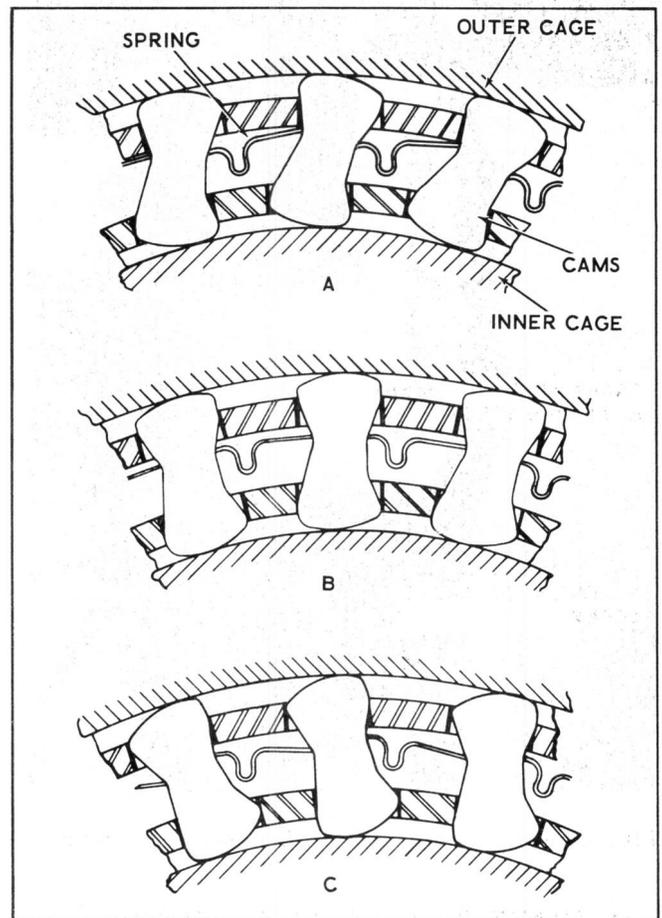


Figure 3-36. One-Way Clutch Operation

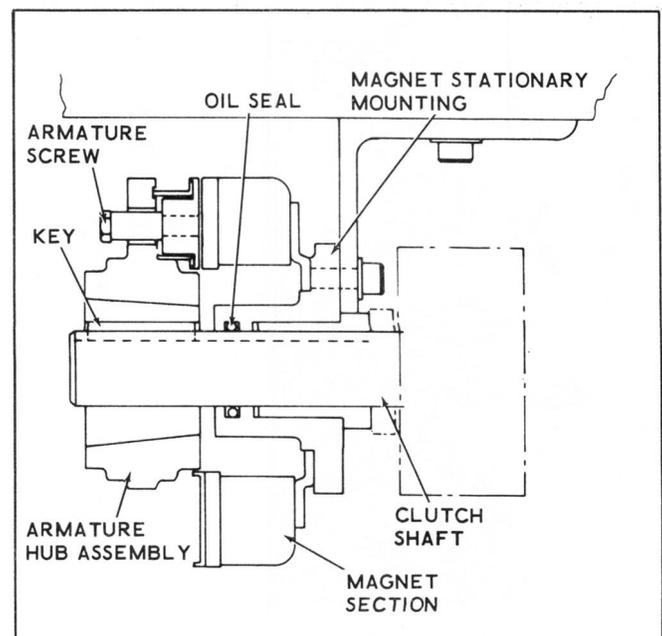


Figure 3-37. Register Brake

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

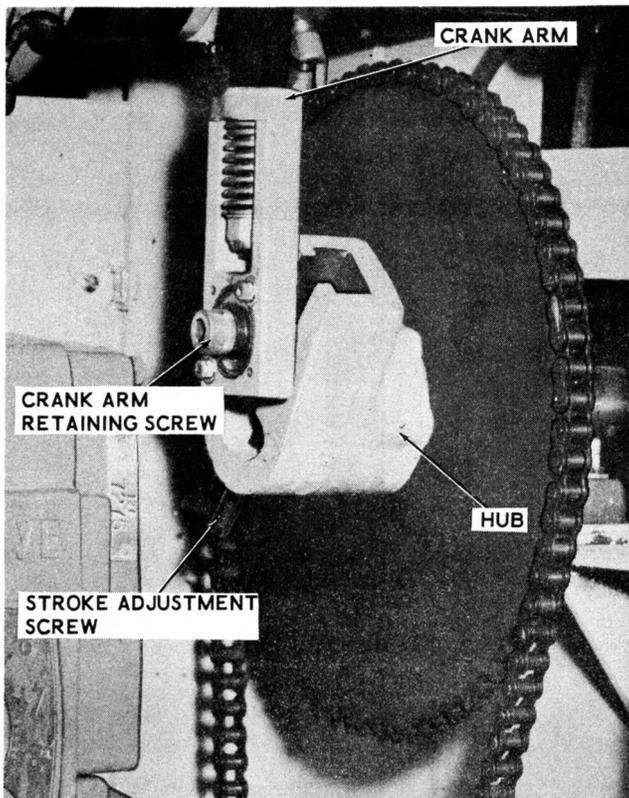


Figure 3-38. Adjusting Crank Arm for Pouch Width

3-56. ADJUSTING CRANK ARM FOR POUCH WIDTH.

If a plain web is being run, the pouch width is set exactly to the required dimension. If the web is printed

and going to be controlled by the photo registration device, the pouch width is set to the required width dimension plus a $1/64$ to $1/32$ of an inch overage. The procedure for adjusting the crank arm on the offset hub is as follows:

- a. Loosen the socket head cap screw (Figure 3-38) securing the adjustable crank arm.
- b. Loosen lock nut on the adjustment screw (Figure 3-38) in the hub.
- c. Turn the adjustment screw in to lengthen the pouch or out to shorten the pouch.
- d. Tighten the socket head cap screw in the crank arm.

CAUTION

Never run machine with this screw loose.

- e. Operate machine and check for pouch width. Repeat the preceding steps until the proper width pouch is obtained (exact width for unprinted pouch and $1/64$ to $1/32$ inch over width for printed pouch).

- f. After the proper setting is obtained, tighten lock nut on adjustment screw.

Section X. Pouch Handling Mechanisms

3-57. FIRST SPLITTER BLADE.

A 3/8 inch high area is left unsealed at the top of each pouch as it enters and leaves the side seal mechanism. The first splitter blade (Figure 3-39) rides in this opening to keep the top portion of the pouches from adhering to each other. The first splitter blade is fastened to a clamp which is supported by a vertical shaft anchored to the packager bed. The splitter blade is also supported by a holder attached to the arch of the feed roll and cutoff assembly. The splitter blade is adjustable at each support point to adapt to any pouch height.

3-58. SWINGING SPLITTER BLADE.

A swinging splitter blade mechanism (Figure 3-40) is attached above the feed roll mechanism to keep the top of the web separated while in the area of the web cutoff. When the movable cutoff knife is actuated to perform the cutoff operation, a nylon roller on a striker arm attached to the movable knife holder

strikes a guide on the swinging splitter blade. This moves the splitter blade out of the path of the advancing knife blade. As the knife blade returns to its original open position, the swinging splitter blade returns by spring action, to its original position to separate the top of the next pouch.

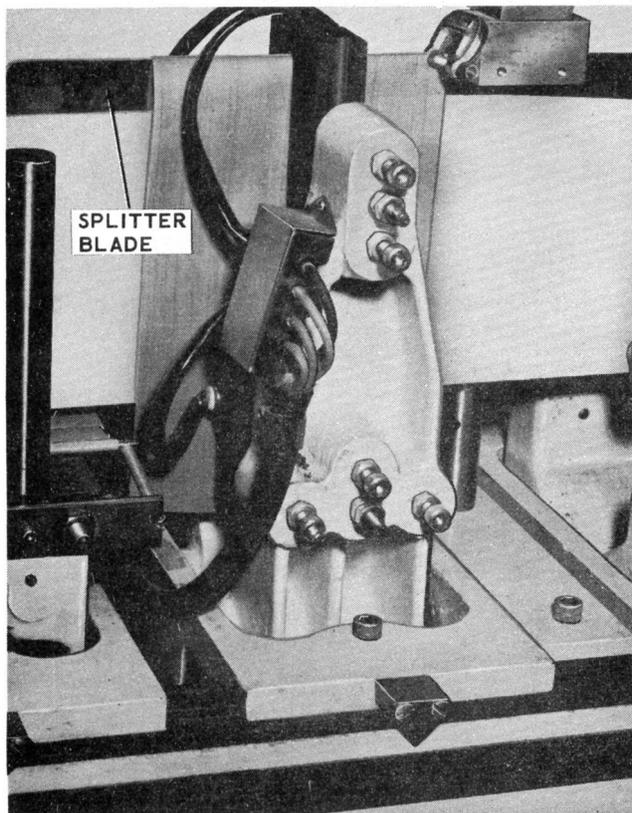


Figure 3-39. First Splitter Blade

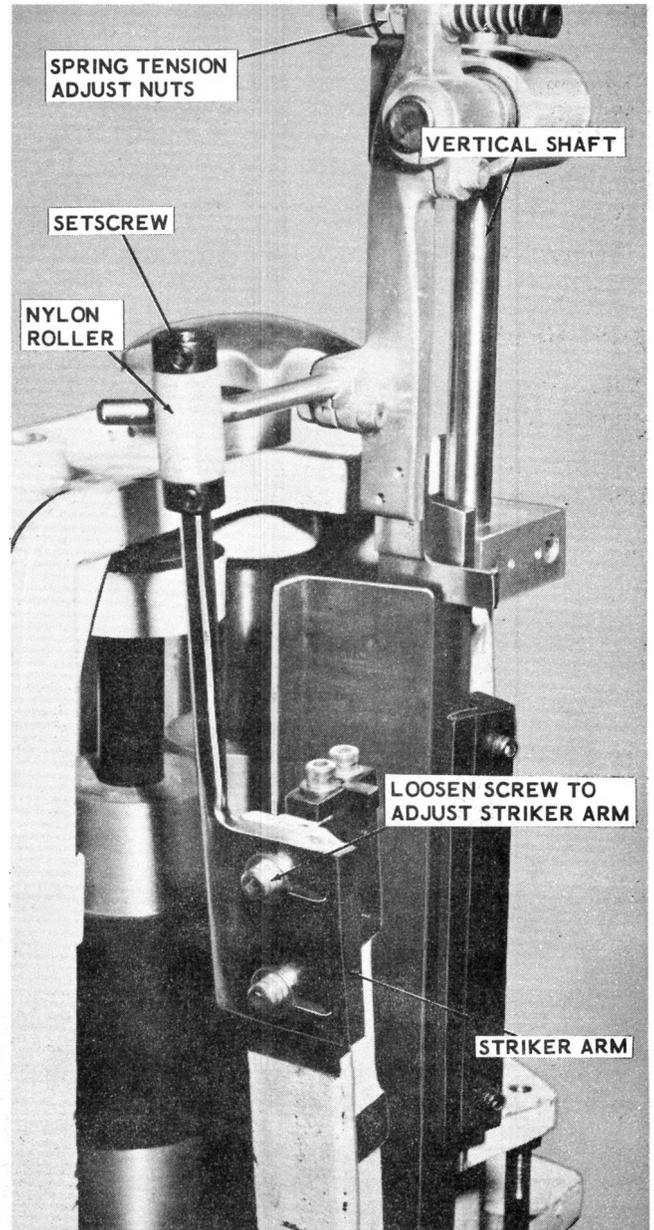


Figure 3-40. Swinging Splitter Blade

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

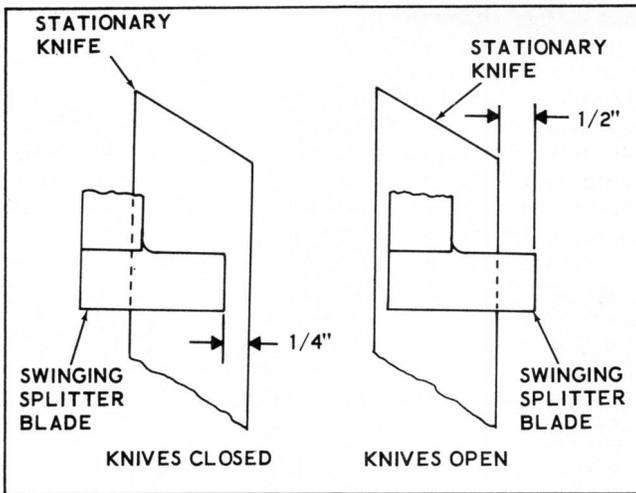


Figure 3-41. Positioning Swinging Splitter Blade

3-59. ADJUSTING SWINGING SPLITTER BLADE.

Adjust the swinging splitter blade for proper operation as follows:

a. Jog packager until movable knife is in open position. Loosen the screw attaching the swinging splitter

blade to the vertical shaft (Figure 3-40) and move the swinging splitter blade mechanism up or down the vertical shaft as required until the bottom of the blade enters the top of the pouch approximately 1/4 inch. Tighten attaching screws.

b. Loosen spring tension adjusting nuts (Figure 3-40). Turn adjusting nut until spring pressure positions the end of swinging splitter blade 1/2 inch beyond the stationary cutoff blade. Tighten second adjusting nut to hold this position.

c. As the movable cutoff blade closes, the swinging splitter blade is moved backward out of the path of the knives. When the knives are completely closed, the swinging splitter blade must be 1/4 inch away from the cutoff knives (Figure 3-41). This clearance is adjustable by loosening two screws holding striker arm (Figure 3-40) and moving the striker arm left or right as required. When the 1/4 inch clearance is obtained, tighten screws to secure striker arm.

d. Check position of nylon roller (Figure 3-40) on striker arm. The shaft of the swinging splitter blade should ride in approximate center of nylon roller. Loosen two setscrews in collars and move nylon roller up or down on the striker arm until centered on shaft. Tighten setscrews.

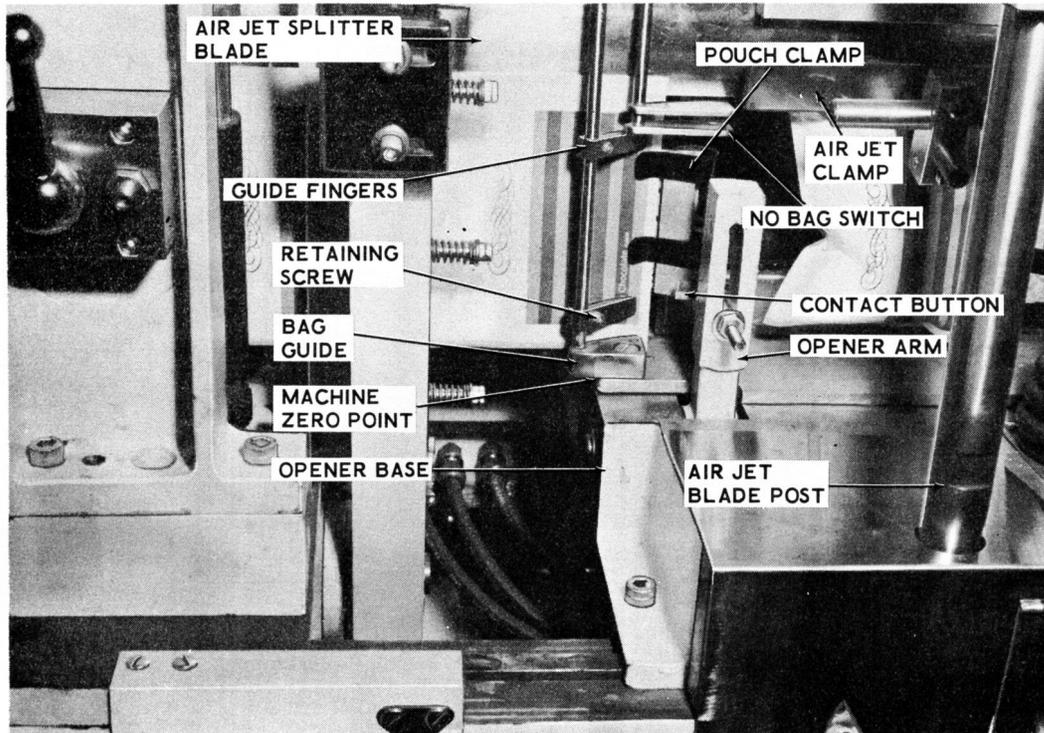


Figure 3-42. Pouch Clamping

3-60. BAG GUIDES.

As the pouch is fed from the feed rollers, it is guided into the pouch clamp. Bag guides (Figure 3-42) prevent the pouch from swinging to the left or right and missing the pouch clamp. By loosening one retaining screw, the guide fingers are adjustable on the vertical shaft to suit a variety of pouch heights.

3-61. NO BAG SWITCH.

The no bag switch (Figure 3-42) is used to detect the failure of a pouch to enter the bag clamp. It is a micro switch that is normally closed. This switch is connected in series with another micro switch located on the sequence timing switch assembly. The switch located on the sequence timing switch assembly is cam operated to be closed at the time a pouch is moving through the no bag switch. If a pouch is in the clamp, the no bag switch will open the circuit and the packager will continue to operate. If, for some reason there is no pouch coming through the no bag switch will remain closed and the machine will stop.

3-62. POUCH CLAMPS.

The pouch clamps (Figure 3-42) are used to hold the individual pouches as they move down the machine

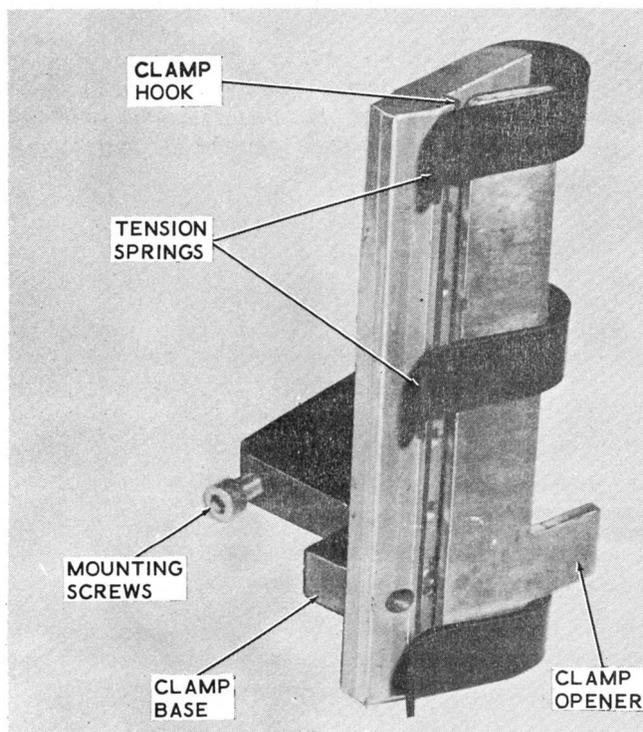


Figure 3-43. Pouch Clamp

through the opening, filling, and top sealing stations. The pouch clamps are mounted on a continuous conveyor chain. As the conveyor chain indexes, each clamp moves in turn to a point in line with the feed roll and cutoff assembly. At this point, the clamp is 1-1/16 inch from the machine zero point (Figure 3-42) and ready to receive a pouch from the feed roll mechanism. The pouch is held in the clamp by tension springs (Figure 3-43). The clamp is attached to the conveyor chain on two extended chain pins. The clamp is secured in this position by screws and clips.

NOTE

Refer to Chapter 6, Section VII, for pouch clamp repair instructions.

3-63. POSITIONING CLAMP FOR POUCH PICKUP.

It is very important that each pouch clamp be 1-1/16 inch from the machine zero point when it receives the pouch from the cutoff. The zero point of the machine is shown in Figure 3-42. Measure the 1-1/16 inch distance from the zero point to the clamp hook. Adjust the position of the pouch clamp to obtain the 1-1/16 inch dimension by moving the conveyor chain as follows:

- a. Cycle packager until conveyor drive mechanism is in a dwell position (not indexing).
- b. Loosen three socket head screws (Figure 3-44) at the top of the shear pin assembly located on the conveyor drive mechanism. Move the conveyor chain until 1-1/16 inch dimension is set. Tighten the three socket head screws securely.

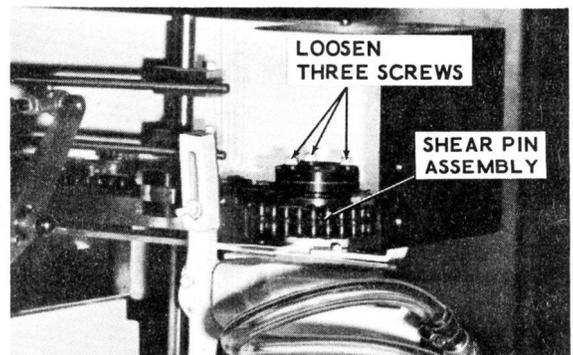


Figure 3-44. Positioning Clamp for Pouch Pickup

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

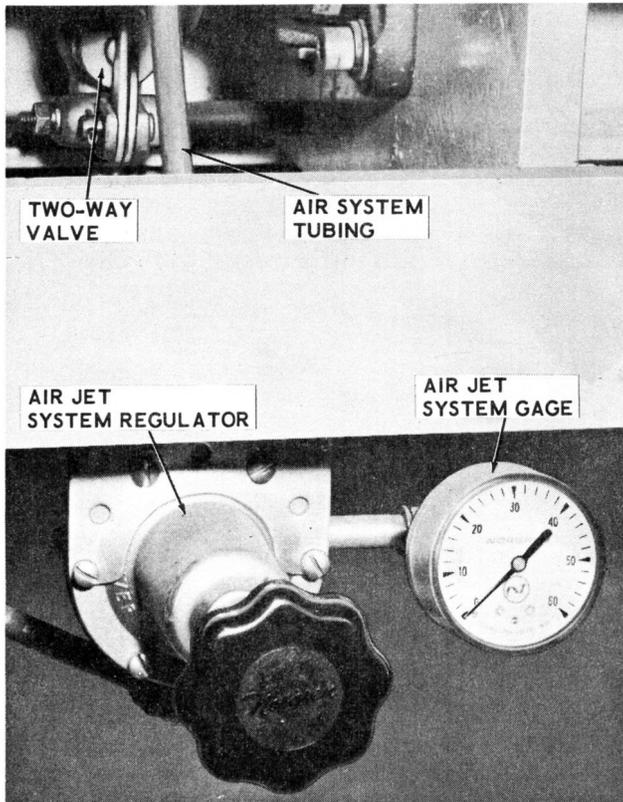


Figure 3-45. Air Jet System

3-64. POUCH CLAMP OPENER MECHANISM.

The pouch clamp opener mechanism consists of a base casting which is bolted to the packager base, a cam operated opening arm (Figure 3-42), and a contact button. The arm is actuated by a split cam keyed to the cycle shaft for correct timing. The upper end of the arm holds an adjustable button that presses against the pouch clamp opener to open the clamp tension springs. When the pouch is in position the clamp is closed. The pouch opener button has a threaded shaft

which is inserted through an elongated slot at the top of the opening mechanism arm. To increase or decrease amount of bag clamp opening move button in or out as required.

3-65. AIR JET SPLITTER BLADE.

As the pouch moves from the cutoff and swinging splitter blade through the pouch guides, no bag switch mechanism, into the pouch clamp and starts down the machine, the unsealed area of the pouch is separated by the air jet splitter blade (Figure 3-42). The pouch rides on the splitter blade approximately 1/4 inch to keep the top sides from adhering to each other. At the first station (Figure 1-2) the pouch is clamped to the air jet splitter blade and a jet of low pressure, air is blown into the pouch to separate the two pouch sides and open the pouch bottom. This clamping mechanism is mounted on a rocker arm that is pivoted on a base casting. The rocker arm is actuated by a split cam on the cycle shaft. Air to operate this system must be supplied by an outside source. The amount of air pressure going to the splitter blade is controlled by a regulator valve mounted on the packager (Figure 3-45) and can be read on the gage. Air pressure required to open a pouch depends on the pouch size and the pouch type (gusset requires more air than fin type). Between 2 and 15 lbs of air pressure is used and should be set so that only the minimum required is applied. The air under pressure is directed through tubing to a cam operated two-way valve. This two-way valve is actuated by a cycle shaft cam to open and send pressurized air to the splitter blade just after the pouch is clamped to the splitter blade. The air passes through tubing to passages in the splitter blade and into the pouch.

3-66. ADJUSTING AIR JET SPLITTER BLADE.

The bottom of the air jet splitter blade (Figure 3-46) must ride about 1/4 inch into the top of each pouch. This is adjusted by loosening the screw holding the splitter blade holder to the vertical mounting shaft. Move the splitter blade holder up or down as required to obtain the 1/4 inch insert and tighten the holder screw.

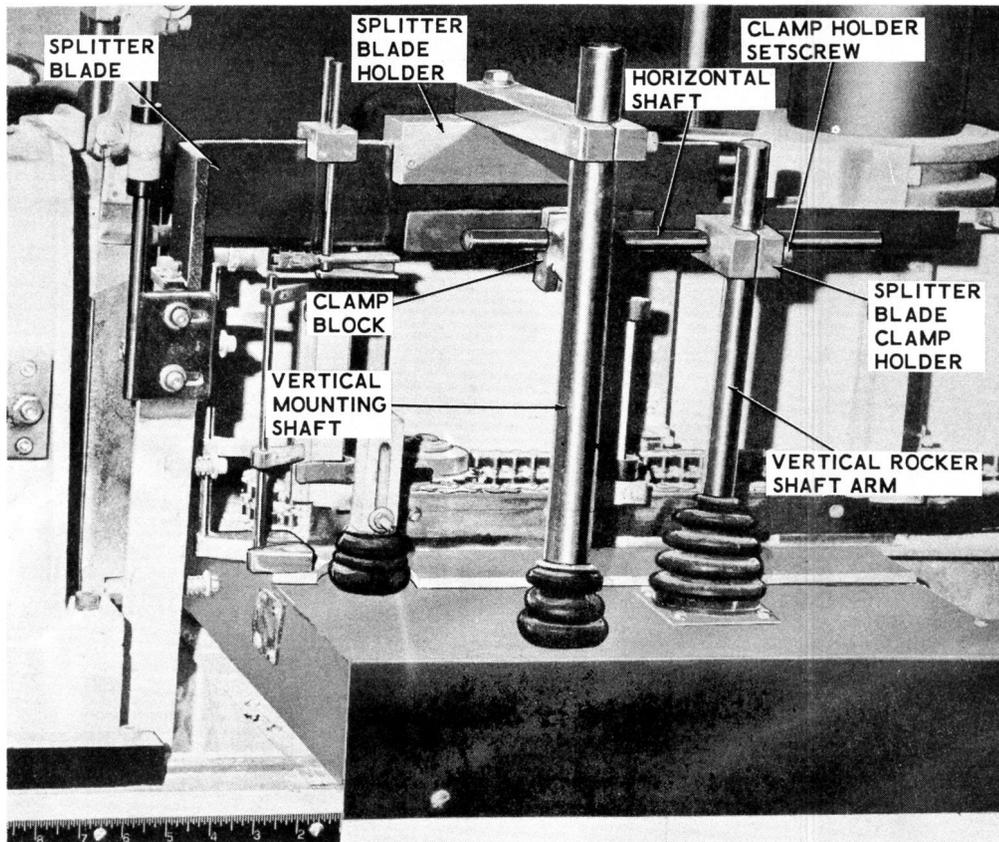


Figure 3-46. Air Jet Splitter Blade and Clamp Adjustment

3-67. ADJUSTING AIR JET SPLITTER BLADE CLAMP.

The height of the rectangular splitter blade clamp is adjustable by loosening a screw (Figure 3-46) securing the clamp holder to the vertical rocker arm shaft and sliding the holder up or down as required. Tighten the screw after the desired position is obtained. Right and

left (horizontal) position of the clamp is adjustable by loosening screws in each of two clamping blocks and sliding the clamping mechanism to left or right on the horizontal shaft of the holder. The rectangular clamp may be adjusted toward or away from the splitter blade by loosening a screw in each of two clamping blocks, and moving the clamp on its two shafts in the desired direction. Tighten screws securely after adjustment is made.

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

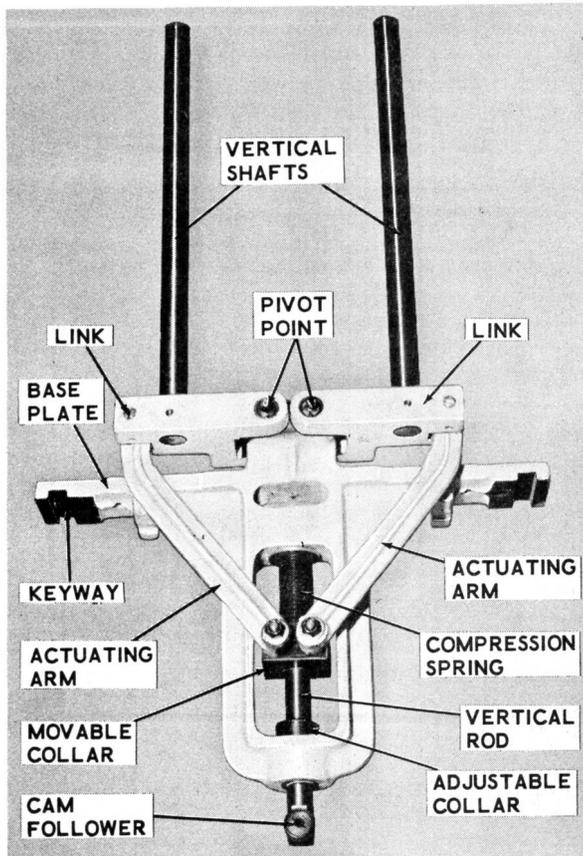


Figure 3-47. Air Jet Splitter Blade Double Rod Pivoted Assembly

3-68. AIR JET SPLITTER BLADE DOUBLE ROD PIVOTED ASSEMBLY.

The double rod pivoted assembly (Figure 3-47) is the most versatile of the actuating mechanisms. It is used

to operate the air jet clamp, portions of certain pouch openers, vacuum opener assembly, paddles, and many of the optional equipment devices. This mechanism rides above the actuating cam and has only one roller type cam follower. The cam follower is attached at the bottom of a spring loaded vertical rod. The spring acts to return the actuating arms to the open position. An adjustable collar secured to the vertical rod applies upward motion against a movable collar to which two actuating arms are attached. These actuating arms move the vertical shafts upward and inward toward each other and the centerline of the machine. This mechanism features an adjustable stroke. By loosening a setscrew in the adjustable collar and sliding the collar up or down on the vertical rod, the stroke can be lengthed, shortened, or the unit locked out.

3-69. ADJUSTING POUCH HANDLING MECHANISMS WHEN CHANGING POUCH SIZE OR STYLE.

- a. Change pouch clamps as required.
- b. Adjust position of all splitter blades to ride approximately 1/4 inch into top of pouch.
- c. Adjust vertical position of pouch guide fingers as required.
- d. Adjust air jet splitter blade clamp as required.
- e. Adjust air pressure of air jet system as required.

3-70. TROUBLESHOOTING POUCH CLAMPS.

The following chart is provided as an aid in locating and determining probable causes of malfunction associated with pouch clamps and possible solutions to each problem.

TROUBLESHOOTING GUIDE POUCH CLAMPS

Trouble	Probable Cause	Possible Remedy
1. Misses pouches.	a. Bent clamp springs.	a. Replace bent clamp spring.
	b. Dirty clamps.	b. Clean clamps.
	c. Loose conveyor drive chain.	c. Tighten conveyor chain takeup idler.
	d. Loose idler bearing.	d. Replace idler bearings. (See Chapter 6.)
	e. Wrong size pouch.	e. Check pouch size.
	f. Clamp not open far enough.	f. Adjust opener button for maximum 1/16 inch open. Check for worn parts; all springs should open evenly.
	g. Pouch guides not set correctly.	g. Adjust pouch guides.

TROUBLESHOOTING GUIDE POUCH CLAMPS (CONT)

Trouble	Probable Cause	Possible Remedy
1. Misses pouches. (Cont)	h. Timing off.	h. Check for slippage at conveyor drive-cycle shaft coupling.
	i. 1-1/16 inch dimension not held from zero line to clamp.	i. Adjust position of clamp to zero line.
2. Drops pouches.	a. Fatigued clamp springs.	a. Replace springs.
	b. Interference along work path opening clamps.	b. Check and correct.
	c. Clamps out of square.	c. Replace clamp.
	d. Worn pins on conveyor chain.	d. Replace with new link.
	e. Pouch not in clamp far enough.	e. Check pouch size; check timing; check opening.
	f. Pouch too heavy.	f. Overfilled pouch.

3-71. TROUBLESHOOTING AIR JET SPLITTER BLADE.

The following chart is provided as an aid in locating and determining probable causes of malfunction associated with the air jet splitter blade and possible solutions to each problem.

TROUBLESHOOTING GUIDE (AIR JET SPLITTER BLADE)

Trouble	Probable Cause	Possible Remedy
1. Pouch not opened.	a. Insufficient air.	a. Increase air.
	b. Top squeezer not tight enough.	b. Loosen, jog closed and push up to blade, then tighten.
	c. Rubber on squeezers worn out.	c. Cement new rubber on squeezer.
	d. Defective side seal.	d. See side seal troubleshooting.
	e. Web off blade splitter.	e. Check swinging splitter blade.
	f. Web too low.	f. Raise plow assembly.
	g. Splitter blade too high.	g. Lower blade to 1/4 inch penetration into pouch.
	h. Air timing wrong.	h. Adjust valve cam.
	i. Squeezer timing wrong.	i. Adjust actuating cam.
	j. Hole in air line.	j. Repair.
2. Exploded pouch.	a. Too much air.	a. Decrease air pressure.
	b. Weak side seals.	b. See side seal troubleshooting.

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

Section XI. Pouch Openers

3-72. GENERAL.

After the pouch has been blown open by the air jet splitter blade, it moves down the machine to the fill station. The pouch is opened for filling just before the fill station or at the fill station depending upon the type of pouch opener used. The type of pouch opener used is dependent upon the characteristics of the web material machine speed, and the product. The standard types of pouch openers and their uses are described in the following paragraphs.

3-73. VACUUM OPENERS.

The vacuum opener assembly (Figure 3-48) can be used with all non-porous webs. This type of opener operates at the filler station, opening the pouch before and during the fill. The cams actuating the mechanism may be rotated about the cycle shaft to provide a correction in the timing of the motion. Dependent upon speed and fill different cams will be recommended. Vacuum to operate this system is produced by a pump mounted on the back of the packager. The system also

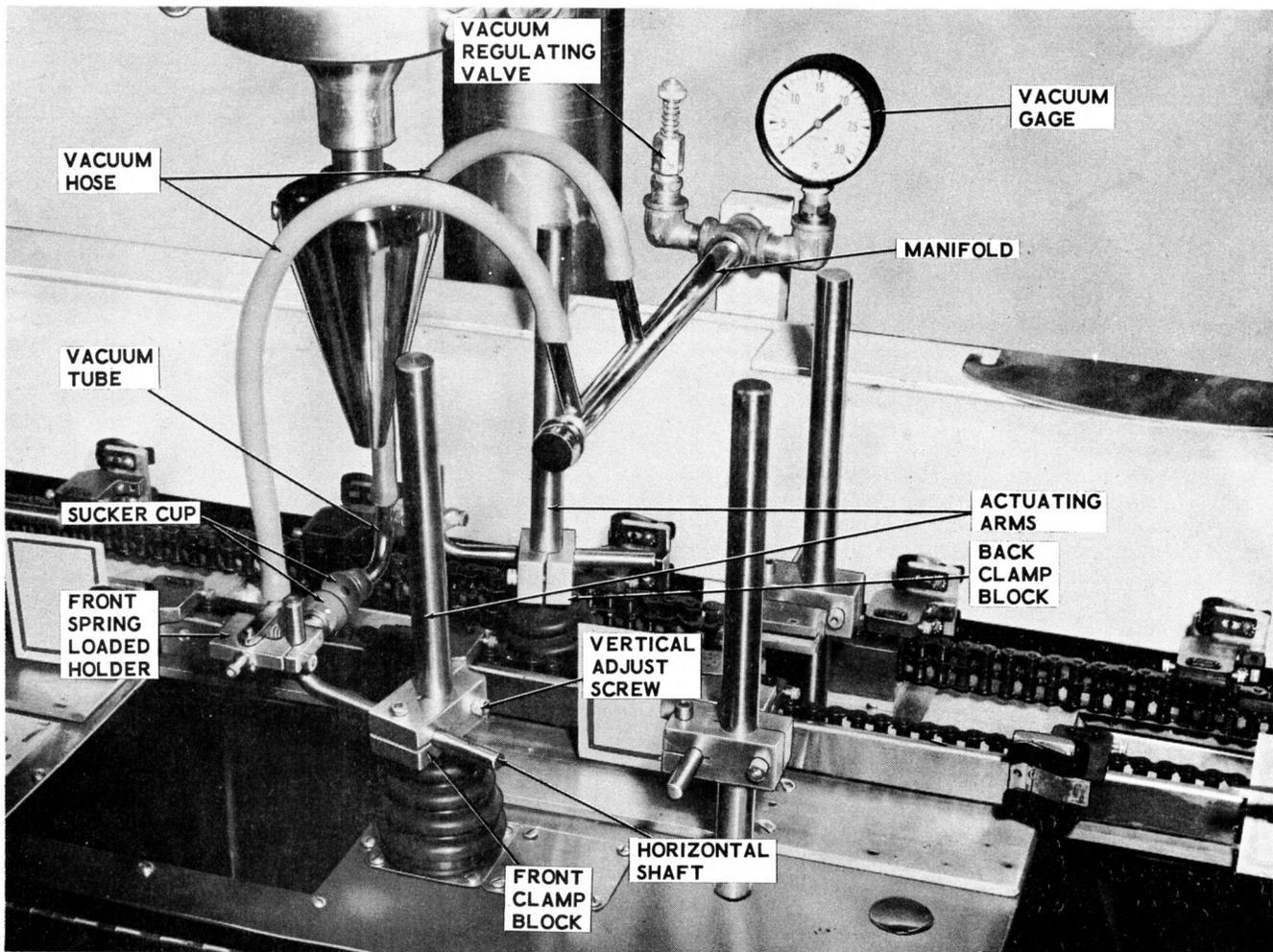


Figure 3-48. Vacuum Openers

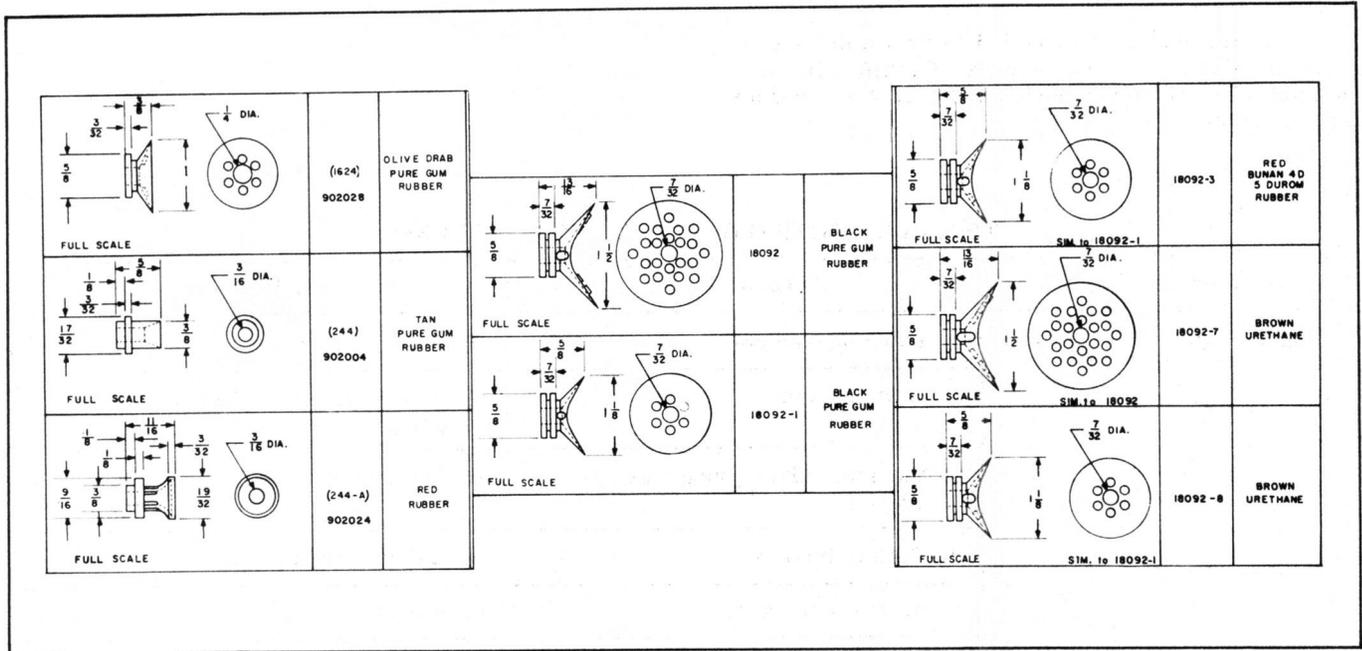


Figure 3-49. Vacuum Sucker Cups

contains filters for protection. A vacuum gage is included and used in conjunction with a regulating valve to control the amount of vacuum applied to the pouch. The vacuum will vary between 10 and 25 inches depending upon the stiffness of web material and size of pouch. The vacuum is controlled by a cam actuated valve to open and to release the pouch at the correct time. Sucker cups contact the pouch to perform the opening operation. The sucker cups vary in size, material, and application as shown in Figure 3-49.

NOTE

Sucker cups shown in Figure 3-49 are also applicable for vacuum pickoff.

3-74. ADJUSTING VACUUM OPENER.

Adjust the vacuum opener mechanism as follows:

- a. Jog machine until the conveyor chain just stops indexing.
- b. Loosen cam on cycle shaft and rotate until high lobe is actuating rocker arm mechanism at top of cycle shaft. Secure cam.
- c. With rocker arms closed, loosen the vertical adjust screw (Figure 3-48) and move clamp block up or down on the vertical rocker arm until sucker cup is approximately 1/2 inch from top of pouch. Tighten vertical adjust screw. Repeat this procedure with back sucker cup.

- d. Loosen horizontal adjust screw on back clamp block and position back sucker cup in approximate center of pouch. Tighten horizontal adjust screw. Loosen horizontal adjust screw of front holder and move front sucker cup so it is slightly staggered to the left of the back sucker cup. Tighten horizontal adjust screw.

NOTE

The final position of the front and back sucker cups will have to be by trial and error method to obtain optimum performance.

- e. Stroke of the movement of the rocker arms toward or away from the pouch can be adjusted by setting the adjustable block located on the actuating shaft.
- f. Adjust vacuum using regulating valve. Adjust until 10 inches is shown on vacuum gage. Increase vacuum in small increments until proper setting for pouch is reached.

3-75. ADJUSTING VACUUM OPENER TO SUIT POUCH SIZE OR STYLE CHANGE.

- a. Adjust position of sucker cups as required for new pouch width and/or height.
- b. Change style of sucker cup if required.
- c. Adjust vacuum as required.

BARTELT IM PACKAGER

OPERATION MANUAL 4-68

3-76. TROUBLESHOOTING VACUUM OPENERS.

The following chart is provided as an aid in locating and determining probable causes of malfunction associated with vacuum openers and possible solutions to each problem.

TRUBLESHOOTING GUIDE (VACUUM OPENERS)

Trouble	Probable Cause	Possible Remedy
1. Openers do not open pouch.	a. Worn sucker cups.	a. Replace worn cups.
	b. Low vacuum.	b. Increase; clean filters; check pump.
	c. Vacuum valve spring worn or broken.	c. Replace worn spring. (See Chapter 6.)
	d. Timing incorrect.	d. Adjust at cam.
	e. Action incorrect.	e. Adjust.
	f. Leaking vacuum line.	f. Repair.
	g. Contaminate on web.	g. Check feed rolls; seal bars.
	h. Plugged filter jar.	h. Clean filter.

3-77. TROUBLESHOOTING VACUUM PUMP.

The following chart is provided as an aid in locating and determining probable causes of malfunction associated with vacuum pumps of the opener system and/or the pickoff system and possible solutions to each problem.

TRUBLESHOOTING GUIDE (VACUUM PUMP)

Trouble	Probable Cause	Possible Remedy
1. Excessive noise.	a. Low voltage.	a. Check wiring for correct connections.
	b. Excessive vacuum.	b. A higher vacuum than necessary will cause noise. Keep vacuum requirements minimum. Shut off pumps when not running packager.
	c. Insufficient lubrication.	c. Lubricate pump.

TROUBLESHOOTING GUIDE (VACUUM PUMP) (CONT)

Trouble	Probable Cause	Possible Remedy
2. Pump running hot.	a. Excessive vacuum.	a. Keep vacuum requirements minimum.
	b. Dirt in pump or line.	b. Clean pump interior.
	c. Insufficient lubrication.	c. Lubricate pump.
	d. Pump outlet plugged.	d. Keep outlet free and clean.
3. Smoking pump.	a. Pump emitting oil vapor.	a. Reduce oil flow.
4. Vacuum loss.	a. Leak in system.	a. Check vacuum with gage at inlet of pump; 26 inch vacuum indicates pump is alright and system leaking. Repair leak in system.
	b. Incorrect pump rotation.	b. Check rotation as indicated by arrow on side of pump.
	c. Pump outlet plugged.	c. Keep outlet free and clean.
	d. Dirt in pump.	d. Clean pump interior.
5. Pump runs hard.	a. Insufficient lubrication.	a. Lubricate pump.
	b. Pump outlet plugged.	b. Keep outlet free and clean.
	c. Dirt in pump.	c. Clean interior of pump. Pour tablespoon of kerosene oil in inlet and revolve pump a few times then, inject a spoonful of lube oil.

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

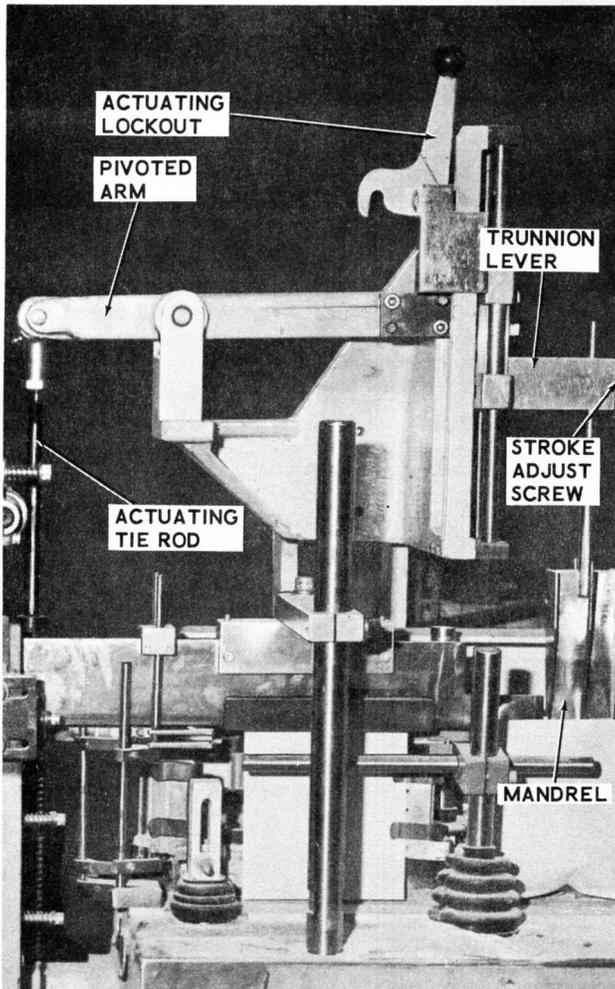


Figure 3-50. Former Opener

3-78. FORMER OPENER MECHANISM.

This mechanism (Figure 3-50) uses a former blade to open the pouch. This type opener can be used only

with web material containing foil as a laminate that will retain the formed shape. This type opener is used before the fill station. The former blade is mounted to a trunnion lever which is actuated by a cam on the cycle shaft. The bottom of the former blade acts as a splitter blade extension and is set 1/4 inch into the pouch as the pouch moves. The length of stroke of the former blade is established by the actuating cam keyed to the cycle shaft. If a different stroke is desired, the cam must be changed. If desired, the mandrel can be locked out of operation by means of a lockout cam. The length of stroke of the former opener is set by the cycle shaft actuating cam and can be changed only by replacing the actuating cam. The stroke position of the former should start 1/4 inch into the pouch. This position is adjustable to suit different size pouches by loosening the screw (Figure 3-50) securing the former blade shaft and moving the former up or down as required. Tighten screw securely after adjustment.

3-79. TROUBLESHOOTING FORMER OPENER.

The following chart is provided as an aid in locating and determining probable causes of malfunction associated with the former opener and possible solutions to each problem.

3-80. DUCK BILL DEPOSITOR OPENER.

The duck bill depositor opener enters the pouch at the fill station and opens the pouch by spreading the duck bill blades (Figure 3-51). The product is then dropped from the filler, through the duck bill blades; and into the opened pouch. This opener can be used with most web materials. The opener is adjusted as outlined in paragraph 3-81.

TROUBLESHOOTING GUIDE (FORMER OPENER)

Trouble	Probable Cause	Possible Remedy
1. Opener tears pouch.	a. Former too low at start of stroke.	a. Jog mechanism to highest point; adjust former to be even with or above bottom of splitter blade.
	b. Former too large.	b. Mill or grind former until dimension around outside does not exceed twice the width of pouch between the seals.
	c. Former enters pouch too deep.	c. Change actuating cam.
	d. Web too high.	d. Lower plow assembly.
	e. Timing wrong.	e. Check key of actuating cam.
	f. Stroke too long.	f. Change actuating cam.
2. Pouch not opened enough.	a. Former too small.	a. Replace with former having circumference about 1/8 to 1/4 inch smaller than twice width of pouch between seals.
	b. Stroke too short.	b. Change actuating cam.

3-81. DUCK BILL OPENER MECHANISM.

The duck bill opener mechanism (Figure 3-52) enters the pouch at the fill station and opens the pouch by spreading the duck bill blades (Figure 3-51). This opener can be used with most web materials. The mechanism is actuated by a keyed cam on the cycle shaft. A stroke tie rod, actuated up and down by a cam on the cycle shaft, provides the movement necessary to raise and lower the duck bills in the pouch. The position of the duck bills in the pouch is adjustable at the tie rod (Figure 3-52). The distance the duck bill can open is also adjustable (Figure 3-52).

3-82. DUCK BILL DEPOSITOR MECHANISM.

The duck bill depositor mechanism enters the pouch at the fill station, opens the pouch by spreading the duck bill blades (Figure 3-51), and deposits the product which is held between the blades. This opener can be used with most web materials. Adjustments are the same as the duck bill opener mechanism, paragraph 3-81.

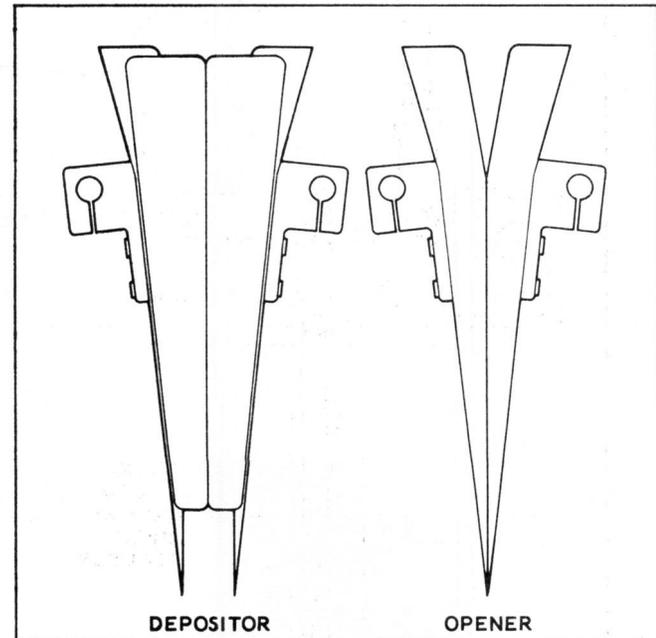


Figure 3-51. Duck Bill Former Opener

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

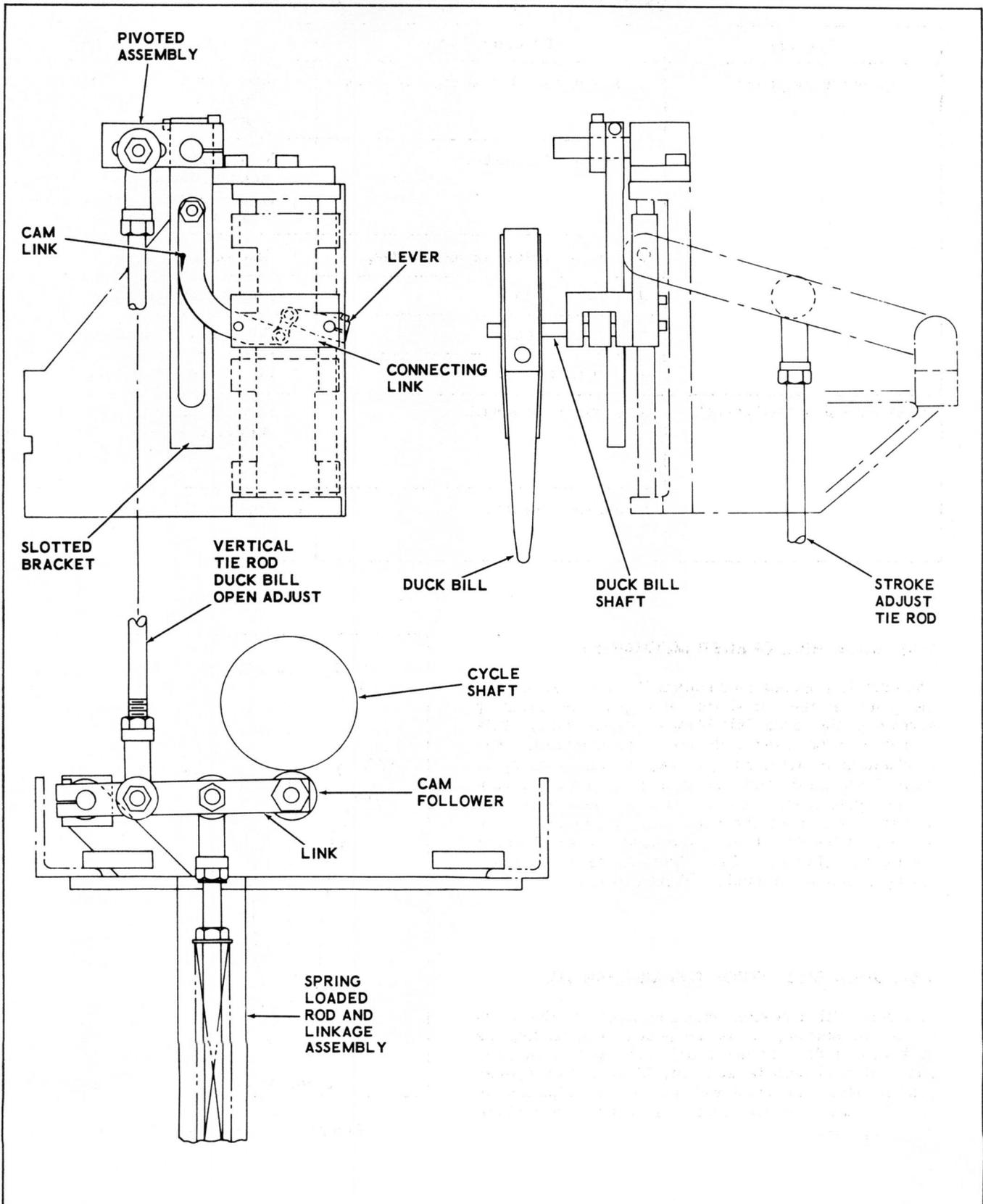


Figure 3-52. Duck Bill Opener Mechanism

3-83. TROUBLESHOOTING DUCK BILL OPENER MECHANISMS.

The following chart is provided as an aid in locating and determining probable causes of malfunction associated with the duck bill opener mechanisms and possible solutions to each problem.

3-84. WIRE OPENERS.

This mechanism (Figure 3-53) opens the pouch during the fill operation by means of two wire blades. The wire blades are attached to rocker arms mechanisms which are actuated by a cycle shaft cam. The opener arms move down which places the wire blades into the pouch. Horizontal, outward motion is accomplished by a mating mechanism which acts to separate the two wire blades and thus open the pouch. This type of opener can be used with most web materials. Adjust the wire openers as follows:

a. Cycle Packager until high lobe of opener mechanism cam (Figure 3-53) is in up position.

b. Loosen wire opener clamps and adjust wire openers to the centerline of the Packager. Loosen horizontal adjust screws and move front holder left or right as required to center the front wire opener in the pouch. Move rear holder until rear wire opener is aligned with front wire opener.

c. Cycle Packager until low lobe of opener mechanism cam is in up position. Loosen socket head screw in adjust block of opener mechanism and move adjust block up or down until the wire openers are opened the desired distance. Tighten socket head screw.

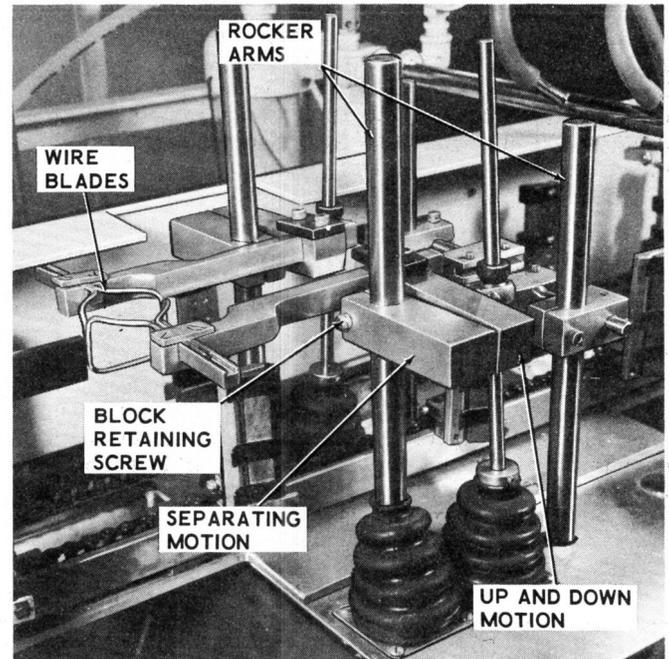


Figure 3-53. Wire Opener

NOTE

Lower the adjust block to increase the distance the wire openers separate. Raise the adjust block to decrease this distance.

d. Cycle Packager until high lobe of raising cam is in up position. Loosen vertical adjust screw and move front mounting block up or down the vertical shaft as required to position bottom of wire opener approximately 1/16 inch above the bottom edge of the splitter blade. Loosen vertical adjust screw on rear mounting block and move rear wire opener up or down on vertical shaft as required to align with front wire opener.

TRUBLESHOOTING GUIDE (DUCK BILL OPENER MECHANISMS)

Trouble	Probable Cause	Possible Remedy
1. Opener does not enter pouch.	a. Off center.	a. Align with air jet splitter blade in up (closed) position.
	b. Timing off.	b. Check key of actuating cam.
	c. Bills not closed in up position.	c. Adjust so bottoms of two bill halves are tightly closed in the up position.
2. Opener does not open pouch far enough.	a. Out of adjustment.	a. Adjust assembly at cam follower or at actuating arms.

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

e. Cycle Packager until low lobe of raising cam is in up position. Loosen socket head screw in adjust block of raising mechanism and move adjust block up or down until the wire openers enter the pouch to the depth desired. Tighten socket head screw in adjust block.

NOTE

Lower the adjust block to increase the depth;
raise the adjust block to decrease the depth.

3-85. TROUBLESHOOTING WIRE OPENER.

The following chart is provided as an aid in locating and determining probable causes of malfunction associated with the wire opener and possible solutions to each problem.

3-86. ADJUSTING FORMER AND DUCK BILL OPENERS TO SUIT POUCH SIZE OR STYLE CHANGE.

a. Duck bill type openers may have to be added or removed to suit new pouch size if extremely different from old size.

b. Adjust horizontal position of duck bills and former openers with respect to pouch width.

c. With new pouch height, position duck bill and former type openers vertically to ride 1/4 inch into top of pouch. A new cam must be installed on cycle shaft if a new stroke is required.

TROUBLESHOOTING GUIDE (WIRE OPENER)

Trouble	Probable Cause	Possible Remedy
1. Opener does not enter pouch.	a. Not centered on splitter blade.	a. Loosen, jog to closed position, center, and tighten.
	b. Openers do not meet at center.	b. Same as a.
	c. Cams not timed.	c. Correct timing so down motion occurs first, then horizontal motion.
	d. Wire not close enough to splitter blade.	d. Adjust wire as close as possible to ensure entry; also low enough to ensure entry.
2. After entry problems.	a. Pouch open too far.	a. Adjust at cam or wire.
	b. Pouch not open far enough.	b. Adjust at cam or wire; pouch too small.
	c. Broken wire leg.	c. Replace wire.
	d. Crushed pouch; vertical motion excessive.	d. Adjust at cam follower.
	e. Timing incorrect.	e. Adjust timing at cam.

Section XII. Model B Product Filler

3-87. PURPOSE.

The model B Filler (Figure 3-54) is a device for accurately dispensing a predetermined volume of product. It is designed to handle and dispense a product ranging from free flowing powder and granulated solids to semi-liquids or liquids.

3-88. FUNCTIONAL DESCRIPTION.

Starting and stopping of the filler and the length of fill time (amount of product dispensed) of the fill operation is controlled by a switch which is controlled by a cycle shaft mounted cam. The rise of the cam actuates the

micro switch which in turn activates an electric clutch in the filler head. The clutch couples the driving mechanism (which is always rotating at a constant speed) with the auger. The auger rotates to dispense the product for the period of time that the clutch is engaged. When the cycle shaft actuating cam rotates to its low lobe, the micro switch deenergizes the clutch and an electric brake is energized simultaneously to stop the rotation of the auger. This clutch-brake unit is stacked, concentric on the auger drive shaft. The duration of fill is adjustable by turning the fill control at the front of the Packager. This control changes the micro switch cam follower position on the actuating cam to lengthen or shorten the period of clutch engagement.

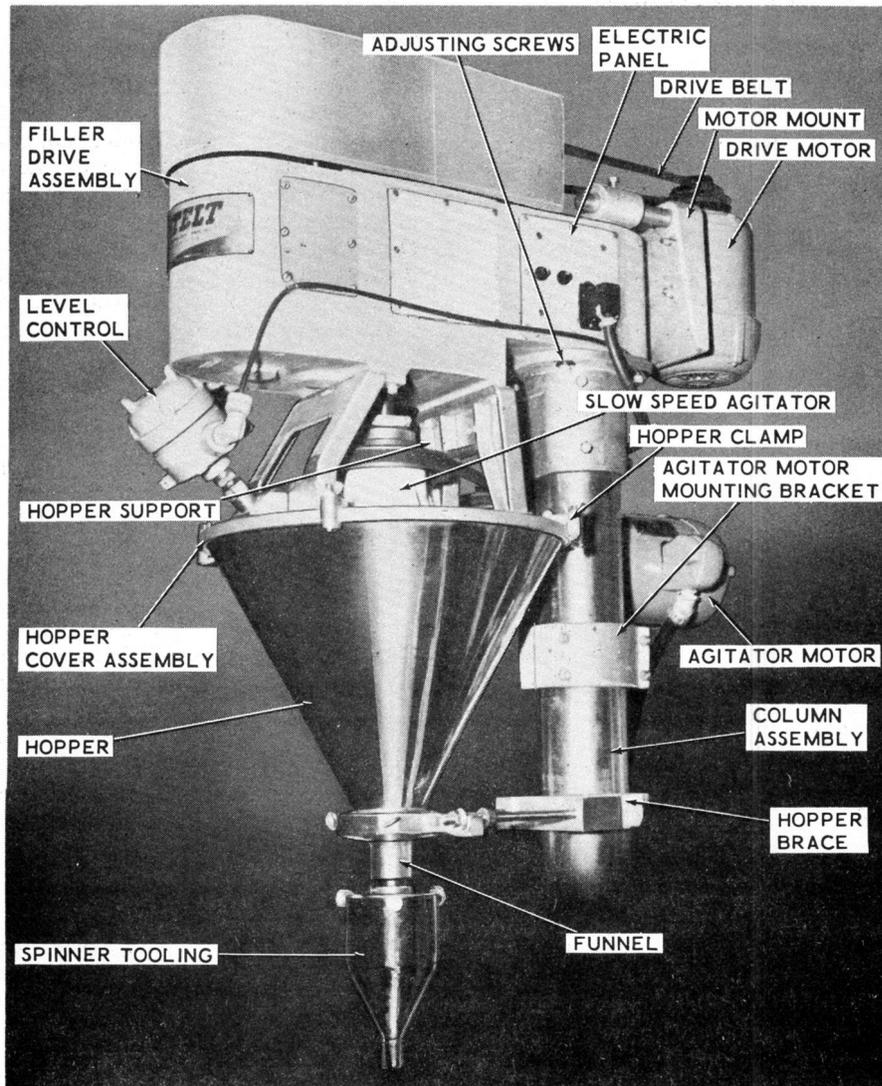


Figure 3-54. Model B Product Filler

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

Product enters the cone shaped hopper through the inlet tube. The level of product in the hopper may be controlled by a level control device which senses the product level and acts to start or stop product flow into the hopper as required or by a baffle in the hopper. A slow speed agitator may be installed in the hopper to stir cohesive products to prevent the auger from forming a cavity in the product. The agitator ensures a full auger and therefore constant product deposit in the pouch. The auger drive motor and agitator motor are controlled by switches located on the main control panel and pendant control panel.

The product is deposited into the pouch from the hopper by tooling attached to the bottom of the hopper outlet. The type of tooling used varies with the product but is generally one of two types; restrictor or spinner. Restrictor tooling is used with non-free flowing products. Spinner tooling is used with granular free flowing products. When liquid products are packaged, a pump is attached to the hopper funnel as the filler tooling.

3-89. DETAILED DESCRIPTION.

The filler is comprised of the following basic units (Figure 3-54): column assembly, filler drive assembly, hopper assembly, slow speed agitator assembly, and tooling assembly.

a. Column Assembly. The column assembly (Figure 3-54) is the mounting piece for the entire filler assembly. The steel tube column is supported at the

rear of the packager by a mounting bracket attached to the Packager. The column passes through the round housing of the mounting bracket. The column can be moved up or down in the bracket to vary the vertical distance between the bottom of the tooling and top of the pouch. Four screws in threaded holes located in the mounting bracket and an adjustable collar around the column above the mounting bracket are used to secure the column in the desired position. The filler drive assembly is mounted at the top of the column.

b. Filler Drive Assembly. The filler drive is powered by a 3/4 horsepower, 1800 rpm electric motor (Figure 3-54). This motor is attached to a motor mount assembly, (36, Figure 3-55) which is bolted to the top of the filler housing (43). The mount assembly can be moved horizontally to provide tension adjustment for the drive belt (2) which runs between the three step drive pulley (37) on the motor shaft and the driven pulley (6) on the main feeder shaft (23). A key and tapered bushing secure the driven pulley to the main feeder shaft. This shaft rotates in two spacer separated ball bearings (11 and 18) installed in the top bearing housing (16). An electric clutch is attached to the lower end of the main feeder shaft within the feeder housing. The clutch consists of a rotor (30) which is attached to the shaft and rotates with it, and a field (28) which is stationary. The main drive shaft is always rotating at a constant speed and, when the clutch is energized, the rotating motion is transmitted through the clutch rotor to the armature of the armature hub assembly (55) which is keyed to the lower main shaft (64). A stationary electric brake (63) is

Legend for Figure 3-55

- | | | |
|-------------------------|--------------------------|---------------------------|
| 1. Belt Guard | 28. Clutch Field | 55. Armature Hub |
| 2. Drive Belt | 29. Bearing | 56. Spring |
| 3. Screw | 30. Clutch Rotor | 57. Drive Pin |
| 4. Taper Bushing | 31. Setscrew | 58. Brake Armature |
| 5. Name Plate | 32. Washer | 59. Screw |
| 6. Driven Pulley | 33. Screw | 60. Lock Washer |
| 7. Lock Nut | 34. Screw | 61. Bearing |
| 8. Lock Washer | 35. Screw | 62. Bearing Retainer |
| 9. Screw | 36. Motor Mount | 63. Brake Magnet |
| 10. Bearing Retainer | 37. Drive Pulley | 64. Lower Main Shaft |
| 11. Bearing With Ring | 38. Setscrew | 65. Woodruff Key |
| 12. Small Spacer | 39. Drive Motor | 66. Rear Hopper Support |
| 13. Large Spacer | 40. Nut | 67. Front Hopper Support |
| 14. Wave Washer | 41. Washer | 68. Lock Nut |
| 15. Screw | 42. Screw | 69. Oil Seal |
| 16. Top Bearing Housing | 43. Filler Drive Housing | 70. Gear Box |
| 17. Clutch Anchor Pin | 44. Support Collar | 71. Seal |
| 18. Bearing | 45. Electrical Panel | 72. Screw |
| 19. Nut | 46. Inspection Cover | 73. Lock Washer |
| 20. Stud | 47. Inspection Cover | 74. Bearing Retainer |
| 21. Machine Screw | 48. Screw | 75. Retaining Ring |
| 22. Top Front Cover | 49. Taper Lock Bushing | 76. Bearing |
| 23. Main Feeder Shaft | 50. Clutch Armature | 77. Screw |
| 24. Key | 51. Retaining Ring | 78. Lock Washer |
| 25. Retaining Ring | 52. Spring | 79. Screw |
| 26. Machine Screw | 53. Spring Retainer | 80. Lock Washer |
| 27. Retainer Plate | 54. Retaining Ring | 81. Lower Bearing Housing |

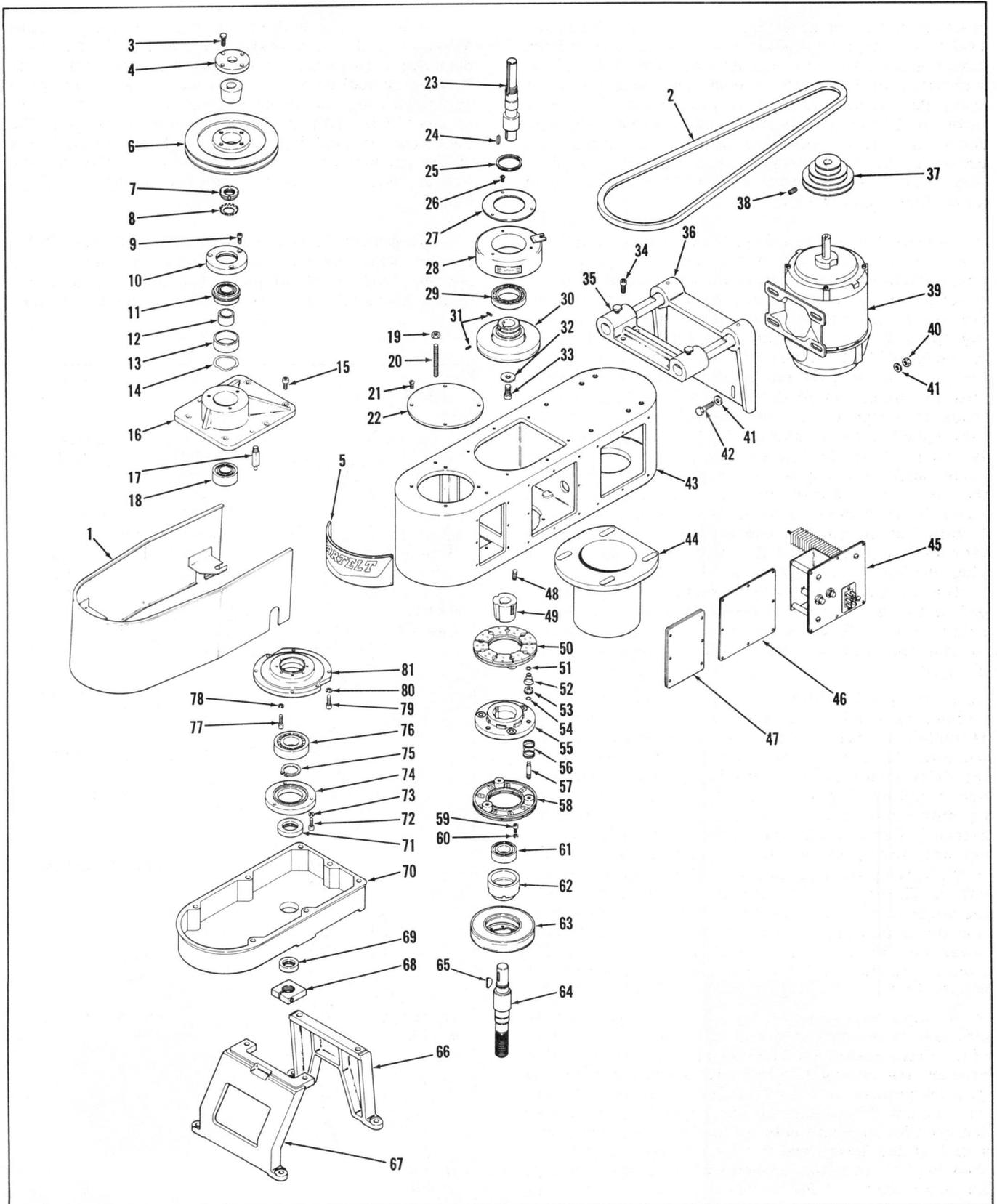


Figure 3-55. Filler Drive Assembly

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

installed under the armature hub assembly. When this brake is energized, the armature is disengaged from the clutch rotor and magnetically attached to the stationary brake which immediately stops the lower main shaft from rotating. The lower main shaft turns in two ball bearings (61 and 76) and bearing retainers. An oil seal (71) is installed around the shaft where it protrudes from the underside of the gear box (70). The end of the lower main shaft is threaded to accept an adaptor lock nut (68).

c. Hopper Assembly. A hopper cover assembly (Figure 3-54) is attached to the two hopper supports. The cover contains an elongated inspection hole which is covered by an inspection cover attached by thumb-screws. An inlet tube is mounted to the cover assembly opposite the inspection hole for product in-feed. An adaptor block may be attached to the front edge of the cover to support the level control system and a post and clamp installed at the rear edge opposite the block to support the level control probe. When the slow speed agitator is not used, a felt seal and retainer is installed at the center of the cover, around the drive shaft. The hopper and hopper gasket fit under the lip of the hopper cover and are attached to the cover by four clamp assemblies. An adaptor ring is installed at the smaller end of the cone shaped stainless steel hopper. A funnel is placed under the adaptor ring and the two parts clamped together by the clamp portion of the hopper brace assembly. The opposite end of the hopper brace assembly is clamped to the filler column. Funnels are available in varying sizes to suit the size of auger used and they are easily changed.

d. Slow Speed Agitator Assembly. The slow speed agitator assembly is driven by a 1/3 horsepower gear reduction electric motor (Figure 3-54) attached to a mounting bracket on the filler column. The output of the drive motor is transmitted by pulley and belt to a driven pulley (Figure 3-56) attached to the top of the agitator drive tube. A seal cap installed on top of the driven pulley seals around the auger drive shaft. The agitator drive tube rotates in two bearings installed in the bearing housing mounted on the top of the hopper cover. The drive tube rotates independently around the auger drive shaft, and turns in the opposite direction or clockwise. An agitator hub is clamped to the lower end of the drive tube. Agitator blades are mounted to the agitator hub and rotate within the hopper to keep the product in contact with the auger.

e. Tooling. An auger drive shaft (Figure 3-57) is attached to the threaded end of the lower main shaft of the drive assembly. The augers used for depositing product are attached to the drive shaft and driven by it. Augers vary in outside diameter and pitch to suit the amount of product to be deposited. An auger designed for use with spinner tooling is equipped with a slot at the lower end to accommodate the spinner. This auger can also be used with restrictor tooling. An auger designed for restrictor tooling only, does not have a slot in the lower end and cannot be used with spinner tooling. The three principle types of tooling are restrictor, spinner and Moyno pump.

(1) Restrictor tooling. Restrictor tooling (Figure 3-57) consists of a restrictor which is a disk with cross wire mesh and a nozzle to retain the restrictor. Restrictor tooling is used with non-free flowing products and keeps the product from falling by the mesh. A restrictor with more or less cross wires in the mesh can be used depending upon the characteristics of the product being run. The restrictor fits into the nozzle which is attached onto the lower end of the funnel.

(2) Spinner Tooling. Spinner tooling (Figure 3-57) is used with free flowing products and consists of a spinner, baffle, and collector. The spinner is attached to the lower end of the auger. This spinner is shaped

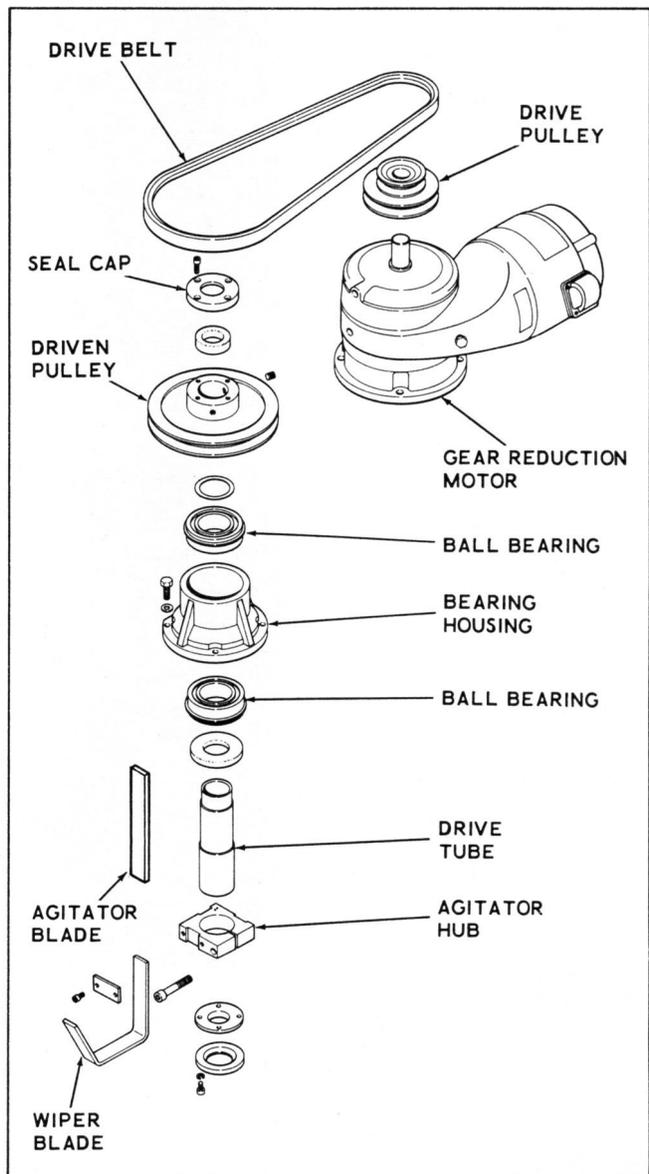


Figure 3-56. Slow Speed Agitator Assembly

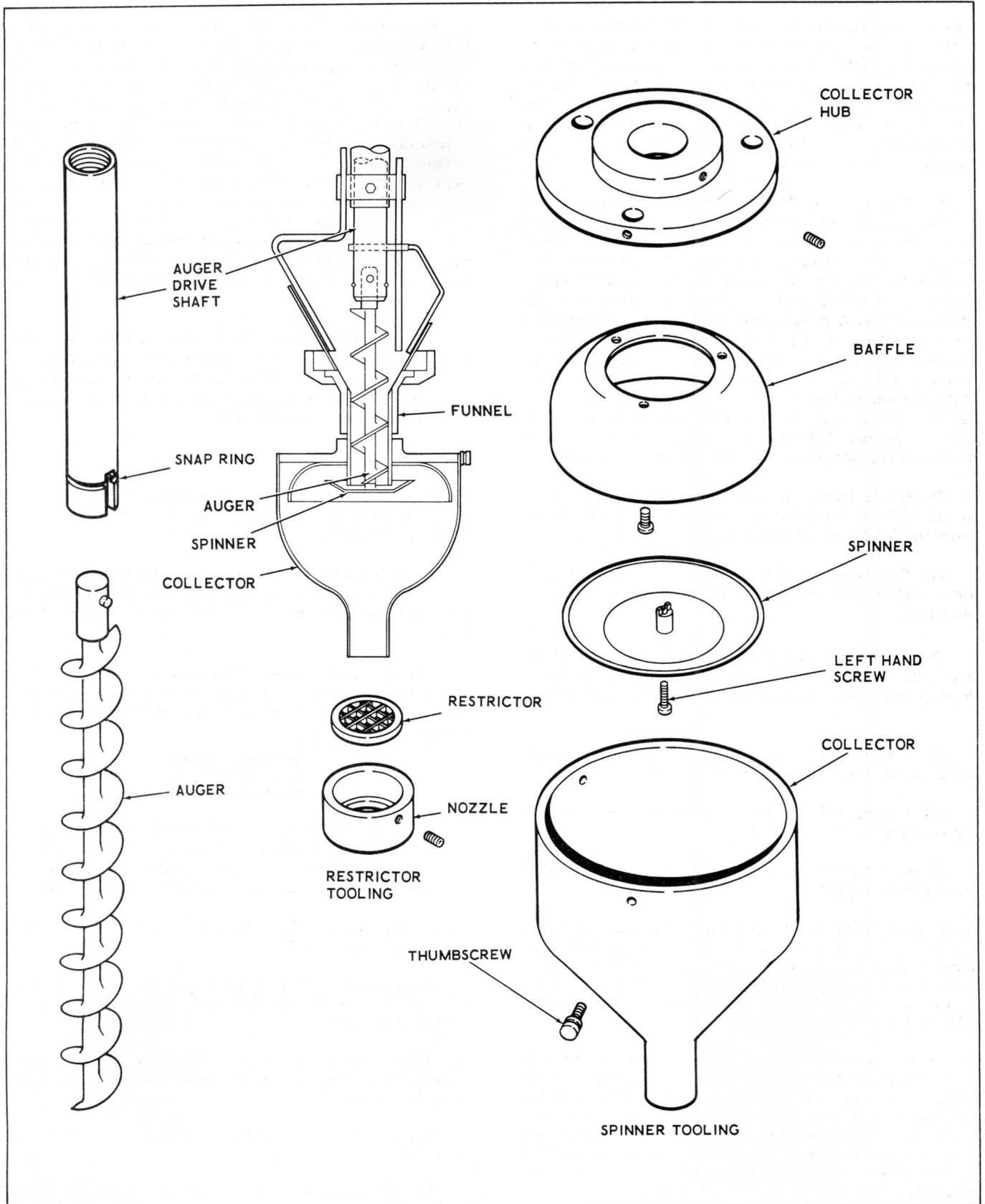


Figure 3-57. Tooling

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

like a dish. As the product drops from the auger, it enters the spinner which throws the product outward against the baffle where it is deflected downward in the collector. The collector is funnel shaped with the small end guiding the product into the pouch. When the fill cycle is finished, the spinner keeps loose product from spilling downward and out the collector until the next fill cycle is started.

(3) Moyno Pump Tooling. The Moyno Pump is used to fill liquids and semi-liquids. The auger, auger drive shaft, and funnel are not used with the Moyno pump. A drive adapter is attached to the lower main shaft of the filler drive assembly. A drive tube equipped with universal joints at each end is attached to the drive adapter. A pump rotor is pinned to the universal joint at the lower end of the drive tube. This rotor is rotated by the drive tube to turn in a stator inserted in the stator housing. The turning of the rotor in the stator produces the pumping action required to deposit the correct amount of product through the end plate into the pouch. The stator housing is clamped to the bottom of the hopper by the hopper brace clamp.

f. Electrical Panel. An electrical panel (Figure 3-54) in the side of the filler drive assembly housing contains the following components:

(1) Two fuses to protect the rectifier and associated components in the event of a short circuit or overload.

(2) A 150 MA full wave selenium rectifier which delivers 90 volts dc to the internal circuit of the filler, when connected to a 110 volt, 60 cycle ac power supply.

(3) A two section capacitor; each section of 0.25 MFD capacity with one terminal common.

(4) A terminal strip to provide connecting points for leads to brake and clutch.

(5) A six prong male connector for connection of input power supply.

g. Hopper Baffle Level Control. A hopper baffle level control can be used when filling free flowing products. This unit consists of a baffle and adjustable slide located in the hopper under the infeed tube. The level of product is maintained by adjusting the movable slide of the baffle.

h. Level Control System. The level control system is a capacitance actuated, on-off controller used to detect and control level changes of liquid or granular materials in the hopper. The system consists of a probe assembly and a detector assembly that provides relay closure for external control. The unit is actuated by small changes in capacitance as a function of level or product changes at the detecting probe.

(1) Detector Unit. The detector unit consists of a transistorized oscillator (Figure 3-58) operating at a frequency of approximately 2 MC coupled to an LC bridge circuit that varies the level of oscillation as a function of the bridge unbalance. One leg of the bridge circuit consists of the zero or standing capacitance adjustment provisions and the other leg of the bridge consists of the detecting probe capacitance. As the bridge becomes unbalanced due to changing capacitance at the detecting probe, a portion of the bridge output is rectified and fed to an electronic trigger circuit. The electronic trigger circuit receives the proportional input signal from the bridge circuit and converts it to a high level on-off control current for relay operation.

(2) Detecting Probe. The level control detecting probe senses the change in product or material level in the hopper as a function of the capacitance change immediately surrounding the probe and is electrically connected to the detector unit.

3-90. SETUP.

Perform mechanical and electrical installation of filler as outlined in Chapter 2. Complete the installation as follows:

a. Operate drive motor and note direction of rotation. The driven belt pulley on top of filler drive assembly must rotate counterclockwise as viewed looking down at top.

b. Adjust agitator blade (Figure 3-56) up or down in the agitator hub until approximately 1/16 inch clearance is obtained between blade and inside wall of hopper.

CAUTION

Be sure lower portion of agitator blade is far enough away from auger not to interfere with auger operation or be damaged by the auger. Lower end of blade may be cut to clear auger.

c. Install hopper. Be sure that hopper cover is centered with drive shaft.

d. Slide hopper brace on filler column to be horizontally level with bottom of hopper. Tighten brace clamp on filler column.

e. Attach funnel to bottom of hopper and secure clamp of hopper brace to retain funnel to hopper. Attach tooling.

f. Adjust height of tooling in relation to pouch as follows:

(1) Place a jack under lower end of filler column.

(2) Loosen adjustable collar around filler column and move it upward if the distance is to be shortened. If the distance is to be lengthened, just loosen the collar.

(3) Loosen four screws in round housing of column mounting bracket. Operate jack to lower column until adjustable collar rests on top of mounting bracket. Tighten four screws to retain column in mounting bracket. This will shorten distance between tooling and pouch. To increase distance, operate jack until desired dimension is obtained and tighten adjustable collar to rest on top of mounting bracket. Tighten four screws in mounting bracket.

g. To adjust filler over center of pouch loosen 4 adjusting screws under filler head and slide the head horizontally to center of machine. Tighten bolts and recheck position. Adjust hopper brace assembly to hold hopper in position.

3-91. TEST RUN.

Setup and test run the filler as follows:

- a. Start filler motor and place filler control on pendant control panel in RUN position.
- b. The auger drive shaft brake should now be energized. Test by trying to turn auger shaft lock nut by hand.
- c. Actuate micro switch on fill control at lower front of Packager. The drive shaft brake should deenergize and the clutch should energize and the auger drive shaft rotate as long as micro switch is held actuated.
- d. Place pendant control in EMPTY position. Auger drive shaft should run continuously.

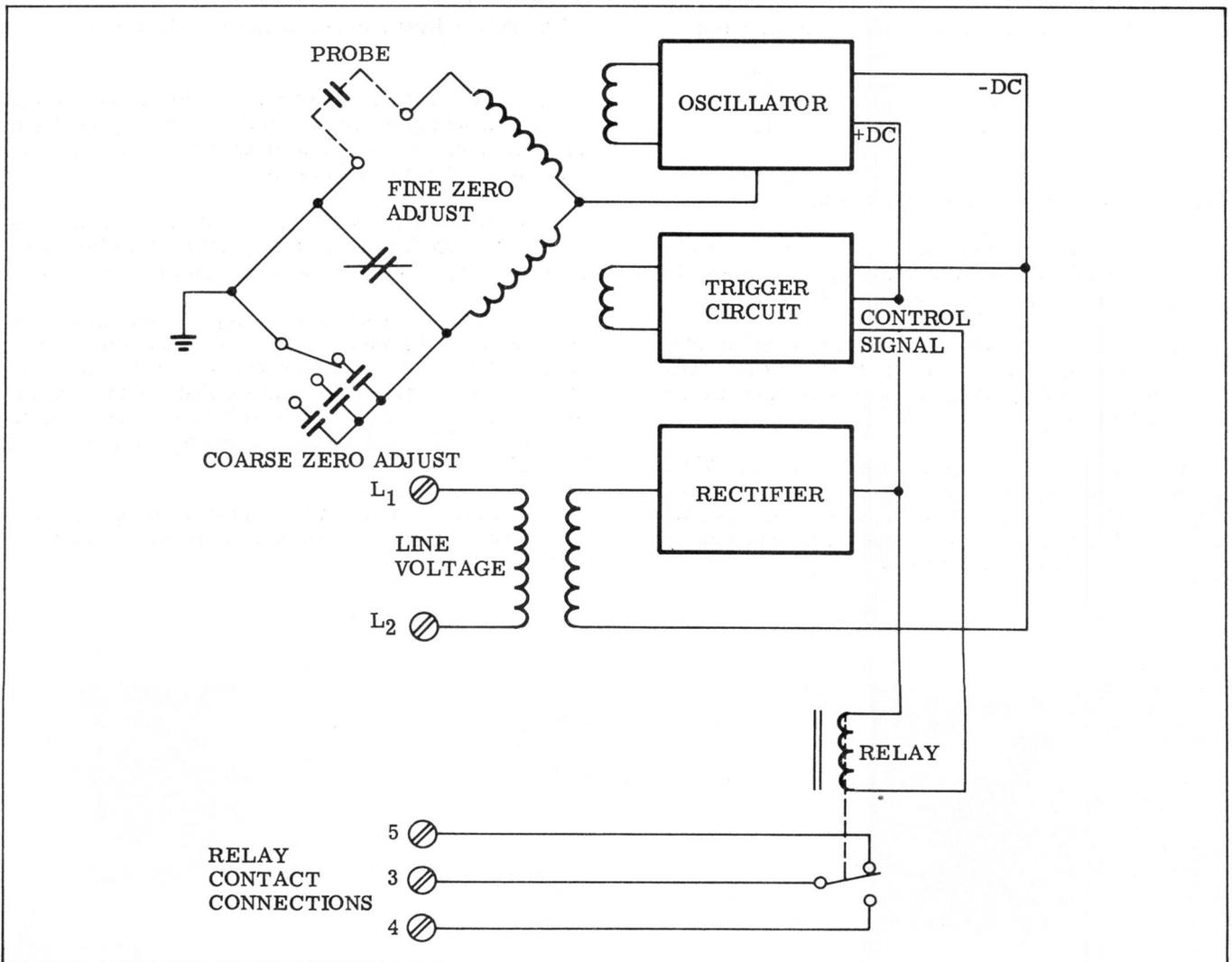


Figure 3-58. Level Control Block Diagram

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

e. Cycle Packager and filler without product. Check for proper operation and any sign of interference in hopper.

f. Fill hopper with product and cycle packager and filler assembly. Adjust belt on drive motor pulley for proper fill speed.

3-92. ADJUSTING FILLER.

Adjustments on the Model B filler are as follows:

a. Adjusting Filler Drive Speed. The filler drive speed may be changed by placing the drive belt (Figure 3-54) over one of three steps on the drive pulley. The standard drive motor is a 3/4 horsepower, 1800 rpm unit. The drive pulley on the drive assembly top main shaft has a pitch diameter of seven inches. Approximate auger speeds with three step drive motor pulley are:

Step	Pitch Diameter	Auger RPM
1	1.7	425
2	2.7	675
3	3.7	925

Change position of drive belt as follows:

(1) Loosen setscrew (35) in housing of motor mount assembly (36, Figure 3-55) and slide motor (39) and motor mount shaft in toward driven pulley (6).

(2) Move drive belt (2) to desired pulley step. Slide motor and motor mount shaft outward (away from driven pulley) until slight tension is applied to belt. Tighten setscrew.

(3) Loosen screws (42) securing motor (39) to motor mount (36) and move the motor up or down as required to line up the drive and driven pulleys horizontally. Tighten the motor mount screws securely. Adjust belt tension as outlined in b.

b. Adjusting Drive Belt Tension. Adjust drive belt (2) tension by loosening setscrew (35) in housing of motor mount assembly (36, Figure 3-52) and sliding motor and motor mount shaft outward (away from driven pulley). Maximum deflection of drive belt should be 3/8 to 1/2 inch. When proper deflection is obtained, tighten setscrew securely.

c. Adjusting Spinner Tooling for Proper Operation. The positions of the inside bottom surface of the spinner to the bottom surface of the funnel must be adjusted for proper operation. An approximate distance for initial setting is provided in the TOOLING DRAWING. Adjust spinner position as follows:

(1) Remove collector (Figure 3-57). Loosen drive shaft adapter lock nut (68, Figure 3-55) and turn auger drive shaft (Figure 3-57) on lower main shaft (64, Figure 3-55) to lower spinner. Lower spinner to obtain a slightly greater distance than indicated on TOOLING DRAWING. Adjust spinner position as follows:

(2) Cycle filler. A side view of the product in the spinner should look similar to that in A, Figure 3-59. This is a convex shape with product over spill and indicates that spinner is too low.

(3) Turn auger drive shaft on drive assembly lower main shaft to raise the spinner. Turn the drive shaft in increments of 1/16 to 1/8 inch and cycle filler.

(4) Continue procedure in step (3) and check side configuration of product in spinner. When side view of product in spinner looks approximately the same as shown in B, Figure 3-59 (convex shape with no spill) the setting is correct. If the side view is concave as shown in C, Figure 3-59 the spinner has been adjusted too high.

(5) After obtaining proper adjustment tighten drive shaft adapter lock nut against auger drive shaft and install collector.

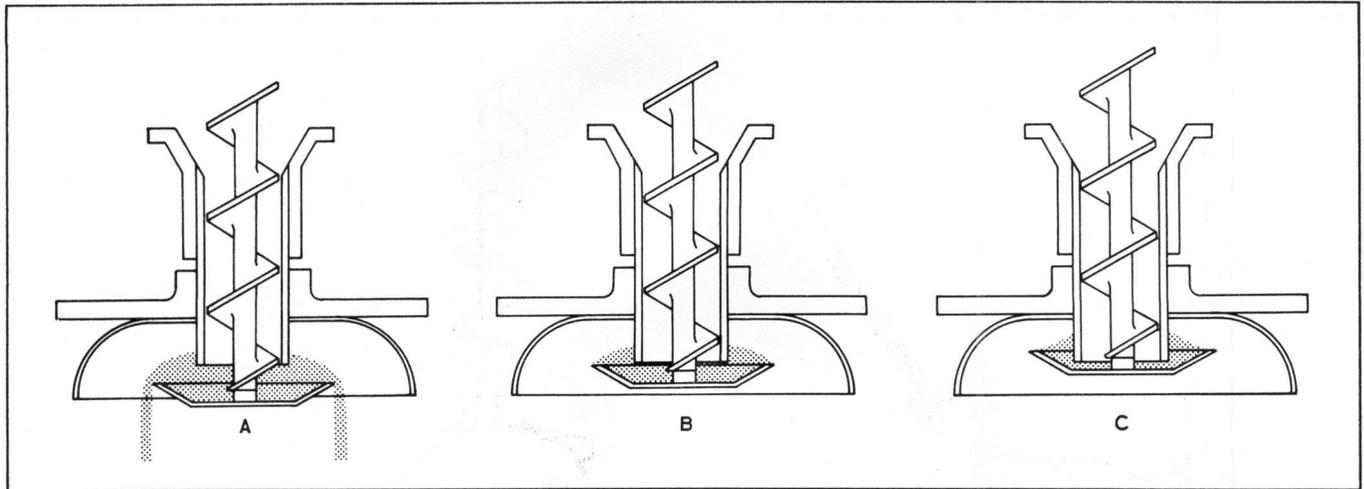


Figure 3-59. Adjusting Spinner

d. Adjusting Level Control System. Calibrate and adjust the level control system as follows:

(1) Open inspection cover in hopper cover assembly. Operate filler in EMPTY position until product in hopper has decreased to a point where replenishment is desired (approximately 1/4 to 1/2 of the probe diameter).

(2) Starting with coarse zero switch (Figure 3-60) in position 4, rotate fine zero adjust slowly in a clockwise direction until relay just becomes deenergized. If relay does not become deenergized after full rotation of fine zero adjust, position coarse zero to next lower (No. 3) position and repeat fine zero adjust procedure.

(3) When fine zero has been rotated slowly clockwise until relay is deenergized, rotate fine zero adjust counterclockwise slowly until relay becomes deenergized. Unit is now ready for low level fail-safe operation and control.

3-93. TOOLING CHANGEOVER PROCEDURES.

a. Changing Restrictors. To change restrictors, unscrew nozzle (Figure 3-57) from end of funnel and remove present restrictor from seat in nozzle. Insert new restrictor in seat of nozzle and screw nozzle onto end of funnel.

b. Changing Auger. To change an auger, remove tooling and funnel. Grasp auger with left hand and hit downward with right hand as shown in Figure 3-61. Install auger by aligning top end with auger drive

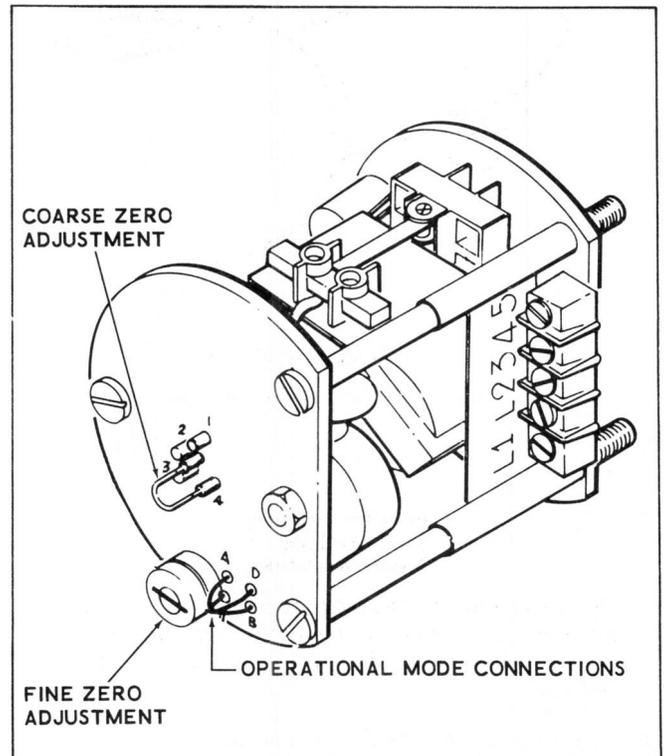


Figure 3-60. Adjusting Level Control System

shaft. Hold auger at bottom with left hand so that bottom of hand extends below auger. Hit left hand with an upward motion of the right hand as shown in Figure 3-61.

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

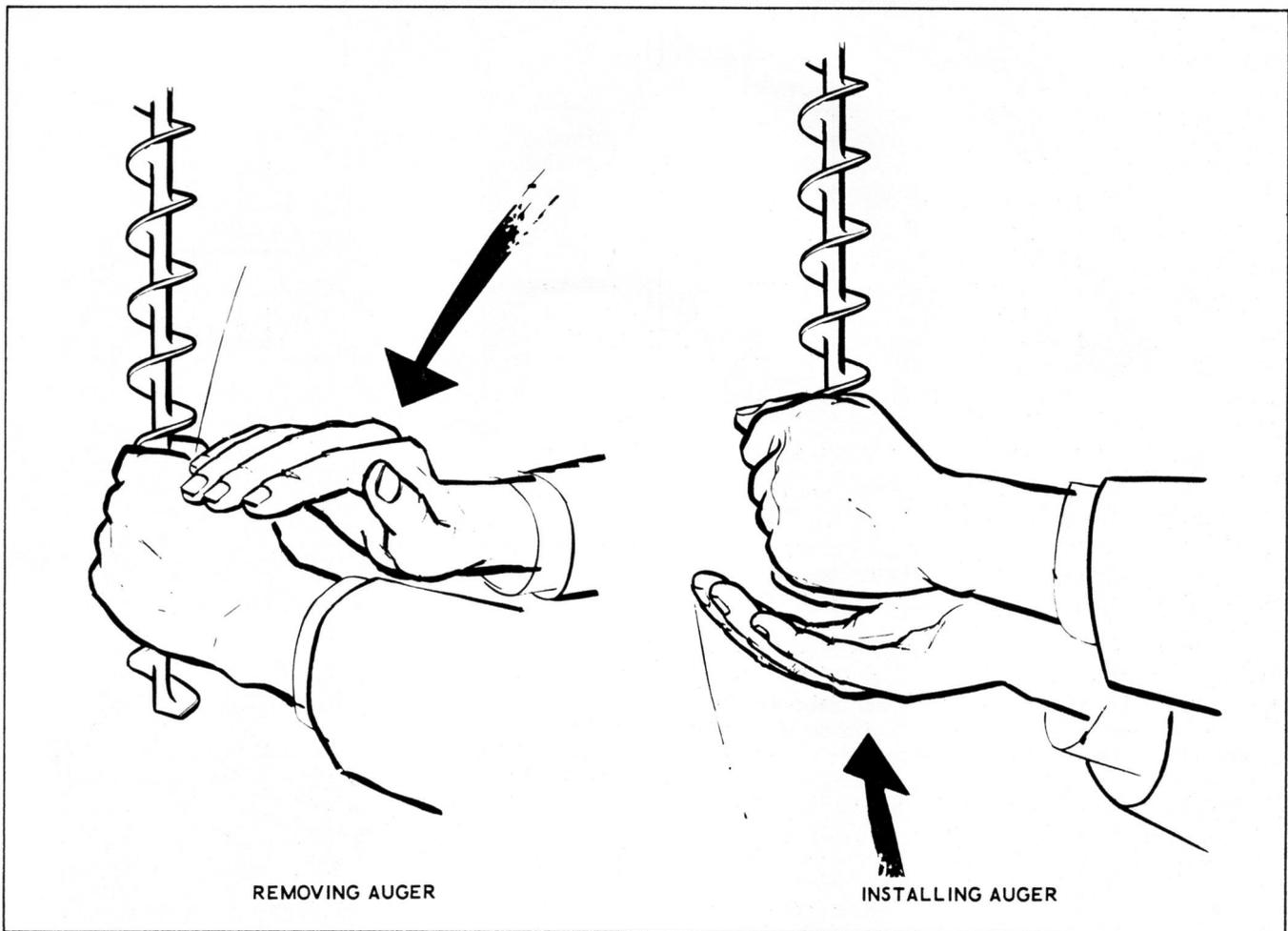


Figure 3-61. Removing and Installing Auger

CAUTION

Do not use tools of any kind to remove or install augers. Use method described in b above. Spinner is attached to Auger by a left hand screw.

c. Changing from Restrictor Tooling to Spinner Tooling. Use the following procedure to change from restrictor type tooling to spinner type tooling.

(1) Empty hopper and remove nozzle, restrictor, and funnel.

(2) If auger does not have slot in bottom to accommodate spinner or if different size auger is needed, install new auger as outlined in b above.

(3) Install funnel, collector hub and baffle, and spinner. The tang of the spinner must mesh with slot in bottom of auger. Attach spinner to auger with left hand thread screw. Adjust position of spinner in relation to bottom of funnel as outlined in paragraph 3-92c. Install collector.

3-94. INSPECTION AND MAINTENANCE.

A simple operational check should be made every 4 to 8 hours. Every 100 hours of operation, a complete inspection should be made. Remove inspection covers in housing and note wear of friction surfaces of the clutch and brake. The black powdery dust is merely worn off friction material and is a normal occurrence. Although it is not necessary, this material may be removed. Care must be taken to see that no foreign material is permitted between the friction surfaces because product or grease will alter the frictional characteristics, thus affecting the accuracy of operation. Absolutely no lubrication is required for the filler drive assembly. All rotary motion is suspended in prelubricated, sealed ball bearings.

3-95. TROUBLESHOOTING MODEL B PRODUCT FILLER.

The following chart is provided as an aid in locating and determining probable causes of malfunction. A possible solution to each problem is also included.

TROUBLESHOOTING GUIDE (PRODUCT FILLER)

Trouble	Probable Cause	Possible Solution
<p>1. Inaccurate cut-off or Fall out.</p>	<p>a. With Restrictor: Product dropping out through open area of Restrictor after Auger stops.</p>	<p>a. Change restrictor to one with finer mesh.</p> <div style="text-align: center; border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>CAUTION</p> </div> <p>Too fine a mesh in the restrictor will cause the restrictor and nozzle to be pushed off the funnel.</p> <p>Increase the space between the end of the auger and the restrictor.</p> <p>When using an annular ring and dribble continues, change to a mesh type restrictor.</p>
	<p>b. With Spinner: Product dribbles over the edge of the Spinner Plate.</p> <p style="text-align: center;">NOTE</p> <p style="text-align: center;">Do not confuse Product Dust with Dribble.</p>	<p>b. Reduce distance between funnel and spinner or use larger spinner.</p>
<p>2. Not Filling Auger Flight.</p>	<p>a. Insufficient or poor slow speed agitation.</p>	<p>a. Use proper length agitator blade. Plow finger maybe added or special agitator blade is sometimes required.</p>
	<p>b. Auger flight spacing is too small.</p> <p style="text-align: center;">NOTE</p> <p style="text-align: center;">In cases of a major change in Product consistency, it may be necessary to supply an entirely different Auger.</p>	<p>b. New auger with increased flight spacing.</p>
<p>3. Product Level Height in Hopper.</p> <p style="text-align: center;">NOTE</p> <p>For free flowing materials, lowering the Product level may produce:</p> <p>An increase in the quantity of fill per cycle.</p> <p>Greater fill inconsistency.</p> <p>Raising the Product level may produce the opposite effect.</p>	<p>a. Inaccurate meter control of incoming Product.</p>	<p>a. For gravity infeed, adjust the movable Baffle at the Hopper inlet. For mechanical infeed, with a "Level Control" mounted on the inside of the Hopper controlling the infeed mechanism adjust the height of the "Level Control" Probe.</p> <p>b. Adjust the sensitivity.</p> <p>c. Customer infeed unit must be adjusted to give an even flow of product into the Bartelt hopper.</p>

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

TROUBLESHOOTING GUIDE (PRODUCT FILLER) (CONT)

Trouble	Probable Cause	Possible Remedy
1. No relay operation.	LEVEL CONTROL SYSTEM	
	a. Improper line voltage.	a. Check line voltage.
	b. Shorted power transformer in detector unit.	b. Check and replace.
	c. Loose interconnecting wires or improper polarity.	c. Check wires and polarity.
	d. Improper output voltage from power supply.	d. DC output voltage from power supply should be 12 vdc, $\pm 10\%$.
	e. Improper calibration.	e. Calibrate unit.
	f. Open or defective relay.	f. Replace relay.
2. Unable to adjust coarse zero.	a. Defective electrical connection to probe.	a. Check connection.
	b. Shorted probe assembly.	b. Same as 1g above.
	c. Excessive probe terminal capacitance.	c. Measure capacitance between probe terminal and gland using suitable capacitance meter. Should be 75 PF maximum. Replace probe.
3. Unable to adjust fine zero.	a. Fine zero adjust capacitor open or shorted.	a. Check and replace shorted or open capacitor.
	b. Wrong coarse zero adjust range used.	b. Calibrate unit.
4. Poor sensitivity.	a. Partially shorted probe assembly.	a. Resistance between probe terminal and gland should be 1 megohm minimum. Replace shorted probe.

Section XIII. Paddle and Top Seal

3-96. PADDLES.

After the pouches leave the fill stations, they sag from the product fill and must be reformed before the top seal station. The purpose of the paddles (Figure 3-62) is to form the filled pouch into a taper with the top of the pouches together to remove air and distribute the product within the pouch. The paddles are mounted to a cycle shaft cam operated rocker arm. The paddles are positioned on the rocker arm to press against the pouch when the arms come together and form the pouch ready for top sealing. The paddles must be adjusted to suit the size and contour of the pouch being run. Loosen the retaining screws (Figure 3-62) securing the paddle to the rocker arm. Adjust the paddle to the pouch with the top of the paddle in closest to the machine centerline and the bottom further away from the machine centerline to form a taper effect. Tighten all retaining screws after adjustments have been made.

3-97. TOP SEAL.

The top seal bars (Figure 3-62) provide the top and final seal on the pouch following the depositing of the product. The top seal bars are rectangular in shape and are used on both the fin and gusset type pouches. The top seals are made by the seal bars as they apply both heat and pressure to the web material. The pressure applied to the pouch by the top seal bars is preset and not adjustable. The height of the seal bars can be adjusted to suit different size pouches. Sometimes, due to the weight of product in the pouch, the end of the pouch opposite the clamp tends to be lower than the clamped end. The position of the top seal bars must be arranged to compensate for this unevenness. For this purpose, the seal bars are sometimes lower on the left (side opposite pouch clamp) than on the right (clamp side). The heat controls and settings are the same as outlined for the bottom and side seals.

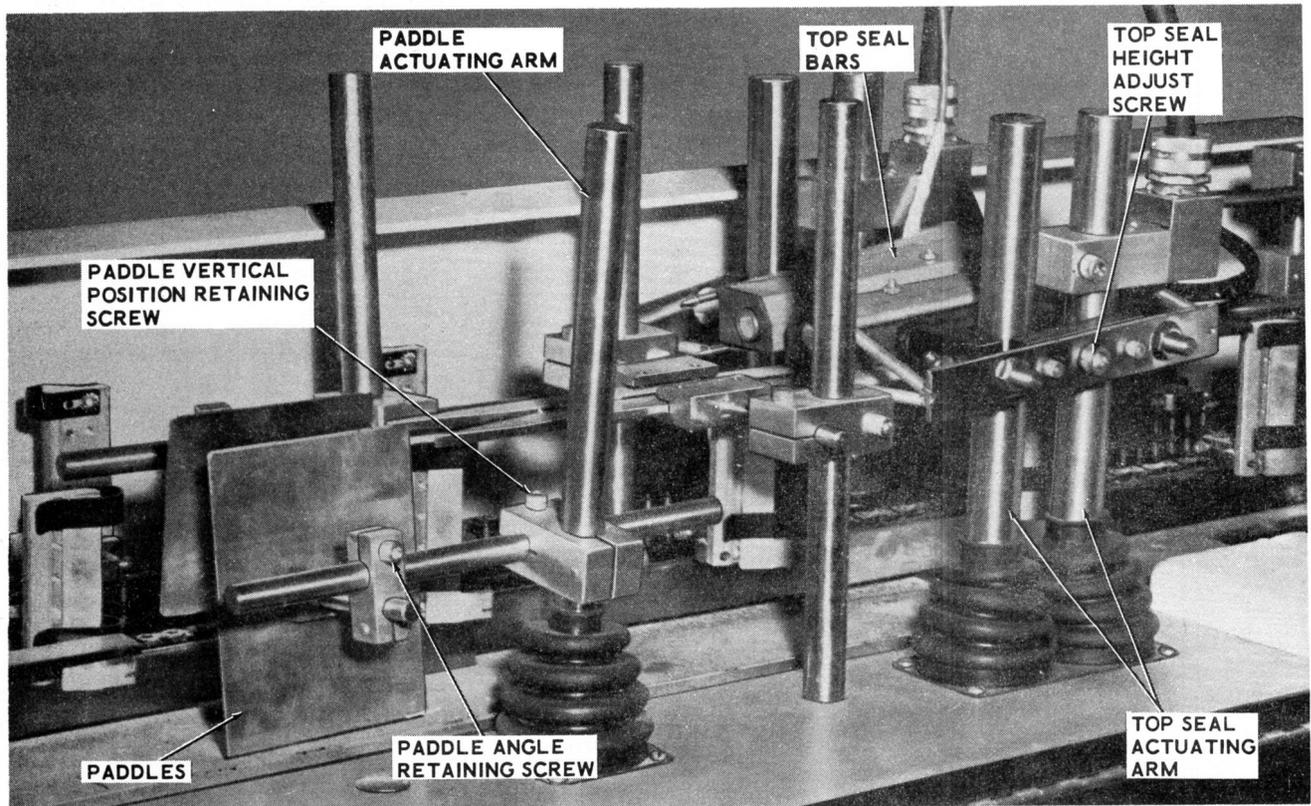


Figure 3-62. Top Seal Mechanism

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

3-98. ADJUSTING TOP SEAL BARS.

The vertical position of the top seal bars is adjustable to suit the different size pouches running through the machine. Perform this adjustment as follows:

a. Plain top seal bars.

(1) Loosen each front top seal bar height adjustment screw (Figure 3-62) and move up out of position.

(2) Adjust rear bar for height.

(3) Set front bar to match rear bar.

b. Contoured top seal bars.

(1) Vertical adjust as in a above.

(2) IMPORTANT. Adjust horizontally to match pouch side seals.

3-99. TROUBLESHOOTING TOP SEAL.

The following chart is provided as an aid in locating and determining probable causes of malfunction associated with the top seal mechanism and possible solutions to each problem.

TRUBLESHOOTING GUIDE (TOP SEAL)

Trouble	Probable Cause	Possible Remedy
1. Leakers.	a. Pouch too full.	a. Check fill weight; width of side seals (1/4 inch maximum); pouch size.
	b. Top of side seal too low.	b. Web too high, adjust plow assembly; side seal bars too low, adjust; top seal bars too high, adjust.
	c. Product on seal area.	c. Check filler nozzle for excessive spray; install top seal cleaner motor vibrator on seal area (after fill station).
	d. Teflon protector worn.	d. Replace protector.
	e. Heating elements too short.	e. Replace heating elements.
	f. Seal bar or protective teflon dirty.	f. Clean.
	g. Heat too low.	g. Increase heat.
	h. Seal area too narrow.	h. Lower top seal bars.
	i. Electrical failure.	i. Check for cold seal bar. See ELECTRICAL TROUBLESHOOTING.
	j. Pressure too light.	j. Check seal bar springs. Replace springs.
2. Wrinkles.	a. Pouch too full.	a. See 1a above.
	b. Paddles not operating properly.	b. Adjust paddles to produce least amount of wrinkles before top seal station.

Section XIV. Pouch Pickoff

3-100. POUCH RELEASE MECHANISM.

When the filled pouch has been top sealed, it moves down to the end of the machine ready to be removed. Removal of the finished pouches entails releasing of the pouch from the clamp, timed with a vacuum pick-off assembly for holding the pouch after it is released from the clamp, and placing the pouch on a conveyor or into a box, or other container as supplied by the customer. The pouch release mechanism (Figure 3-63) is similar to pouch clamp opener mechanism at the beginning of the conveyor chain.

3-101. ADJUSTING POUCH RELEASE.

The pouch release mechanism can be adjusted as follows:

a. The entire mechanism can be moved to the right or left horizontally by loosening four retaining screws (Figure 3-63) securing the bracket to the conveyor drive assembly. Move the mechanism to the right or left by sliding the bracket on the attaching screws in the two elongated slots. After the mechanism is lined up horizontally with the pouch clamp, tighten the four screws securely.

b. The vertical position of the opener button must be adjusted to the center of the opener tab. When the

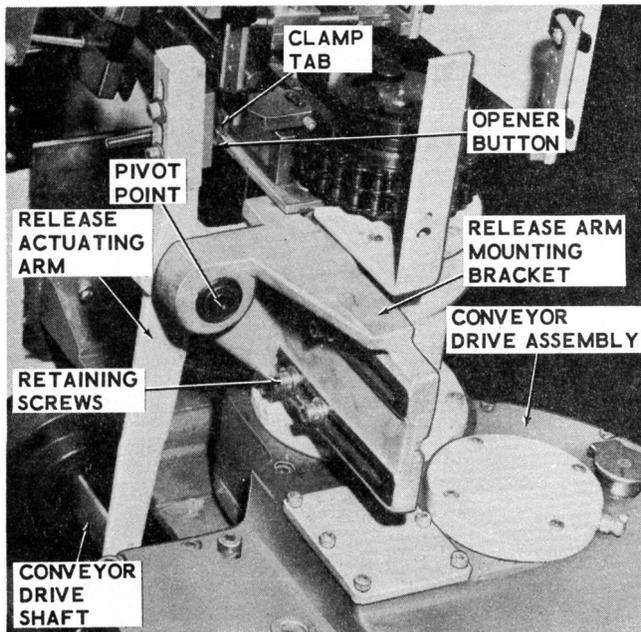


Figure 3-63. Pouch Release Mechanism

proper button position is established, tighten the hexagon nuts securely.

3-102. VACUUM PICKOFF MECHANISM.

The vacuum pickoff (Figure 3-64) is a combination of a mechanical pickoff function and vacuum system. This system holds the pouch by vacuum sucker cups before the pouch is released from the bag clamp and continues to hold as the mechanism carries the pouch from the packager. The pickoff mechanism is mounted to the cross bracket which supports the dust cover. The mechanical linkage and arms of the mechanism are actuated by a split eccentric on the cycle shaft and is timed with the pouch release mechanism. The linkage can be adjusted vertically to position the sucker cups and horizontally to change the pickoff arm position. The eccentric is connected by a tie rod to a shaft mounted lever. This lever turns the shaft as it is pushed and pulled by the tie rod. An intermediate arm is attached to the other end of the shaft. The intermediate arm is actuated by the shaft to move from a vertical position to a horizontal position and back. The pickoff arm is mounted in a slot in the intermediate arm. A sucker cup manifold is attached to the lower end of the pickoff arm. When the intermediate arm is in the vertical position (Figure 3-65), the sucker cups should be against the pouch. The pickoff arm is linked by a tie rod to the pickoff bracket. As the intermediate arm moves to the horizontal position, the pickoff arm is held at the upper end by the tie rod

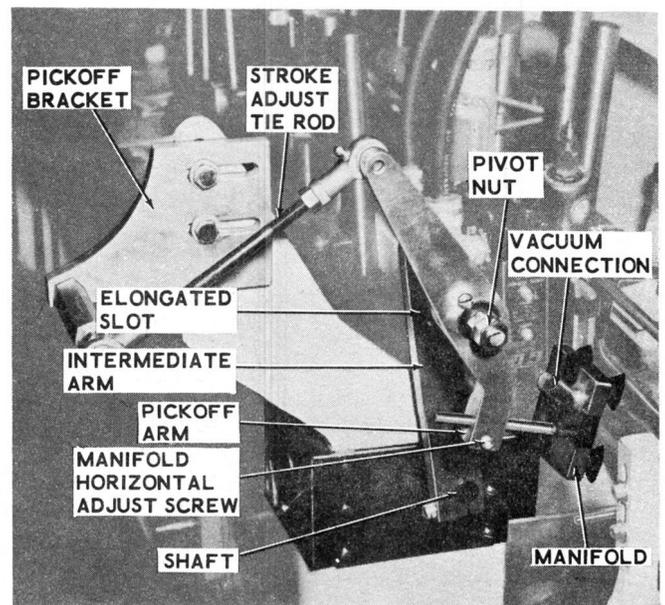


Figure 3-64. Vacuum Pickoff Assembly

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

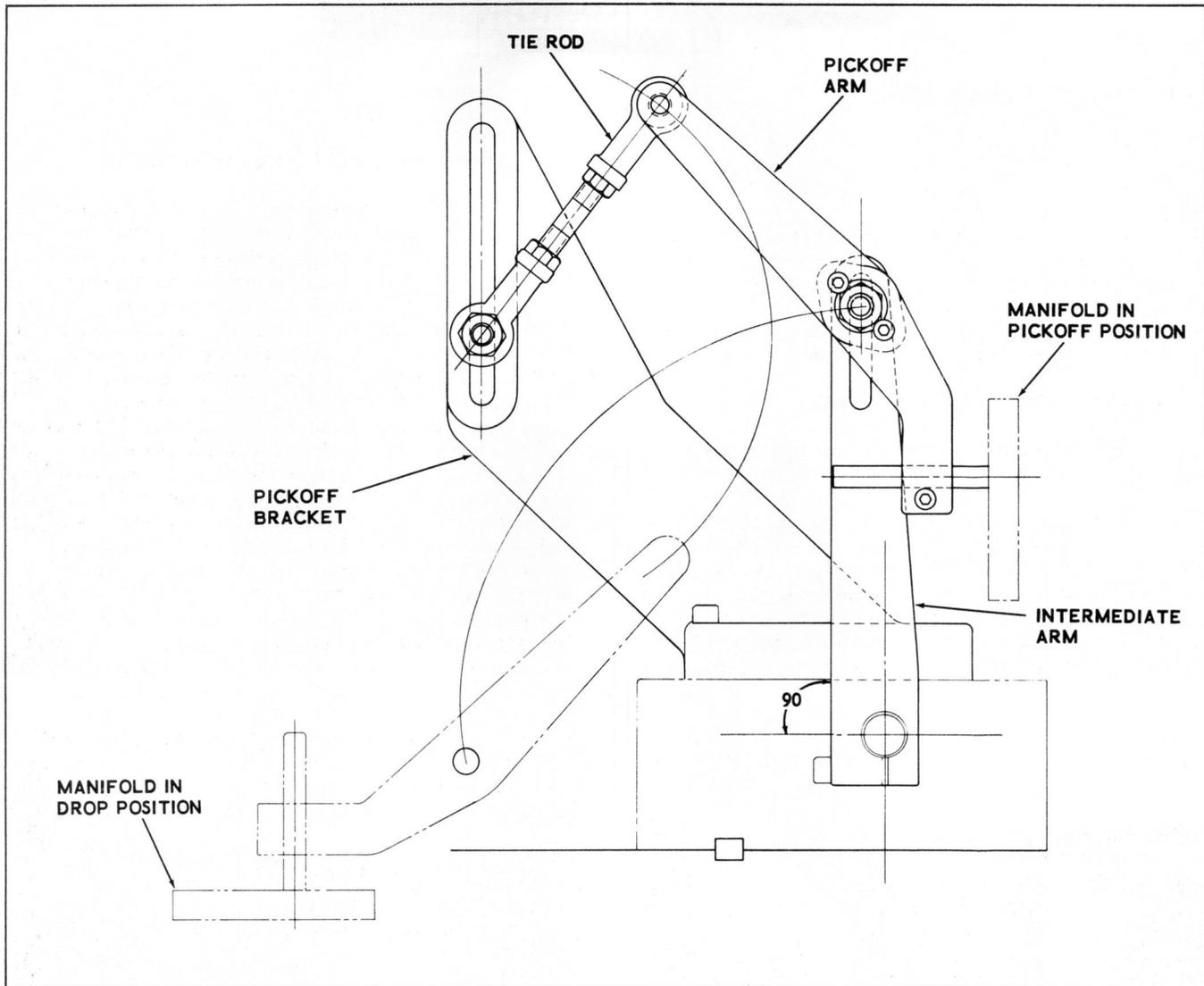


Figure 3-65. Vacuum Pickoff Arm Operation

and moved in the center by the intermediate arm. Through this holding and moving arrangement, the manifold attached to the lower part of the pickoff arm is moved from a vertical position outward from the machine to a horizontal position with the pouch facing downward ready to be dropped. The sucker cup manifold has nine holes in its face. As many sucker cups as required by the pouch size and weight are inserted in these holes to grasp the pouch. The sucker cups that can be used are shown in Figure 3-49. A tube protruding from the back of the manifold serves as the vacuum supply connection.

Vacuum for the system is supplied by a pump (Figure 3-66) mounted at the rear of the packager. The system contains connecting hoses, adjusting valve, gage, and

a cam operated valve. The valve actuating cam is mounted to a shaft protruding from the rear of the conveyor drive assembly. The vacuum timing cam operates the valve to grasp the pouch at the right time and release the pouch at the right time.

CAUTION

Do not allow pouches to accumulate at the pickoff release point. It is possible for these pouches to damage the mechanism.

NOTE

Refer to Chapter 6, Section IX, for pouch pickoff repair instructions.

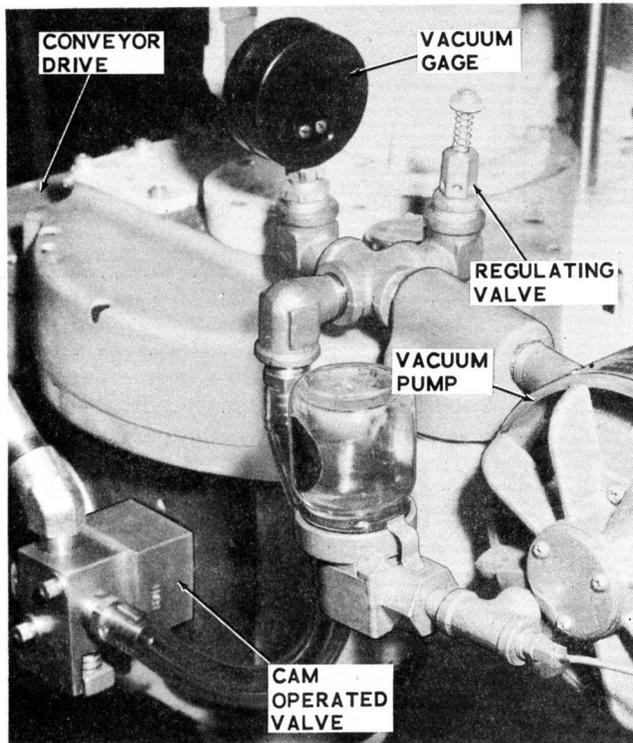


Figure 3-66. Pickoff Vacuum System

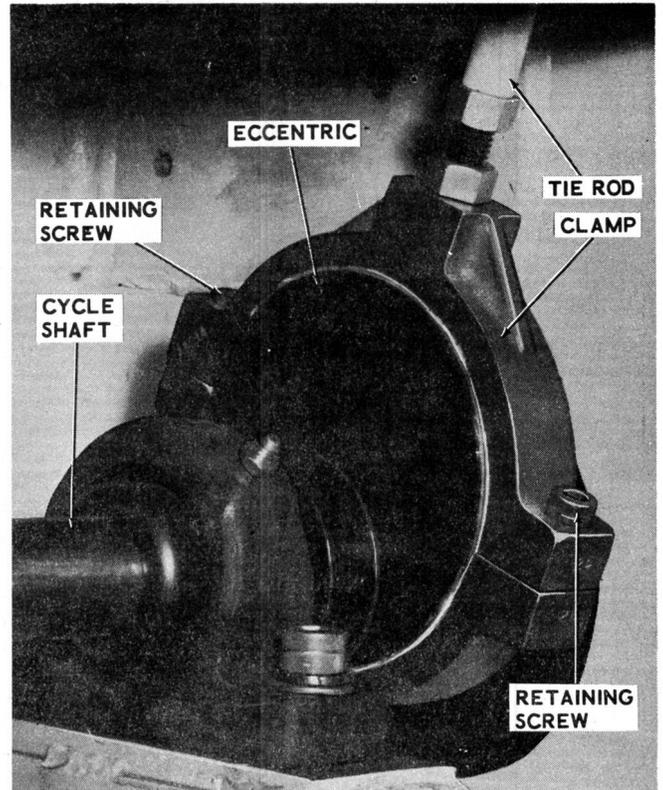


Figure 3-67. Vacuum Pickoff Eccentric

3-103. ADJUSTING VACUUM PICKOFF LINKAGE.

Adjust the mechanical linkage of the vacuum pickoff assembly as follows:

a. Jog the machine until the eccentric and connecting tie rod are in full upward position. Adjust the tie rod (Figure 3-67) until the front face of the intermediate arm (Figure 3-64) is 90 degrees from the horizontal surface of the packager.

b. Adjust the height of the pickoff manifold to suit the pouch size by loosening the nut at the pivot point of the intermediate arm and pickoff arm. Move the pickoff arm up or down in the elongated slot of the intermediate arm until the desired height of the manifold is obtained. Tighten the pivot nut to hold this position. The above adjustment also allows variable, lateral pouch placement.

c. Loosen the manifold horizontal adjust screw (Figure 3-64) and move the manifold closer to or away from the pouch as required by moving the manifold shaft in the end of the pickoff arm. Tighten the screw after adjustment is made.

d. Whenever the position of the pickoff arm pivot point is changed, the stroke is also affected. To increase the stroke, raise the pickoff arm and adjust the tie rod. To decrease the stroke, lower the pickoff arm and adjust the tie rod.

e. Horizontal adjustment of the pickoff arm for better alignment with the pouch is accomplished by loosening two jam nuts on each side of the pickoff arm on the

threaded shaft and moving the arm to the left or right on the shaft as desired. Tighten jam nuts against each side of pickoff arm after adjustment.

3-104. TIMING VACUUM PICKOFF.

The vacuum pickoff assembly is timed off the pouch release mechanism. The sucker cups on the pickoff manifold must grab the pouch the moment before the pouch clamp tension springs open to release the pouch. The following procedure is used for timing the vacuum pickoff:

a. Jog the machine until the pouch clamp just starts to open.

b. Loosen clamp on cycle shaft eccentric (Figure 3-67) by loosening the two socket head screws and rotate the clamp forward or backward to bring the sucker cups into contact with the pouch.

c. Tighten the two socket head screws. Cycle the machine to check the adjustment. Readjust if necessary.

3-105. TROUBLESHOOTING VACUUM PICKOFF.

The following chart is provided as an aid in locating and determining probable causes of malfunction associated with the vacuum pickoff assembly and possible solutions to each problem. Refer to paragraph 3-77 for troubleshooting vacuum pump.

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

TROUBLESHOOTING GUIDE (VACUUM PICKOFF)

Trouble	Probable Cause	Possible Remedy
1. Does not pick up pouch.	a. Pouch too far into clamp.	a. Pouch too wide; check and adjust. 1-1/16 inch entry dimension not correct.
	b. Pouch too low.	b. Adjust pick off.
	c. Sucker cups not contacting pouch.	c. Adjust sucker cup manifold for good contact.
	d. Worn sucker cups.	d. Replace worn cups.
	e. Timing off.	e. Adjust timing of vacuum cam and eccentric.
	f. Insufficient vacuum.	f. Increase vacuum.
	g. Malfunction in vacuum system.	g. Check and correct.
	h. Filter bag clogged.	h. Clean filter bag.
2. Drops pouch.	a. Worn sucker cups.	a. Replace worn cups.
	b. Leak in vacuum line.	b. Repair.
	c. Vacuum motor overheated.	c. Check voltage.
	d. Insufficient vacuum.	d. Increase vacuum.
	e. Valve spring worn or broken.	e. Replace worn valve spring. (See Chapter 6.)
	f. Dirt on valve seat.	f. Clean valve seat. (See Chapter 6.)
	g. Pouch too large or heavy for manifold.	g. Increase number of sucker cups in manifold (also increase vacuum).
	h. Timing off.	h. Check relation of clamp action, vacuum timing, and pickoff arm timing.

Section XV. Conveyor Drive And Chain Assembly

3-106. GENERAL.

The pouch opening, filling, and top sealing portion of the packager starts when the individual pouch is passed from the cutoff into a pouch clamp and ends when the pouch is released from the clamp and picked off the machine. The pouch is moved through this portion of the machine by a conveyor chain driven by a conveyor drive assembly. The conveyor drive assembly changes a uniform rotary motion supplied by the cycle shaft into an intermittent rotary motion for the purpose of indexing the conveyor chain.

NOTE

Refer to Chapter 6, Section X for conveyor drive and chain repair instructions.

3-107. CONVEYOR DRIVE ASSEMBLY.

The input shaft of the conveyor drive assembly (Figure 3-68) is flange coupled to the end of the cycle shaft. By aligning the keyways of the two shafts the timing of the drive assembly will correspond with that of the cycle shaft. The housing of the drive assembly is attached to the end of the packager base by screws and dowel pins. The input shaft (Figure 3-69) is located in the lower portion of the housing and turns in tapered roller bearings protected by oil seals at each end. The input shaft extends beyond the back of the housing for the attachment of an actuating cam to operate the vacuum pickoff valve. The cam of the indexing unit is located on the input shaft inside the lower housing between the two roller bearings. Two lock nuts are located on each side of the cam for axial adjustment of the cam along the shaft. The rotary motion of the cam is transmitted to vertical shaft "A" by means of the spider which is bolted and pinned to the shaft. The spider consists of a number of roller type cam followers spaced around the outside edge of a circular plate. The cam followers of the spider roll along the spiral type surfaces of the cam and index the vertical shaft "A". There is a time in each revolution of the cam that the spider is not moved. This is called the dwell. The movement and the dwell provide the inter-

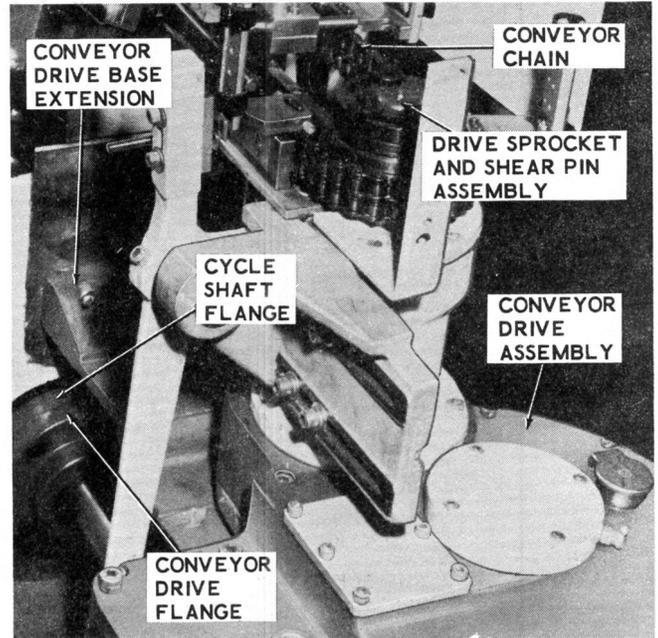


Figure 3-68. Conveyor Drive and Chain Assembly

mittent motion of the conveyor chain. As the cam rotates through one complete cycle, it moves the spider for 120 or 150 degrees of this cycle and dwells for 240 or 210 degrees. The motion applied to vertical shaft "A" turns the shaft 60 degrees. Shaft "A" is supported at the bottom by a double row ball bearing and at the top by a single row ball bearing. A lock nut and lock washer is provided at each end of the shaft for end play adjustment. A drive gear is bolted and pinned to shaft "A" just below the top bearing. This gear meshes with a smaller gear attached to the bottom of vertical output shaft "B". The ratio between the drive gear of shaft "A" and the driven gear of shaft "B" determines the degree of rotation of the output shaft "B". The rotation of output shaft "B" determines the index of the machine; that is, the number of inches the pouch is moved in one cycle. The following chart is a summary of the drive train for machine index 6, 7 and 9.

INDEX DRIVE TRAIN

Index	Turn of shaft "A" (degrees)	No. of teeth in gear set	Gear set ratio	Turn of shaft "B" (degrees)	No. of teeth conveyor sprocket	Index in inches
6	60	63/21	3/1	180	24	6
7	60	98/28	7/12	210	24	7
9	60	99/22	9/2	270	24	9

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

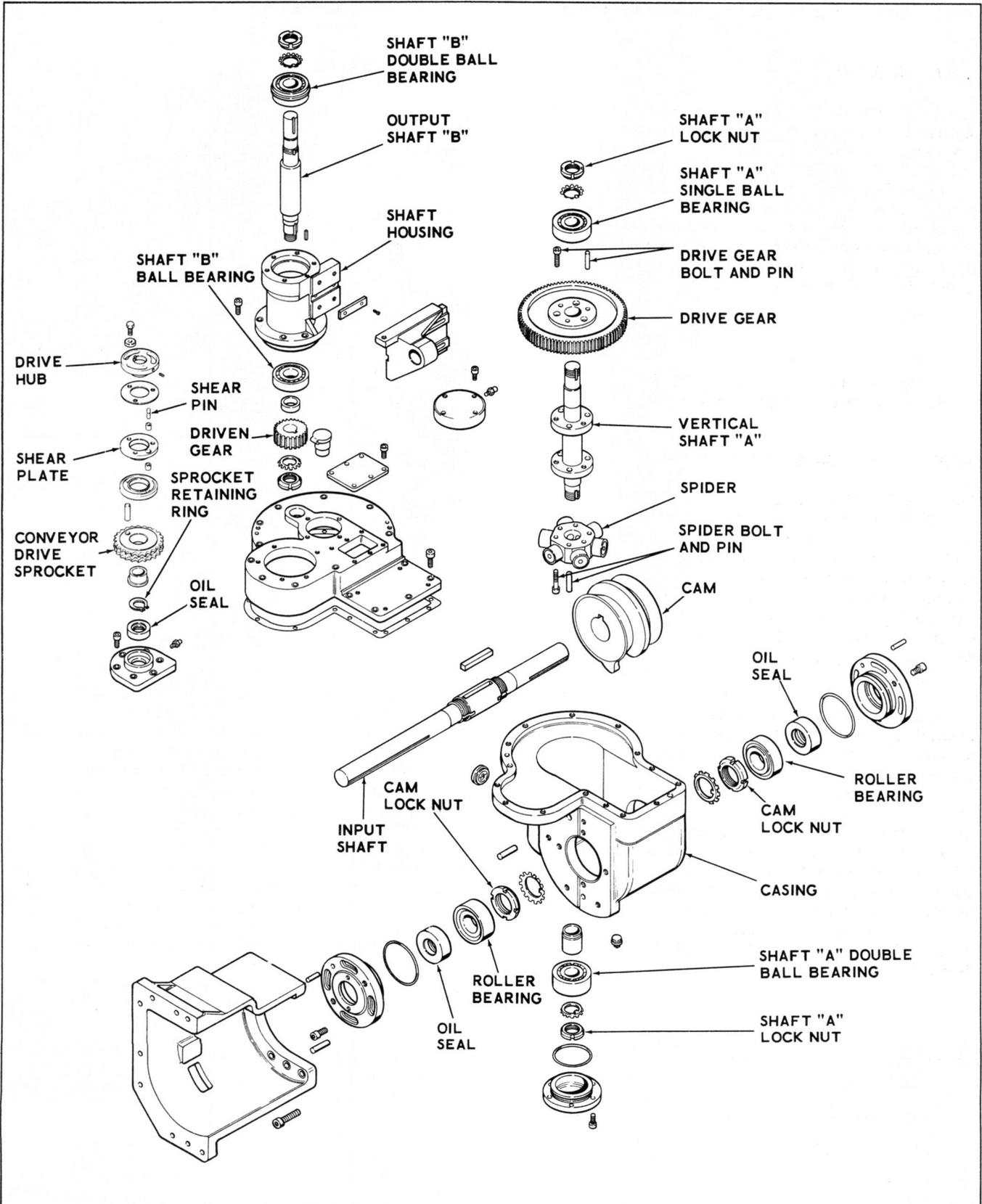


Figure 3-69. Conveyor Drive Assembly

Vertical output shaft "B" is contained in a smaller housing extending from the top of the main housing. The shaft is supported at the bottom by a single row ball bearing and at the top by a double row ball bearing. The top of the housing extension is sealed with an end plate and oil seal. A 24 tooth conveyor drive sprocket is located on the output shaft extending through the housing extension. This sprocket drives the conveyor chain. The sprocket is held up on the shaft by a retaining ring and is driven by a shear pin built into the sprocket drive mounting. The shear pin protects the conveyor from damage. The sprocket drive mounting consists of a lower plate (shear plate) and a top plate or hub. The hub is attached to the shear plate by three screws inserted through three slots in the hub. When these screws are loosened, the conveyor chain can be turned by hand for positioning the pouch clamps attached to the chain. The hub is keyed to the output shaft.

3-108. REPLACING CONVEYOR DRIVE SPROCKET SHEAR PIN.

Replace shear pin (6, Figure 3-70) in conveyor drive sprocket assembly as follows:

- a. Remove three cap screws (1) and washers (2).
- b. Loosen setscrew (4) and pull adjustable drive hub (3) and retainer ring (5) from conveyor drive shaft.
- c. Remove shear pin adjust sprocket plate (8) from drive. Remove broken shear pin (6) from conveyor shaft bushing (7) in plate (8).
- d. Remove shear pin drive plate (10) from conveyor drive shaft and from dowel pin (11). Remove broken section of shear pin (6) from bushing (9) in drive plate (10).
- e. Install shear pin drive plate (10) over conveyor drive shaft, onto dowel pin (11) and against drive sprocket (12). Install new shear pin (6) in bushing (9) located in hole of shear pin drive plate (10).
- f. Position shear pin adjust sprocket plate (8) over conveyor drive shaft and downward until bushing (7) is over top portion of shear pin (6).
- g. Install retainer plate (5) onto top surface of plate (8). Install adjustable drive hub (3) over key of conveyor drive shaft and tighten setscrew (4).
- h. Install washers (2) and thread screws (1) into threaded holes of shear pin adjust plate (8).
- i. Adjust position of pouch clamp for 1-1/16 inch and tighten screws (1).

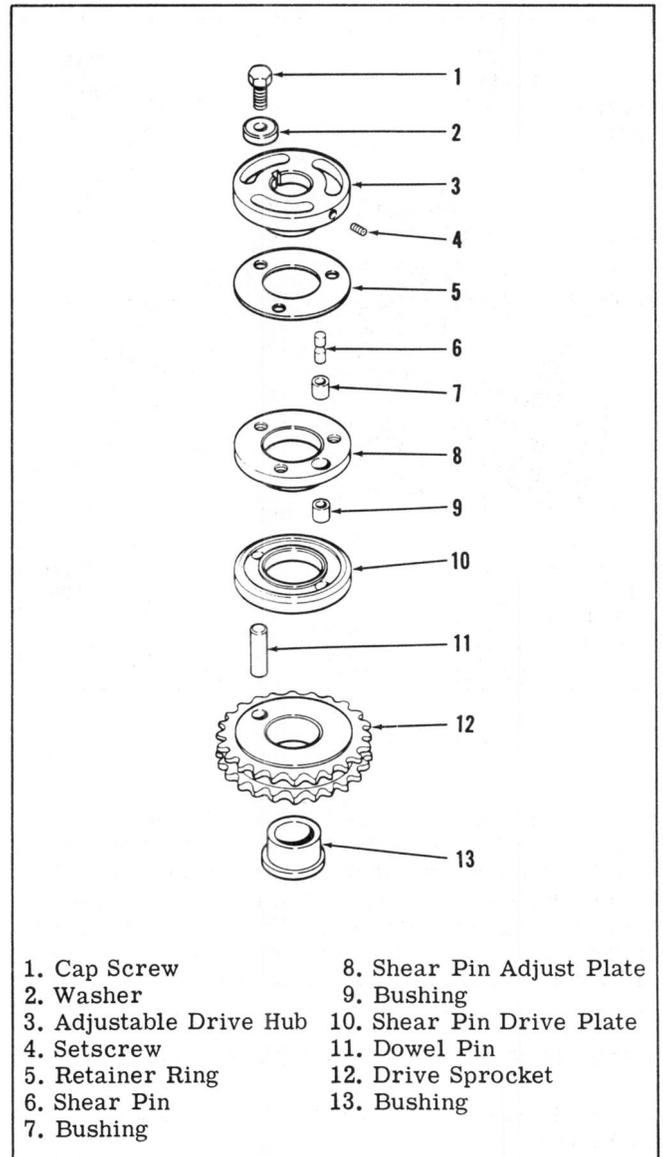


Figure 3-70. Replacing Conveyor Drive Sprocket Shear Pin

3-109. CENTRIC OVERLOAD CLUTCH.

A centric overload clutch is installed on some Packers to perform the protective function of the shear pin mechanism. This clutch (Figure 3-71) consists, essentially of two units, the rotor and the housing with its release mechanism. The drive shaft enters the side of the clutch housing and is keyed to the clutch rotor. The release mechanism, consisting of a drive pawl and a reset pawl, is pivoted within the clutch housing. The drive pawl is held engaged in the rotor notch by the combined pressure of the drive and reset springs. The combined pressure of these two springs determines the maximum torque to be transmitted without overload. With the clutch mechanism

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

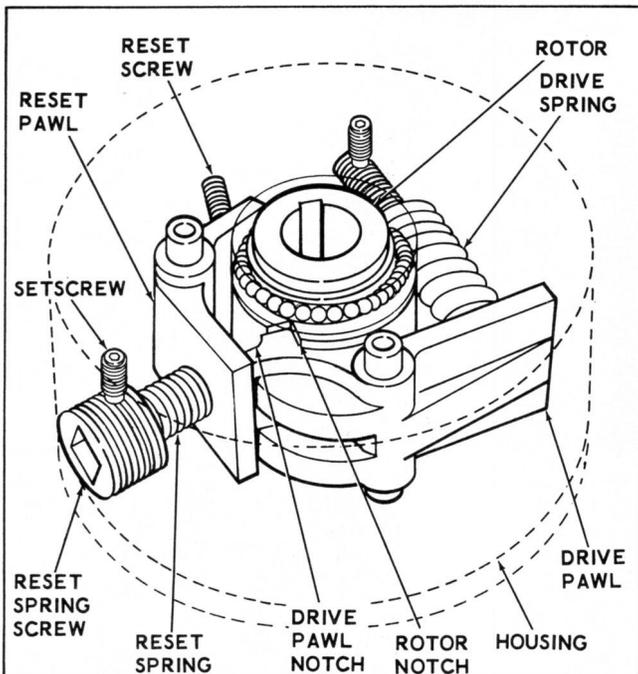


Figure 3-71. Centric Clutch

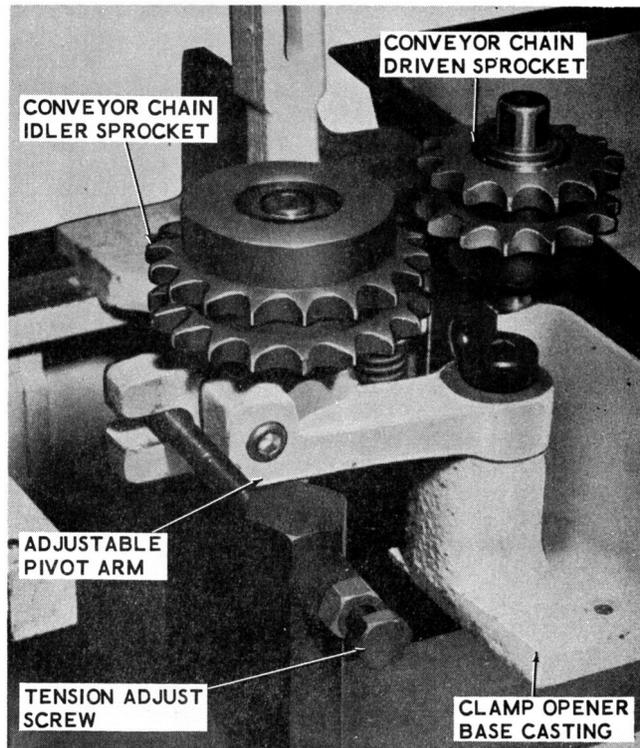


Figure 3-72. Conveyor Chain Take-Up

in the position shown in Figure 3-71 the rotor and housing are held together and the entire unit rotates with the drive shaft and at the same speed. The instant an overload occurs, the pressure of the drive and reset springs is overcome by the extra force applied to them from the rotor. The drive pawl slides out of the rotor notch actuating the limit switch plate thus, stopping the machine.

3-110. RESETTING CENTRIC OVERLOAD CLUTCH.

If centric clutch releases due to overload, proceed as follows:

- Remove cause of jam or overload.
- Advance conveyor chain manually to the position where the pawl reengages.
- Reset the limit switch plate.

3-111. CONVEYOR CHAIN.

The conveyor chain is a roller type chain to which the pouch clamps are attached. The chain carries the clamped pouches through the opening, filling, and sealing operations. Because of its length, several chain guides are installed along the chain path as it rotates around the top of the packager base. Extended pin master links placed at predetermined spacing provides the mounting for the pouch clamps that are carried by the chain.

3-112. CONVEYOR CHAIN TAKE-UP.

A conveyor chain take-up assembly (Figure 3-72) consisting of a pivoted, adjustable arm with the conveyor chain idler sprocket held in the movable end is located near the conveyor chain driven sprocket. The pivoted end of the adjustable arm is mounted to the clamp opener base casting. By loosening a lock nut and turning an adjustment screw that is accessible from the back of the machine, the adjustable arm can be pivoted thus tightening or loosening the conveyor chain.

3-113. DUST COVER.

A stainless steel dust cover is provided to cover the working mechanisms under the conveyor chain and all the operating assemblies. This cover protects the moving parts from air borne deposits of dust and product and also acts as a safety feature. Hinged doors are furnished at the front of the packager to provide access to the operating components under the dust cover. Spill chutes are provided under each fill station to catch spilled product and channel it into containers under the packager.

Section XVI. Electrical System

3-114. ELECTRICAL SYSTEM.

The following is a description of the electrical system of a typical Packager as shown in Figure 3-73. The unit is generally powered by a 3 phase, 60 cycle Hz, 220 or 440 volt electrical source. Each of the drive, feeder, agitator, and vacuum motors are 3 phase connected as shown in Figure 3-73. The master control relay (CRM) is connected in series with the motor overload relays (OL, etc.) therefore any failures in the motor equipment will prevent starting the unit. If all of the overloads are closed, depressing the RUN button will energize the circuitry and master control relay (CRM). Relay CRM contacts will close and hold the master control circuit energized. The DRIVE START switch is depressed to start the Packager. In the JOG position, the packager will run only as long as the DRIVE START switch is held depressed.

The packager is stopped by depressing the DRIVE STOP button which energizes relay (CRDS). The CRDS relay contacts close to setup the relay (CRB) circuit for a positioned stop. Brake limit switch LSB is operated by the sequence timing assembly to energize relay (CRB) to open drive motor starter (MSD) and to apply the drive motor brake through relay (CRD0-1) to stop the packager in a position where the seal bars are open.

The drive motor, master controls, web and pouch controls, feeder controls and feeder hopper control circuits are 115 vac across one phase to ground and are protected by a 15 ampere fuse. The seal bar temperature controls are also 115 vac and are protected by a separate 20 ampere fuse.

The no web and no bag circuit provides protection if the machine should run out of web or a pouch is not inserted into a pouch clamp at the start of the conveyor chain. The no bag circuit consists of two switches connected in series. One of the switches (LSNB-2) is located on the sequence switch timing assembly in the control box. The second switch (LSNB-1) is on the machine in a position where it can check the pouches indexing along the conveyor chain. This switch, usually referred to as "no bag switch", is connected normally closed. The two switches (LSNB-1 and 2) are connected in series with a turn button WEB FAILURE switch on the front of the control box and the web failure relay (CRWF). The no bag circuit is timed so that in normal operation, as a pouch enters, the no bag switch on the machine and before it leaves this position, the switch on the sequence timing switch assembly is actuated by a cam and checks the no bag switch for presence of a pouch. If a pouch is present in the no bag switch (LSNB-1) when switch LSNB-2 checks, then nothing electrical will occur because LSNB-1 will be open when LSNB-2 closes and the machine will continue to operate. If a

pouch does not enter no bag switch (LSNB-1) to open it, and switch (LSNB-2) on the timing sequence switch assembly is operated by its cam, both switches will be closed, completing the circuit to energize relay (CRWF). When relay CRWF is closed, two sets of contacts are operated. One set of contacts, normally open, is connected in parallel with the DRIVE STOP switch. This is the positioned stop circuit. The second set of CRWF contacts are normally open, and are connected in parallel with the series circuit of the two pouch checking switches (LSNB-1 and LSNB-2) and are used as holding contacts.

When relay (CRWF) is operated during normal operation, the machine will continue its cycle until the brake limit switch (LSB) is actuated. This circuit will drop out the drive motor starter and apply the drive motor brake. Because the machine continues to cycle after the momentary checking for the presence of a pouch, the holding contacts on relay (CRWF) are necessary. The relay (CRWF) must be held until switch (LSB) is made. To start the machine again, the web failure circuit must be reset. The circuit can be reset by rotating the WEB FAILURE switch to OFF and then back to ON position.

The no web switch (LSWE) is also in the web and pouch control circuit. This switch is located under the dancing roller and is operated by the roller when it has dropped to its lowest position. The dancing roller will drop to the lowest position only when there is no tension on the web, which should occur only when the web has run out or broken.

An integral part of the Web Feed Roll Brake circuit is a 50 watt incandescent lamp. The characteristics of the incandescent lamp are such that when the circuit is initially switched on by LSR-1 or the photoelectric unit the cold resistance of the lamp is low and approximately 190 vdc is impressed across the brake with a resultant rapid, firm braking action. Immediately thereafter, as the incandescent lamp heats up, its resistance rises rapidly, increasing the circuit resistance and reducing the voltage impressed across the brake to approximately the normal rating (90 vdc).

Switch LSR makes the photo electric relay unit operative. A set of relay contacts in the unit are in parallel with switch LSR-1 so switch LSR can be opened by the sequence timing switch assembly anytime after LSR-1 is made. The internal relay in the photo electric amplifier energizes the WEB FEED ROLL BRAKE when printed web is being run.

There is one set of temperature controls for each set of seal bars. A standard packager will have three sets of controls; top seal, side seal, and bottom seal. A set of controls consists of two variable transformers, one

BARTELT IM PACKAGER

OPERATION MANUAL 4-68

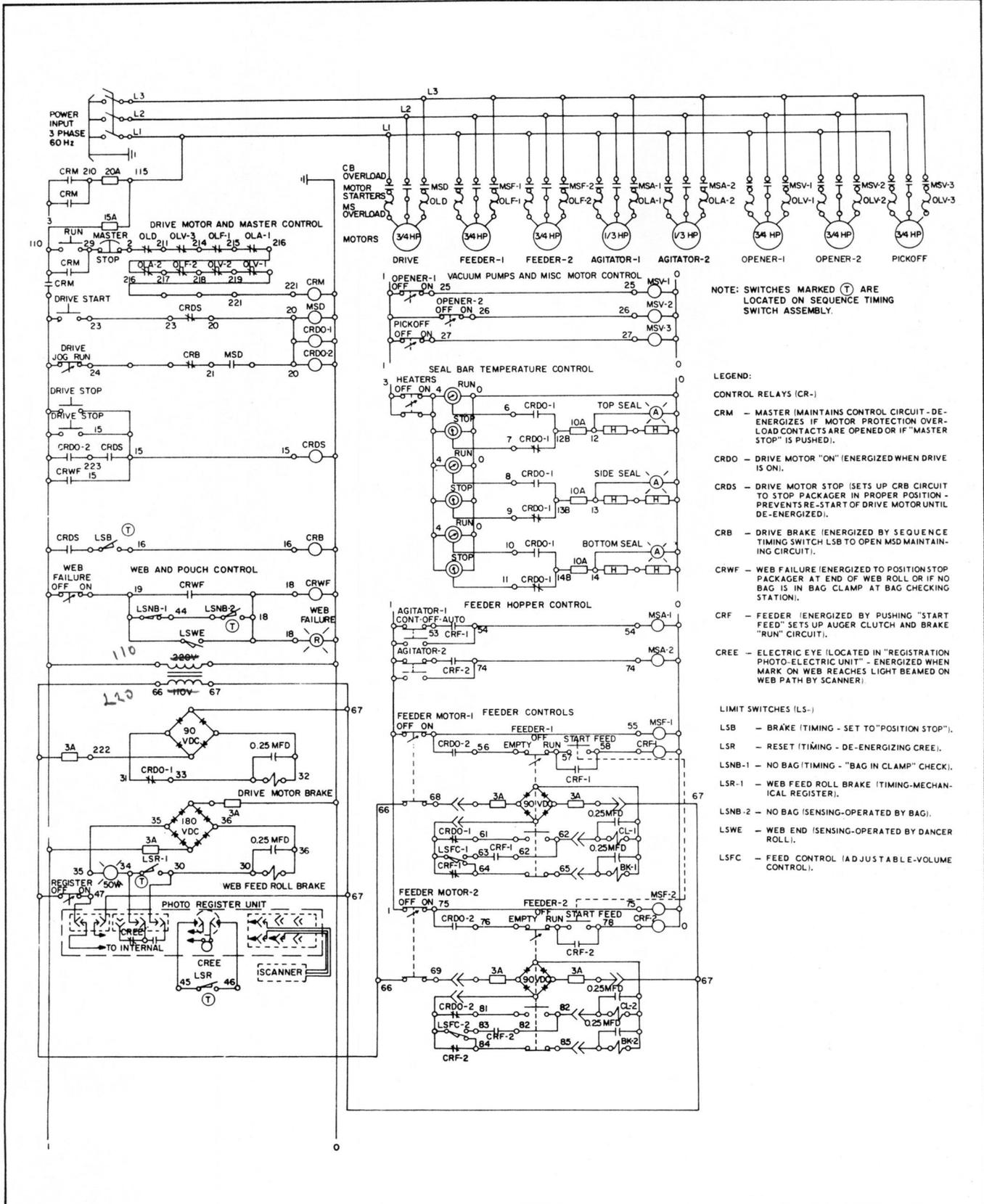


Figure 3-73. Packager Electrical Schematic

thermocouple type pyrometer, and one indicator lamp. The pyrometer is used as a visual check on temperature. One variable transformer is operating when the machine is cycling, and the other transformer is operating when the machine is not cycling. Switching from one transformer to the other is accomplished by a relay (CRD0-1) in the control box. This relay is wired in parallel with the main motor starter. The voltage on the seal bar heating cartridge determines power input. By adjusting the transformer, an operator can maintain constant temperature. This type of control operates by supplying the seal bar with exactly the amount of power necessary to replace the heat radiated from the bar. Because the amount of power needed when the machine is cycling is greater, two transformers must be used. The running transformer will be adjusted to a higher voltage to compensate for the heat lost in sealing.

The Model B Feeder Circuit includes (in the feeder itself) a rectifier, a dual capacitor, two fuses, a Warner Electric Clutch, and a Warner Electric Brake. Outside the feeder there is a motor starter, feed control relay, feeder selector switch, LSC-1, start feed switch, and feed control switch. When feeder motor switch is turned ON, the magnetic starter relay (MSF-1) is energized and the motor runs. Power is also fed to the rectifier through the three ampere fuses. Condition No. 1: When feeder selector switch is in RUN or OFF position, and the machine is stopped the rectifier receives power. The electric brake (BK1) is then energized holding the feeder auger stopped. This circuit starts at the rectifier, through brake (BK1), selector switch normally closed contacts on relay (CRF) to the rectifier. Condition No. 2: With the machine stopped, turning selector switch to EMPTY deenergizes the brake circuit and energizes electric clutch (CL-1), causing auger to turn the feed out product. The circuit starts at rectifier, through normally closed contacts ON CRD0-1, selector switch clutch, and back to the rectifier. These are the two possible conditions of the feeder when the machine is not cycling. When the machine is cycling, relay (CRD0-1) is energized and it is possible to press the START FEED switch and energize relay (CRF-1).

When the feeder motor circuit is "on" and packager is cycling, with selector switch in "run" position, the brake circuit is energized as it was when the machine was stopped. With the machine cycling, start the feed, by pressing the START FEED button. Actuating the START FEED button energizes relay (CRF-1),

and through the contacts in parallel with the START FEED button, the relay remains energized when the button is released. The circuit is from one control line through feeder motor switch, through CRD0-2 relay contacts, feeder selector switch, CRF-1 relay contacts, CRF-1 relay coil, to the other control line. The CRF-1 contacts that were closed and holding the feeder brake on are now released, and the CRF-1 contacts that were open between feeder clutch and feeder control switch (LSFC-1) are closed. Feeder is now in normal operation. As the machine cycles, the cam operating switch LSFC-1 opens the "normally closed" contacts and deenergizes the brake. As the switch has no center position, it moves instantly from "normally closed" position to close the "normally open" circuit. This energizes the clutch and causes auger to rotate, dispensing product. The auger continues to rotate until the cam on the cycle shaft releases switch (LSFC-1). The clutch is then deenergized and brake reenergized. When the machine is stopped for any reason, the relay (CRD0) drops out. This opens the circuit holding relay (CRF-1) energized. In the feeder circuit, this opens the circuit to the clutch and immediately engages the brake, preventing an over fill if the clutch had been energized at the stopping point.

The switch (LSFC-1) is mounted on a pivot and can be moved toward or away from its cam by adjusting the INCREASE FILL knob. The cam has a sharp rise and a long fall. Therefore, moving the switch toward the cam will not change the point of actuating the switch to any great extent, but the point of release will be moved and the length of time the switch is made will be longer. In this way the amount of fill is controlled.

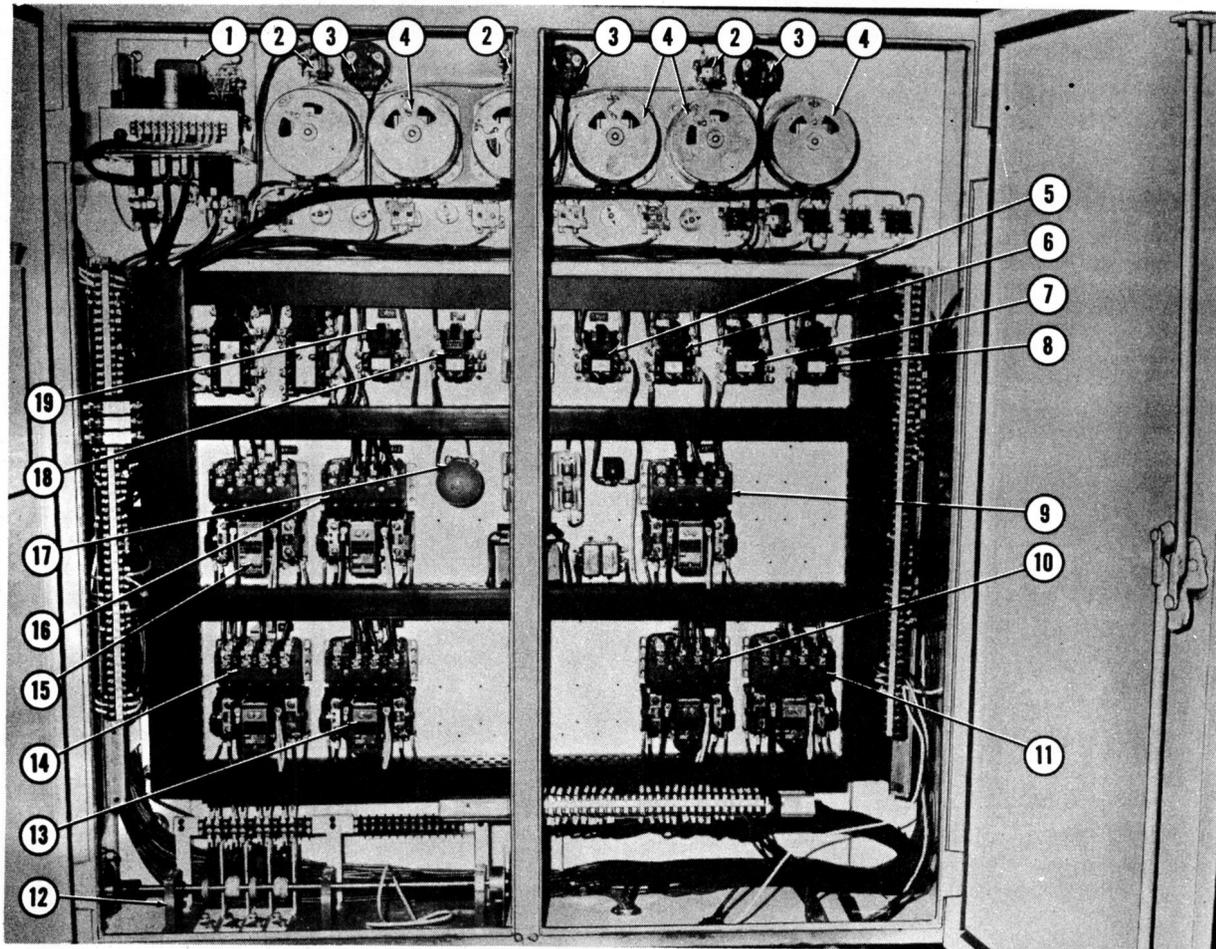
3-115. ELECTRICAL CONTROL COMPONENTS.

Most of the electrical control components are located in the control box (Figure 3-74). Overload contactors are provided for each motor starter used on the packager. Each overload contactor has a red reset lever which will pop out about 1/2 inch indicating which contact has shut down the Packager because of motor overload condition. The contactor is reset by pressing in the reset lever. The heater controls and electrical power controls are located on the front face of the electrical control box. The electrical running controls are usually located in the control pendant near the web cutoff station.

BARTELT IM PACKAGER

OPERATION MANUAL

4-68



- | | |
|-------------------------------------|---|
| 1. Photo Registration Amplifier | 11. Agitator Motor Starter (MSA-2) |
| 2. Seal Bar Heat Indicator | 12. Sequence Timing Switch Assembly |
| 3. Pyrometer | 13. Vacuum Motor Starter (MSV-3) |
| 4. Variable Transformer | 14. Agitator Motor Starter (MSA-1) |
| 5. Web Failure Control Relay (CRWF) | 15. Vacuum Motor Starter (MSV-1) |
| 6. Feeder Control Relay (CRF-1) | 16. Vacuum Motor Starter (MSV-2) |
| 7. Feeder Control Relay (CRF-2) | 17. Brake Lamp |
| 8. Master Control Relay (CRM) | 18. Drive Brake Control Relay (CRB) |
| 9. Feeder Motor Starter (MSF-2) | 19. Drive Motor Stop Control Relay (CRDS) |
| 10. Feeder Motor Starter (MSF-1) | |

Figure 3-74. Electrical Control Components

3-116. TROUBLESHOOTING PACKAGER ELECTRICAL SYSTEM.

The following chart is provided as an aid in locating and determining probable causes of malfunction associated with the electrical system and possible solutions to each problem.

TROUBLESHOOTING GUIDE (ELECTRICAL SYSTEM)

Trouble	Probable Cause	Possible Remedy
1. Drive motor does not start when DRIVE START button depressed. RUN button depressed.	a. 15A main fuse defective.	a. Replace fuse.
	b. Motor overloads open.	b. Reset. Check for reason.
	c. Control relays MSD, CRD0-1, or CRD0-2 open.	c. Replace relay.
	d. Drive selector switch not in RUN position.	d. Place selector switch in proper setting.
	e. Position stop switch LSB closed (web failure lamp lighted).	e. Turn WEB FAILURE switch OFF and then back to ON after correcting web condition.
2. Drive motor does not brake rapidly.	a. 3A fuse blown.	a. Replace fuse.
	b. Drive motor brake defective.	b. Repair or replace brake.
	c. 90 VDC rectifier defective.	c. Replace rectifier.
3. Web feed roll brake malfunction.	a. 3A fuse blown.	a. Replace fuse.
	b. Web feed roll brake defective.	b. Repair or replace brake.
	c. 180 VDC rectifier defective.	c. Replace rectifier.
	d. 50W incandescent lamp blown.	d. Replace lamp.
4. Opener, pickoff, or agitator motor will not start. Corresponding switches in ON position.	a. Motor start relay open.	a. Replace.
	b. Defective motor start switch.	b. Replace switch.
	c. Defective motor.	c. Repair or replace motor.
5. Product does not feed when START FEED button is depressed. Feeder motor runs.	a. 3A fuse blown.	a. Replace fuse.
	b. CRF-1 open.	b. Replace relay CRF-1.
	c. 90 VDC rectifier defective.	c. Replace rectifier.
	d. Clutch winding open.	d. Replace clutch.
6. Feeder motor does not run. Motor switch ON.	a. Relay MSF-1 open. Overload kicked out.	a. Replace relay MSF-1.
7. No heat at any seal bar.	a. Master control switch not depressed.	a. Be sure master control switch is ON.
	b. 20A fuse blown.	b. Replace fuse.
	c. Master control relay CRM open.	c. Replace relay.
	d. Motor overload open.	d. Reset in control box.
8. Seal indicator lighted but no heat at bars.	a. Defective heating element.	a. Replace element.

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

TROUBLESHOOTING GUIDE (ELECTRICAL SYSTEM) (CONT)

Trouble	Probable Cause	Possible Remedy
9. Low heat in RUN normal heat in STOP.	a. Defective RUN variable transformer.	a. Replace transformer.
10. One seal indicator light out; no heat RUN or STOP position.	a. 10A fuse blown.	a. Replace fuse.
11. One seal indicator light out; heat normal.	a. Defective lamp in indicator.	a. Replace lamp.

Section XVII. Sequence Switch Assembly

3-117. SEQUENCE SWITCH DRIVE ASSEMBLY.

The sequence switch drive assembly provides the rotary movement to the drive shaft of the sequence switch assembly. A drive sprocket (Figure 3-75) is clamped to the cycle shaft. This sprocket has a timing pointer attached which lines up with a similar pointer above it on the machine base. When these pointers are aligned, the cycle shaft is in zero degree position. A roller chain runs from the drive sprocket to a driven sprocket which is mounted to a short drive shaft. This drive shaft rides in a heavy duty bearing and is attached to the end of the sequence switch as-

sembly shaft by a taper pin. An idler sprocket and bracket is installed on the machine base and is adjustable to take up chain slack.

3-118. SEQUENCE SWITCH ASSEMBLY.

The sequence switch assembly is located in the lower left corner of the electrical control box (Figure 3-74). The assembly is used to time certain electrical operations. The assembly consists of a drive shaft (Figure 3-76) on which are mounted actuating cams and micro switches. A basic Packager has four micro switches; main drive brake (LSB), web feed roll brake (LSR-1), no bag detector (LSNB-2), and electric eye reset (LSR). Additional micro switches and cams may be installed to operate auxiliary equipment on the machine. The cams are rotated by the drive shaft to actuate the micro switches at the desired time. A timing dial is mounted at the driven end of the drive shaft and is used in conjunction with a pointer to time the drive shaft and micro switches. Each revolution of the sequence switch drive shaft will actuate the micro switches at the proper time to: apply and release the feed roll brake, check for a no bag condition at the no bag switch, reset the photo register device and position stop the machine. Any time the machine is shut off, micro switch (LSB) is actuated by its cam to stop the main drive motor in a positioned stop with seal bars in open position.

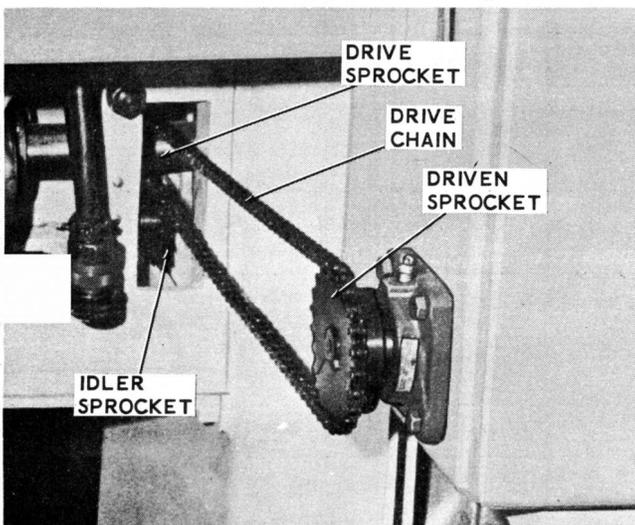


Figure 3-75. Sequence Switch Drive Assembly

NOTE

Refer to Chapter 6, Section XI for sequence switch assembly repair instructions.

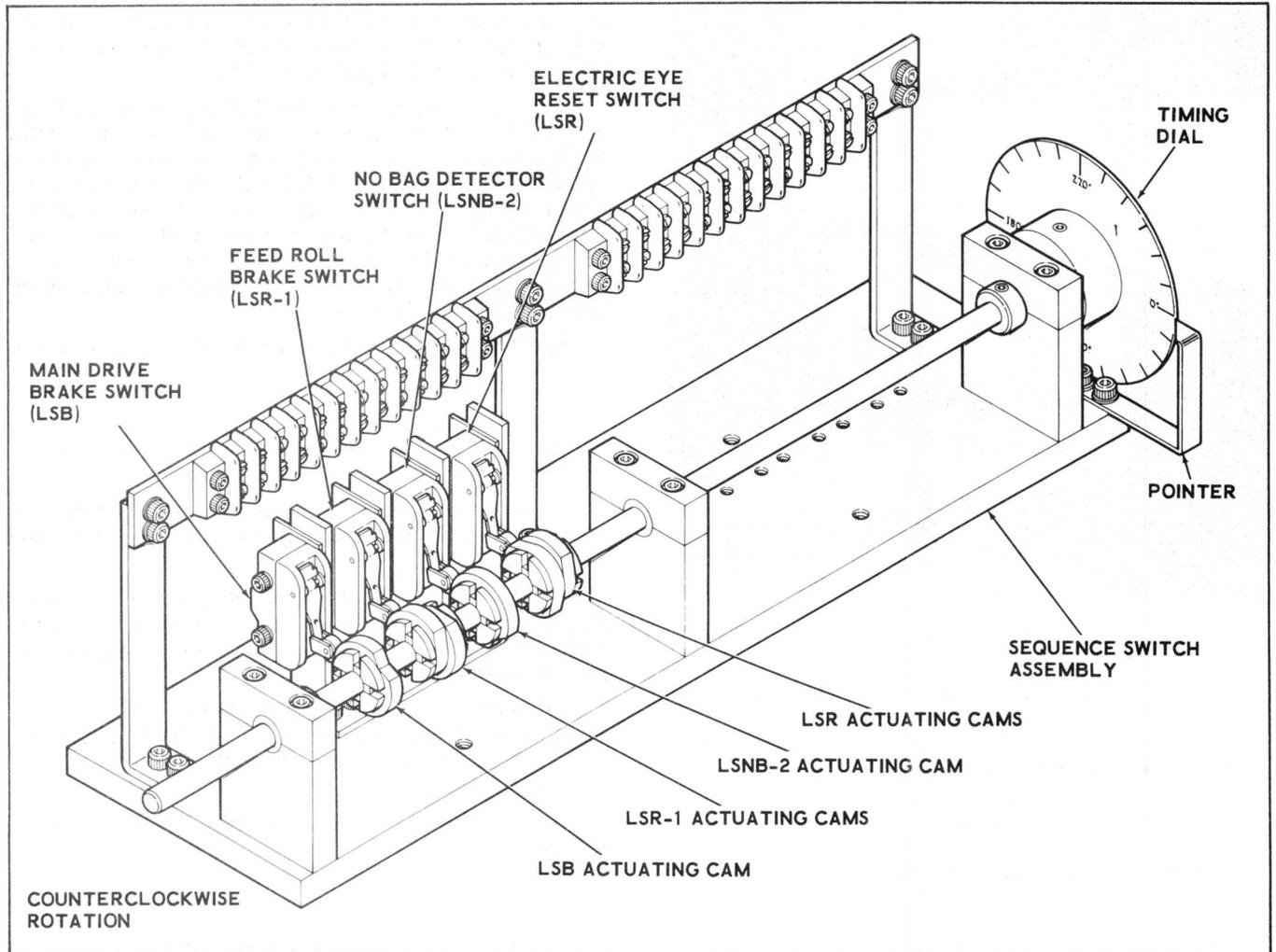


Figure 3-76. Sequence Switch Assembly

3-119. TIMING SEQUENCE SWITCH ASSEMBLY.

Timing of the Packager involves setting the cams of the sequence switch assembly to operate their corresponding micro switches at the proper moment to perform the following functions:

- (1) LSB switch to set the main drive brake to stop the Packager in a positioned stop.
- (2) LSR-1 switch to set the feed roll brake to stop and release the feed roll drive shaft for pouch size and cutoff.
- (3) LSNB-2 switch to check for a pouch in the no bag switch at the proper time.
- (4) LSR switch to reset the photo registration device to operate the scanner before the feed roll brake is applied (printed web).

a. The first step in the timing procedure is to zero the machine, that is, to have the cycle shaft and the sequence switch assembly set at 0 degrees. This is accomplished as follows:

- (1) Press drive start switch and jog machine until timing pointer on sequence switch drive sprocket (on cycle shaft) is pointing directly upward (Figure 3-77) in line with the fixed pointer above it. This is the 0 degree point of the cycle shaft.
- (2) Check the dial of the sequence switch assembly. The 0 degree mark should be opposite the stationary pointer on the assembly (Figure 3-78). If 0 degree mark is not in line with pointer break drive chain and rotate dial close to 0° mark, then loosen three screws at back of dial and rotate dial until 0 degree mark is aligned with pointer. Tighten the three screws at back of dial.

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

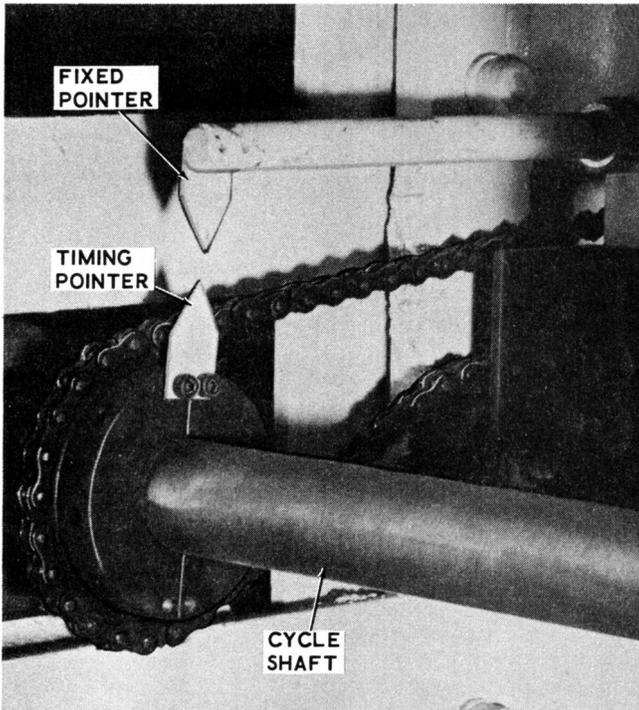


Figure 3-77. Cycle Shaft Timing Pointer

b. Set feed roll brake switch LSR-1 as follows:

NOTE

All micro switches are actuated by the low lobe of the cam.

(1) Jog machine until the 180 degree mark (Figure 3-79) on the sequence switch dial is aligned with the

stationary pointer. Rotate the first half of the actuating cam (Figure 3-76) until the micro switch roller moves off the high lobe and just turns ON.

(2) Jog machine until the 350 degree mark (Figure 3-79) on the sequence switch dial is aligned with the stationary pointer. Rotate the second half of the actuating cam (Figure 3-76) until the micro switch roller moves on to the high lobe and just turns off. As the machine is cycling, the feed roll brake should be actuated at 180 degrees and remain applied until 350 degrees, at which time it should be released by the second part of the cam.

c. Set the no bag detector switch LSNB-2 as follows:

NOTE

All micro switches are actuated by the low lobe of the cam.

(1) Load web roll into machine and operate machine on RUN until one or two pouches have been produced.

(2) Jog machine until a pouch just enters the no bag switch being carried by the pouch clamp. Stop the machine as the leading edge of the pouch triggers the no bag switch.

(3) With the machine stopped in the position outlined in step (2), rotate cam of switch LSNB-2 (Figure 3-76) until cam follower of the switch is in the cam detent.

d. Set photo register device reset switch LSR as follows:

NOTE

All micro switches are actuated by the low lobe of the cam.

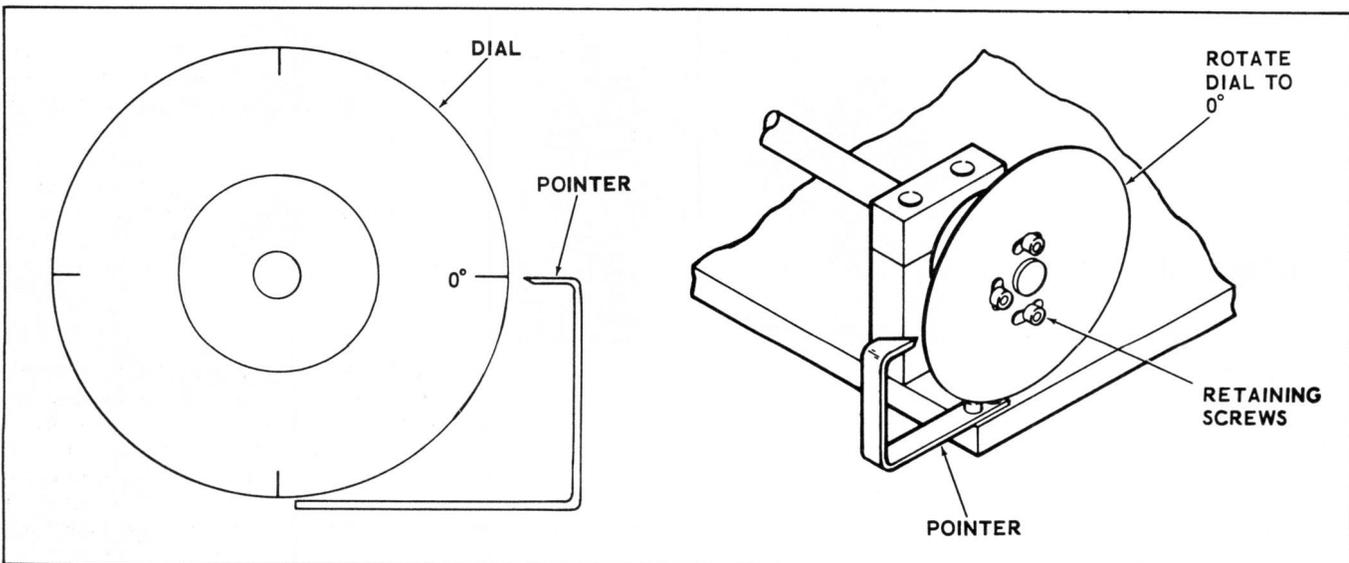


Figure 3-78. Zeroing Sequence Switch Assembly

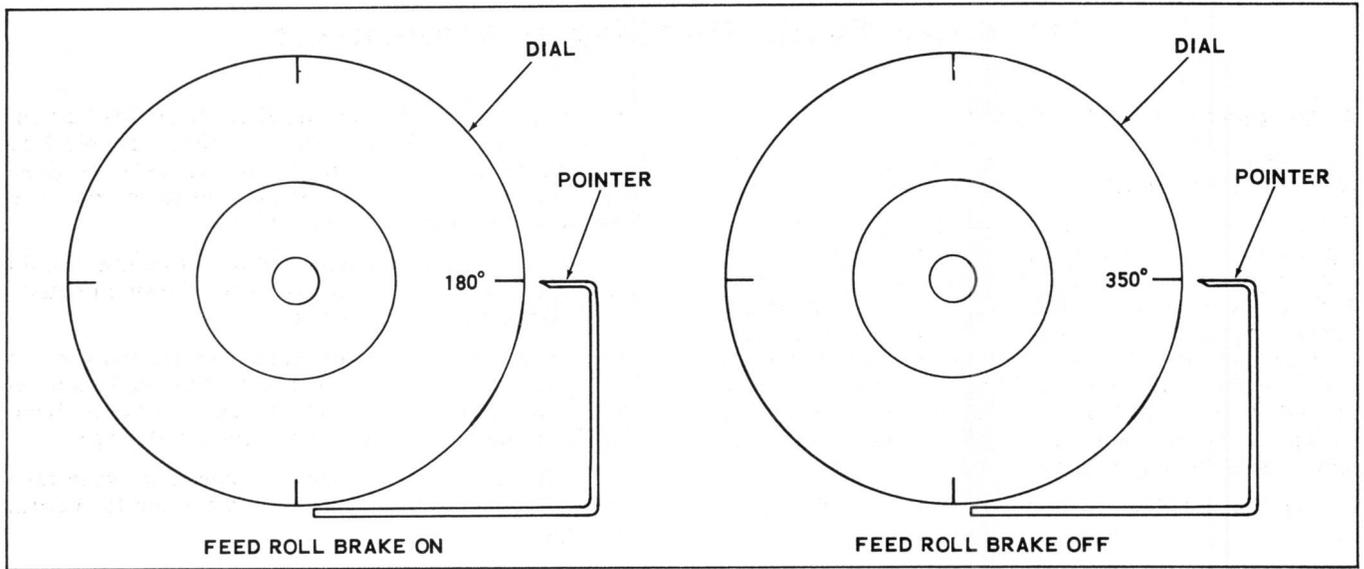


Figure 3-79. Setting Feed Roll Brake Switch LSR-1

(1) Jog machine until the 160 degree mark (Figure 3-80) on the sequence switch dial is aligned with the stationary pointer. Rotate the first half of the actuating cam (Figure 3-76) until the micro switch roller moves off the lobe and just turns on.

(2) Jog machine until the 270 degree mark (Figure 3-80) on sequence switch dial is aligned with the stationary pointer. Rotate the second half of the actuating cam (Figure 3-76) until the micro switch roller moves on to the high lobe and just turns off. With each complete cycle therefore, the photo registration device will be turned on at 160 degrees (this

is before the feed roll brake is applied) and off at 270 degrees.

e. Set the positioned stop LSB. Place the drive selector switch in RUN position and press the drive start switch. Now, press the drive stop switch. The machine should come to a stop with all seal bars in open position. Rotate the LSB switch actuating cam (Figure 3-76) on the sequence switch assembly to actuate the drive brake through its micro switch to stop the machine with seal bars open. Continue to run and stop the packager and adjust the actuating cam until the proper positioned stop is obtained.

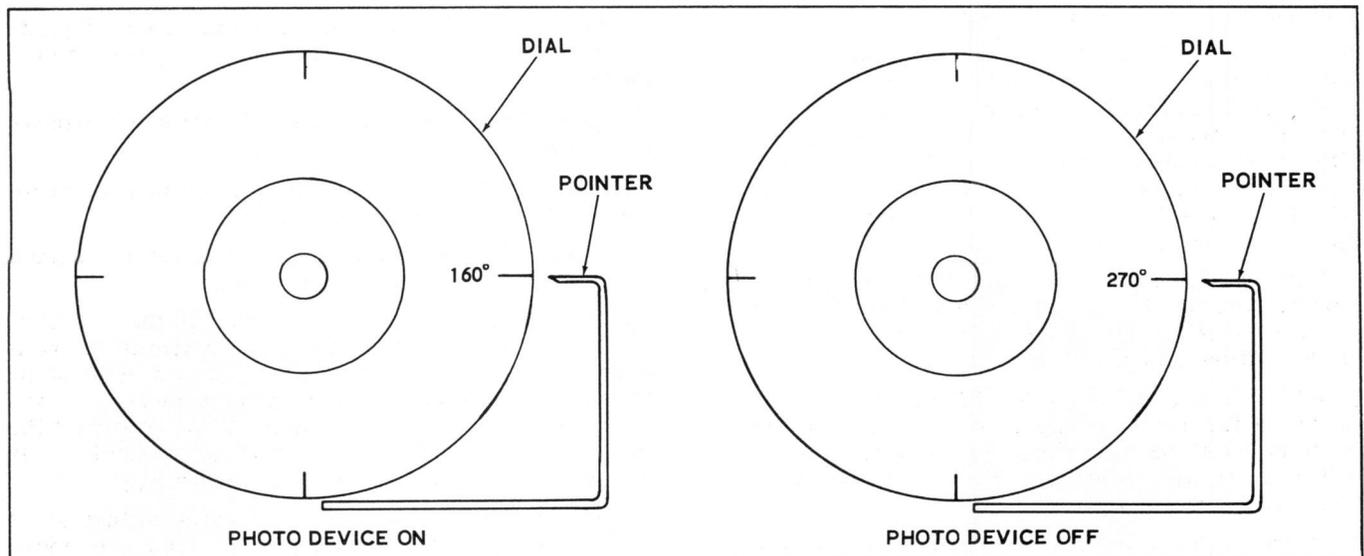


Figure 3-80. Setting Photo Register Reset Switch LSR

BARTELT IM PACKAGER

OPERATION MANUAL 4-68

Section XVIII. Packager Checkout

3-120. CHECKOUT PROCEDURE.

a. Place all switches in OFF position. Plug in (or turn on) outside electrical power supply.

b. At this time, no lights should light, seal bars should be cold, and all gages register zero. Turn master drive switch to ON. Turn drive selector to JOG. Jog packager to determine if wiring is right for correct direction of rotation of variable drive. Cycle shaft should turn clockwise when viewed from the web roll end. Pouch clamps should move to the right when viewed from the front or operator's side of the packager. To jog means to run the Packager by short movements accomplished as follows:

(1) Place DRIVE SELECTOR switch in JOG position.

(2) Depress drive START button.

(3) "Jog" by releasing the drive START button for short periods of time.

c. If cycle shaft rotates counterclockwise, correct wiring. Check unit for interference or jamming from mechanisms, tools, etc while jogging.

d. With drive selector on JOG, depress drive START button and machine should cycle as long as button is held in, and stop when button is released, regardless of machine position.

e. Place drive selector on RUN and depress drive START button. The machine should start and continue running even after button is released.

f. Press red STOP button; machine should stop after completion of present cycle.

g. Turn heater switches ON and advance heat controls approximately half way. Yellow lights should light and seal bars should heat up.

h. Turn NO WEB switch ON with dancing roller at bottom actuating "no web" micro switch; the "no web" light should light. Turn NO WEB switch OFF; "no web" light should go out. Turn NO WEB switch ON with dancing roller raised; "no web" light should go out. If these sequences do not occur, jog machine a half revolution to clear "no bag" switch at pouch guides and run the sequence again.

i. With dancing roller down and NO WEB switch ON, depress drive START button; machine should not start. Turn NO WEB switch OFF and depress drive START button machine should start.

j. With dancing roller up, NO WEB switch ON, start machine. The machine should stop within one cycle due to no pouch being in pouch guides to trip "no bag" switch which also operates on "no web" switch. NO WEB LIGHT should light.

k. Turn on photo register device and set sensitivity at 5. Jog machine cycle shaft keyway to operator's side and wave hand in front of scanner head. The red panel light should light and register brake should

activate (Check by turning hand knob on feed rolls; should not turn). Press photo register reset. Red light should go out and brake should release (feed roll hand knob should turn). If the foregoing sequence does not occur, increase sensitivity.

l. Turn on vacuum pumps. Motors of pumps should start and rotate in proper direction shown on nameplate. Correct wiring if necessary.

m. With no web in the machine and all switches in OFF position except the master drive and vacuum pumps, place selector switch on JOG and press drive START button and observe the following timing:

(1) The seal bars should be open (out) when feed rolls are turning and closed (in) when the feed rolls are stopped.

(2) The cutoff knife should be actuated when feed rolls are not turning.

(3) Pouch clamps should be indexing and opening just before feed rolls advance web.

(4) Pouch clamps should be closing just before cutoff knife is actuated.

(5) Air should be jetting from air jet splitter blade just as clamps come together, and both of these occurring when pouch clamps are not indexing.

(6) Pouch opener mechanisms should be actuated during stationary cycle time.

(7) The top seal should move in, dwell, and move out while pouch clamps are stationary.

(8) The vacuum pickoff manifold should come to centerline of machine just after the pouch clamp completes indexing and the clamp should be opened just after vacuum is applied to the pickoff suckers.

(9) The pouch clamp should be closed after pick-off manifold draws away and before pouch clamp indexes.

n. Refer to timing chart for information on mechanism timing.

o. Turn seal bar heaters on and advance controls about half way. Turn air supply on.

p. Load web roll on packager, center web on machine thread web, and adjust web roll brake.

q. Start machine and run web through the seal bars and feed rolls but pull web out of machine before it goes to the cutoff knife. Adjust web alignment by turning arbor adjust knob until top edges of web are even. Shut off machine and tear off web just past the feed rolls. Check the detached piece of web for side and bottom seals and adjust heat accordingly.

r. Jog enough web through feed rolls so that cutoff knife makes one cut. Then, jog and make one more cut. Measure the width of pouch thus produced. The pouch width should be exactly the size agreed upon if the machine is not photo register operated or it

BARTELT IM PACKAGER

OPERATION MANUAL 4-68

should be 1/32 to 1/16 inch longer than the agreed upon size if the machine is photo register operated. To make pouch wider or narrower, adjust crank arm on feed roll drive assembly.

s. If machine is photo register operated, turn on at panel and set sensitivity at 5.

t. Press drive start button and allow machine to run empty pouches. As pouches are run, check for proper operation. No pouches should be torn. Sufficient air and vacuum should be applied. Clamps should hold pouches securely. Pouches should be removed from clamp all pressures should be sufficient.

u. Accurate fill weight and volume must now be obtained. Regulate quantity of fill by adjusting hand knob, increase fill by turning knob clockwise.

v. Adjust paddles to suit filled pouches. The top seal bars should produce a seal square with the pouch sides. Adjust the bars to compensate for pouch fill sag and adjust heat for a no-burn seal. The pouch guides should ride just below the top seal and in close enough to smooth out any wrinkles before the pouch is sealed. If wrinkles persist, lower the guides.

3-121. TROUBLESHOOTING GUIDE.

The following chart is provided as an aid in locating and determining probable causes of malfunction associated with pouch making and general machine stoppage and probable solutions to each problem.

TROUBLESHOOTING GUIDE

Trouble	Probable Cause	Possible Remedy
POUCH		
1. Wrong size.	a. Too wide or narrow.	a. Adjust crank arm. Check photo operation. Check feed roll slippage. Check distance between register spots.
	b. Top uneven.	b. Adjust at web arbor knob. Check creaser rods for alignment.
	c. Gusset uneven.	c. Adjust plow nose. Check creaser rods.
	d. Gusset wrong width.	d. Adjust gusset blade.
2. Wrinkles.	a. Side seal.	a. Check timing and alignment.
	b. Feed roll pressure too tight.	b. Adjust feed roll pressure.
GENERAL MACHINE STOPPAGE		
1. Panel indicator lights.	a. No pouch in no bag switch.	a. Check and correct.
	b. No web or web broken.	b. Install new web roll or repair broken web.
2. No panel lights.	a. Conveyor drive release by jam.	a. Clear jam; install new shear pin or reset centric clutch.
3. Panel dead.	a. General power failure.	a. Check and correct.
	b. Tripped overload contactors.	b. Check all resets in control panel; if any tripped, check motors for overload or over-heating.
	c. Blown fuses.	c. Check and replace blown fuses.
	d. Electrical malfunction.	d. Refer to ELECTRICAL.

CHAPTER 4

OPERATING INSTRUCTIONS

4-1. GENERAL.

Before placing the Packager in operation, the operating personnel should become thoroughly familiar with the nature, location, and function of all switches, controls and instruments on the Packager. Most operating controls are located on the large control panel (Figure 4-1) and the smaller operators pendant panel (Figure 4-2).

4-2. LARGE CONTROL PANEL.

The seal bar heater controls, master on and off controls, electric motor controls, photo register device controls are located on the large control panel. The following table identifies, describes, and briefly explains the functions of all components located on the large control panel as shown in Figure 4-1. Index numbers in the table correspond to the index

LARGE CONTROL PANEL CONTROLS AND INSTRUMENTS

Index No.	Description	Function	Indication or Position
1	SWITCH, Master run	Energizes electrical system.	Press in to operate.
2	SWITCH, Master stop	Deenergizes electrical system.	Press in to operate.
3	CONTROL, Bottom seal stop heat	Variable transformer controls heat setting of bottom seal when machine is not cycling.	Range: 0 to 120; Turn CW to increase; CCW to decrease heat setting.
4	CONTROL, Bottom seal run heat	Variable transformer controls heat setting of bottom seal when machine is cycling.	Range: 0 to 120; Turn CW to increase; CCW to decrease heat setting.
5	METER, Bottom seal heat	Pyrometer indicates temperature of bottom seal bars.	Range: 0 to 600° F. Use as guide to seal bar heat setting.
6	INDICATOR LIGHT, Bottom seal	Lights to indicate bottom seal bars are heating.	Lighted: seal bars heating; Not lighted: seal bars not heating.
7	CONTROL, Side seal stop heat	Variable transformer controls heat setting of side seal when machine is not cycling.	Range: 0 to 120; Turn CW to increase; CCW to decrease heat setting.
8	METER, Side seal heat	Pyrometer indicates temperature of side seal bars.	Range: 0 to 600° F. Use as guide to seal bar heat setting.
9	INDICATOR LIGHT, Side seal	Lights to indicate side seal bars are heating.	Lighted: seal bars heating; Not lighted: seal bars not heating.
10	CONTROL, Side seal run heat	Variable transformer controls heat setting of side seal when machine is cycling.	Range: 0 to 120; Turn CW to increase; CCW to decrease heat setting.
11	CONTROL, Top seal stop heat	Variable transformer controls heat setting of top seal when machine is not cycling.	Range: 0 to 120; Turn CW to increase; CCW to decrease heat setting.
12	METER, Top seal heat	Pyrometer indicates temperature of top seal bars.	Range: 0 to 600° F. Use as guide to seal bar heat setting.
13	INDICATOR LIGHT, Top seal	Lights to indicate top seal bars are heating.	Lighted: seal bars heating; Not lighted: seal bars not heating.
14	CONTROL, Top seal run heat	Variable transformer controls heat setting of top seal when machine is cycling.	Range: 0 to 120; Turn CW to increase; CCW to decrease heat setting.

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

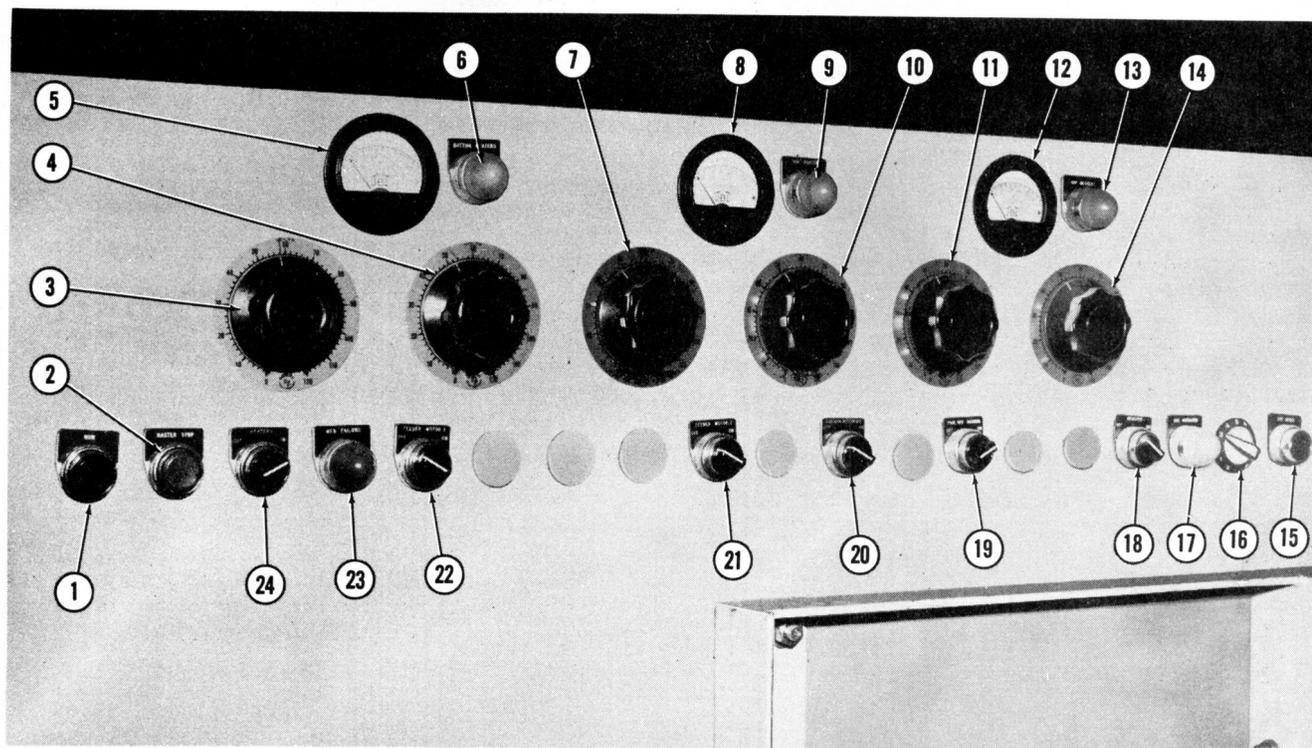


Figure 4-1. Large Control Panel

LARGE CONTROL PANEL CONTROLS AND INSTRUMENTS (CONT)

Index No.	Description	Function	Indication or Position
15	SWITCH, Photo eye reset	Manually resets photo register device.	Press in to operate.
16	SWITCH, Photo eye sensitivity (S)	Adjusts the sensitivity of the photo register device scanner head.	Range: 0 to 10; Turn CW to increase; CCW to decrease sensitivity.
17	INDICATOR LIGHT, Photo eye	Lights to show photo register device is operating.	Light blinks on and off as photo device is actuated by register mark on web.
18	SWITCH, Register	Energizes photo registration device.	OFF: Turn CCW; ON: Turn CW.
19	SWITCH, Vacuum motor (pickoff)	Energizes pickoff vacuum pump motor.	OFF: Turn CCW; ON: Turn CW.
20	SWITCH, Vacuum motor (opener)	Energizes opener vacuum motor.	OFF: Turn CCW; ON: Turn CW.
21	SWITCH, Feeder motor No. 2	Energizes number 2 feeder motor.	OFF: Turn CCW; ON: Turn CW.
22	SWITCH, Feeder motor No. 1	Energizes number 1 feeder motor.	OFF: Turn CCW; ON: Turn CW.
23	INDICATOR LIGHT, Web failure	Indicates web has broken or run out, or no pouch in pouch clamp at no bag switch.	Lights when web failure occurs; machine will shutdown.
24	SWITCH, Heater	Energizes heater controls.	OFF: Turn CCW; ON: Turn CW.

PENDANT CONTROL PANEL CONTROLS

Index No.	Description	Function	Indication or Position
1	SWITCH, Drive selector	Selects jog or run mode of operation.	JOG: Turn CCW; RUN: Turn CW.
2	SWITCH, Drive start	Energizes varidrive to operate packager.	Press in to operate.
3	SWITCH, Drive stop	Deenergizes varidrive and stops packager in positioned stop.	Press in to operate.
4	SWITCH, Web failure	Energizes web failure circuit.	OFF: Turn CCW; ON: Turn CW.
5	SWITCH, Start feed	Energizes product fillers.	Press in to operate.
6	SWITCH, Feeder No. 1	Selects one of two operations to either run auto or to empty completely.	EMPTY: Turn CCW; OFF: Middle; RUN: Turn CW.
7	SWITCH, Feeder No. 2	Selects one of two operations to either run auto or to empty completely.	EMPTY: Turn CCW; OFF: Middle; RUN: Turn CW.
8	SWITCH, Agitator No. 2	Selects one of two operations to either run agitator automatic or continuous.	CONT: Turn CCW; OFF: Middle; AUTO: Turn CW.
9	SWITCH, Agitator No. 1	Selects one of two operations to either run agitator automatic or continuous.	CONT: Turn CCW; OFF: Middle; AUTO: Turn CW.

numbers shown in the figure. Controls for optional equipment are also mounted on this panel.

4-3. PENDANT CONTROL PANEL.

The machine running controls are located on the pendant control panel. The following table identifies, describes, and briefly explains the functions of all components located on the pendant control panel as shown in Figure 4-2. Index numbers in the table correspond to the index numbers shown in the figure.

4-4. PRE-OPERATION CHECK.

Starting procedures and shutdown procedures in this manual outline a complete step by step operation. The following before operation procedures should be performed approximately 30 minutes before placing Packager in service to allow seal bars to warm up.

- a. Turn on electrical power to the Packager.
- b. Press master run switch (2, Figure 4-1).
- c. Turn heater switch (24) to ON.

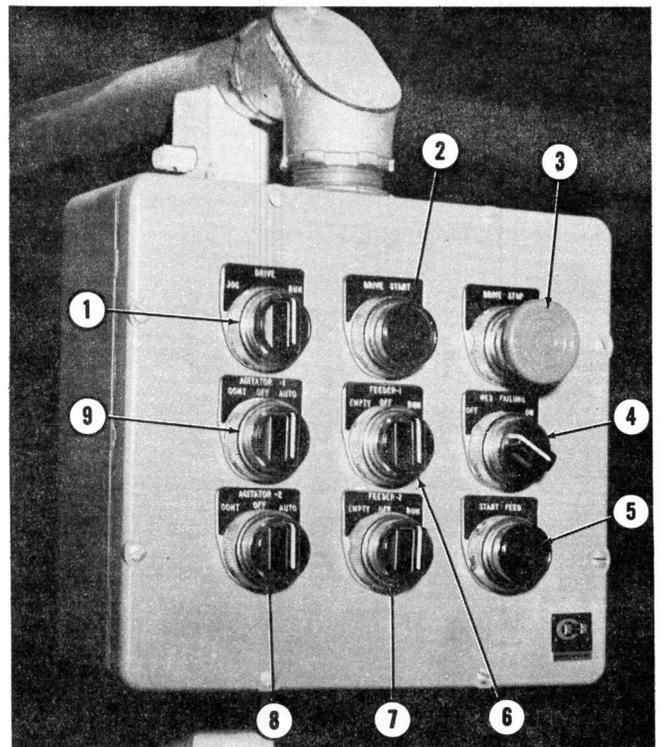


Figure 4-2. Control Panel

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

d. Turn three stop heat controls (3, 7, and 11) to approximately 50 and three run heat controls (4, 10, and 14) to approximately 60. These controls must be adjusted to produce good seals on the web being run. When the proper position of each heat control has been established for the web, these settings should be noted and the controls left in those positions at shut-down. If this procedure is followed, it will be necessary only to turn heater switch (24) to ON as a before operation warmup procedure and to check that heater controls are in proper setting.

4-5. STARTING PACKAGER.

The following procedure is used to start the Packager:

a. Check that indicator lights (6, 9, and 13) are lighted, indicating seal bars are being heated.

NOTE

Don't start running web until heat indicators are up to temperature.

b. Turn feed roller release handle to engage feed rollers against web (Figure 4-3).

c. Photo eye sensitivity switch (16, Figure 4-1) should be set at approximately 5. The sensitivity must be adjusted to suit the web and register marking. After the proper setting is made, the switch (16) should be left in that position and need not be turned during startup procedures.

d. Turn the following switches to ON position.

(1) Register switch (18, Figure 4-1) (if running printed web).

(2) Vacuum pickoff motor switch (19).

(3) Vacuum opener motor switch (20) (if equipped).

(4) Feeder No. 2 motor switch (21).

(5) Feeder No. 1 motor switch (22).

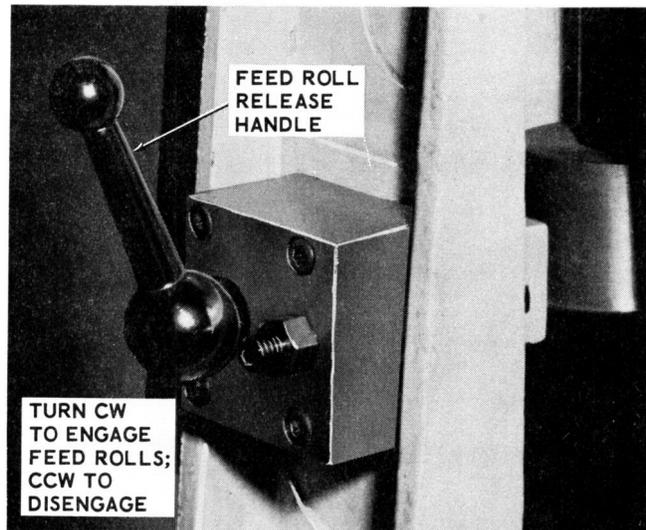


Figure 4-3. Feed Roll Release Handle

e. Apply air pressure to air jet splitter blade by turning air pressure regulator (Figure 4-4) until approximately 2 psi is read on air pressure gage. The air pressure should be regulated so that only the minimum pressure required is used. After the proper air pressure is established for the pouch being run, it should be noted, and the air pressure regulator set accordingly each time.

f. Place drive selector switch (1, Figure 4-2) in RUN position.

g. Place feeder No. 1 switch (6, Figure 4-2) in RUN position and feeder No. 2 switch (7) in RUN position.

h. Place agitator No. 1 and No. 2 switches (8 and 9) in AUTO position.

i. Press drive start switch (2, Figure 4-2) and Packager will operate. If drive selector switch (1) is in JOG position, Packager will run only when drive start switch (2) is held depressed.

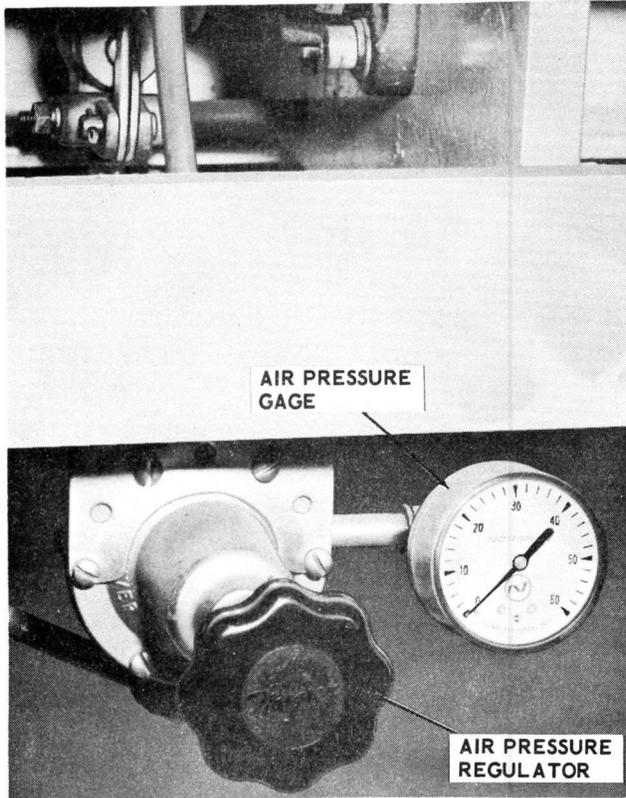


Figure 4-4. Air System Control

j. When pouches are being made properly press start feed switch (5, Figure 4-2) to operate fillers.

k. After packager starts to cycle, turn web failure switch (4, Figure 4-2) to ON.

4-6. PROCEDURES DURING OPERATION.

During operation of the packager, the operator must constantly observe and check for proper pouch forming and filling. The following checks should be made.

a. Check temperature meters (5, 8, and 12, Figure 4-1) for proper heat indications and adjust heat controls if necessary.

b. Periodically check for proper centering of the web as it leaves the plow nose. This is adjusted by turning the adjusting knob (Figure 4-5) clockwise to raise the back fold of the web or counterclockwise to lower the back fold. After adjustment is made, tighten thumb-screw.

c. Check position of dancing roller, it should ride approximately 2 inches above the rubber stops. It will

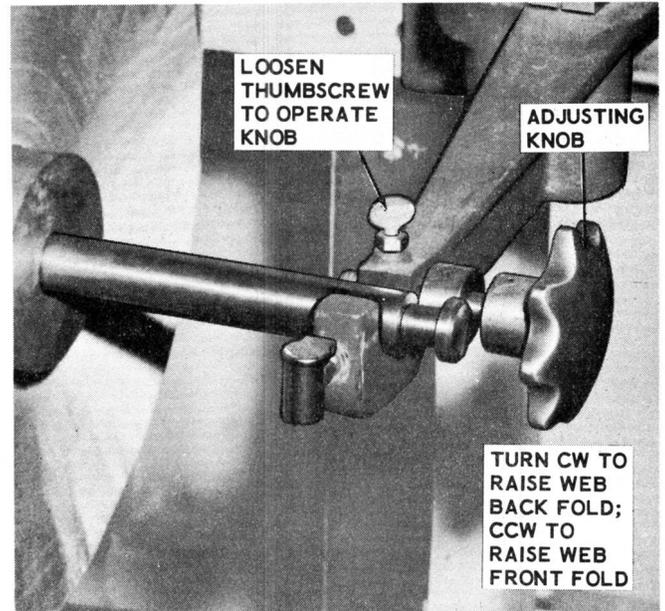


Figure 4-5. Web Centering Control

be necessary to adjust the web roll brake (Figure 4-6) two or three times during the running of a web roll. After the first 1/2 hour of running time on a new web roll, the brake should be adjusted and checked as the roll becomes smaller (about every 15 minutes of running time).

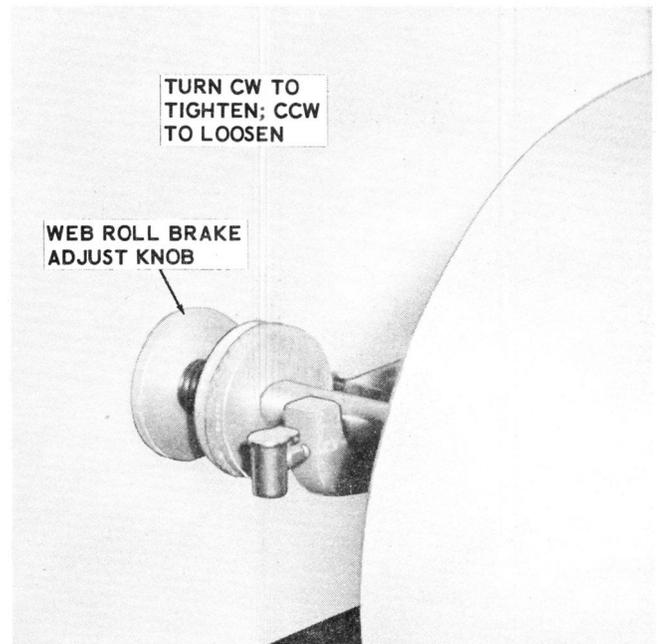


Figure 4-6. Web Roll Brake Control

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

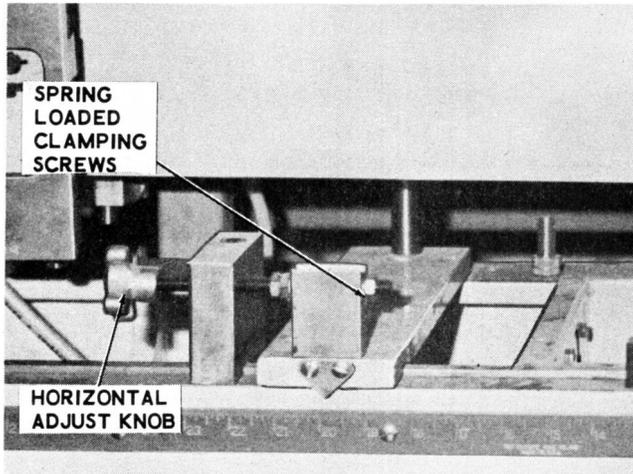


Figure 4-7. Scanner Head Adjust Control

d. If necessary to load a new web roll onto the machine, refer to Chapter 3, Section III. To cut down on web loading time, do not let the old web run completely out. When enough web material remains to produce about 20 pouches, splice a new web roll into the old one as outlined in Chapter 3, Section III.

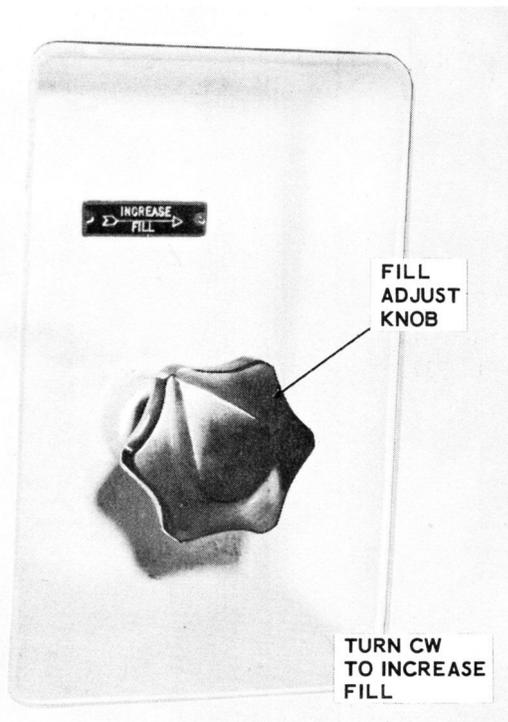


Figure 4-8. Product Fill Control

e. Periodically check for proper cutoff of printed web. Adjust the position of the scanner head to bring the web to the proper cutoff position. Move scanner head by turning adjusting knob (Figure 4-7). A 1/16 inch movement of the scanner will produce about a 1/16 inch movement of the cutoff point on the web. For example, if the cutoff point should be moved over to the right, the web must be moved to the left a corresponding distance. To move the web to the left relative to the cutoff point, move the scanner head to the left the necessary distance.

f. Perform a fill weight check. The amount of fill is adjusted by turning the adjusting knob (Figure 4-8) for each filler, clockwise to increase and counter-clockwise to decrease fill. Repeat check at regular intervals.

g. Check seals for proper sealing and location. If it is necessary to adjust the position of the seals refer to Chapter 3, Section VI.

h. Check vacuum gages for proper reading as established for the pouch being run. Adjust regulating valve (Figure 4-9) as necessary to obtain proper vacuum.

i. Periodically check for clean top and side seal bars.

j. Be alert for any unusual noises which might indicate a component malfunction.

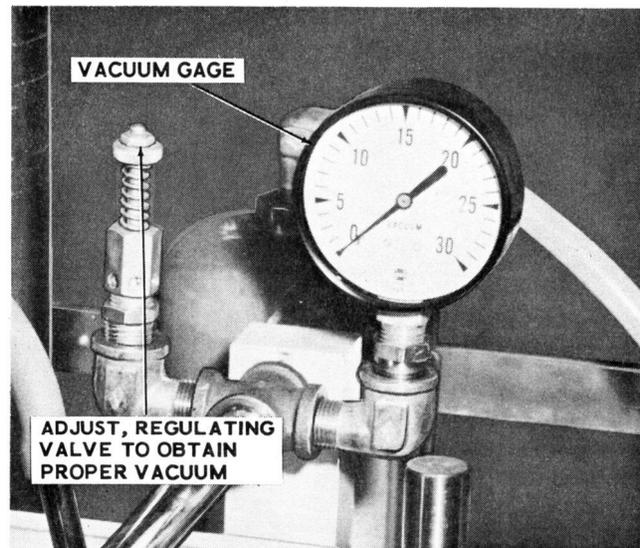


Figure 4-9. Regulating Vacuum

4-7. STOPPING PACKAGER.

a. To make an emergency stop, press drive stop switch (3, Figure 4-2).

b. If the machine stops automatically, check web failure indicator light (23, Figure 4-1). If lighted, web brake may need adjustment, web may have run out or broken, or there is no pouch in the no bag switch station. Any of these conditions will shutdown the machine and light the indicator.

The machine will also stop automatically if one of the motor overload contactors in the electrical box goes out.

c. For a short stop of about 1/2 hour to one hour, press drive stop switch (3, Figure 4-2) and turn vacuum pump motors off at switches.

4-8. SHUTDOWN PROCEDURE.

Shutdown the Packager as follows:

a. Press drive stop switch (3, Figure 4-2).

b. Turn the following switches to OFF position:

(1) Agitator switches (8 and 9, Figure 4-2).

(2) Feeder switches (6 and 7, Figure 4-2).

(3) Web failure switch (4, Figure 4-2).

(4) Heater switch (24, Figure 4-1).

(5) Feeder motor switches (21 and 22, Figure 4-1).

(6) Vacuum motor switches (19 and 20, Figure 4-1).

(7) Register switch (18).

c. Press master stop switch (2, Figure 4-1).

d. Disengage feed rolls by turning feed roller release handle (Figure 4-3).

e. Clean Packager as outlined in Chapter 5.

CHAPTER 5

PERIODIC INSPECTION, MAINTENANCE, AND LUBRICATION

Section I. Inspection and Cleaning

5-1. PERIODIC INSPECTION.

Periodic inspection consists of inspections to be performed daily and periodically as established by company policy. Operating time should be suitably logged in order to accomplish an effective inspection procedure for the machine.

5-2. CLEANING PROCEDURES.

For efficient operation, the Packager should be cleaned daily as follows:

a. During both routine and special machine stoppages during the production day:

- (1) Brush excess product into spill chutes or other collecting receptacles.

INSPECTION CHART

Item	Inspection	Frequency	Action
Seal bars.	Check for cleanliness.	Hourly	Clean dirty seal bars.
Vacuum system filters.	Check condition of filters.	Hourly	Clean filters.
Seal bar protective teflon.	Check condition.	Daily	Replace if required.
Air filter bowl.	Check bowl for moisture.		Drain bowl every morning.
Feed rolls.	Check for cleanliness.	Daily	Clean dirty feed rolls.
	Inspect for excessive wear.	Weekly	Replace worn feed rolls (see Chapter 6).
Sucker cups.	Inspect for wear.	Daily	Replace worn sucker cups.
Pouch clamps.	Check for secure mounting on conveyor chain.	Daily	Tighten loose clamps on conveyor chain.
Conveyor chain.	Check for loose chain.	Daily	Adjust chain idler.
	Inspect for damaged links.	Daily	Replace damaged chain links.
Plow Nose.	Inspect for excessive wear.	Weekly	Replace plow nose.
Plow assembly bottom plate.	Inspect for excessive wear.	Weekly	Replace plow assembly bottom plate (see Chapter 6).
Cutoff knives.	Inspect for wear, nicks, and sharpness.	Weekly	Replace worn or dull knives.
Hoses.	Inspect for leaks.	Weekly	Replace leaking hoses.
Rocker arm protective boots.	Inspect for cracks or damage.	Monthly	Replace cracked protective boots.
Conveyor chain guid blocks.	Inspect for excessive wear.	Monthly	Replace worn guide blocks (see Chapter 6).

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

(2) Vacuum clean all those portions of the machine not accessible to brush cleaning.

b. Care should be taken when cleaning with water to remove all moisture. Excess use of water for cleaning purposes is not advised.

c. When machine washing with water becomes necessary, care should be taken not to get the water and its dissolved product into bearings, gears, and gear boxes, electrical conduit, panel, motors, etc.

d. At the end of each production day, a thorough vacuum cleaning should be made of the equipment. Although the use of air is not recommended during the production hours, cleaning of unaccessible sections and chains by air is recommended as a daily activity. Air cleaning of chains should be done with the machine running. Following air cleaning of chains, a light weight machine oil should be sparingly placed on the chains.

e. Clean bag clamp chain.

(1) Free flowing - hygroscopic products such as drink mix, pudding, gelatine, etc. Clean, by vacuum, during the shift or shifts. The chain should be cleaned once a week by removing and steam cleaning. Wash in a detergent and lubricate with silicone spray. In some cases, no lubricant is the best answer.

(2) Non-Free flowing - products which contain shortening such as cake mix, pancake mix, pie crust, etc. Clean, by vacuum, during the shift or shifts. Remove chain and steam clean every 500 hours. Lubricate lightly with vegetable grease. Chain will be lubricated by shortening in the product.

f. Clean feed rolls with alcohol or equal. Never use soap.

g. Clean feed roll brake, with carbon tetrachloride or equal if possible.

Section II. Maintenance Procedures

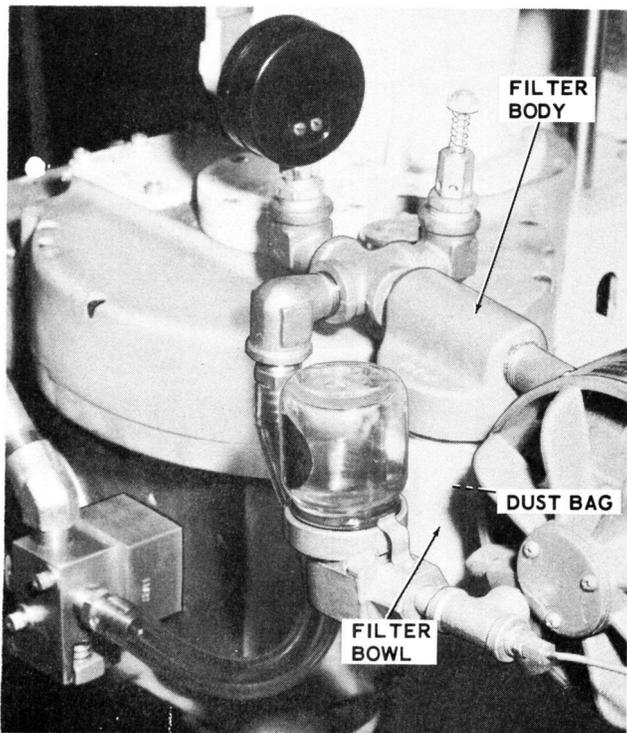


Figure 5-1. Servicing Vacuum Pump Filters

5-3. SERVICING VACUUM SYSTEM FILTERS.

A filter is installed at each vacuum pump (Figure 5-1) and at the vacuum opener station (Figure 5-2). Clean these filters at least once a day.

a. Unscrew filter bowl (Figure 5-1) from filter body of each vacuum pump. Remove dust bag with holder. Clean by brushing. Clean filter bowl.

b. Vacuum opener manifold. Unscrew retaining nut (Figure 5-2) at bottom of vacuum opener filter and swing retaining wire out and upward from filter bowl. Remove filter bowl from filter body. Clean filter bag by brushing. Clean filter bowl and position in filter body. Swing retaining wire downward into position under filter bowl and tighten retaining nut.

5-4. SERVICING AIR SYSTEM FILTER.

Open the drain cock (Figure 5-3) at the bottom of the air system filter to drain all accumulated moisture. Close drain cock after moisture has been drained.

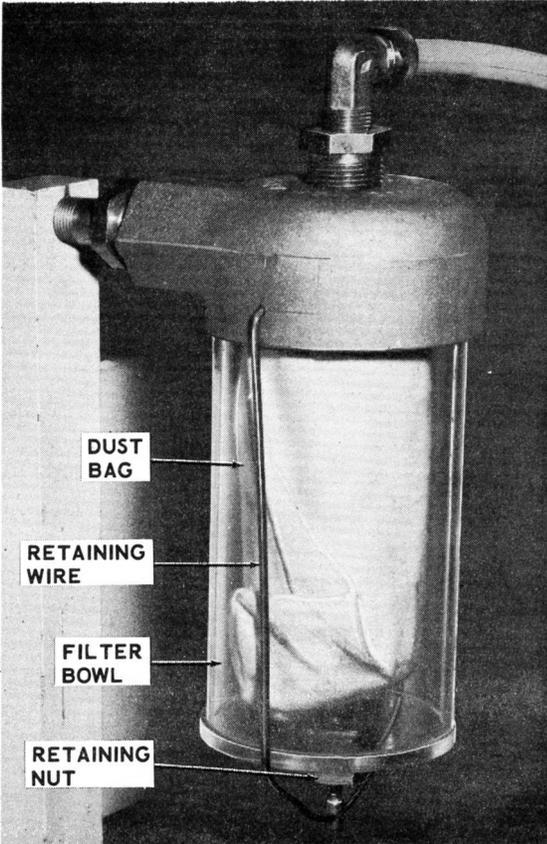


Figure 5-2. Vacuum Opener System Filter

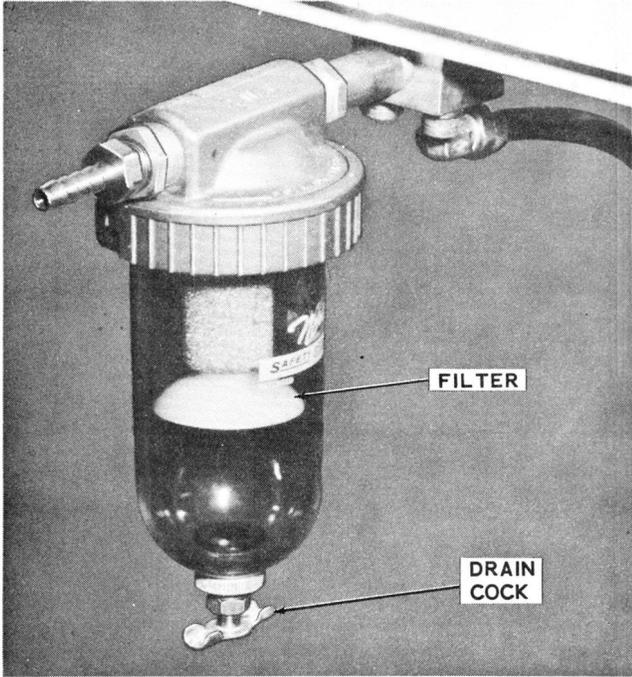


Figure 5-3. Air System Filter

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

Section III. Lubrication

5-5. GENERAL LUBRICATION INSTRUCTIONS.

This section provides lubrication instructions for the Packager. Thorough lubrication at definite intervals will add greatly to the service life of the Packager and will reduce the overall operating expense. Only

lubricants of the best quality, having proper body or viscosity, and supplied by reputable manufacturers should be used. Lubricants should be kept in clean covered container. The following chart, used in conjunction with Figure 5-4 (showing lubrication points) provides the necessary lubrication information.

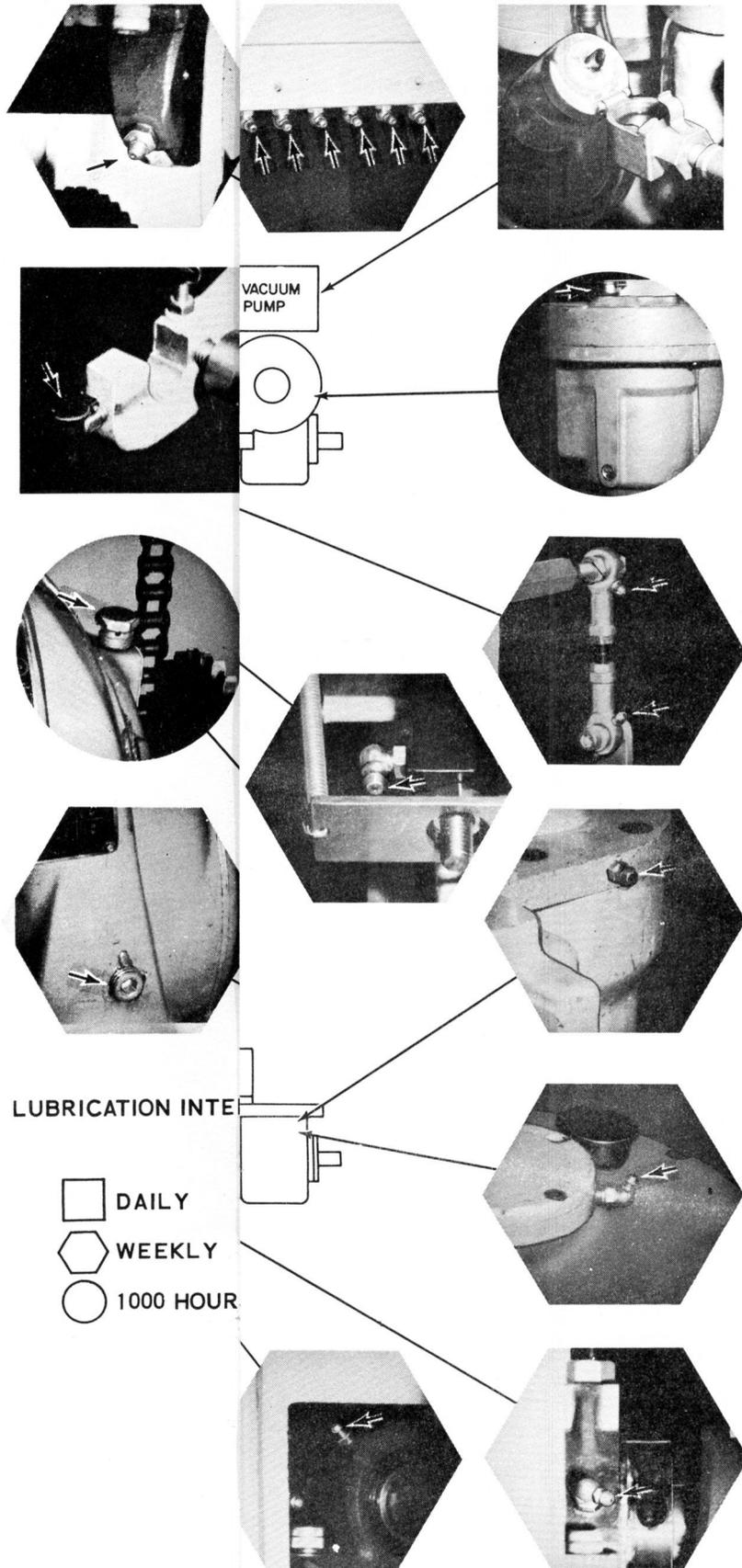
LUBRICATION CHART

Item	Frequency	Point of Lubrication	Type	Quantity
Web arbor shaft	Daily	Oil cups	Machine oil	As required
Dancing roller gears	Daily	Gear	Machine oil	As required
Vacuum pumps	Daily	Oiler jar (Figure 7-7)	SAE 30 non-detergent	Fill oil bowl
Cam followers	Weekly	Grease fitting each follower	Alemite 33-56L	As required
Cycle shaft bearings	Weekly	Grease fitting each bearing	Alemite 33-56L	As required
Pivoted rocker arms	Weekly	4 grease fittings each assembly	Alemite 33-56L	As required
Pillow block bearings	Weekly	Grease fitting each bearing	Alemite 33-56L	As required
Side seal rocker assembly	Weekly	Grease fitting in actuating arm	High-low temp grease	As required
Rod ends	Weekly	Grease fitting each rod end	Alemite 33-56L	As required
Varidrive	Weekly (check) 1000 hrs	Level plug change	SAE 30 non-detergent	
Feed roll housing	Weekly (check) 1000 hrs	Level at window change	Texaco Meropa No. 2	As required to bring to proper level
Conveyor drive	Weekly 1000 hrs	Level at window change Grease at fittings	Texaco Meropa No. 2 Alemite 33-56L	As required to bring to proper level
All spring return rods and springs	Weekly	Rod shaft and spring	Machine oil	Coat
All spring loaded rods of rocker arms	Weekly	Rod and spring	Machine oil	Coat
Feed roll drive shaft clutch	Every 500 hrs	Grease	Alemite 33-56L	As required
Agitator motor gearbox	Every 1000 hrs	Level plug	SAE 600W	Refill
Conveyor drive	Every 1000 hrs	Remove plug at bottom to drain. Fill at cap (Figure 5-4)	Texaco Meropa No. 2	Refill
Drive chains	Weekly			

BARTELT IM PACKAGER

OPERATION MANUAL

4-68



Lubrication Points

CHAPTER 6

REPAIR INSTRUCTIONS

Section I. Repair Of Variable Speed Drive

6-1. REPLACING VARIBELT IN VARIABLE SPEED DRIVE ASSEMBLY.

Remove and install varibelt (4, Figure 6-1) in variable speed drive assembly as follows:

- a. Turn hand control (8) to low speed.
- b. Remove two screws (1) and front plate cover (2).
- c. Remove electric brake and brake housing from lower rear of the varidrive.

(1) Remove two setscrews in hub of splined brake disk. Remove retaining ring. Pull splined brake disk from shaft.

(2) Remove four screws and lock washers attaching brake to brake housing and detach brake.

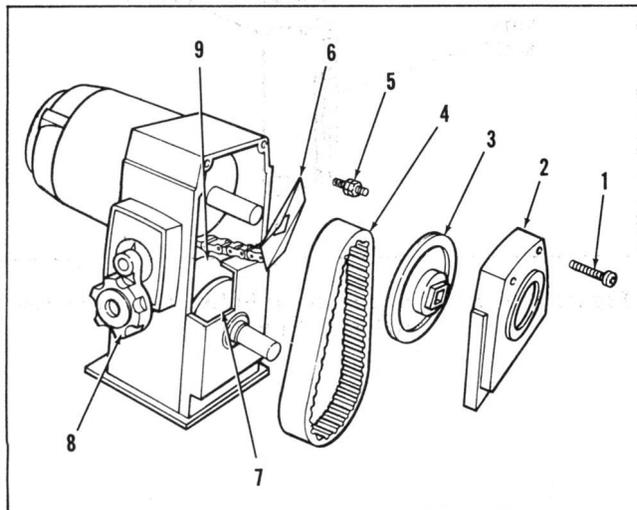


Figure 6-1. Replacing Varibelt in Variable Speed Drive Assembly

- (3) Remove splined brake hub from shaft.
- (4) Remove four nuts attaching brake housing to drive housing and detach brake housing.
- d. Remove stud (5) by turning lock nuts. Do not alter position of the two lock nuts on the stud.
- e. Move shifting lever (6) to clear varidisc assembly (3) without removing shifting chain from lever.
- f. Remove varidisc assembly (3) and varibelt (4).
- g. Begin installation of varibelt (4) by inserting it into the brake housing opening at the rear. Locate the lower loop between varidisks (7 and 9) approximately at mid-diameter of pulley. Position upper end of belt over motor shaft.
- h. Reassemble varidisc assembly (3) on motor shaft.
- i. Install shifting lever (6) and stud (5). Advance stud until it bottoms.
- j. Rotate varidisks by hand and turn control knob (8) until belt slack is taken up.
- k. Install front plate cover (2) and retain with screws (1). Install brake housing and electric brake at rear of unit.

- (1) Position brake housing on studs of drive housing and secure with four nuts and washers.
- (2) Attach brake to brake housing with four screws and lock washers. Install splined brake hub on shaft.
- (3) Install splined brake disk over splined brake hub and install retaining ring.
- (4) Adjust gap of brake to 1/16 inch and tighten two setscrews in hub of splined brake disk.

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

Section II. Repair Of Web Tensioning Assembly

6-2. REPLACING DANCING ROLLER COMPRESSION SPRING AND BUTTON.

To remove and install the dancing roller compression spring and bronze button (Figure 6-2) for cleaning or replacement, proceed as follows:

a. Position dancing roller to rest on rubber stops at the bottom of its travel to relieve tension from compression spring.

b. Loosen setscrew in cap (Figure 6-2) and remove cap from top of tube.

c. Using a screwdriver or other tool inserted in the side slot of the tube, raise the compression spring and bronze button until they can be removed from the top of the tube.

d. Install a new or cleaned bronze button and compression spring in the top of the tube and guide these parts down inside the tube until the button rests on shaft of the dancing roller. Position cap on top of tube and secure with setscrew.

NOTE

Above procedures apply to either of the two compression springs and buttons.

6-3. LEVELING DANCING ROLLER.

On occasion, the dancing roller may become unlevel due to one gear skipping a tooth or the setscrew retaining a gear may become loose. To correct the situation, loosen a setscrew in one of the gears and level the dancing roller with the machine base. Tighten the setscrews in each gear securely.

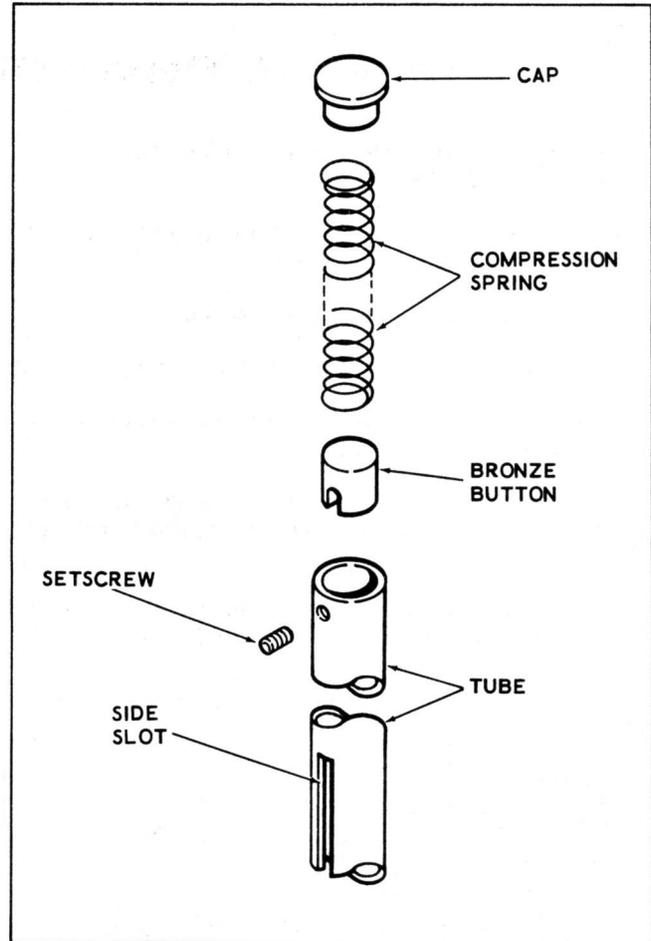


Figure 6-2. Replacing Dancing Roller Compression Spring and Button

Section III. Repair Of Web Forming Assembly

6-4. REPLACING PLOW ASSEMBLY BOTTOM PLATE.

Replace the plow assembly bottom plate (Figure 6-3) as follows:

- a. Remove plow nose.
- b. Remove two flat head machine screws from under plow bottom plate. These screws attach angle adjust screw block to the bottom plate.
- c. Remove three socket head screws and lock washers which pass through the plow assembly top plate and

thread into the bottom plate. Bottom plate is now free to be removed.

- d. Attach new bottom plate to the underside of the plow assembly top plate with three socket head screws and lock washers (Figure 6-3).

- e. Attach bottom plate to the underside of angle adjust screw block (Figure 6-3) with two flat head machine screws.

- f. Install plow nose assembly.

- g. Adjust and level plow assembly as outlined in Chapter 3, Section IV.

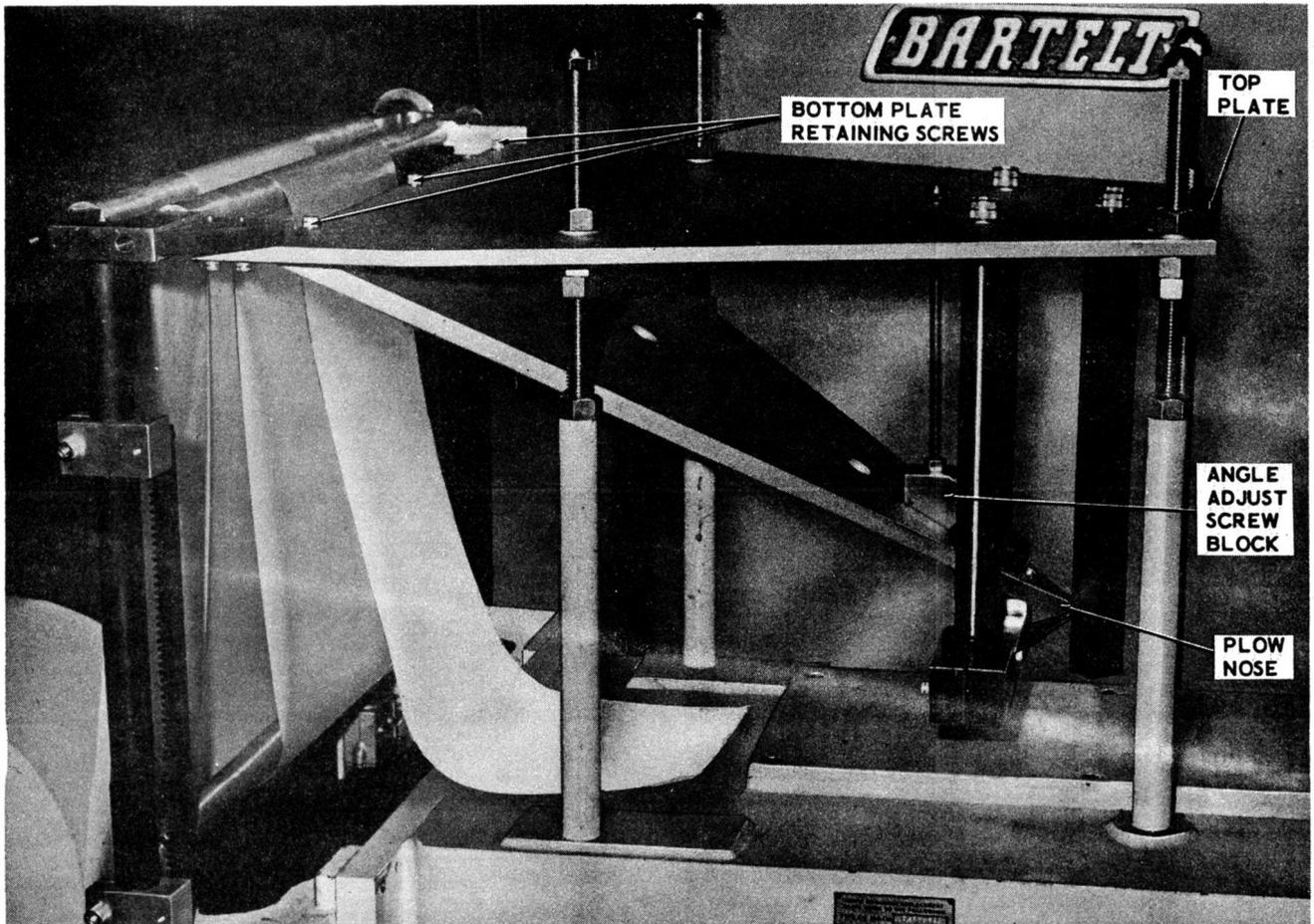


Figure 6-3. Replacing Plow Assembly Bottom Plate

BARTELT IM PACKAGER

OPERATION MANUAL 4-68

Section IV. Repair Of Bottom Seal Rocker Assembly

6-5. REPAIR OF BOTTOM SEAL ROCKER ASSEMBLY.

Repair bottom seal rocker assembly (also applicable to top seal rocker assembly) as follows:

a. Replacing Cam Followers. Replace a worn cam follower (Figure 6-4) by placing a screwdriver in slot of follower and removing retaining nut from shaft of follower. Pull cam follower from casting. Install a new cam follower by reversing this procedure.

NOTE

Lube Hole in cam follower must be aligned with Lube fitting in casting.

b. Replacing Springs and Slide Blocks. Check return springs, slide blocks, and rod (Figure 6-4) for wear. Replace worn components as follows:

(1) Remove two hexagon nuts and one flat washer from each end of the threaded rod.

(2) Remove each return spring. Pull threaded rod from slide blocks and remove slide blocks from casting.

(3) Examine all parts for wear and replace any badly worn parts.

(4) Install each slide block in the casting and insert threaded rod through the blocks. Oil slide blocks and rod.

(5) Install each return spring and secure with one flat washer and two hexagon nuts on each end of threaded rod. Apply oil to each return spring.

c. Replacing Rocker Bearings. Remove two screws and washers (Figure 6-4) retaining each ball bearing

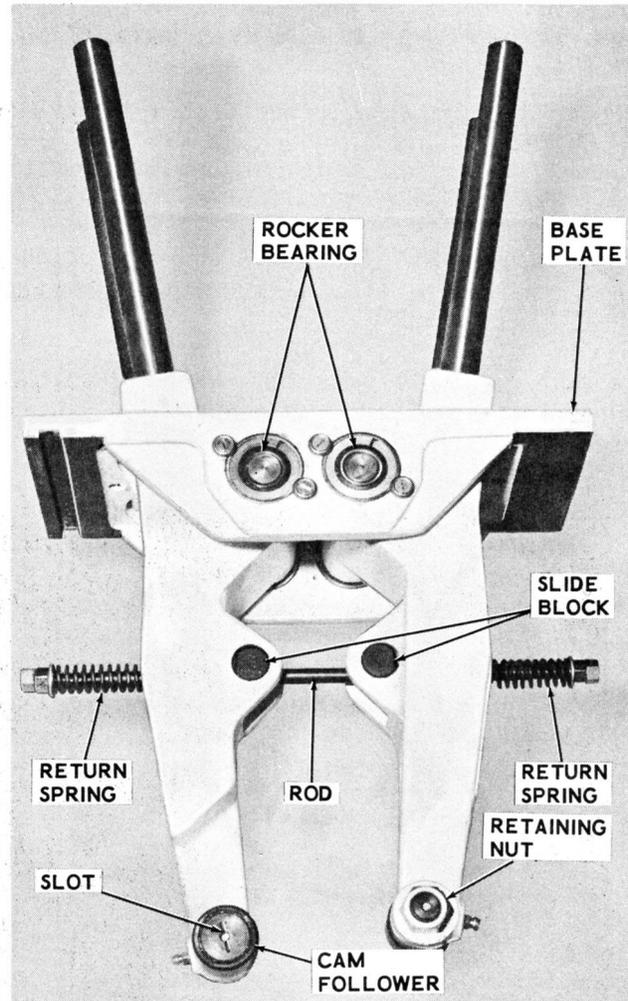


Figure 6-4. Bottom Seal Rocker Assembly

in the base plate. Remove bearing from base plate. Install new bearings and retain with two screws and washers per bearing.

Section V. Repair Of Side Seal Rocker Assembly

6-6. REPAIR OF SIDE SEAL ROCKER ASSEMBLY.

Repair side seal rocker assembly as follows:

a. Replacing Cam Followers. Replace a worn cam follower (Figure 6-5) by placing a screwdriver in slot of follower and removing retaining nut from shaft of follower. Pull cam follower from casting. Install a new cam follower by reversing this procedure.

NOTE

Lube Hole in cam follower must be aligned with Lube hole in casting.

b. Replacing Springs and Slide Blocks. Check return springs, slide blocks, and rod (Figure 6-5) for wear. Replace worn components as follows:

(1) Remove stop nut and flat washer from each end of threaded rod.

(2) Remove each return spring. Pull threaded rod from slide blocks and remove slide blocks from casting.

(3) Examine all parts for wear and replace any badly worn parts.

(4) Install each slide block in the casting and insert threaded rod through the blocks. Oil slide blocks and rod.

(5) Install each return spring and secure with one flat washer and stop nut on each end of threaded rod. Apply oil to each return spring.

c. Replacing Rocker Bearings. Remove two screws and washers (Figure 6-5) retaining each ball bearing in the base plate. Loosen one setscrew in shaft hub of each casting. Tap end of shaft to remove bearings.

Center shaft in casting and tighten setscrew in casting shaft hub. Install new bearings and retain with two screws and washers per bearing.

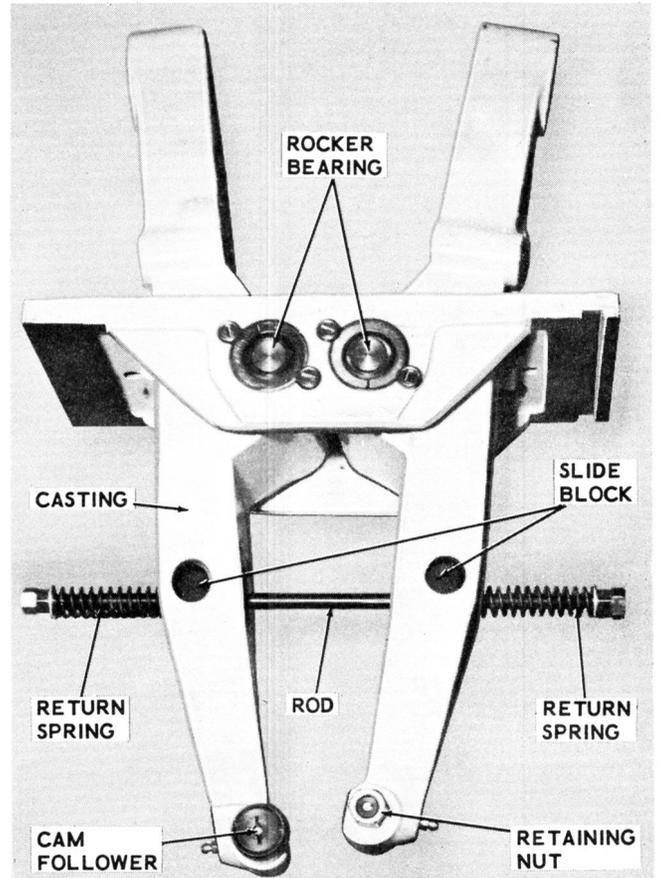


Figure 6-5. Side Seal Rocker Assembly

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

Section VI. Repair Of Feed Roll And Cutoff

6-7. REPLACING FEED ROLLS.

Remove and install feed rolls in the feed roll and cutoff assembly (Figure 6-6) as follows:

a. Disconnect first splitter blade attachment from cutoff assembly bracket.

b. Remove jam nut (57, Figure 6-6) and spring loaded bolt (60) from "U" slot in movable knife arm (62). Loosen setscrew (2) and remove hand feed knob (1).

c. Use a screwdriver and pry bearing cap (3) out of bracket (4). Remove retaining ring (6).

d. Remove three socket head cap screws (69) and lift off moveable knife (63). Use extreme care not to damage knife blade. Remove screws (50) and block (48). Remove four socket head cap screws (5) and carefully lift bracket (4) off feed roll housing and end of feed roll shaft (8).

e. Loosen set screws (13) in gear (12) and remove feed roll (9) and gear (12) upward off feed roll shaft (8).

f. Pry plug button (26) from hole in shaft assembly (27). Remove retaining ring (41) from feed roll shaft (38). Remove shaft assembly (27) from hole in housing. Pull (or push up from bottom) bearing (40) until removed. Pull shaft (38) upward until gear end bearing (32) clears hole in shaft assembly (27). Swing shaft (38) with feed roll and gear (35) attached, out of shaft assembly (27).

g. Loosen set screws (36) in gear (35) and remove feed roll (39) and gear (35) from shaft (38).

h. Begin installation of feed rolls by sliding new feed roll (39) and gear (35) onto shaft (38). Position end of shaft (38) into top hole of shaft assembly (27) and then gear end of shaft with bearing attached into lower hole of shaft assembly (27).

i. Install bearing (40) on end of shaft (38) in top hole of shaft assembly (27) and retain with ring (41). Install plug button (26). Position lower end of shaft assembly (27) in hole of housing.

j. Slide new feed roll (9) and gear (12) on shaft (8).

k. Carefully position bracket (4) onto housing while aligning the top of shaft (8) and shaft assembly (27) in their respective holes in the bracket. Secure bracket to housing with four socket head cap screws (5).

l. Install retaining ring (6) on end of shaft (8) and tap bearing cap (3) into hole in bracket. Install hand feed knob (1) on shaft (8) and secure with setscrew (2).

m. Install bolt (60) with spring (59) and washers (58) attached through "U" slot in movable blade arm (62) and hole in bracket (4) flange. Secure with jam nut (57). Tighten nut (57) until tension is applied to keep cam follower of arm in contact with actuating cam on cycle shaft.

n. Install block (48) using screws (50). Adjust feed roll pressure.

o. Install first splitter blade bracket and install moveable knife. Adjust first splitter blade, swinging splitter blade, and cutoff knives as outlined in Chapter 3.

6-8. REPLACING FEED ROLL GEARS.

Remove and install feed roll gears in the feed roll and cutoff assembly (Figure 6-6) as follows:

a. Remove feed rolls as outlined in paragraph 6-7, steps a through g.

b. Loosen setscrew (13, Figure 6-6) and pull feed roll gear (12) off shaft (8).

c. Loosen setscrew (36) and pull feed roll gear (35) off shaft (38).

d. Install dowel pin (34) in new feed roll gear (35) and slide gear down shaft (38) and over woodruff key (37). Tighten setscrew (36).

e. Install feed roll (39) and shaft assembly (27) as outline in step h through i of paragraph 6-7.

f. Install dowel pin (11) in new feed roll gear (12) and slide gear down shaft (8) and over woodruff key (10). Mesh and align feed roll gear (12) with gear (35) previously installed. When properly aligned, tighten setscrew (13).

g. Complete installation as outlined in paragraphs j through n of paragraph 6-5.

6-9. REPLACING FEED ROLL ASSEMBLY BEVEL GEARS.

Remove and install bevel gears in housing of feed roll and cutoff assembly (Figure 6-6) as follows:

a. Replace small idler bevel gear (23, Figure 6-6) as follows:

(1) Follow disassembly procedure as outlined in paragraph 6-7.

(2) Remove three socket head cap screws (18) securing feed roll bearing sleeve (19) to housing (74). Carefully lift bracket (4) off housing (74). Shaft assembly (8) may remain in position on the housing (19). Bevel gear (23) will come out of housing (19) when removing shaft (8).

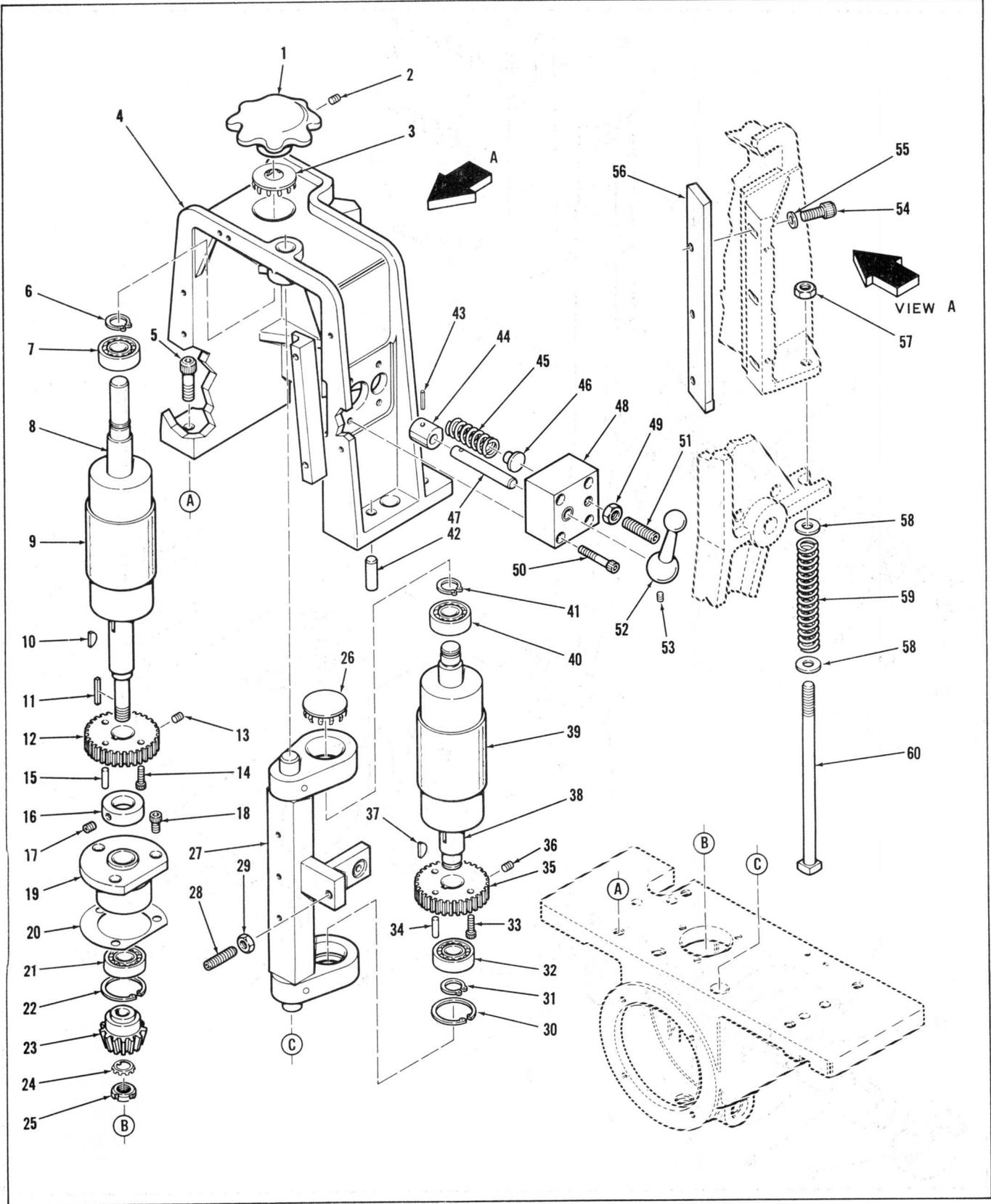


Figure 6-6. Disassembly of Feed Roll and Cutoff Assembly (Sheet 1 of 2)

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

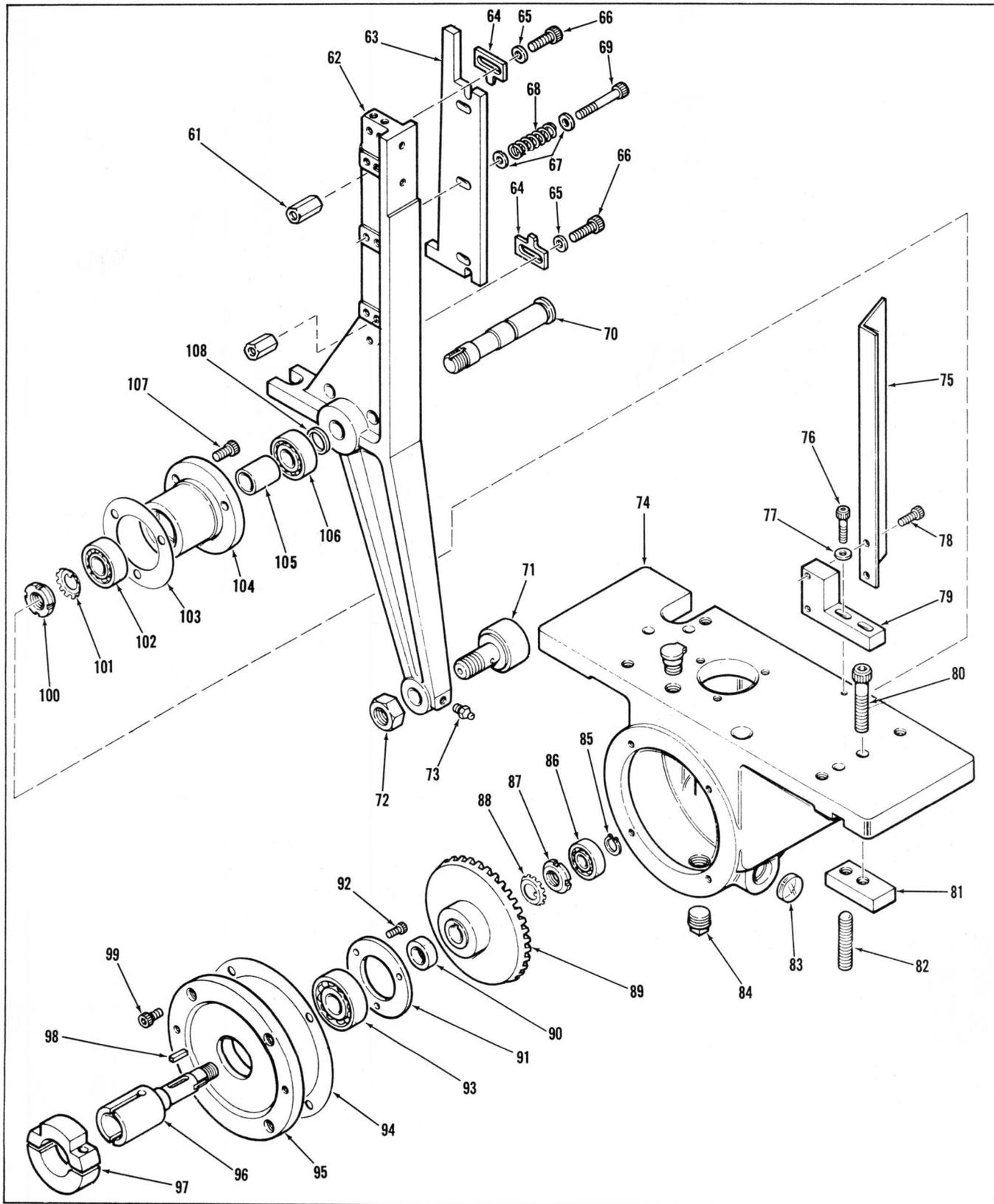


Figure 6-6. Disassembly of Feed Roll and Cutoff Assembly (Sheet 2 of 2)

Legend for Figure 6-6

- | | | |
|------------------------------|------------------------------|--------------------------------|
| 1. Hand Feed Knob | 37. Woodruff Key | 73. Lubrication Fitting |
| 2. Setscrew | 38. Feed Roll Shaft | 74. Housing |
| 3. Bearing Cap | 39. Feed Roll | 75. Web Guide |
| 4. Bracket | 40. Ball Bearing | 76. Socket Head Screw |
| 5. Cap Screw | 41. Retaining Ring | 77. Washer |
| 6. Retaining Ring | 42. Dowel Pin | 78. Socket Head Screw |
| 7. Ball Bearing | 43. Groove Pin | 79. Guide Mounting Bracket |
| 8. Feed Roll Shaft | 44. Eccentric | 80. Socket Head Screw |
| 9. Feed Roll | 45. Compression Spring | 81. Clamp |
| 10. Woodruff Key | 46. Plug | 82. Setscrew |
| 11. Machine Key | 47. Eccentric Shaft | 83. Oil Level Window |
| 12. Spur Gear | 48. Block | 84. Pipe Plug |
| 13. Setscrew | 49. Nut | 85. Retaining Ring |
| 14. Socket Head Screw | 50. Socket Head Screw | 86. Ball Bearing |
| 15. Dowel Pin | 51. Pressure Adjust Setscrew | 87. Lock Nut |
| 16. Collar | 52. Feed Roll Release Handle | 88. Lock Washer |
| 17. Setscrew | 53. Setscrew | 89. Bevel Gear |
| 18. Socket Head Screw | 54. Socket Head Screw | 90. Spacer |
| 19. Feed Roll Bearing Sleeve | 55. Washer | 91. Washer |
| 20. Gasket | 56. Stationary Knife | 92. Socket Head Screw |
| 21. Ball Bearing | 57. Jam Nut | 93. Ball Bearing |
| 22. Retaining Ring | 58. Washer | 94. Gasket |
| 23. Idler Bevel Gear | 59. Compression Spring | 95. Drive Shaft Bearing Sleeve |
| 24. Lock Washer | 60. Bolt | 96. Stub Shaft |
| 25. Lock Nut | 61. Nut | 97. Split Collar |
| 26. Plug Button | 62. Movable Knife Arm | 98. Machine Key |
| 27. Shaft Assembly | 63. Movable Knife | 99. Socket Head Screw |
| 28. Open Adjust Setscrew | 64. Knife Adjust Block | 100. Lock Nut |
| 29. Lock Nut | 65. Washer | 101. Lock Washer |
| 30. Retaining Ring | 66. Socket Head Screw | 102. Ball Bearing |
| 31. Retaining Ring | 67. Washer | 103. Gasket |
| 32. Ball Bearing | 68. Compression Spring | 104. Cutoff Bearing Sleeve |
| 33. Socket Head Screw | 69. Socket Head Screw | 105. Bearing Spacer |
| 34. Dowel Pin | 70. Cutoff Shaft | 106. Ball Bearing |
| 35. Spur Gear | 71. Cam Follower | 107. Socket Head Screw |
| 36. Setscrew | 72. Nut | 108. Spacer |

(3) Bend tab of lock washer (24) to clear slot of lock nut (25) and unscrew lock nut from end of shaft (8). Remove lock washer (24) and pull bevel gear (23) off shaft (8).

(4) Install new bevel gear (23) on end of shaft (8) over key (11) and up against shoulder of shaft. Install lock washer (24) and lock nut (25). Tighten lock nut. Bend tab of lock washer (24) into slot of lock nut (25).

(5) Install shaft assembly (8) onto housing (74) with screws (18).

(6) Carefully install bracket (4) onto housing (74). Align top of shaft assembly (27) with hole in bracket; small bevel gear to mesh properly with large bevel gear (89). Attach bracket (4) to housing with four socket head cap screws (5).

(7) Install bolt (60) with spring (59) and washers (58) attached, through "U" slot in movable blade arm (62) and hole in flange of bracket (4). Secure with jam nut (57). Tighten nut until tension is applied to keep cam follower of arm in contact with actuating cam on cycle shaft.

b. Replace large bevel gear (89, Figure 6-6) as follows:

(1) Loosen split collars (97) at each end of feed roll drive shaft and telescope shaft away from feed roll housing (74).

(2) Open pipe plug (84) and drain oil from housing (74).

(3) Remove four socket head cap screws (99) from drive shaft bearing sleeve (95). Grasp stub shaft (96) and pull shaft assembly including attached gear (89) from housing (74).

(4) Remove retaining ring (85) and pull bearing (86) from end of shaft (96). Bend tab of lock washer (88) until it clears slot of lock nut (87). Unscrew lock nut from shaft and remove lock washer. Pull bevel gear (89) from stub shaft (96).

(5) Install new bevel gear (89) onto stub shaft (96) and key (98). Install lock washer (88) and thread lock nut (87) onto shaft (96). Tighten lock nut. Bend tab of

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

lock washer (88) into slot of lock nut (87) to secure lock nut setting. Position bearing (86) on end of shaft (96) and secure with retaining ring (85).

(6) Install new gasket (94) on drive shaft bearing sleeve (95). Insert gear and shaft assembly into housing (74). Carefully align bearing (86) in housing receptacle and mesh bevel gear (89) with idler bevel gear (23). Align the four holes in drive shaft bearing sleeve (95), gasket (94), and housing (74). Insert four socket head cap screws (99) and tighten.

(7) Bevel gears should fit tight with minimum backlash. Install spacers (90) as required to eliminate backlash. If gears fit too tight, remove stock from spacer (90).

(8) Install pipe plug (84) and fill housing with oil as specified in Chapter 5. Pull feed roll drive shaft up to the stub shaft. Position and tighten split collars (97) at each end of drive shaft.

c. Replace both bevel gears (23 and 89, Figure 6-6) as follows:

(1) Remove large bevel gear (89) as outlined in steps (1) through (4) of b above.

(2) Working inside housing (74) through opening left by drive shaft bearing sleeve (95), bend tab of lock washer (24) out of slot in lock nut (25) and unscrew lock nut from end of shaft (8). Hold hand wheel (1) to prevent shaft (8) from turning. Pull bevel gear (23) from end of shaft (8).

(3) Install new bevel gear (23) on shaft (8) and key (11) inside housing. Install lock washer (24) and lock nut (25) on shaft (8). Tighten lock nut while holding hand wheel (1) to prevent shaft (8) from turning. Bend tab of lock washer (24) into slot in lock nut (25) to retain nut in proper setting.

(4) Install large bevel gear (89) as outlined in steps (5) through (8) of b above.

6-10. REPLACING PIVOT BEARINGS IN CUTOFF ARM.

Remove and install pivot bearings in movable knife (cutoff) arm (62, Figure 6-6) as follows:

a. Remove jam nut (57), bolt (60), washer (58) and spring (59) from flange of bracket (4) and "U" slot in arm (62).

b. Remove moveable knife blade (63) by detaching screws (69), washers (67) and springs (68).

c. Remove three socket head cap screws (107) from cutoff bearing sleeve (104). Access to two of the three screws (104) can be attained through holes in arm (62). The third (bottom) screw is accessible under the cutoff arm (62).

d. Grasp arm (62) and pull outward. Cutoff shaft (70) with bearing sleeve (104) attached, will come out of housing (74).

e. Bend tab of lock washer (101) out of slot in lock nut (100). Unscrew lock nut from end of shaft (70). Remove lock washer (101) and bearing (102) from shaft. Pull shaft (70) out of bearing spacer (105), bearing (106) and bearing sleeve (104). Remove bearing (106) and bearing sleeve (104).

f. Install new bearing (106) in flanged end of sleeve (104). Place arm (62) on its side with shaft (70) pointing upward and spacer (108) installed. Position sleeve (104) with assembled bearing (106) onto shaft (70), sliding it downward until bearing (106) is against spacer (108). Install bearing spacer (105) and position bearing (102) onto shaft (70) and into end of sleeve (104).

g. Install lock washer (101) on shaft and thread lock nut (100) down to it. Tighten lock nut. Bend tab of lock washer (101) into slot of lock nut (100) to retain nut in proper setting. Install new gasket (103) on flange of sleeve (104).

h. Grasp arm (62) and insert shaft assembly (70) into housing. Align three holes in sleeve (104) and gasket (103) with threaded holes in housing (74). Insert three socket head cap screws (107) and tighten securely.

i. Install movable knife blade (63) onto arm (62) using screws (69), washers (67) and springs (66).

j. Install bolt (60) with spring (59) and washer (58) assembled, into "U" slot of arm (62) and flange of bracket (4). Install and tighten jam nut (57) until proper spring tension is applied to arm (62). Adjust pressure of movable knife and check blade alignment as outlined in Chapter 3.

Section VII. Repair Of Pouch Clamps

6-11. CHANGING POUCH CLAMPS ON CHAIN.

Change pouch clamps on the conveyor chain as follows:

a. Index conveyor chain until clamp to be removed is on the conveyor drive sprocket.

b. Loosen two screws attaching clamp bracket to the chain pins.

c. Remove repair link from chain pins. Pry upward on clamp bracket to remove it from the chain pins.

d. Place a metal bar or other suitable support under the conveyor chain and in line with the two pins onto which the clamp is being installed. Tap pouch clamp into position on the chain pins.

e. Install repair link and tighten the two clamp bracket screws.

Section VIII. Repair of Model B Product Filler

6-12. CHECKING FILLER DRIVE CLUTCH AND BRAKE FOR TORQUE LOSS.

If a clutch/brake slips or loses torque completely, perform the following checkout.

a. Remove inspection cover (46, Figure 6-7). Connect a DC voltmeter with a range of 0 to 100, or more, directly across the magnet terminals of the clutch and then the brake. With power turned on, a reading of 85 to 95 volts is satisfactory. If no reading is obtained check fuses, rectifier, or capacitor in electrical panel (45). If low reading is obtained, check capacitor and rectifier.

b. As a further check, connect a low range ammeter in series with one magnet lead. Turn power on; normal indication should be approximately 0.35 to 0.42 amperes.

c. Be certain electrical power is off and disconnect one lead to the magnet. Using an ohmmeter, make a resistance check. Average resistance should be 230 ohms. A very high or infinite resistance reading indicates an open coil.

d. If checks above indicate that the proper voltage and current is being applied to the magnet, check mechanical parts to assure that they are in good operating condition. Wear grooves appear on the armatures, brake magnet, and clutch rotor surfaces. This is a normal wear condition, and does not impair functioning of the unit. When the friction surfaces of the armatures, brake magnet, or clutch rotor are extremely worn they must be replaced as a matched set. That is, the clutch rotor and mating armature and the brake magnet and mating armature.

6-13. REPLACING FILLER DRIVE CLUTCH.

Replace the filler drive clutch as follows:

a. Remove belt guard (1, Figure 6-7). Loosen two screw (35) and slide drive motor (39) and mount (36) toward pulley (6) and remove drive belt (2) from the pulleys.

b. Disconnect electrical power plug from receptacle on electrical panel (45). Remove inspection cover (46) and disconnect two electrical wires from clutch field (28).

c. Remove six screws (15) from top bearing housing (16). Using a 3/16 inch punch, drive two dowel pins in top bearing housing down until they clear the housing.

NOTE

The top bearing housing (16) and filler drive housing (43) are matched.

d. Pull the assembled top bearing housing (16) upward and out of the filler drive housing (43). The clutch field (28) and rotor (30) are attached to shaft (23) and will come out with the top bearing housing.

e. Loosen two setscrews (31) which are spaced 90 degrees apart in the rotor hub. Remove socket head screw (33) and washer (32) from end of shaft (23). Pull rotor (30) together with bearing (29) and field (28) off shaft (23). Remove three screws (26) and detach retainer plate (27) from field (28). Remove retaining ring (25) and pull field (28) and bearing (29) off rotor.

f. Notice the three screws (48) in taper lock bushing (49). Two of the screws are evenly spaced 180 degrees and one is not spaced even. Loosen the odd spaced screw then, loosen the two evenly spaced screws.

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

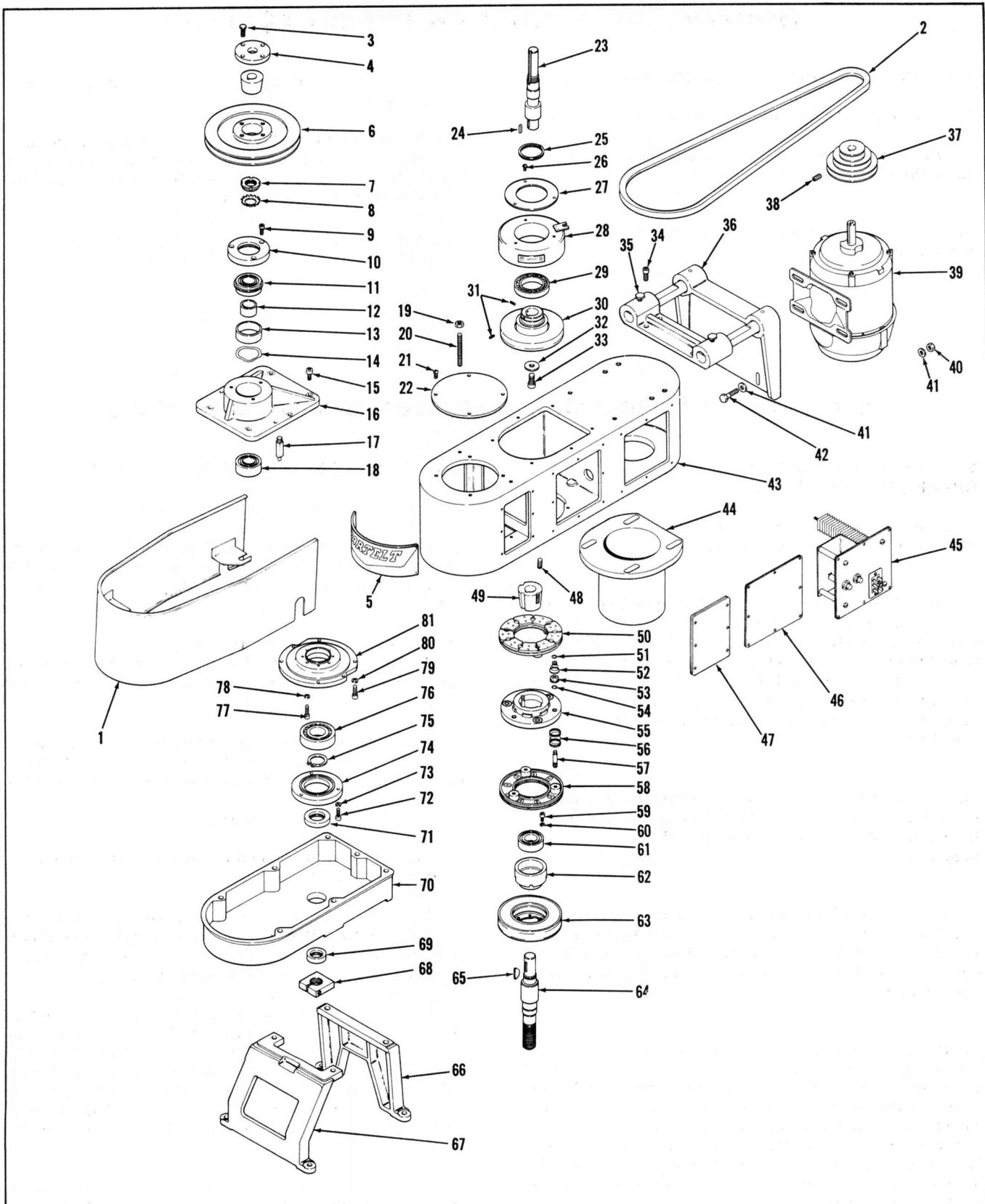


Figure 6-7. Filler Drive Assembly

Legend for Figure 6-7

- | | |
|-------------------------|---------------------------|
| 1. Belt Guard | 42. Screw |
| 2. Drive Belt | 43. Filler Drive Housing |
| 3. Screw | 44. Support Collar |
| 4. Taper Bushing | 45. Electrical Panel |
| 5. Name Plate | 46. Inspection Cover |
| 6. Driven Pulley | 47. Inspection Cover |
| 7. Lock Nut | 48. Screw |
| 8. Lock Washer | 49. Taper Lock Bushing |
| 9. Screw | 50. Clutch Armature |
| 10. Bearing Retainer | 51. Retaining Ring |
| 11. Bearing With Ring | 52. Spring |
| 12. Small Spacer | 53. Spring Retainer |
| 13. Large Spacer | 54. Retaining Ring |
| 14. Wave Washer | 55. Armature Hub |
| 15. Screw | 56. Spring |
| 16. Top Bearing Housing | 57. Drive Pin |
| 17. Clutch Anchor Pin | 58. Brake Armature |
| 18. Bearing | 59. Screw |
| 19. Nut | 60. Lock Washer |
| 20. Stud | 61. Bearing |
| 21. Machine Screw | 62. Bearing Retainer |
| 22. Top Front Cover | 63. Brake Magnet |
| 23. Main Feeder Shaft | 64. Lower Main Shaft |
| 24. Key | 65. Woodruff Key |
| 25. Retaining Ring | 66. Rear Hopper Support |
| 26. Machine Screw | 67. Front Hopper Support |
| 27. Retainer Plate | 68. Lock Nut |
| 28. Clutch Field | 69. Oil Seal |
| 29. Bearing | 70. Gear Box |
| 30. Clutch Rotor | 71. Seal |
| 31. Setscrew | 72. Screw |
| 32. Washer | 73. Lock Washer |
| 33. Screw | 74. Bearing Retainer |
| 34. Screw | 75. Retaining Ring |
| 35. Screw | 76. Bearing |
| 36. Motor Mount | 77. Screw |
| 37. Drive Pulley | 78. Lock Washer |
| 38. Setscrew | 79. Screw |
| 39. Drive Motor | 80. Lock Washer |
| 40. Nut | 81. Lower Bearing Housing |
| 41. Washer | |

Turn the odd spaced screw in until the taper lock bushing is forced upward. When loose, remove the taper lock bushing and the armature assembly from the end of shaft (64).

g. Cut and remove safety wire from three drive pins (57) on the brake side of the armature assembly. Using an open end wrench, unscrew the three drive pins from clutch armature (50). After clutch armature is free of drive pins, remove springs (56) from the three armature bosses.

h. Begin installation of new clutch components by sliding springs (56) over the threaded end of the three drive pins (57) and into the grooves of the hub (55). Place the bosses of the new clutch armature (50) through springs (56) and over drive pins (57). Using

an open end wrench, thread the drive pins tightly into the armature bosses. Push the armature downward and slide all retainer (53) against the hub.

i. Safety wire the three drive pins as follows:

(1) Use a soft annealed No. 19 (0.041) to No. 21 (0.032) W and M gauge steel wire. Wiring must be tight throughout the procedure.

(2) Insert wire into pin A, Figure 6-8 until the ends of the wire are even.

(3) Twist wire together until pin B is reached. A loosening action on pin B would be resisted by a tightening action on pins A and C.

BARTELT IM PACKAGER

OPERATION MANUAL 4-68

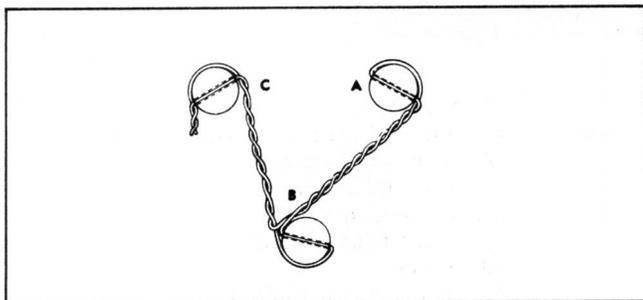


Figure 6-8. Armature Safety Wiring

(4) Insert one end of the wire into pin B and pull tight. Wrap the inserted wire around pin B and twist both wires together until pin C is reached. A loosening action on pin C would be resisted by a tightening action on pin B.

(5) Insert one wire into pin C and wrap the other wire around the pin. Complete the wiring by twisting the ends together on pin C.

j. Place taper lock bushing (49) into hub (55). Lubricate locking screws (48), insert them into the bushing, and slide the armature assembly onto shaft (64) with keyway of hub in line with key (65). Position the assembly on the shaft for a 1/32 inch clearance between the face of brake armature (58) and the face of brake magnet (63). Secure the assembly to the shaft by drawing up on screws (48), tightening each one alternately. During the tightening process, the bushing should be tapped lightly from time to time to make certain that it seats-in properly.

k. Assemble bearing (29) and field (28) onto new clutch rotor (30). Install retaining ring (25) onto rotor. Position retainer plate (27) on field and secure with screws (26). Position this assembly onto shaft (23) with keyway of rotor hub over key (24) and tab of field over pin (17). Assemble washer (32) onto screw (33) and thread screw into the end of shaft (23) until rotor bottoms on shaft shoulder. Tighten two setscrews (31) in rotor hub.

l. Drive the two dowel pins used to align the top bearing housing (16) on the filler drive housing (43) upward from the filler drive housing into the top bearing housing. Install and tighten six screws (15) to secure top bearing housing to filler drive housing.

m. Connect two electrical wires to clutch field (28). Position drive belt (2) over pulleys (6 and 37). Slide motor mount (36) rearward until proper belt tension is applied and tighten screws (35). Install belt guard (1) and connect electrical power plug to receptacle on electrical panel (45).

n. Operate filler and observe function of clutch and brake. Install inspection cover (46).

6-14. REPLACING FILLER DRIVE BRAKE.

Replace the filler drive brake as follows:

a. Disconnect electrical power plug from receptacle on electrical panel (45, Figure 6-7). Remove filler tooling and funnel (refer to Chapter 3). Loosen screw in lock nut (68) and thread lock nut upward on shaft (64). Unscrew auger drive shaft from shaft (64) then, unscrew lock nut (68) from the shaft.

b. Tie or otherwise support the hopper and hopper supports to the filler column. Remove four screws attaching front and rear hopper supports (66 and 67) to bottom of gear box (70). Loosen screws in support collar (44) and rotate filler drive until clear of hopper and hopper supports.

c. Remove three socket head screws securing gear box (70) to underside of filler drive housing (43) and pull gear box downward along shaft (64) being careful not to damage oil seal (69).

d. Remove inspection cover (46) and disconnect two electrical wires from brake magnet.

e. While holding lower bearing housing (81) remove four screws (79) and lock washers (80) securing lower bearing housing to the underside of filler drive housing (43). Lower the bearing housing and parts attached to shaft (64) out of filler drive housing.

f. Remove armature and hub assembly from the upper end of shaft (64) as outlined in paragraph 6-13, step f. Cut and remove safety wire from three drive pins (57) on the clutch side of the armature assembly. Using an open end wrench, unscrew the three drive pins from brake armature (58). After brake armature is free of drive pins, remove springs (56) from the three armature bosses.

g. Detach bearing retainer (74) together with seal (71) from lower bearing housing (81) by removing four screws (72) and lock washers (73). Remove retaining ring (75) from groove in shaft (64) and pull bearing (76) out of lower bearing housing.

h. Remove four socket head screws (77) and lock washers (78) located in counterbores in the bearing (76) area of the lower bearing housing. These screws attach bearing retainer (62) to the lower bearing housing. Pull shaft (64) with bearing (61) and bearing retainer (62) attached, out of lower bearing housing.

i. Remove four machine screws attaching brake magnet and remove brake magnet (63) from lower bearing housing.

j. Begin installation of new brake components by attaching a new brake magnet (63) to lower bearing housing (81) with four machine screws. Insert shaft (64) with bearing (61) and bearing retainer (62) attached, into lower bearing retainer and inside brake magnet. Milled holes in flange of retainer (62) to be over the installed machine screws. Insert four socket head screws (77) and lock washers (78) into counterbores in bearing (76) area of the lower bearing housing and thread them into bearing retainer (62).

k. Install bearing (76) onto shaft (64) and into recess in lower bearing housing. Secure with retaining ring (75). Attach bearing retainer (74) together with seal (71) to lower bearing housing with four screws (72) and lock washers (73).

l. Slide three springs (56) over the threaded end of the three drive pins (57) and into the grooves of hub (55). Place the bosses of a new brake armature (58) through springs (56) and over drive pins (57). Using an open end wrench, thread the drive pins tightly into the armature bosses. Push the armature downward and slide all retainers (53) against the hub. Safety wire the three drive pins as outlined in paragraph 6-13, step i.

m. Install taper lock bushing (49) and hub and armature assembly to end of shaft (64) as outlined in paragraph 6-13, step j.

n. Position lower bearing housing (81) with all attached parts through hole in underside of filler drive housing (43) and secure lower bearing housing to filler

drive housing with four screws (79) and lock washers (80).

o. Working through inspection opening in filler drive housing, connect two electrical wires to brake magnet (63). Carefully position gear box (70) with oil seal (69) over bottom of shaft (64). Slide gear box upward along shaft until in position under filler drive housing. Secure gear box to housing with three screws.

p. Loosen screws in support collar (44) and rotate filler drive until aligned over hopper and hopper supports. Attach front and rear hopper supports (66 and 67) to bottom of gear box with four screws.

q. Thread lock nut (68) onto shaft (64). Screw auger drive shaft onto shaft (64). Attach and adjust tooling (refer to Chapter 3). Position lock nut (68) to secure auger drive shaft and tighten screw in lock nut.

r. Operate filler and observe function of clutch and brake. Install inspection cover (46).

Section IX. Repair Of Pouch Pickoff

6-15. REPLACING VACUUM VALVE SPRING.

Remove and install a vacuum valve spring (Figure 6-9) as follows:

- a. Loosen setscrew retaining pivot pin in valve body.
- b. Remove pivot pin and remove valve arm from valve body.
- c. Replace rubber gasket and seat in valve body.
- d. Position new valve spring on valve arm. Insert valve arm into position on valve body; spring to be in hole at bottom of body and rubber gasket over seat.
- e. Insert pivot pin through holes in flange of valve body and through hole in valve arm. Tighten setscrew to retain pivot pin.

NOTE

Above instructions are applicable to vacuum opener valve.

6-16. REPAIRING ECCENTRIC.

Due to normal wear, excessive clearance may develop between the eccentric and the flange (Figure 6-10). If this condition occurs, disconnect the tie rod from top flange, remove two socket head cap screws securing the two flange halves and remove the flange halves.

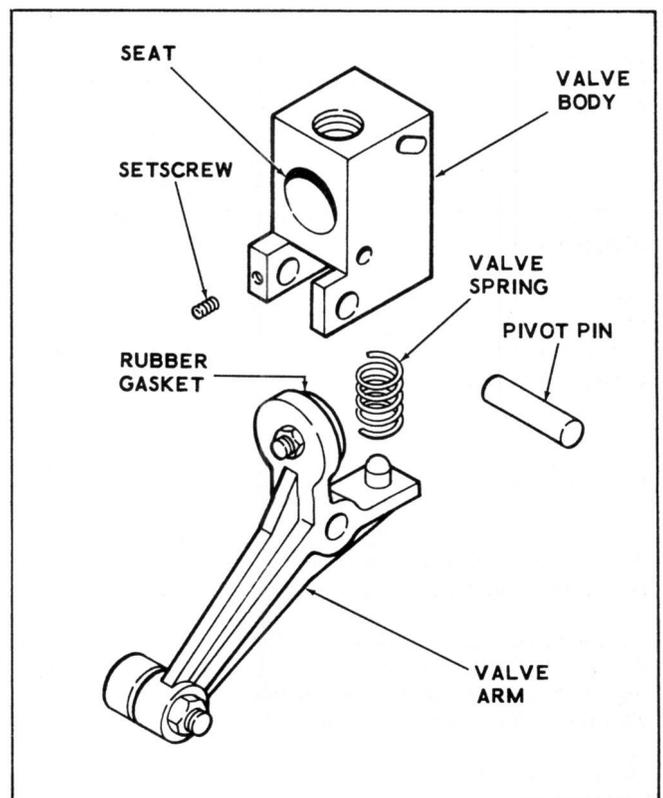


Figure 6-9. Replacing Vacuum Valve Spring

BARTELT IM PACKAGER

OPERATION MANUAL 4-68

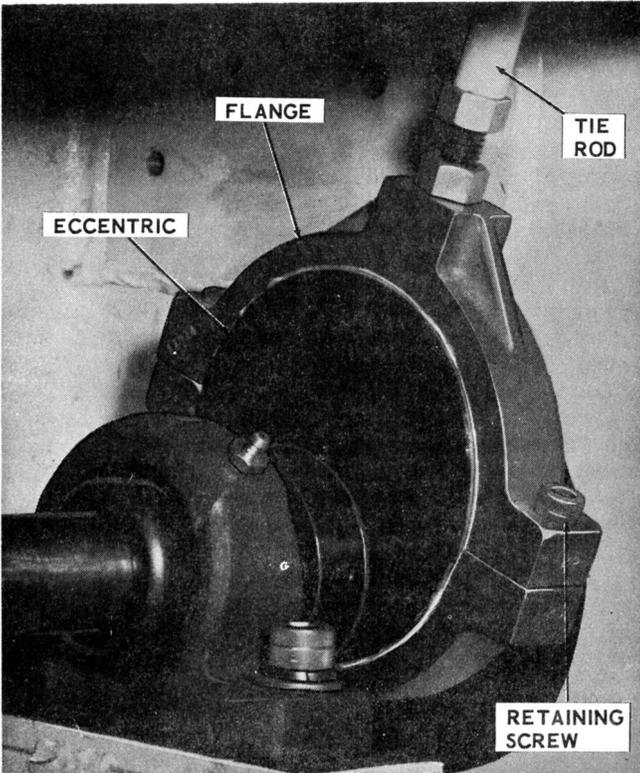


Figure 6-10. Eccentric

Remove stock from the mating surfaces of the flange halves until they fit around the eccentric with a slip fit. Install the flange halves around the eccentric and retain with two socket head cap screws. Install tie rod on top flange.

6-17. CLEANING AND REPLACING VACUUM PUMP VANES.

The vanes in each vacuum pump may stick because of dust and lubricant buildup during normal operation. For proper operation of the vacuum pump, clean these vanes as follows:

- a. Disconnect inlet and outlet piping from the pump. Remove oil line (Figure 6-11).
- b. Remove three screws and detach end cap. Remove retaining ring from shaft.
- c. Remove six screws and pull end casting off shaft. Using a long screwdriver, remove four screws securing vacuum chamber to motor. Remove vacuum chamber from pump housing.
- d. The vacuum chamber is a two part casting. Scribe match marks on each casting. Remove six screws from rear vacuum chamber casting and separate the two castings.

e. Pull four vanes from rotor. Clean vanes and rotor. Examine condition of vanes and replace if worn. Having an extra set of vanes on hand is highly recommended. Install vanes in rotor with rounded edge to the outside.

f. Install the rotor and assemble the two castings to form the vacuum chamber. Align the match marks and secure the two castings with six screws inserted in the rear casting.

g. Insert vacuum chamber into pump housing while aligning the two studs of the drive with mating holes in the pump motor drive. Attach the vacuum chamber to motor with four screws and lock washers.

h. Position end casting onto shaft and against vacuum chamber. Insert six screws in end casting and tighten alternately.

i. Install retaining ring onto shaft. Install end cap and retain with three screws. Connect oil line and inlet and outlet piping.

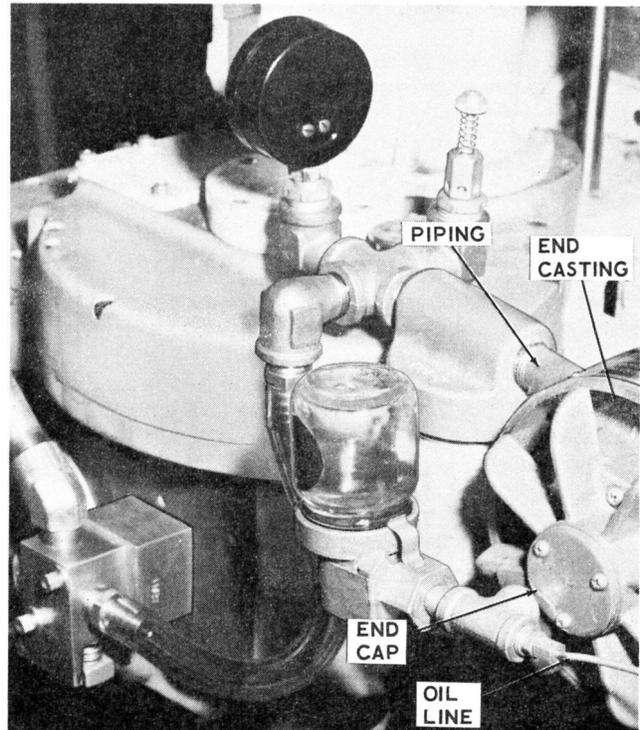


Figure 6-11. Vacuum Pump

Section X. Repair Of Conveyor Drive And Chain Assembly

6-18. REMOVING CONVEYOR CHAIN.

Remove a repair link near the conveyor drive sprocket to separate the conveyor chain. Pull chain from conveyor drive end, free of machine. Reverse procedure to install conveyor chain.

6-19. REPLACING CONVEYOR CHAIN TAKEUP IDLER BEARING.

To remove and install bearing in conveyor chain takeup idler assembly (Figure 6-12) proceed as follows:

- a. Loosen chain takeup screw to relieve chain tension from idler sprocket.
- b. Loosen socket head cap screw retaining idler sprocket in idler arm.
- c. Pull idler sprocket and bearing out of idler arm.
- d. Press bearing out of idler sprocket.
- e. Press new bearing into idler sprocket. Insert shaft end of bearing into idler arm. Top of sprocket must be level with top of chain guides.
- f. Tighten idler sprocket retaining screw.
- g. Adjust chain takeup screw to apply proper tension to conveyor chain.

6-20. REPLACING CONVEYOR CHAIN FRONT IDLER BEARING.

To remove and install bearing in conveyor chain front idler (Figure 6-12) proceed as follows:

- a. Loosen chain takeup screw to relieve chain tension from sprocket.
- b. Loosen nut on shaft lock and pull front idler and shaft from hole in casting.
- c. Press bearing out of front idler sprocket.
- d. Press new bearing into front idler sprocket. Insert shaft end of bearing into hole in casting. Top of sprocket must be level with top of chain guides.
- e. Tighten nut on shaft lock to secure front idler in casting.
- f. Adjust chain takeup screw to apply proper tension to conveyor chain.

6-21. REPLACING WORN CONVEYOR CHAIN GUIDE BLOCKS.

Chain guide blocks require replacement due to normal wear. These guide blocks are removed from the machine as follows:

- a. Remove conveyor chain.
- b. Remove chain guide plate from Packager.
- c. Remove chain guide blocks from chain guide plate by removing retaining screws from the underside of the guide plate.
- d. Replacement chain guide must be drilled and tapped in position on the guide plate. Clamp the first chain guide in position on the guide plate. Place guide plate on machine and adjust chain guide parallel with machine. Repeat this procedure with back chain guide on opposite end. Drill and tap these two guides and fasten to guide plate with screws.

NOTE

Later machines are equipped with predrilled chain guide blocks and require no drilling and tapping.

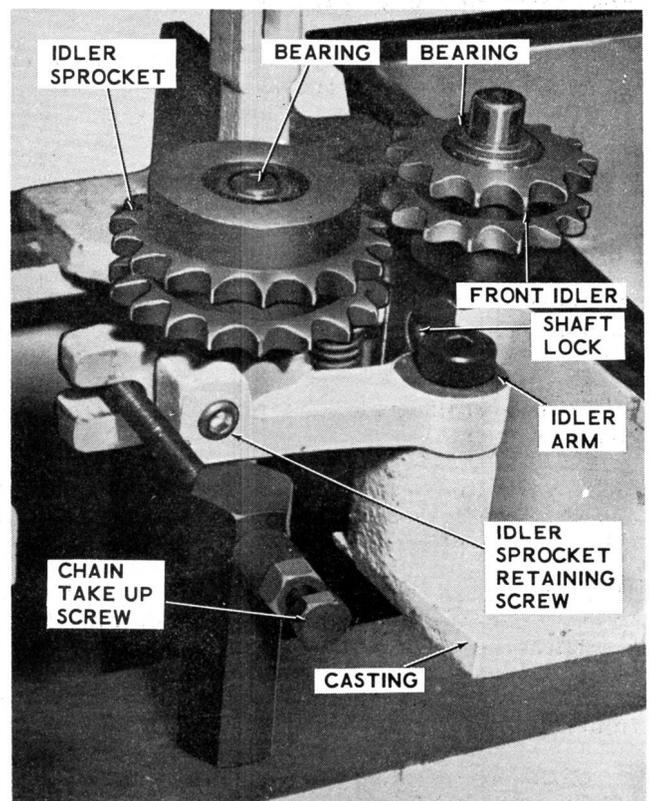


Figure 6-12. Replacing Conveyor Chain Takeup and Front Idler Bearings

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

e. Place a straight edge between the two installed chain guides and install the remaining back chain guides by clamping them to the guide plate in line with the straight edge and over the existing holes in the guide plate. Drill and tap each chain guide through the holes in the guide plate and attach them with screws.

f. Place a 0.3125 ± 0.002 inch shim against the first back chain guide and position the first front chain guide against the shim and over existing mounting holes in guide plate. Clamp chain guide to plate and drill and tap guide through mounting holes. Fasten chain guide to guide plate with two screws. Repeat this procedure for remaining front chain guides.

g. After all chain guides are installed on the guide plate, drill each one for a dowel pin using the existing hole in guide plate.

NOTE

Roll pins may be used for dowelling.

h. Install guide plate on machine. Install conveyor chain.

i. Adjust the height of all sprockets to be even with top of chain guides.

6-22. DISASSEMBLY AND REASSEMBLY OF CONVEYOR DRIVE ASSEMBLY.

Disassemble and reassemble the conveyor drive assembly (Figure 6-13) as follows:

NOTE

The conveyor drive assembly should remain installed on the packager during the following procedures.

a. Loosen conveyor chain takeup assembly to obtain maximum slack and disconnect chain from drive sprocket on conveyor drive assembly.

b. Remove chain guides and plates extending above conveyor drive.

c. Remove bolt and return spring on clamp opener arm. Remove opener arm from clamp opener bracket (24, Figure 9-7).

d. At this point the conveyor drive can be removed from the packager and transported to a different work site for disassembly as follows:

(1) Remove pipe plug (63) and drain all lubricant from housing.

(2) Remove vacuum pickoff actuating valve from rear of conveyor drive housing.

(3) Remove socket head cap screws to disconnect drive flange from cycle shaft flange.

(4) Support the conveyor drive assembly with a sling or other device. The drive weighs approximately 100 pounds. Remove five socket head cap screws (71, Figure 6-13) and separate the conveyor drive assembly from housing extension (74).

e. Remove 15 socket head cap screws (38) from housing top plate (37). There are five short cap screws (38) along the flat flange area of the top cover, seven 2 inch long cap screws around the large circle, and three 2-1/2 inch cap screws around the smaller circle of the cover. Located around the periphery of the top cover are two setscrews (83) which can be used to separate the top plate (37) from housing (82). Turn in the setscrews (83) until top plate (37) becomes free. Carefully raise top plate assembly (37) from the housing assembly (82).

f. Sprocket shaft (21), sprocket shaft housing (23), and associated parts may be disassembled from top plate (37) as follows:

(1) Loosen setscrew (84) in rim of adjustable drive hub (3) and pull drive sprocket assembly (11) from end of shaft (21). Bend tab of lock washer (30) out of slot in lock nut (31) and unscrew lock nut (31) from end of shaft (21). Remove lock washer (30) and pull spur gear (29) from end of shaft (21). Remove spacer (28).

(2) Remove six socket head cap screws (15), pull shaft (21) out of sprocket shaft housing (23). Remove ball bearing (27) from lower end of shaft (21). Remove retaining ring (13) and slide support cap (16) off shaft (21). Bend tab of lock washer (19) out of slot in lock nut (18) and unscrew lock nut (18) from shaft (21). Remove lock washer (14) and double row ball bearing (20) from shaft (21).

(3) To detach sprocket shaft housing (23) from top plate (37), remove five socket head cap screws and lock washers which attach the two parts.

g. Remove roller gear shaft (46) with assembled parts from housing (82). Disassemble the parts on roller gear shaft (46) as follows:

(1) Bend tabs of lock washers (41 and 68) out of slots in corresponding lock nuts (40 and 67). Unscrew the two lock nuts and remove the two lock washers from shaft (46). Remove ball bearing (42), double row ball bearing (69), and spacer (70) from shaft (46).

(2) Remove three socket head cap screws (43) from spur gear (45) and pull gear off shaft (46) and dowel pin (44).

(3) Remove three socket head cap screws (48) from underside of spider (47) and pull spider off shaft (46) and dowel pin (49).

h. Remove opener and vacuum valve actuating cams from input shaft (52). Remove six socket head cap screws (62) and pull eccentric bushing (60) with oil seal (58) and cup of roller bearing (57) assembled, off shaft (50).

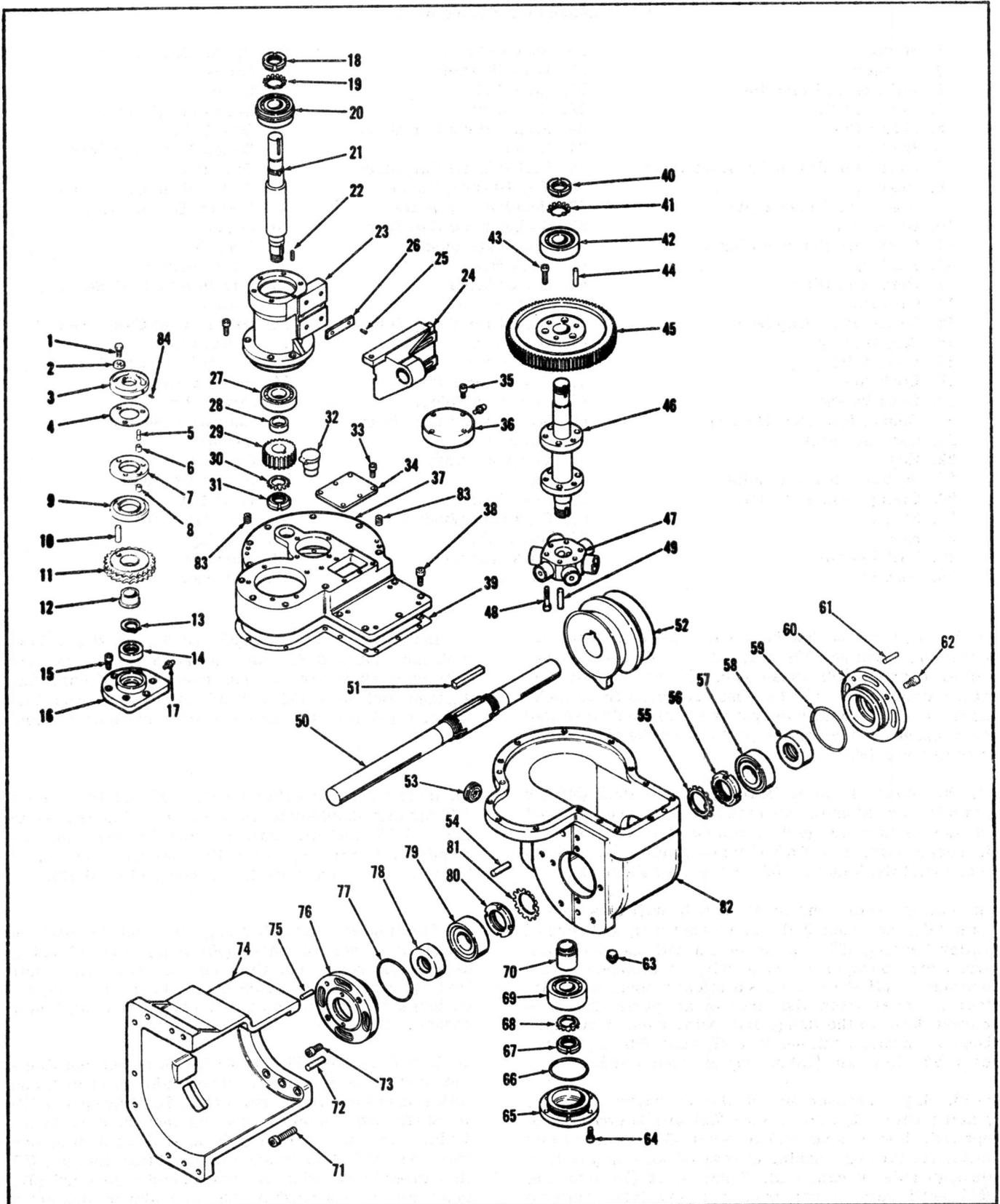


Figure 6-13. Disassembly of Conveyor Drive Assembly

BARTELT IM PACKAGER

OPERATION MANUAL 4-68

Legend for Figure 6-13

1. Screw	29. Spur Gear	57. Roller Bearing
2. Washer	30. Lock Washer	58. Oil Seal
3. Adjustable Drive Hub	31. Lock Nut	59. O-ring
4. Retainer Ring	32. Oil Cover	60. Eccentric Bushing
5. Shear Pin	33. Socket Head Cap Screw	61. Dowel Pin
6. Bushing	34. Cover	62. Socket Head Cap Screw
7. Shear Pin Adjust Sprocket Plate	35. Socket Head Cap Screw	63. Pipe Plug
8. Bushing	36. Top Bearing Cover	64. Socket Head Cap Screw
9. Shear Pin Drive Plate	37. Housing Top Plate	65. Bottom Bearing Cap
10. Dowel Pin	38. Socket Head Cap Screw	66. O-ring
11. Conveyor Drive Sprocket	39. Top Plate Gasket	67. Lock Nut
12. Bushing	40. Lock Nut	68. Lock Washer
13. Retaining Ring	41. Lock Washer	69. Double Row Ball Bearing
14. Oil Seal	42. Ball Bearing	70. Spacer
15. Socket Head Cap Screw	43. Socket Head Cap Screw	71. Socket Head Cap Screw
16. Support Cap	44. Dowel Pin	72. Dowel Pin
17. Lube Fitting	45. Spur Gear	73. Socket Head Cap Screw
18. Lock Nut	46. Roller Gear Shaft	74. Housing Extension
19. Lock Washer	47. Ferguson Spider	75. Dowel Pin
20. Double Row Ball Bearing	48. Socket Head Cap Screw	76. Eccentric Bushing
21. Sprocket Shaft	49. Dowel Pin	77. O-ring
22. Key	50. Ferguson Cam	78. Oil Seal
23. Sprocket Shaft Housing	51. Key	79. Roller Bearing
24. Clamp Opener Bracket	52. Input Shaft	80. Lock Nut
25. Screw	53. Oil Level Window	81. Lock Washer
26. Key	54. Dowel Pin	82. Housing
27. Ball Bearing	55. Lock Washer	83. Setscrew
28. Spacer	56. Lock Nut	84. Setscrew

i. Remove six socket head cap screws (73) and pull eccentric bushing (76) with oil seal (78) and cup of roller bearing (79) assembled, off shaft (50) if conveyor drive assembly has been removed from packager. If working with conveyor drive assembly installed on packager, move these parts down the shaft to the coupling end (96).

j. Pull cone of roller bearing (79) off shaft (50) (or down to flanged end). Bend tab of lock washer (81) out of slot in lock nut (80). Unscrew lock nut (80) from threaded portion of shaft (50) and remove (or slide to other end) the lock nut (80) and lock washer (81).

k. Pull on short end of shaft (50) until it is free of cam (52). Lock nut (56) lock washer (55), and cone of roller bearing (57) will come out with the shaft (50). When the conveyor drive housing is attached to the packager, pull shaft (50) a sufficient amount to facilitate removal from the shaft of all parts that were moved down to the flange end. After these parts have been removed, continue to pull shaft (50) out of the cam (52). Lift cam (52) out top of housing (82).

6-23. Begin reassembly of the conveyor drive by placing cam (52) into housing (82) with keyway facing upward. Insert long end of shaft (50) with key (51) installed, through opening in rear of housing (82), then through hole in cam (52). Force shaft (50) into cam (52) until cam is centered over key (51). Continue reassembly as follows:

a. Install lock washers (55 and 81) on shaft. Turn lock nuts (56 and 80) onto threaded portion of shaft (50) until they are against each side of cam (52). Tighten lock nuts (56 and 80). Bend tab of each lock washer (55 and 81) into slot of corresponding lock nut.

b. Install cone of roller bearing (57 and 79) on shaft (50) against shoulder of threaded area. Check O-rings (59 and 77) and oil seals (58 and 78) and replace if required. Install cups of roller bearings (57 and 79) in their respective eccentric bushing (60 and 76).

c. Position eccentric bushings (60 and 76) onto the respective ends of shaft (50) being careful not to damage oil seals, and slide bushings down shaft until bearing cups are in place on the bearing cones, and bushings are in place on dowel pins (61 and 75). Install socket head cap screws (62 and 73).

d. Install spider (47) on shaft (46) up against flange and over dowel pin (49). Secure spider to shaft flange with socket head cap screws (48). Position spacer (70) on shaft with undercut end against spider. Install double row ball bearing (69) on shaft against spacer (70). Assemble lock washer (68) and turn lock nut (67) onto threaded portion of shaft. Tighten lock nut (67). Bend tab of lock washer (68) into slot in lock nut to retain lock nut setting.

e. Position shaft (46) with parts assembled in step d above, into housing, guiding bearing (69) into receptacle in bottom of housing and meshing spider (47) with cam (52). Place a light source under the cam and spider mesh. Adjust the position of cam along shaft (50) using nuts (56 and 80) until there is equal spacing on each side of the cam between two cam followers of the spider. Turn eccentric bushings (60 and 76) until a no backlash fit is obtained between the cam and spider. The centerline of input shaft (50) and the centerline of the cam followers of spider (47) must be in plane within 0.003 inch. This position is obtained by altering spacer (70) to suit.

f. Position spur gear (45) on shaft (46) over dowel pin (44). Secure gear to shaft flange with socket head cap screws (43). Install ball bearing (42) on shaft (46) until it bottoms against shoulder of shaft. Assemble lock washer (41) and lock nut (40) on shaft (46). Tighten lock nut. Bend tab of lock washer in slot of lock nut to retain lock nut setting.

g. Assemble components onto drive sprocket shaft (21) as follows:

(1) Insert shaft (21) in housing (23). Install bearing (27) on lower end of shaft, against shaft shoulder and assemble spacer (28). Install spur gear (29) on shaft and over key (22). Install lock washer (30) and turn lock nut (31) on shaft until lock washer is against gear. Tighten lock nut. Bend tab of lock washer in slot of lock nut to retain lock nut setting.

(2) Install double row ball bearing (20) on top end of shaft (21) and into recess in housing (23). Install lock washer (19) and turn lock nut (18) on to shaft. Tighten lock nut. Bend tab of lock washer in slot of lock nut to retain lock nut setting.

(3) Position support cap (16) over shaft (21) and onto top surface of housing (23). Align six holes in cap with threaded holes in housing and secure cap to

housing with socket head cap screws (15). Inspect condition of oil seal (14) and replace if necessary. Install retaining ring (13) in groove of shaft (21).

(4) Attach assembled housing (23) to top plate (37) with five socket head cap screws and lock washers. Position gasket (39) (check condition) on housing (82).

h. Back off the two setscrews in the top plate (37) that were used to separate the plate from housing (82). Position top plate (37) onto housing (82). Make sure spur gear (29) meshes properly with spur gear (45). Secure top plate in position with socket head cap screws (38). Insert three 2-1/2 inch long cap screws in corresponding holes around the small circle. Insert seven 2 inch long cap screws in corresponding holes around large circle. Insert five 3/4 inch long cap screws in flat flange holes.

i. If the conveyor drive assembly was removed from the packager for repair, support the unit with a sling or other device and mate the face of housing (82) with housing extension (74) and over dowel pin (72). Attach extension (74) to housing (82) with five socket head cap screws (71).

j. Align keyway of shaft (50) with keyway of cycle shaft and attach the two shafts through their respective flange couplings.

k. Install shear pin clutch assembly (1 through 12) (or centric clutch if used) on end of shaft (21). Install pipe plug (63) and refill lubricant in conveyor drive housing as outlined in Chapter 5.

l. Attach all conveyor chain guides and brackets removed during disassembly. Install conveyor drive chain on drive sprocket (11). Tighten conveyor drive chain at the takeup assembly. Adjust position of conveyor chain pouch clamps as outlined in Chapter 4, Section V.

Section XI. Repair Of Sequence Switch Assembly

6-24. REPLACING MICRO SWITCHES.

To replace a micro switch on the sequence switch assembly, proceed as follows:

- a. Disconnect electrical leads to switch.
- b. Remove two screws and lock washers securing switch to mounting bracket and remove switch.
- c. Attach new switch to mounting bracket with two screws and lock washers.
- d. Loosen two screws securing mounting bracket to base plate of sequence switch assembly. Move mounting bracket inward until switch actuator is in contact with high lobe of cam. Continue moving bracket inward until switch is tripped plus an additional 1/32 inch. Tighten the two mounting bracket screws.
- e. Connect electrical leads to switch.

SIDE SEAL COOLING BAR MECHANISM

PURPOSE

Side seal cooling bars are used to rapidly cool a formed side seal and, if required, bottom seal, to ensure an effective and complete seal.

DESCRIPTION

The side seal cooling bar mechanism consists of two aluminum bars through which cool water at house pressure circulates. Water flows from inlet piping through one cooling bar, then through a connecting hose to the top of the second cooling bar and down through the bar and out through piping in the bottom of the bar. The cooling bars are mounted to a side seal type actuating mechanism by spring loaded screws. The mechanism is actuated and timed by a cycle shaft mounted cam.

INSTALLATION

Install the side seal cooling bar mechanism onto the Packager machined base right after the side seal mechanism. The base plate has a keyway to fit the Packager base key and is locked in place by socket head screws and clamps. The base plate must be positioned horizontally on the bed of the Packager so that the cooling bars are in line with the side seal just previously formed by the side seal mechanism. Tighten socket head screws to clamp the base plate in position on the Packager.

CENTERING COOLING BARS

The front face of the back cooling bar is to be on the center line of the Packager. Use a machinist scale and measure 5-7/8 inches from the inside of the square key of the Packager base to the front face of the back cooling bar. Turn the travel adjust screws until the 5-7/8 inch dimension is obtained.

ADJUSTING COOLING BAR PRESSURE

Adjust the amount of pressure applied to the web by the cooling bars as follows:

- Jog the Packager until the cooling bars are completely closed.
- Loosen lock nuts on each pressure adjusting screw. Turn each pressure adjusting screw clockwise until a definite back pressure is felt, then turn screws in three more complete revolutions. Tighten all lock nuts.

ADJUSTING COOLING BAR TRAVEL

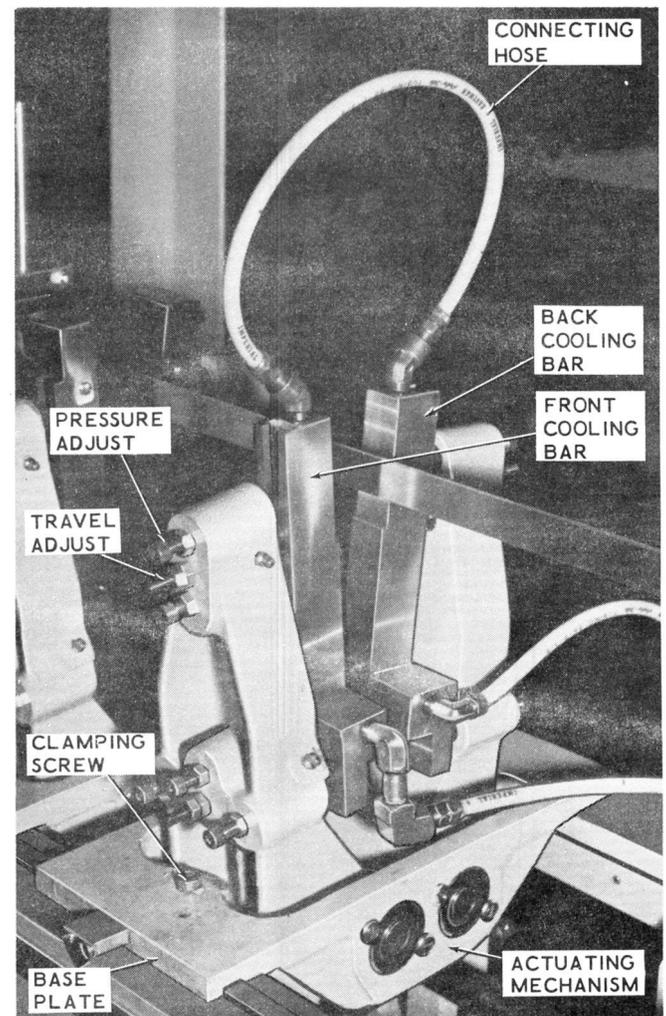
Adjust the amount of cooling bar travel as follows:

- Jog Packager until cooling bars are in fully closed position. Loosen top lock nut on each travel adjusting screw.

- Turn lower nut on each travel adjusting screw in or out as required to obtain a 1/32 to 1/16 inch dimension between the face of the rocker arm casting and bottom face of the lower nut. When dimension is obtained tighten lock nut against lower nut to secure setting.

LUBRICATION

Lubricate the side seal cooling bar mechanism at the same interval as the Packager using Alemite grease 33-56L applied to grease fittings in the mechanism castings and on the cam followers. Coat the spring and spring rod with machine oil.



Side Seal Cooling Bar Mechanism

PARTIAL PARASITE SIDE SEAL COOLING BAR

PURPOSE

Partial Parasite side seal cooling bars are used to rapidly cool a formed side seal to ensure an effective and complete seal.

DESCRIPTION

The partial parasite side seal cooling bar mechanism consists of two aluminum bars through which cool water at house pressure circulates. Water flows from inlet piping through one cooling bar, then through a connecting hose to the second cooling bar, and through outlet piping in the bottom of the cooling bar. The back cooling bar is bracket mounted to the back casting of the Packager side seal mechanism. The front cooling bar is mounted to a stationary vertical support that is attached to a base plate. The base plate has a keyway to fit the machined base of the Packager and is held in position on the Packager by clamping bars and screws. The back cooling bar moves in and out with the back casting of the side seal mechanism. Compression springs behind the back cooling bar apply the correct pressure to the side seal.

INSTALLATION

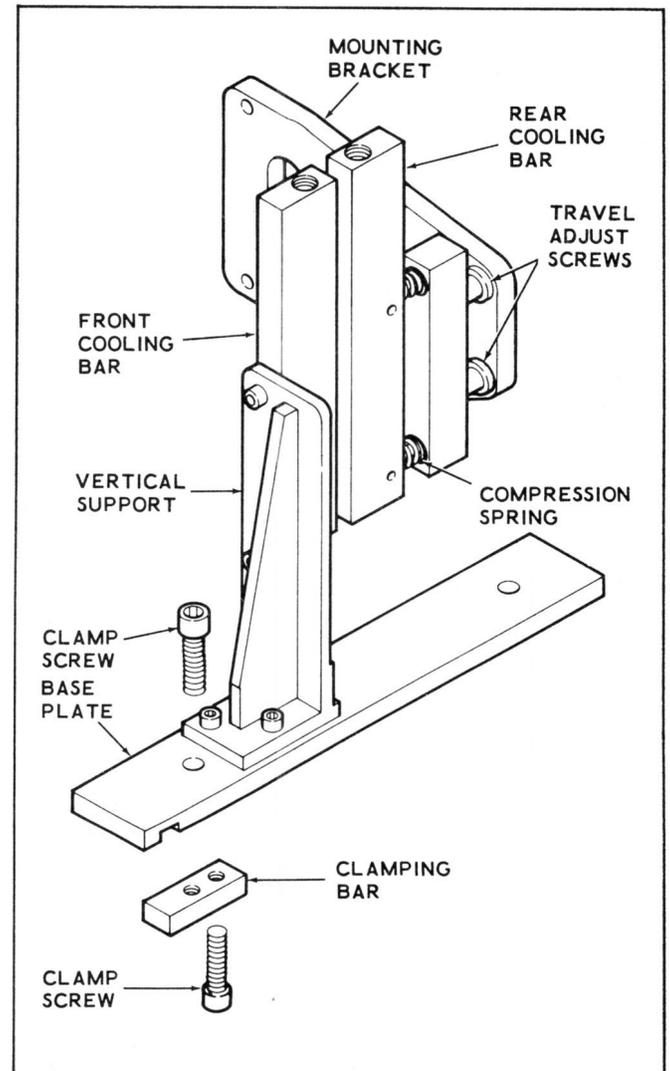
Install the base plate with front cooling bar onto the Packager machined base right after the side seal mechanism. The base plate has a keyway to fit the Packager base key and is locked in place by socket head screws and clamps. The base plate must be positioned horizontally on the bed of the Packager so that the cooling bar is in line with the side seal just previously formed by the side seal mechanism. Tighten socket head screws to clamp the base plate in position on the Packager. Remove the two middle pressure adjust screws and nuts from the back casting of the Packager side seal mechanism. Position the elongated slots of the back cooling bar support bracket over the pressure screw threaded holes and install the pressure screws and nuts. Align the back cooling bar and front cooling bar horizontally by sliding the support bracket left or right by means of the elongated slots. When the desired position is obtained, tighten the pressure adjust screw nuts securely. Connect inlet and outlet water supply to piping at bottom of each cooling bar. Attach connecting hose from the top of one cooling bar to piping at the top of other bar.

ADJUSTMENT

The amount of travel of the back cooling bar is adjustable as follows:

a. Jog Packager until cooling bars are in fully closed position.

b. Turn self-locking nut on each travel adjusting screw in or out as required to obtain a 1/32 to 1/16 inch dimension between the face of the seal bar support and bottom face of the self-locking nut.



Partial Parasite Side Seal Cooling Bar

PARASITE SIDE SEAL CODE EMBOSSE

PURPOSE

Parasite side seal code embossers are used to imprint characters in 1/16 to 1/8 inch type and up to six digits long, in the side seal area of a pouch. They are generally used to date a product for shelf life.

NOTE

The type is not furnished with the equipment.

DESCRIPTION

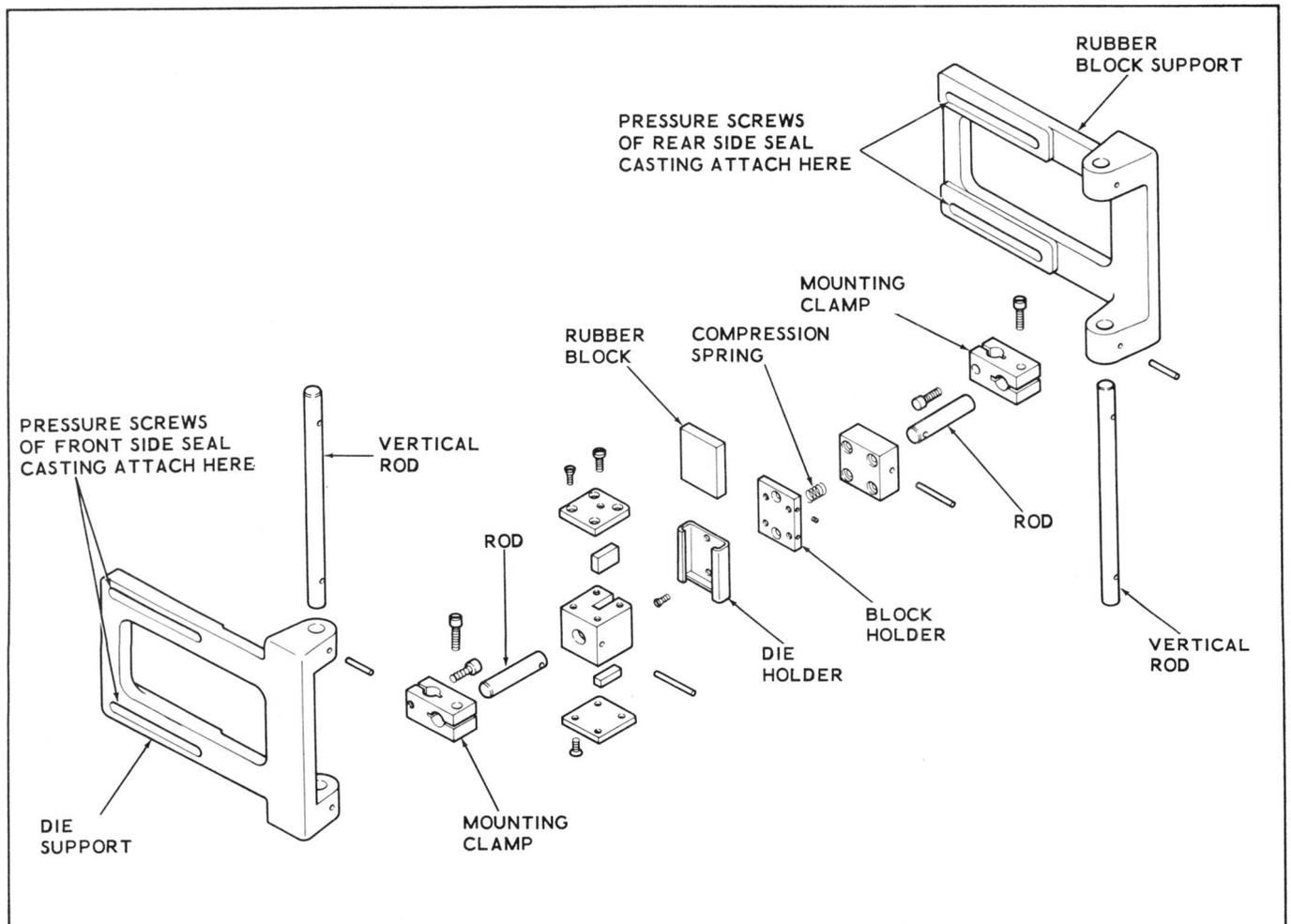
The embosser attaches to the side seal mechanism of the Packager and consists of two parts. A male die is attached to and moves with the front casting of the side seal mechanism. This male die embosses the

pouch with the aid of a rubber block which is attached to the back casting of the side seal mechanism and moves with it. The rubber block is backed by compression springs to provide a firm but not rigid support for the type die.

The type die and rubber block are attached to rods which are held in clamps. The clamps are part of the mounting and support assembly and provide adjustment for the die and rubber block.

INSTALLATION

Remove the two middle pressure adjust screws and nuts from the front casting of the Packager side seal mechanism. Position the elongated slots of the type die support over the pressure screw threaded holes



Parasite Side Seal Code Embosser

and install the pressure screws and nuts. Repeat this procedure to attach the rubber block support to the back casting of the side seal mechanism. Align the die and rubber block horizontally in the side seal area by sliding the supports left or right by means of the elongated slots. When the desired position is obtained, tighten the pressure adjust screw nuts securely.

ADJUSTMENT

a. Vertical Adjustment. Loosen the socket head screw securing the die mounting clamp to the vertical rod of the mounting assembly. Slide the clamp and die up or down on the rod to position the die to emboss the

pouch in the desired position along its vertical side. Adjust the rubber block in the same manner.

b. Pressure Adjustment. Loosen the clamp socket head screw securing the rubber block shaft. Jog the Packager until the side seal mechanism is closed.

Move the rubber block in the clamp until its face is aligned with the center line of the Packager. Tighten the clamp screw. Loosen the clamp socket head screw securing the type die shaft. Move the type die to contact the face of the rubber block and tighten clamp screw. Cycle Packager and check emboss. Readjust type die for more or less pressure until the desired imprint is obtained.

SIDE SEAL NOTCHER ASSEMBLY

PURPOSE

The side seal notcher assembly punches a 1/8 to 3/16 inch notch in the side seal area of a pouch to permit easy tear open of the pouch.

DESCRIPTION

The notcher assembly consists of a punch and die or bushing mounted in a holder assembly. The holder assembly is attached to a vertical support rod mounted on a base plate which attaches to the machined base of the Packager. The punch cuts a half moon notch in the side seal area of two adjacent pouches as the web passes through a slot opening in the holder assembly. The punch is actuated by a button attached to the actuating arm. The actuating arm is pivoted at the base plate and is moved and timed by an actuating cam that is keyed to the Packager cycle shaft. A compression spring returns the die to open position after each punch.

INSTALLATION

Install the notcher assembly as follows:

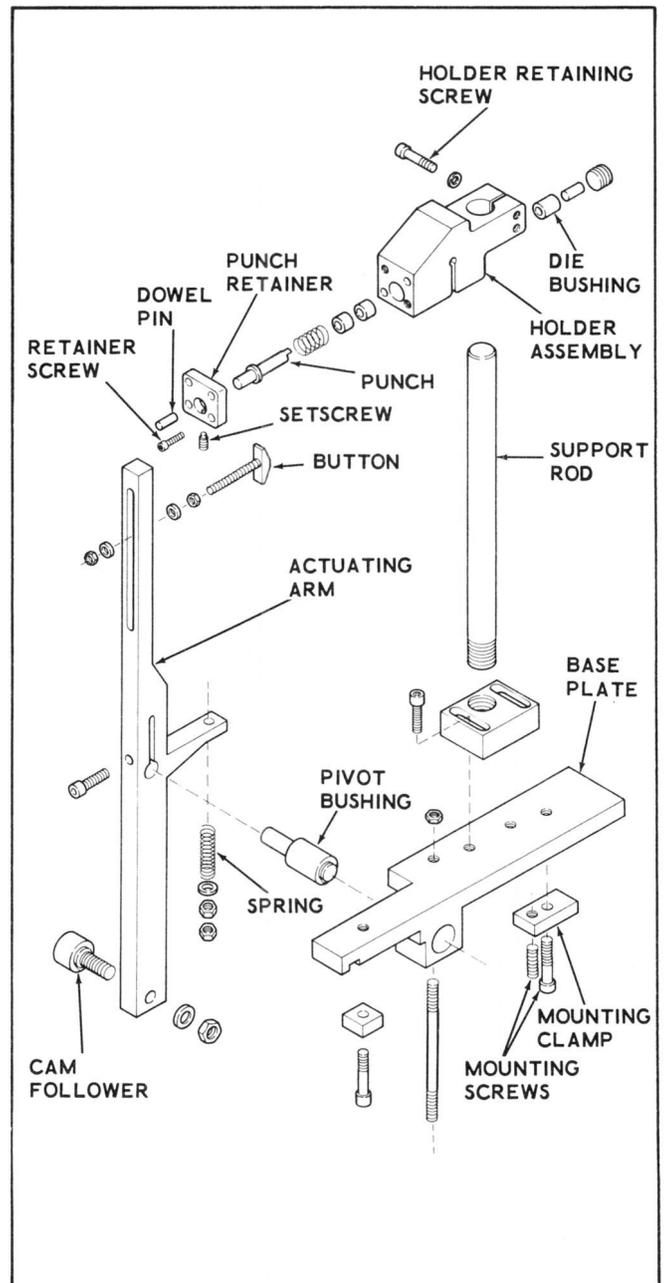
a. Install the base plate onto the Packager machined base right after the side seal mechanism station. The base plate has a keyway to fit the Packager base key and is locked in place by socket head screws and clamps. The base plate must be positioned horizontally on the bed of the Packager so that the punch is in line with the center of the side seal between two pouches when the web stops moving after leaving the side seal station.

b. Move the holder assembly vertically up or down the support rod as required to position the punch to cut the notch at the desired height.

c. Move the button up or down in the elongated slot of the actuating arm to suit the position of the punch.

CHANGING PUNCH

To change a punch, jog packager until actuating arm is in fully open position. Loosen setscrew in punch retainer. Remove two socket head screws and pull punch retainer off two dowel pins. Remove punch from holder. Reverse this procedure to install punch.



Side Seal Notcher Assembly

PERFORATOR OR HINGE CUT KNIFE ASSEMBLY

PURPOSE

The perforator or hinge cut knife assembly is used when tandem pouches are being produced on the Intermittent Motion Packager. The movable blade of the perforator cuts intermittent slots through the side seal between two adjacent pouches. This perforation provides easy separation of the two pouches when desired. A hinged slit, consisting of a series of long cutout slots with a small uncut area between each slot, may be produced by changing the movable blade. The hinged slit provides ease of separation and permits folding the tandem pouches.

DESCRIPTION

The assembly consists of a pair of knife blades; one stationary and one movable. The stationary blade is mounted to the rear vertical portion of the assembly base plate. The movable blade is mounted to a cam operated arm that pivots on a shaft riding in bearings installed in the base plate. Proper timing of the perforator is provided by a cycle shaft mounted cam. This cam also produces the in and out motion of the movable blade. A compression spring acts against an ear of the movable arm to keep the arm cam follower firmly against the actuating cam.

INSTALLATION

Install the perforator assembly on the Packager machined base right after the feed roll and cutoff mechanism station. The mechanism base plate has a keyway to fit the Packager base key and is locked in place on the Packager base by socket head screws and clamps. The perforator assembly must be positioned horizontally on the bed of the Packager in increments of pouch width, for example; if the feed roll cutoff knives are set for a 4 inch tandem pouch (e.g. two 2 inch pouches), the perforator knives must be set at 2 inches. Move the base plate to the left or right to obtain the proper dimension. Tighten socket head screws to clamp the perforator mechanism in position on the Packager.

ALIGNING KNIVES

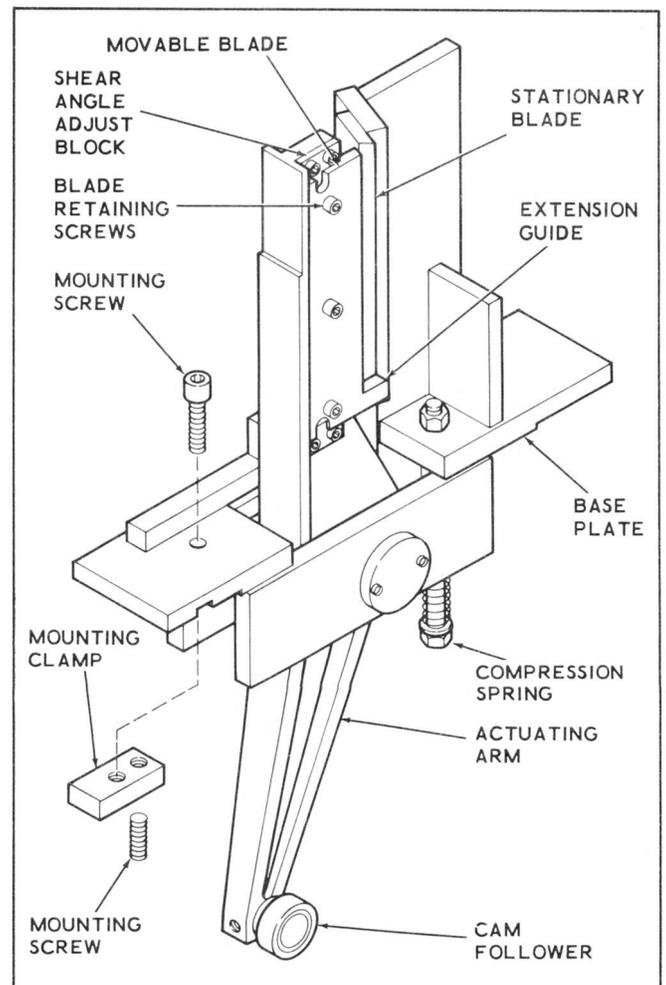
The cutting edge of the stationary blade should be vertical. To produce a clean perforation and maintain a minimum of cutting edge wear, the movable blade must be positioned to produce a single point of contact between itself and the stationary blade. To insure this action, proceed as follows:

a. Attach stationary blade to vertical portion of base plate with two socket head screws, flat washers and lock washers. Do not tighten screws. Remove setup gage from storage position on front side of the feed roll mechanism. Attach gage with its two mounting screws to holes provided in perforator base plate near stationary blade. Slide stationary blade until cutting

edge is against gage and tighten the two stationary blade mounting screws. Detach gage and return to stored position.

b. Jog the Packager until movable arm is wide open. Attach movable knife blade to arm using three socket head screws, flat washers and lock washers. The bottom extension guide of the movable blade should be aligned perfectly flat with the land at the bottom of the stationary blade. Use a light source or a 0.0015 inch feeler gage to check this.

c. When the blades are open, the angle of shear should be sufficient to allow the web proper clearance between the blades. This is accomplished by loosening two socket head screws and moving the shear angle adjusting block. Tighten the two screws after adjustment.



Perforator or Hinge Cut Knife Assembly

VOLUMETRIC PRODUCT FILLER

PURPOSE AND CAPABILITIES

The volumetric filler (Figure A and B) is a device for accurately measuring and dispensing a predetermined volume of large granular or delicate type product into a waiting pouch. It will fill one pouch for each revolution of the Packager cycle shaft.

FUNCTIONAL DESCRIPTION

Product is constantly fed through a vertical tube into cups contained in a constantly rotating feeder plate assembly. The feeder plate assembly rotates counter-

clockwise (as viewed from top) to bring each one of six cups under the fill tube to be filled with product. The amount of product each cup will hold and therefore the amount desired in the pouch, is adjustable by changing the distance between the top and bottom feeder plates. This is accomplished by turning the knob at the center of the top feeder plate.

After being filled, the cup is rotated under a brush mechanism which wipes off the excess product and levels the product line in the cup with the top of the cup. The cup is then rotated over the fill station. As the cup rotates over the fill station, the cup bottom,

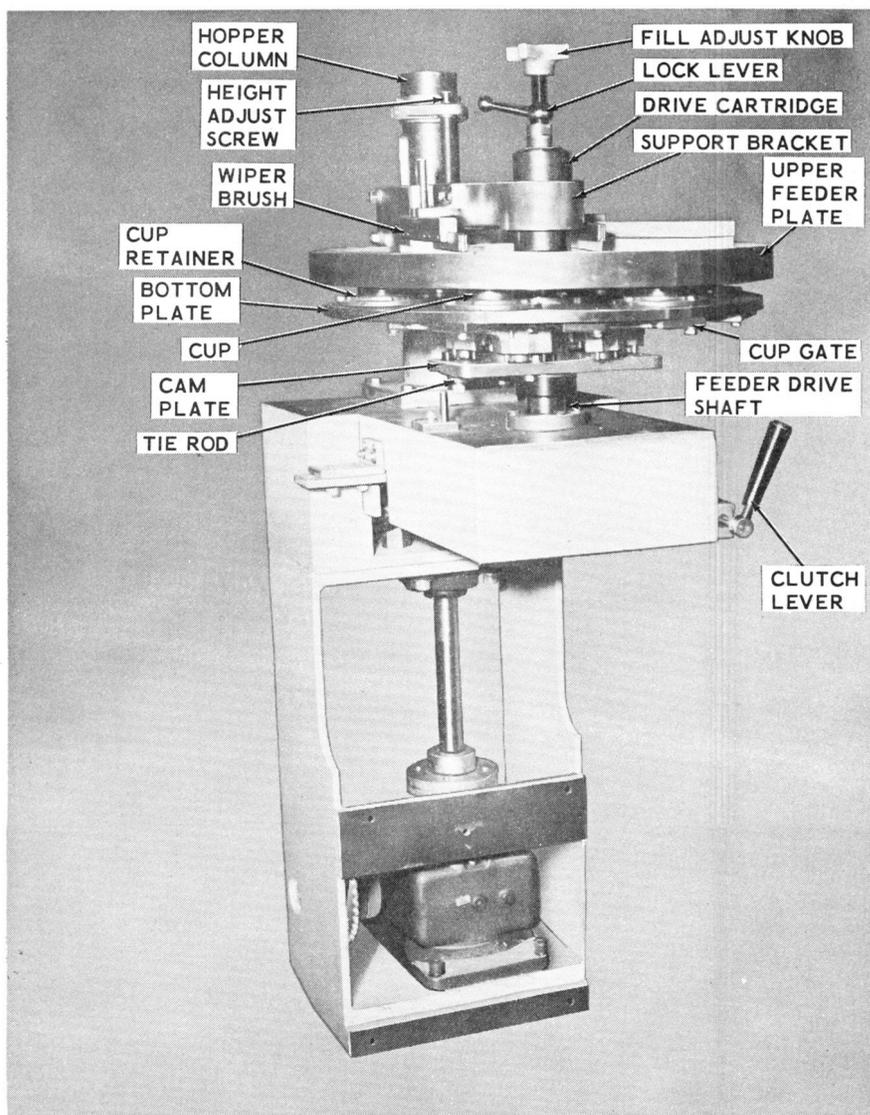


Figure A. Volumetric Filler-Front View

BARTELT IM PACKAGER

VOLUMETRIC PRODUCT FILLER

OPERATION MANUAL

4-68

plate which is pivoted to open and close, is forced to slide open from under the cup by cam and pin action. With the cup bottom plate open, the product falls from the cup into a funnel and downward into the waiting pouch.

As the cup continues to rotate, the cup bottom plate is closed by spring action after it is disengaged from the opening cam. Just before the rotating cup again reaches the product fill tube, it encounters another brush mechanism which sweeps all the accumulated loose product from the surface of the top feeder plate into the cup. The filler mechanism is driven by a filler drive assembly which is powered by the cycle shaft.

DETAILED DESCRIPTION

The volumetric filler is comprised of two basic units; the filler drive assembly and the filler assembly.

a. Filler Drive Assembly. The filler drive assembly is powered by a sprocket keyed to the Packager cycle shaft and a drive chain from this sprocket to a driven sprocket on a gear box. An idler sprocket and bracket is used to adjust the tension of the drive chain. The driven sprocket is mounted on a horizontal shaft protruding from the side of the gear box. The sprocket drives the gear box through a shear pin and hub assembly. The shear pin protects the drive mechanism in case a jam or bind should occur. The gear box has a 5 to 1 gear reduction ratio and transfer the power motion to a vertical drive shaft. The vertical drive shaft rotates in two flange bearings and, acting through a clutch mechanism, rotates the filler drive sprocket. The clutch mechanism is used to engage or disengage the drive assembly with the filler assembly to stop the filler assembly from rotating whenever desired.

The clutch is actuated by a lever handle and rod. The rod is connected by tie rod to a pivot block. Additional

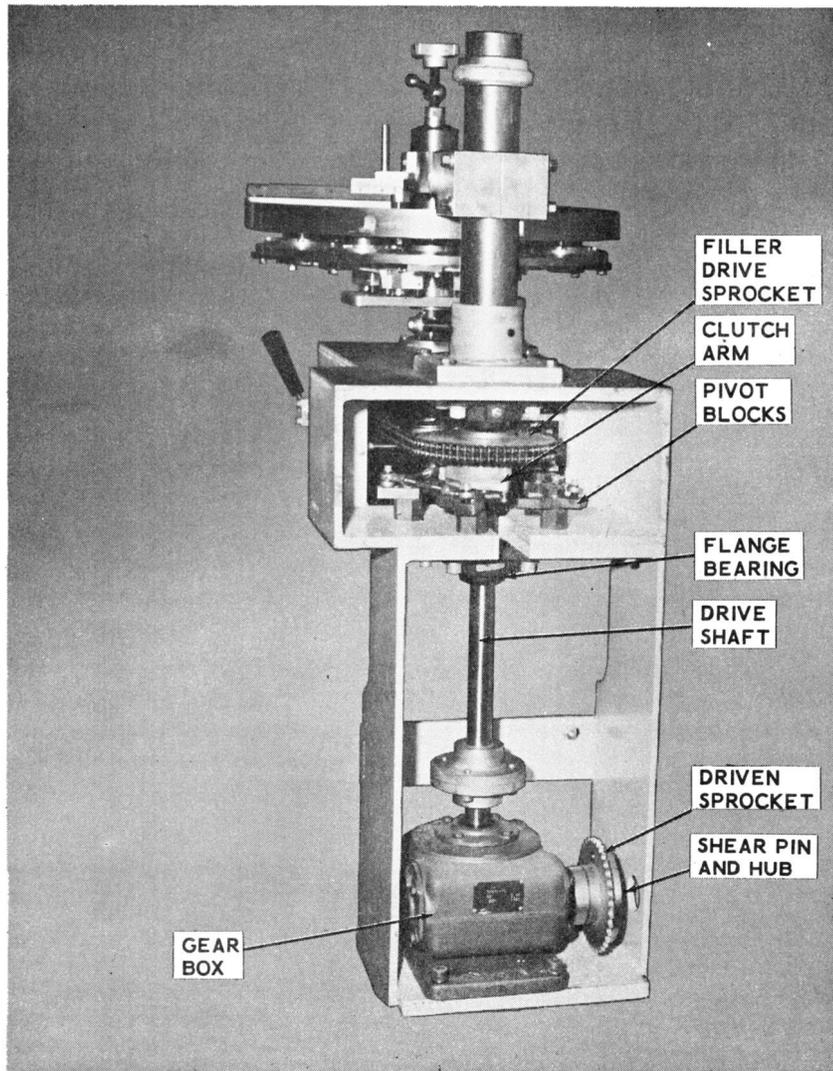


Figure B. Volumetric Filler-Rear View

tie rods from this pivot block actuate three other pivot blocks. When placed in position by turning the lever handle, the pivot blocks move inward to contact the edge of a pivoted pawl. This pawl contains a tab which engages a slot in the drive shaft. When the pawl is engaged with the drive shaft it causes a clutch arm (to which it is attached) to rotate with the drive shaft. The filler drive sprocket is attached to the clutch arm. When one of the pivot blocks contacts the edge of the pawl, the spring loaded end of the pawl is moved outward away from the drive shaft and the pawl tab is moved out of the drive shaft slot. This disengages the pawl from the drive shaft and the filler drive sprocket will not be rotated by the clutch arm. When the control lever handle is placed in the engage position, the pivot blocks are moved away from the path of the pawl and the particular pivot block holding the pawl open, releases the pawl. The released pawl is spring loaded and held against the drive shaft until a groove of the shaft (which is always rotating) comes around and the pawl tab drops into it and the filler drive sprocket is again rotated. The drive shaft is equipped with one or more grooves to engage the pawl tab. The purpose of this arrangement is to provide a means whereby the filler assembly might be stopped and started and always be in proper time. A drive chain connects the filler drive sprocket with a driven sprocket attached to the underside of the feeder plate shaft. An idler sprocket and bracket provides a means of adjusting the tension of the filler drive chain.

b. Filler Assembly. The driven sprocket rotates the feeder plate drive shaft through a timing hub to which it is attached by three socket head screws. The socket head screws are inserted through three elongated slots in the flange of the timing hub. The slots provide a timing adjustment. The timing hub is keyed to the feeder plate drive shaft. The drive shaft turns in a flanged bearing and oil seal attached to the top plate of the filler drive assembly. A feeder bottom plate is keyed to the drive shaft. This bottom plate contains six holes into which six cup retainers are installed. The fill cups are inserted into the cup retainers and are adjustable vertically up or down in the retainer. A cup bottom plate or gate is installed under each of the six fill cup openings. These cup bottom gates are pivoted at one end to allow them to slide open. They are spring loaded normally closed. As the feeder bottom plate is rotated, a cam follower of one of the cup bottom plates makes contact with a cam attached to a stationary cam plate. The cam is positioned to open each cup bottom gate in turn over the fill station. The cup bottom gate is forced by a pin mounted roller installed in the cam plate, to follow the cam and is held open until moved passed the cam and roller where it returns to position under the cup by spring action. The cam plate is held in position by an adjustable tie rod.

The upper feeder plate is bolted to a drive cartridge. The cartridge in turn, is keyed to the drive shaft. The upper end of the cartridge passes through a sleeve bearing installed in the filler support bracket. A knob and threaded shaft is screwed into an adjust screw

bearing which is installed in the upper end of the cartridge. When this knob and adjust screw is turned, the screw acts against the top end of the drive shaft to move the upper feeder plate up or down to change the distance between the top and bottom feeder plates. If the distance between the two plates is increased, the volume of product dispensed to each pouch is also increased and conversely, if the distance between the plates is decreased, the amount of product dispensed will also decrease. A lever located on the threaded shaft is used to lock the shaft in the selected position. The product cups are attached to the upper feeder plate and are flush with the top surface of the plate. A ring attached to the circumference of the upper plate keeps product from spilling off and aids in controlling the movement of the product into the cups.

A support bracket clamped to the hopper column provides support for the drive cartridge and the product fill tube. The wiper brushes are attached to the support bracket. The angle and height of the wiper brushes in relation to the upper feeder plate is adjustable. The vertical position of the support bracket is adjustable by turning an adjusting screw attached to the hopper column.

TIMING

The filler must be timed to position the filled cup over the open pouch and to open the bottom gate to completely dispense the product into the pouch. The cup position is adjustable by rotating the timing hub (Figure C). Loosen the timing hub retaining screws and rotate the hub clockwise to advance or counterclockwise to retard the cup position. Tighten the timing hub retaining screws securely. After the cup is correctly positioned, adjust the cam to open the bottom gate to completely dispense the product. The cam is adjustable by changing the length of the tie rod (Figure D). This adjustment must be made by trial and error. As the speed of the filler and Packager is increased, the fill time is shortened, therefore the bottom gate must start to open before the cup is centered over the pouch to completely dispense the product in the time allowed.

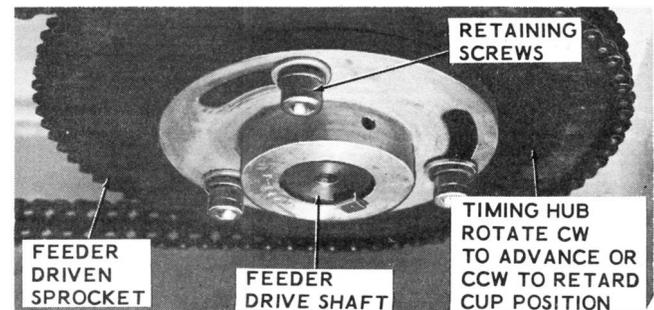


Figure C. Timing Hub

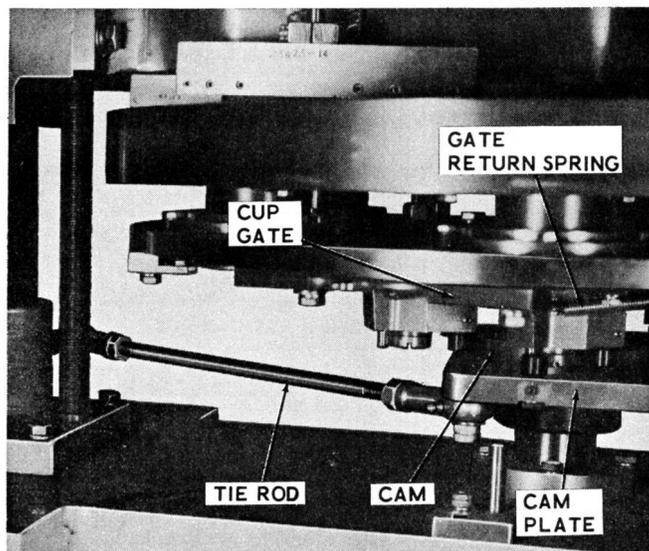


Figure D. Cam Adjustment

CHANGING CUPS

Use the following procedure to change the size of product cups:

a. Loosen the lock lever (Figure A) and rotate the fill adjust knob to separate the top and bottom plates to the extreme distance.

b. Loosen three screws holding each cup to the top plate and remove the cups.

c. If installing a new cup with a different diameter than the cup just removed, it is necessary to replace the cup retainer. Remove the three screws holding each cup retainer to the bottom plate. Install each new cup retainer in the bottom plate using three retaining screws.

d. Install each new cup in the top plate using three retaining screws.

OPERATING INSTRUCTIONS

Two controls are used to operate the volumetric filler; the clutch lever and the volume control knob.

a. Rotate the clutch lever counterclockwise to disengage the clutch and stop the feed assembly from rotating. Rotate the clutch lever clockwise to engage the clutch and cause the feed assembly to rotate.

b. Loosen the lock lever (Figure A) and rotate the adjusting knob clockwise to increase the product fill or counterclockwise to decrease the product fill. Always tighten the lock lever after an adjustment.

NOTE

When the amount of product fill has been changed, it may be necessary to adjust the wiper brushes and support bracket to suit the new position of the top plate. This is accomplished by loosening the retaining screws clamping the support bracket to the hopper column and turning the height adjust screw (Figure A) as required to compensate for the new top plate position.

LUBRICATION

Lubricate the volumetric filler at the same intervals as the Packager using Alemite Grease 33-56L applied to grease fittings as follows:

- Cam adjust tie rod - 1 fitting each end.
- Clutch mechanism - 1 fitting each tie rod end.
- Two flange bearings - 1 fitting each bearing.

REPLACING SHEAR PIN

Remove the retaining washer from the broken shear pin and remove pin from bushings in hub and sprocket. Align bushing in hub with bushing in sprocket and insert new shear pin. Secure pin in position with retaining washer. Check for cause of broken shear pin before placing filler in operation.

TROUBLESHOOTING

The following chart is provided as an aid in locating and determining probable causes of malfunction and possible solutions to each problem.

TROUBLE	PROBABLE CAUSE	POSSIBLE REMEDY
1. Fill rate decreases.	a. Loose lock lever.	a. Tighten lock lever.
	b. Product density change.	b. Check product and adjust cup volume if required.
	c. Wiper brushes out of adjustment or loose wiper blade.	c. Adjust height of wiper blade or tighten loose blade.
2. Empty pouch.	a. Broken return spring on bottom gate.	a. Replace return spring.
	b. Bottom gate sticking.	b. Free and clean sticking bottom gate.
3. Product missing pouch.	a. Loose drive chains.	a. Tighten drive chains by adjusting idler sprockets.
	b. Improper timing.	b. Adjust filler timing.
4. Filler does not engage.	a. Broken shear pin.	a. Replace shear pin. Check for cause of broken pin before engaging filler.
	b. Broken or worn clutch pawl.	b. Replace clutch pawl.

PRODUCT SETTLER

PURPOSE

The product settler is designed to tap the bottom of a filled pouch to settle a bulky product and to remove entrapped air.

DESCRIPTION

The product settler is driven by a 1/3 horsepower, 1200 rpm, fan cooled ac electric motor acting through a drive belt and pulleys. The driven pulley is secured to a shaft at the lower end of the product settler mechanism. The shaft is supported by two flanged bearings. An eccentric is attached to the end of the shaft opposite the driven pulley. This eccentric imparts an up and down motion, through a connecting link, to the vertical shaft of the settler mechanism. A paddle bracket is clamped to the vertical shaft of the settler mechanism. A shaker plate, secured to the paddle bracket, applies a patting action to the bottom of the filled pouches. A second or auxiliary product settler can also be employed for product settling. This auxiliary settler is designed identical to the first settler but is driven by a belt connected to a pulley mounted on the shaft of the first settler mechanism. One settler mechanism may be adjusted to apply a more vigorous action to the pouch than the other.

INSTALLATION

a. Install the base plate of the settler mechanism onto the rear base of the Packager between the fill and top seal stations. The base plate has a keyway to fit the Packager base key and is locked in place by socket head screws and clamps.

b. The drive motor is secured to a mounting plate. This mounting plate is attached to the underside of the Packager rear base by four 3/8-16 threaded studs. Drill and tap holes in base to accommodate the studs, being sure that the center of the driven pulley and the motor mounted drive pulley are vertically aligned. Attach mounting plate to studs with a hexagon nut above and below the plate at each stud. Adjust the position of the mounting plate along the studs to apply proper tension to the drive belt.

ADJUSTMENTS

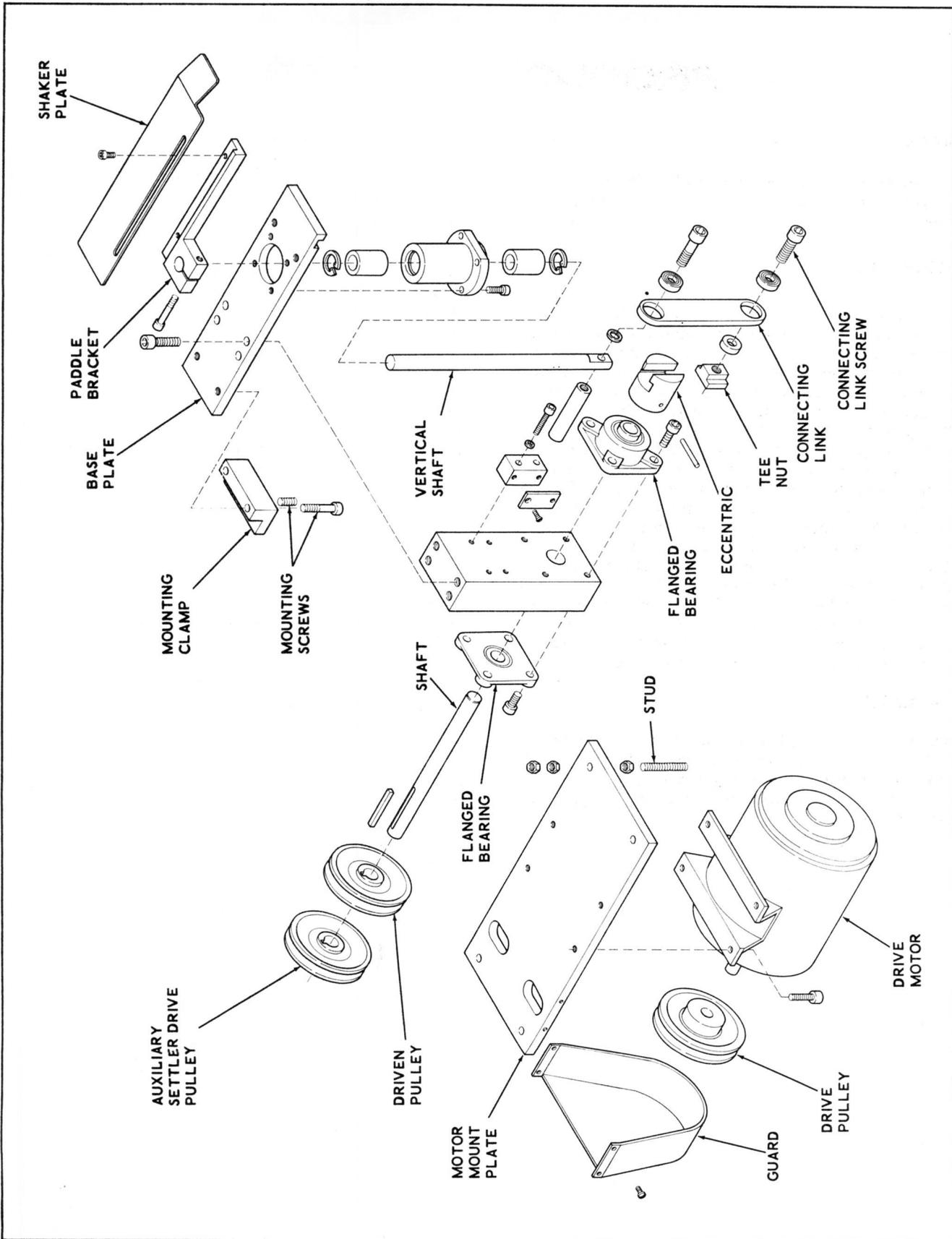
The amount of stroke of the settler mechanism vertical shaft is adjustable. Loosen socket head cap screw attaching connecting link to eccentric. Slide the tee nut in eccentric outward or inward as required to increase or decrease the stroke. Moving the tee nut outward increases the stroke and moving it inward decreases the stroke. When the desired stroke is obtained, tighten the socket head cap screw securely.

NOTE

Use as short a stroke as possible to accomplish the required results. The position of the shaker plate in relation to the pouch bottom can be adjusted by loosening the paddle bracket mounting screw and sliding the paddle bracket up or down on the vertical shaft as required.

LUBRICATION

Lubricate the product settler at the same interval as the Packager using Alemite grease 33-56L applied to grease fitting on each flange bearing.



Product Settler

CREASER ASSEMBLY AND STRETCHER ASSEMBLY

CREASER ASSEMBLY

PURPOSE

The creaser assembly is normally used with a foil type pouch. It forms a crease along the top seal area of the pouch preparing the pouch for top sealing. The crease is eliminated when the top seal is made.

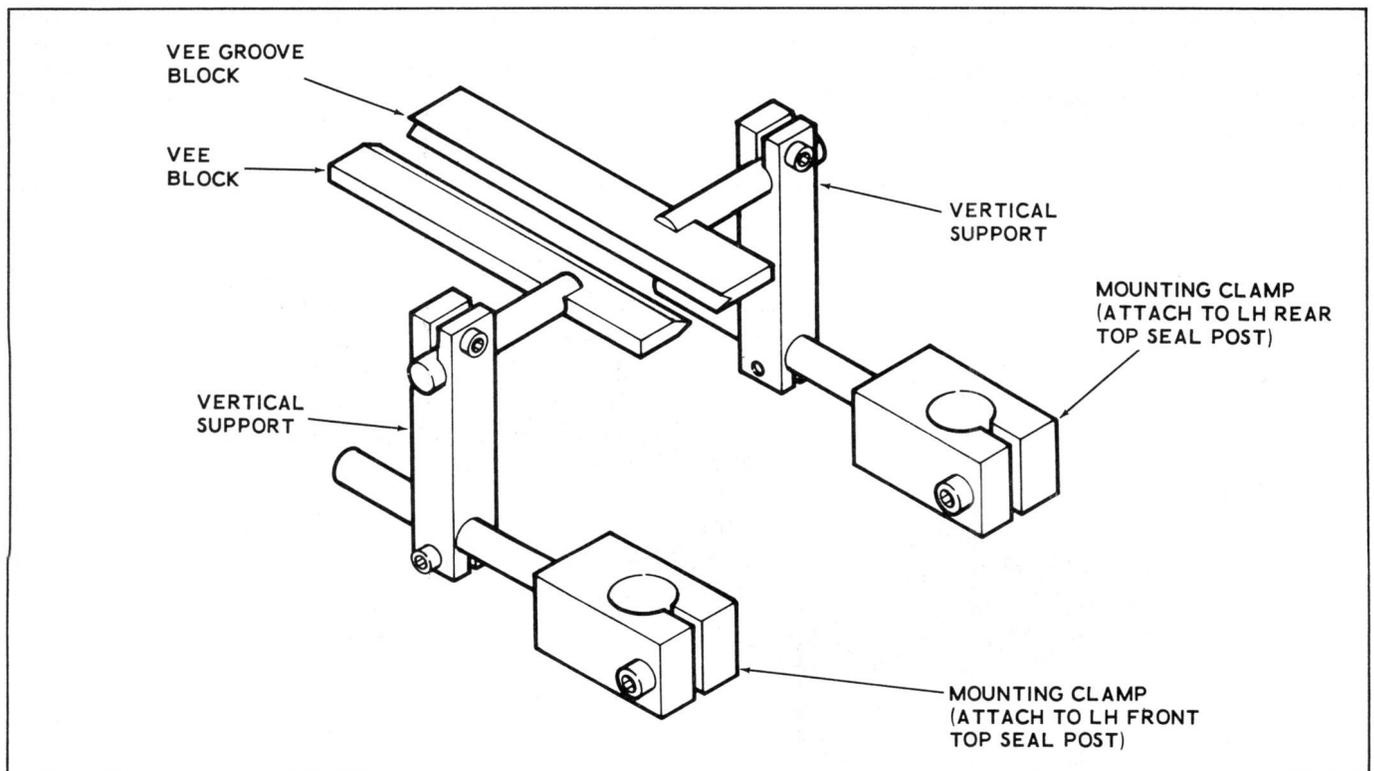
DESCRIPTION

The creaser assembly consists of a block with a vee shaped edge and a corresponding block with a vee shaped groove. The blocks are clamped to vertical supports which in turn are clamped to posts of the top seal mechanism. The blocks move in and out with the top seal mechanism and meet at the machine centerline to form the crease.

INSTALLATION

Install and adjust the creaser assembly as follows:

- a. Attach one mounting clamp and rod to the left hand, front and rear top seal posts. Adjust the vertical position of each clamp to position the creaser blocks approximately 1/2 inch below the top of the pouch.
- b. Adjust the vertical support horizontally along the mounting rod to position the creaser blocks to cover the width of the pouch.
- c. Jog the Packager until the top seal mechanism is closed. Adjust the creaser blocks in the vertical supports so that they mate at the machine centerline without a pouch. Make an operational check and readjust if required.



Creaser Assembly

STRETCHER ASSEMBLY**PURPOSE**

The stretcher assembly is used to prepare the filled pouch for top sealing by applying tension to each side of the pouch. This device can be used with any type pouch material. It can be used in conjunction with a creaser assembly, or singularly either just before top sealing or at the top seal station.

DESCRIPTION

The stretcher assembly consists of two leaf type springs with rubber bumpers attached to each end. The springs are supported at the center by a cup like holder. When each spring is moved toward the center line of the Packager, the four rubber bumpers contact the edges of the pouch. The tension of the springs as they continue to move inward force the rubber bumpers outward along the horizontal line of the Packager and apply the stretch to the pouch.

INSTALLATION

Install and adjust the stretcher assembly as follows:

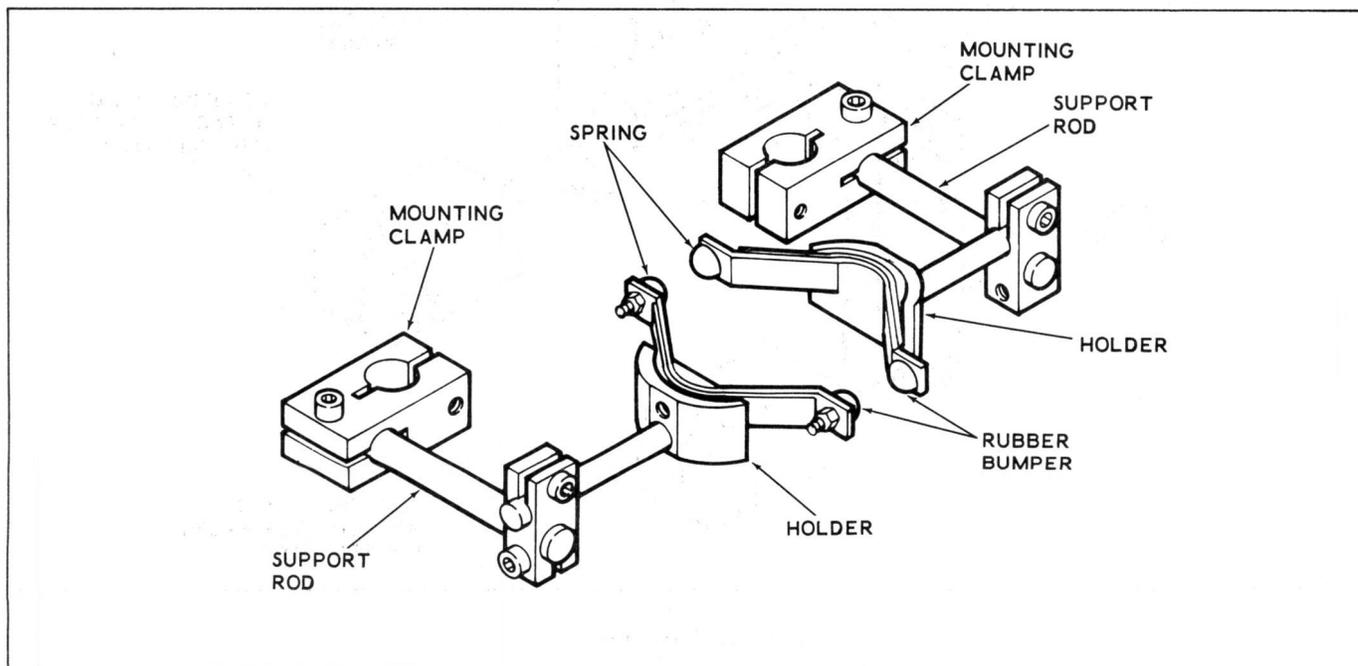
a. To use the stretcher singularly at the station before top sealing, attach one mounting clamp and rod to the left hand, front and rear top seal posts. Adjust the vertical position of each clamp to position the rubber bumpers approximately 1/2 inch below the top of the pouch. Adjust the spring holder horizontally

along the support rod to position the rubber bumpers to cover the width of the pouch. Loosen setscrew in each holder and extend or retract spring as required to position rubber bumpers for point of contact on the pouch and amount of stretch to be applied to the pouch. Tighten setscrew after adjustment.

b. To use the stretcher singularly at the top seal station, attach one mounting clamp and rod to the left hand, front and rear top seal posts. Position the stretcher mechanism under the top seal bars and adjust the vertical position of each clamp to position the rubber bumpers approximately 1/2 inch below the top seal bars. Adjust the spring holder horizontally along the support rod to position the rubber bumpers to cover the width of the pouch. Adjust point of contact and stretch tension as in a above.

c. To use the stretcher in conjunction with the creaser assembly, attach one mounting clamp and rod to the front and rear posts of a double rod actuating mechanism. Adjust the vertical position of each clamp to position the rubber bumpers approximately 1/2 inch below the creaser blocks.

Adjust the spring holder horizontally along the support rod to position the rubber bumpers to cover the width of the pouch. Adjust point of contact and stretch tension as in a above. Time the stretcher assembly to contact the pouch and apply the stretch before the creaser bars are closed and to release as soon as the creaser bars are closed.



Stretcher Assembly

STACKER ASSEMBLY

PURPOSE

The stacker assembly receives finished pouches from the Packager pickoff and stacks them against each other in a horizontal line.

DESCRIPTION

There are two types of stacker; an in-line (Figure A) and a right angle stacker (Figure B). The in-line stacker is used with special pickoff that turns the pouch 90 degrees and mounts on the conveyor drive case. The right angle stacker is used with a partial stroke pickoff and mounts on the end of the Packager base under the pickoff. The finished pouch drops from the Packager pickoff onto the stacker paddle when the paddle is in a reclining position. The paddle is actuated by a tie rod connected to a cam follower lever riding on a cycle shaft cam to move from the reclining position to a vertical position. This positions the pouch upright on a bottom plate with the side seal

edges between two rubber faced side rails. Each pouch in turn is positioned by the paddle against the pouch in front. The pouches are thus moved along the bottom plate and side rails and against a weight loaded backup plate. The backup plate moves with the pouches and keeps a pressure against them through a nylon cord, pulley and weight. The pouches are removed manually from the stacker in groups as desired.

ADJUSTMENTS

Adjust the stacker assembly to handle the pouches produced by the Packager as follows:

- a. Loosen the lock nut and retaining screw securing the bottom plate to each support rod. Position the bottom plate horizontally on the support rods so that its centerline is in line with the center of the pouch when the pouch is positioned by the paddle. Tighten the retaining screws and lock nuts securely.

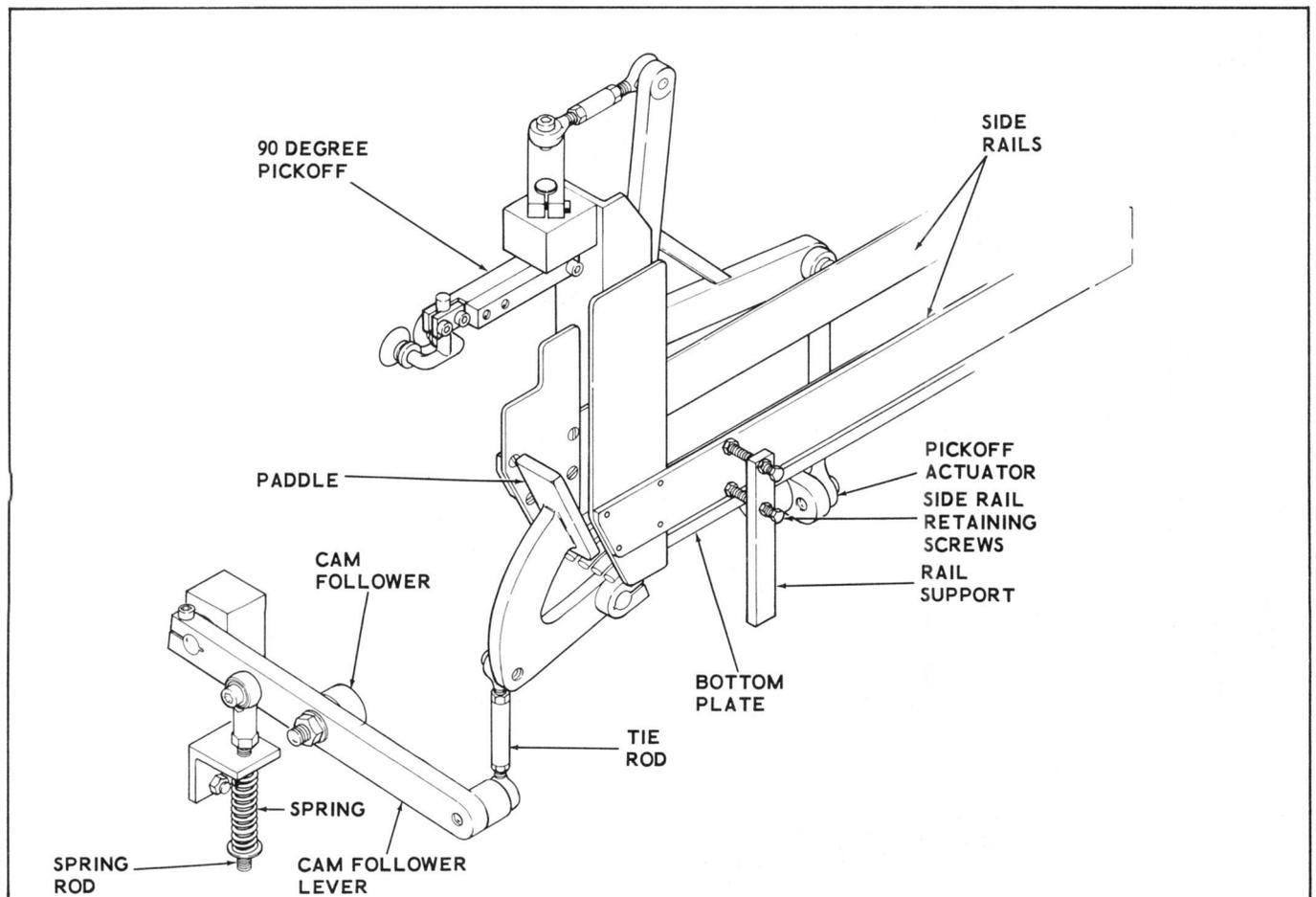


Figure A. In-line Stacker Assembly

BARTELT IM PACKAGER

STACKER ASSEMBLY

OPERATION MANUAL

4-68

b. Loosen the lock nuts and retaining screws securing the side rails to each support rod. Move the side rails so that they gently squeeze the side seal of the pouch and that they guide the pouch along the centerline of the bottom plate. Tighten the retaining screws and lock nuts securely.

c. Loosen the socket head screws and lock washers securing the side rails to the rail supports and adjust the height of the side rails to suit the pouch size. The rails should normally be adjusted to suit the bottom one third of the pouch which contains the mass of the product. Tighten the socket head screws after adjustment is made.

d. Rotate the actuating cam on the cycle shaft to position the paddle to full recline position just before the pickoff releases the pouch.

e. Loosen clamp securing paddle to rod and position centerline of paddle to center of pouch. Tighten clamp.

f. Lengthen or shorten the paddle tie rod as required to position the paddle perpendicular to the bottom plate when it is actuated to the upright position.

LUBRICATION

Lubricate the stacker assembly at the same interval as the Packager using Alemite grease 33-56L applied to grease fitting in the cam follower. Coat spring and spring rod with machine oil.

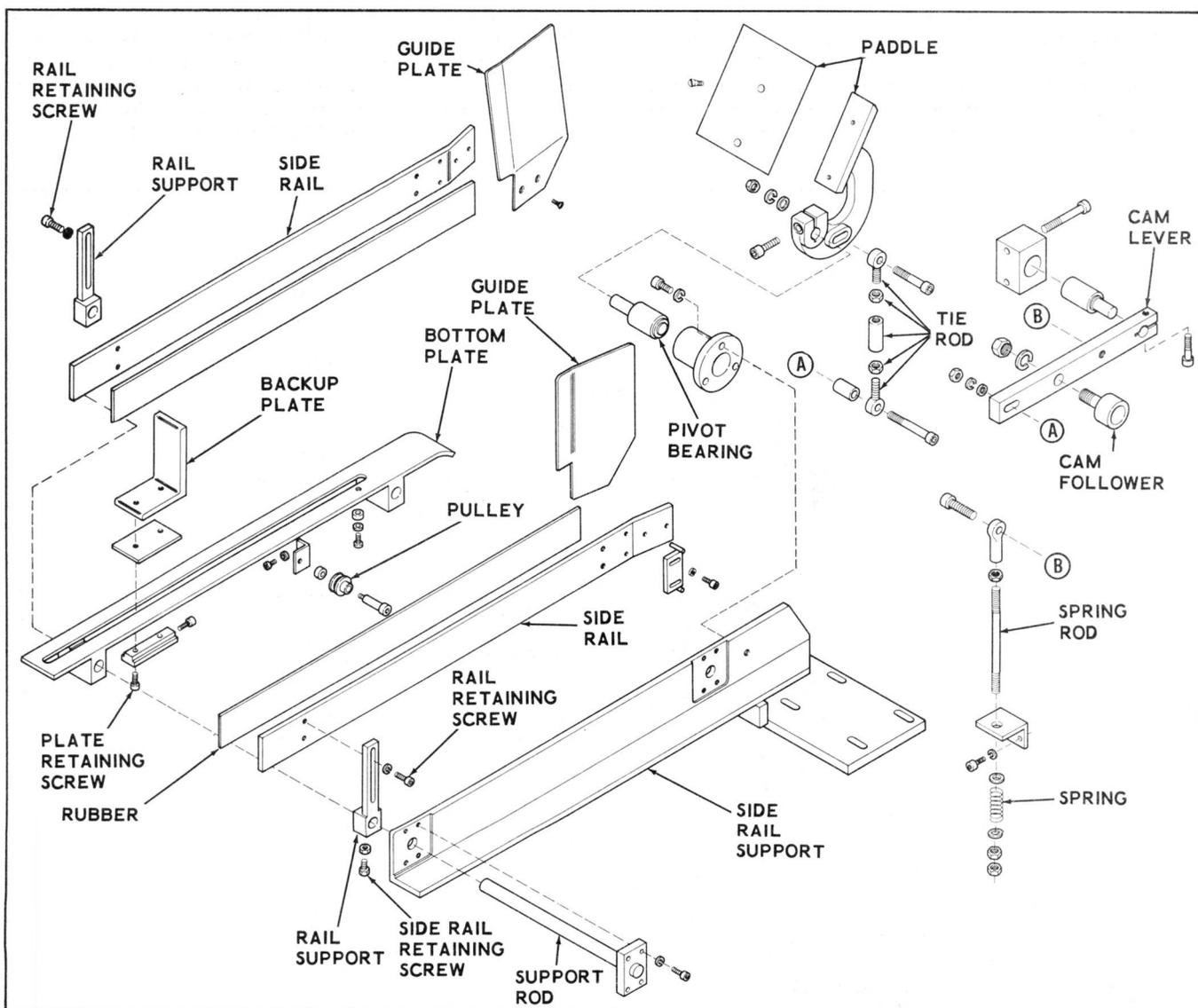


Figure B. Right Angle Stacker Assembly

INDEX

	Paragraph	Page
A		
Air Jet Splitter Blade	3-65	3-38
Air Jet Splitter Blade, Adjust	3-66	3-38
Air Jet Splitter Blade Clamp, Adjust	3-67	3-39
Air Supply Connections	2-8	2-3
Air System Filter, Servicing	5-4	5-2
B		
Bag Guides	3-60	3-37
Base Assembly:		
Assembly	3-3	3-2
Front Base	3-4	3-2
Rear Base	3-5	3-2
Bottom Seal:		
Adjusting	3-26	3-13
Description	3-25	3-13
Double Rod Rocker Assembly	3-27	3-14
Heat Controls	3-28	3-14
Repair of Rocker Assembly	6-5	6-4
Troubleshooting	3-29	3-14
C		
Centering Side Seal Bars	3-33	3-17
Changing Machine Speed	3-9	3-3
Changing Side Seal Bars	3-37	3-18
Clamp, Pouch	3-62	3-37
Cleaning After Installation	2-9	2-3
Cleaning Procedures	5-2	5-1
Clutch Shaft	3-55	3-32
Control Panel, Large	4-2	4-1
Control Panel, Pendant	4-3	4-3
Conveyor Chain	3-111	3-72
Removing	6-18	6-17
Replacing Front Idler Bearing	6-20	6-17
Replacing Worn Guide Blocks	6-21	6-17
Conveyor Chain Take-up	3-112	3-72
Replacing Idler Bearing	6-19	6-17
Conveyor Drive Assembly:		
Centric Overload Clutch	3-109	3-71
Description	3-107	3-69
Disassembly and Reassembly	6-22	6-18
Replacing Shear Pin	3-108	3-71
Resetting Centric Overload Clutch	3-110	3-72
Crank Arm Assembly	3-52	3-32
Creaser Rods	3-22	3-11
Creaser Rods, Adjusting	3-23	3-11
Cycle Shaft	3-8	3-3
Cutoff Arm, Replacing Pivot Bearings	6-10	6-10
D		
Dancing Roller, Leveling	6-3	6-2
Dancing Roller Spring and Button, Replacing	6-2	6-2
Double Rod Pivoted Assembly	3-68	3-40
Drive Brake, Filler:		
Checking for Torque Loss	6-12	6-11
Replacing	6-14	6-14
Drive Clutch, Filler:		
Checking for Torque Loss	6-12	6-11
Replacing	6-13	6-11

BARTELT IM PACKAGER

OPERATION MANUAL 4-68

INDEX (CONT)

	Paragraph	Page
Duck Bill Depositor Opener	3-80	3-46
Duck Bill Opener	3-81	3-47
Dust Cover	3-113	3-72
E		
Eccentric, Repairing	6-16	6-15
Electrical System:		
Control Components	3-115	3-75
Description	3-114	3-73
Troubleshooting	3-116	3-76
Electrical Supply Connections	2-7	2-3
F		
Feed Roll and Cutoff:		
Adjusting Feed Roll Pressure	3-46	3-27
Adjusting Position for Cutoff	3-48	3-28
Aligning Knives	3-47	3-27
Description	3-45	3-26
Replacing Feed Roll Bevel Gears	6-9	6-6
Replacing Feed Roll Gears	6-8	6-6
Replacing Feed Rolls	6-7	6-6
Replacing Pivot Bearings	6-10	6-10
Troubleshooting	3-49	3-30
Feed Roll Drive:		
Adjusting for Pouch Width	3-56	3-34
Clutch Shaft	3-55	3-32
Crank Arm Assembly	3-52	3-32
One-Way Clutch	3-53	3-32
Register Brake	3-54	3-33
Filler:		
Adjusting	3-92	3-58
Checking for Torque Loss	6-12	6-11
Description	3-88	3-51
Inspection and Maintenance	3-89	3-52
Replacing Drive Brake	3-94	3-60
Replacing Drive Clutch	6-14	6-14
Replacing Drive Clutch	6-13	6-11
Setup	3-90	3-56
Test Run	3-91	3-57
Tooling Changeover	3-93	3-59
Troubleshooting	3-95	3-60
Filler, Mounting	2-6	2-2
Filters:		
Air System, Servicing	5-4	5-2
Vacuum System, Servicing	5-3	5-2
Fin Type Plow Nose	3-18	3-10
First Splitter Blade	3-57	3-35
Former Opener	3-78	3-46
G		
Guide Blocks, Replacing	6-21	6-17
Gusset Blade, Adjusting	3-20	3-10
Gusset Type Plow Nose	3-19	3-10
I		
Inspection, Periodic	5-1	5-1
Installation:		
Air Connections	2-8	2-3
Attaching Vacuum Pumps	2-5	2-1
Cleaning	2-9	2-3
Electrical Connections	2-7	2-3
Leveling Packager	2-4	2-1

INDEX (CONT)

	Paragraph	Page
Mounting Filler	2-6	2-2
Transporting	2-3	2-1
Unpacking	2-2	2-1
L		
Large Control Panel	4-2	4-1
Leveling Dancing Roller	6-3	6-2
Leveling Packager	2-4	2-1
Loading Web Roll	3-12	3-6
Lubrication	5-5	5-4
M		
Micro Switches, Replacing	6-24	6-21
N		
No Bag Switch	3-61	3-37
O		
One-Way Clutch	3-53	3-32
Opener, Pouch Clamp	3-64	3-38
Operating Instructions:		
Large Control Panel	4-2	4-1
Pendant Control Panel	4-3	4-3
Pre-Operation Check	4-4	4-3
Procedures During Operation	4-6	4-5
Shutdown Procedure	4-8	4-7
Starting Packager	4-5	4-4
Stopping Packager	4-7	4-7
P		
Packager:		
Capabilities	1-3	1-1
Description		1-3
Purpose	1-2	1-1
Specifications	1-4	1-3
Packager Checkout	3-120	3-82
Paddles	3-96	3-63
Pendant Control Panel	4-3	4-3
Periodic Inspection	5-1	5-1
Pickoff:		
Adjusting Pouch Release	3-101	3-65
Adjusting Vacuum Pickoff Linkage	3-103	3-67
Cleaning and Replacing Vacuum Pump Vanes	6-17	6-16
Pouch Release Mechanism	3-100	3-65
Repairing Eccentric	6-16	6-15
Replacing Vacuum Valve Spring	6-15	6-15
Timing Vacuum Pickoff	3-104	3-67
Troubleshooting Vacuum Pickoff	3-105	3-67
Vacuum Pickoff Mechanism	3-102	3-65
Photo Registration:		
Operation	3-40	3-21
Positioning Scanner	3-42	3-24
Replacing Bulb	3-43	3-25
Setting Sensitivity	3-41	3-24
Troubleshooting	3-44	3-25
Plow Assembly:		
Adjusting and Leveling	3-16	3-9
Adjusting for Pouch Change	3-17	3-9
Adjusting Gusset Blade	3-20	3-10
Changing Plow Nose	3-21	3-11
Fin Type Plow Nose	3-18	3-10
Gusset Type Plow Nose	3-19	3-10
Replacing Bottom Plate	6-4	6-3

BARTELT IM PACKAGER

OPERATION MANUAL

4-68

INDEX (CONT)

	Paragraph	Page
Pouch Clamps:		
Description	3-62	3-37
Opener	3-64	3-38
Positioning	3-63	3-37
Troubleshooting	3-70	3-40
Pouch Handling Mechanisms:		
Adjusting Air Jet Splitter Blade	3-66	3-38
Adjusting Air Jet Splitter Blade Clamp	3-67	3-39
Adjusting Swinging Splitter Blade	3-59	3-36
Air Jet Splitter Blade	3-65	3-38
Bag Guides	3-60	3-37
Double Rod Pivoted Assembly	3-68	3-40
First Splitter Blade	3-57	3-35
No Bag Switch	3-61	3-37
Positioning Pouch Clamp	3-63	3-37
Pouch Clamps	3-62	3-37
Pouch Clamp Opener	3-64	3-38
Swinging Splitter Blade	3-65	3-38
Troubleshooting Pouch Clamps	3-70	3-40
Pouch Openers:		
Duck Bill Depositor	3-80	3-46
Duck Bill Opener	3-81	3-47
Former Opener	3-78	3-46
Vacuum Openers	3-73	3-42
Wire Openers	3-84	3-49
Troubleshooting Duck Bill Opener	3-83	3-49
Troubleshooting Former Opener	3-79	3-46
Troubleshooting Vacuum Openers	3-76	3-44
Troubleshooting Vacuum Pump	3-77	3-44
Troubleshooting Wire Opener	3-85	3-50
Pre-Operation Check	4-4	4-3
Procedures During Operation	4-6	4-5
R		
Register Brake	3-54	3-33
Removing Conveyor Chain	6-18	6-17
Repair of Bottom Seal Rocker	6-5	6-4
Repair of Side Seal Rocker Assembly	6-6	6-5
Replacing Conveyor Chain Front Idler Bearing	6-20	6-17
Replacing Worn Conveyor Chain Guide Blocks	6-21	6-17
Replacing Dancing Roller Spring and Button	6-2	6-2
Replacing Feed Rolls	6-7	6-6
Replacing Feed Roll Assembly Bevel Gears	6-9	6-6
Replacing Filler Drive Clutch	6-13	6-11
Replacing Pivot Bearings in Cutoff Arm	6-10	6-10
Replacing Plow Bottom Plate	6-4	6-3
Replacing Takeup Idler Bearing	6-19	6-17
Replacing Varibelt in Variable Speed Drive	6-1	6-1
Resetting Centric Overload Clutch	3-110	3-72
S		
Seal, Bottom:		
Adjusting	3-26	3-13
Description	3-25	3-13
Double Rod Rocker Assembly	3-27	3-14
Heat Controls	3-28	3-14
Repair of Rocker Assembly	6-5	6-4
Troubleshooting	3-29	3-14
Seal, Top	3-97	3-63

INDEX (CONT)

	Paragraph	Page
Web Tensioning	3-14	3-7
Wire Openers	3-85	3-50
U		
Unpacking	2-2	2-1
V		
Vacuum Openers	3-73	3-42
Vacuum Pickoff:		
Adjusting Linkage	3-103	3-67
Cleaning and Replacing Vacuum Pump Vanes	6-17	6-16
Description	3-102	3-65
Repairing Eccentric	6-16	6-15
Replacing Vacuum Valve Spring	6-15	6-15
Timing	3-104	3-67
Troubleshooting	3-105	3-67
Vacuum Pumps, Attaching	2-5	2-1
Vacuum Pump Vanes, Cleaning and Replacing	6-17	6-16
Vacuum System Filters, Servicing	5-3	5-2
Vacuum Valve Spring, Replacing	6-15	6-15
Variable Speed Drive:		
Changing Machine Speed	3-9	3-3
Replacing Varibelt	6-1	6-1
Variable Speed Drive	3-7	3-2
W		
Web Forming Assembly:		
Adjusting and Leveling Plow	3-16	3-9
Adjusting Creaser Rods	3-23	3-11
Adjusting Gusset Blade	3-20	3-10
Adjusting Plow for Size Change	3-17	3-9
Changing Plow Nose	3-21	3-11
Creaser Rods	3-22	3-11
Description	3-15	3-9
Fin Type Plow Nose	3-18	3-10
Gusset Type Plow Nose	3-19	3-10
Troubleshooting	3-24	3-12
Web Tensioning:		
Description	3-11	3-4
Leveling Dancing Roller	6-3	6-2
Loading Web Roll	3-12	3-6
Replacing Dancing Roller Spring and Button	6-2	6-2
Splicing Web	3-13	3-6
Troubleshooting	3-14	3-7
Wire Openers	3-84	3-49