OPERATION, PARTS AND SAFETY MANUAL

SIGNODE®

SURETYER

SEMI-AUTOMATIC
POWER STRAPPING MACHINE

IMPORTANT!
DO NOT DESTROY

It is the customer's responsibility to have all operators and servicemen read and understand this manual.

Contact your local Signode representative for additional copies of this manual.

READ ALL INSTRUCTIONS BEFORE OPERATING THIS SIGNODE PRODUCT

SIGNODE • 3620 WEST LAKE AVENUE • GLENVIEW, ILLINOIS 60025

⚠ SAFETY INSTRUCTIONS

WARNING - READ AND FOLLOW THESE INSTRUCTIONS - FAILURE TO DO THIS COULD RESULT IN SEVERE PERSONAL INJURY.

OPERATING INSTRUCTIONS

1. Only people trained in the use of strapping machines are to operate or service this machine.
2. Read all signs on machine. Do not remove, modify or deface any sign. Replace all damaged signs.
3. Inspect the machine for unsafe conditions - DAILY - and replace all worn or broken parts.
4. Keep work area uncluttered and well lit.
5. If you require safety instructions in another language, contact your local Signode representative.

MAINTENANCE 

1. Establish a preventive maintenance program for your machine by following the preventive maintenance program in this manual.
2. To ensure proper machine operation, use the specified power sources listed in this manual.
3. Do not overload the machine by exceeding the package size specification.
4. Remove all packages from the machine before performing service.
5. Unless otherwise noted in this manual, disconnect and lockout all power before servicing your machine.
6. Follow all maintenance and service instructions in this manual.

MOVING MACHINE PARTS 

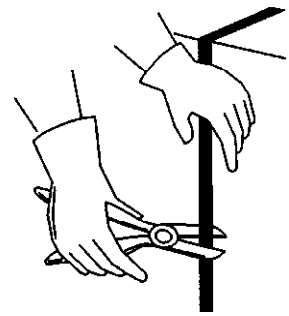
1. Disconnect and lock out all power to Signode's machines before entering the strap chute area.
2. Never put any part of your body into the strap chute area or machine enclosure with machine power on.
3. Never stand on the conveyors.

MACHINE INSTALLATION

1. All customer interlocks must be connected as shown in this manual's electrical drawings. Failure to properly connect interlocks can result in improper machine operation and/or personal injury.
2. Be familiar with the locations of safety interlocks/guards and Emergency Stop Devices - refer to machine manual topic "Disconnect & Lockout Procedures".
3. Do not defeat any safety interlock or safety device. Do not operate machine with any safety devices/guards removed.
4. Before operating the machine, ensure that all safety interlocks and Emergency Stop buttons are operating properly.
5. Unauthorized modifications can present a safety hazard to machine personnel and will void the machine warranty.
6. Securely bolt the machine in place or use locking casters.

PERSONAL PROTECTION

1. To prevent back or other body injuries, your employer must provide proper lifting and/or handling instructions. Your employer may also contact the National Safety Council, Itasca, IL 60143-0558 for information on lifting techniques.
2. When removing tensioned strap from a package, proceed as follows:
   a. Wear eye, face and hand protection
   b. Before cutting strap, make sure all personnel are at a safe distance.
   c. Hold the strap against the load above the cutter as shown.
   d. Using the proper Signode strap cutter, cut strap as pictured.
   e. Stand clear of unheld strap end which will spring out if under pressure.
3. Always wear steel reinforced safety shoes.
4. Always wear safety glasses with side shields which conform to ANSI Standard Z-87.1 or EN 166
5. Always wear protective gloves when handling strap.



ENVIRONMENTAL INFORMATION

1. The emissions produced during the heat sealing process may be an irritant to some people. Use this machine in areas that are externally ventilated. Should you be affected by these fumes, move away from machine to fresh air.

LOCKOUT/TAGOUT

1. Follow OSHA 1910.147 (Lockout/Tagout Regulation) for machine lockout procedures and other important lockout/tagout guidelines.
2. Be familiar with all lockout sources on this machine, refer to the "Lockout & Tagout" section of this manual.
3. Even after a machine has been locked out, there may be stored energy in the system. To ensure that all stored energy is relieved, wait at least one minute before servicing electrical capacitors and wait 5 minutes for hot knife to cool.
4. Before performing service in the strap chute area, disconnect air supply and lower the platen to its full down position.

MOVING THE MACHINE

1. Wheel kits are standard for Signode general purpose machines. These kits are only to be used for moving a machine in and out of a conveyor line, not for moving the machine long distances. If a machine must be moved long distances, consult your Signode representative.

TABLE OF CONTENTS

Section 9 of this manual is devoted to changing information and/or corrections to the SureTyer machines which have occurred since the latest release of this technical manual. Please review any Section 9 information before attempting to use this manual.

Section 4 of this manual contains a complete reference guide to all specified adjustments and clearances for this machine.

INTRODUCTION

The Signode SureTyer Power Strapping Machine was designed and built in the USA by Signode, Glenview, Illinois and West Union, Iowa.

The machine can be purchased with or without options that best suit the strapping needs of the product. All conditions and options have been detailed in this manual to guide and alert operating and service personnel with respect to safety, operation and maintenance procedures. A complete parts listing, with exploded views, has been included in this manual in the event replacement parts must be ordered.

⚠CAUTION

Most of the fasteners in this machine are metric. Before removing and replacing any part, refer to the parts listing to determine the proper tools to use and the correct size hardware that may have to be replaced.

SECTION-1

SURETYER POWER STRAPPING MACHINE SPECIFICATIONS

STRAP SIZES:	100 Series, 5mm wide 200 Series, 6mm (1/4") wide 600 Series, 9mm (3/8") wide 700 Series, 10.5mm (7/16") wide
CYCLE RATE:	Will depend upon size of chute, package and machine options.
PACKAGE SIZE:	Maximum package size depends upon the size of the chute. See section 2.
MACHINE DIMENSIONS:	See Section 2.
TENSION RANGE:	Low tension: Approximately 8 lbs. (100 Series Strap) Approximately 10 lbs. (200/600/700 Series Strap) With high tension variable switch ON: 8-40 lbs. on 5mm (100) machines. 10-65 lbs. on 6mm (200) machines. 10-100 lbs. on 9mm (600) & 10.5mm (700) machines. With optional high tension winder: 10-200 lbs. with SP-716 10.5mm (700) strap only.
AC INPUT VOLTAGE:	208/230/460/575 Volts, 3 Phase, 60 Hertz 380/415 Volts, 3 Phase, 50 Hertz
CONTROL TRANSFORMER:	208/230/460/575 Volts Primary, 24/8 Volts Secondary 380/415 Volts Primary, 24/8 Volts Secondary
SYSTEM FAULT PROTECTION:	Fused
SYSTEM DISCONNECT:	HP Rated switch
CONTROL VOLTAGE:	24/8 Volts AC
INPUT/OUTPUT DEVICES:	32 Volts DC
PSM HEAD MOTOR:	1 HP, 1725 RPM, TEFC, 208/230/460/575 Volts, 3 Phase, 60 Hertz 1 HP, 1425 RPM, TEFC, 380/415 Volts, 3 Phase, 50 Hertz
TABLE TOP HEIGHT:	See Section 2
PNEUMATIC PRESSURE FOR COMPRESSION:	Cubic feet of free air, at 80 psi, per cycle: 0.23 cu. ft. for 17x20, 28x20 and 60x20 single comp. machines. 0.28 cu. ft. for 48x24, single compression machines. 0.42 cu. ft. for 33x36, single compression machines.
COMPRESSION FORCE:	Single: 24 lbs. minimum, 120 lbs. maximum (@ 90 psi)

MACHINE DISCONNECT AND LOCK-OUT PROCEDURES

This machine is equipped with shut off devices which satisfy OSHA Regulation 1910.147 (control of hazardous energy sources - lock out/tag out).

⚠WARNING

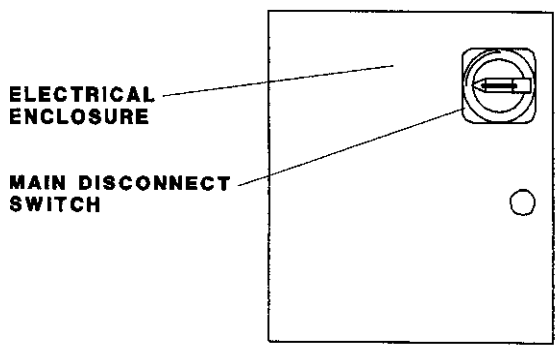
Become familiar with the location, and operation of each shutoff device.

Disconnect/Lock-Out all power sources before servicing machine.

Never use machine operating controls as a means for locking out power.

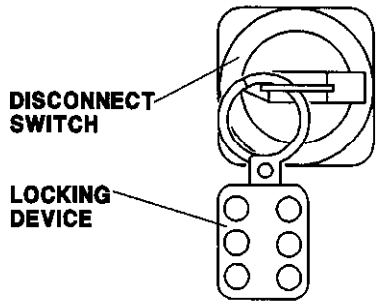
ELECTRICAL

DISCONNECT SWITCH - The main disconnect switch is located on the main control panel door.



To disconnect/lock-out electrical power to the machine proceed as follows.

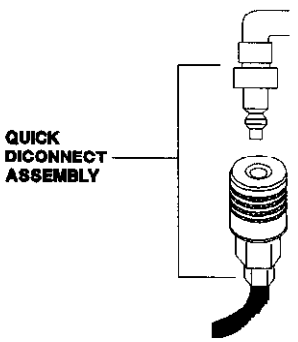
- Turn the main disconnect switch to the OFF position.
- Locate an appropriate locking hole on the switch, more than one may be provided, and apply a locking device.
- Confirm that power has been disconnected by pulling out machine start button (return button to stop position).



CAPACITORS - The capacitors in the main control panel may be electrically charged after the power is shut off. Wait no less than one minute after the power has been disconnected before servicing the panel.

PNEUMATICS

To discharge all pneumatic power to the machine release the quick disconnect fitting from the filter-regulator-lubricator unit.



⚠WARNING

Once pneumatic supply has been disconnected the compression bar will begin to drift downwards.

All Pneumatic pressure has been released when the regulator reading is at zero psig.

SECTION-2

INSTALLATION

Upon arrival of the SureTyer, the following steps should be taken:

a) Machine should be uncrated.
b) Visually inspect the machine for any possible transit damage.
c) Move the machine to the location for the strapping operation. If possible, place the machine in-line with other equipment.

PERMANENT, SEMI-PERMANENT, OR TEMPORARY INSTALLATION

This choice will determine whether to let the machine stand on its frame, or to mount it on casters. Caster mounting (standard) is the recommended method for ease of preventative maintenance.

CLEARANCE REQUIREMENTS

Floor space requirements are governed by the overall dimensions of the machine, plus adequate working clearances.

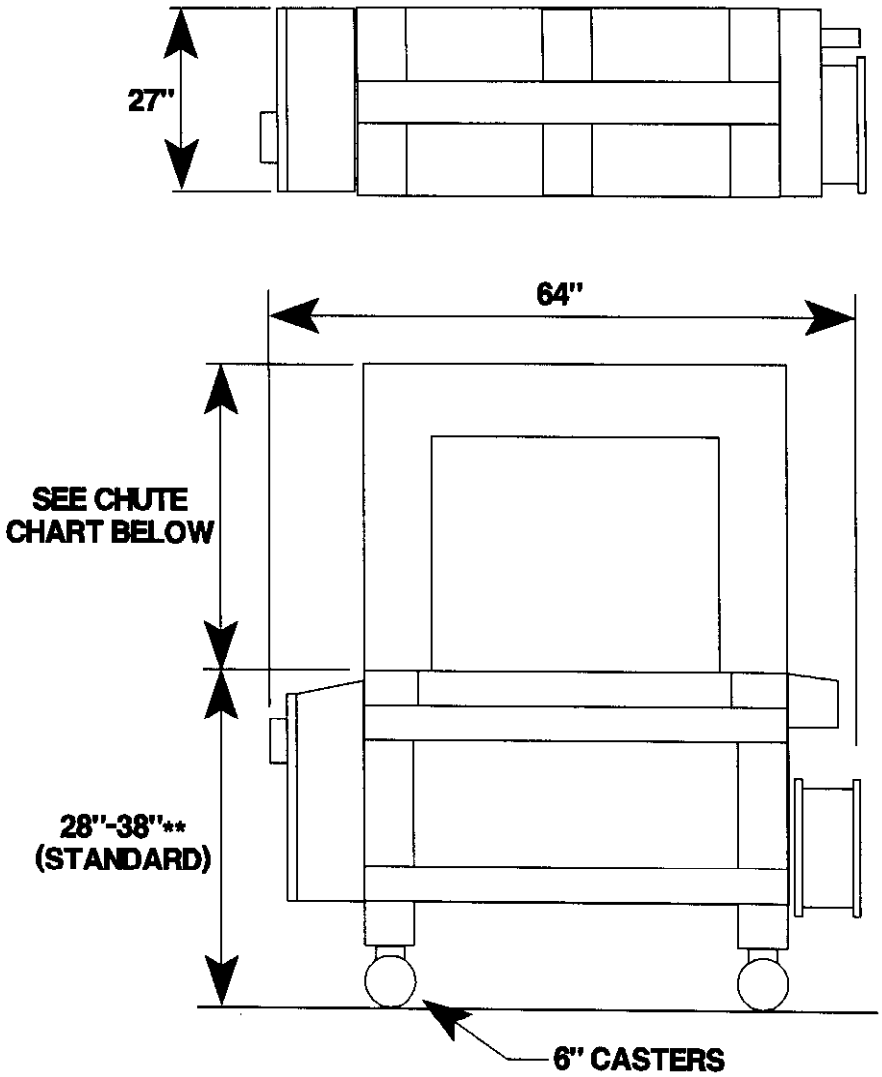
ELECTRICAL CONNECTION

The three phase machine requires a dedicated power line and should be connected directly to the appropriate input voltage power source. Use of cable connectors (male & female) are recommended for ease of portability. Refer to the electrical schematic that accompanies this service manual for details regarding input voltages and connections. If the motor fails to start at the initial power-up and error code "13" is displayed, the machine is out of phase. Change supply phase.

MACHINE HEIGHT

Typically, the machine's tabletop height is adjusted to match that of the external conveyor system. This adjustment determines overall height. Each leg of the machine is equipped with hex head screws and lock washers. When removed they permit the legs to be raised or lowered in 1" (25mm) increments.

DIMENSIONS, SURETYER SEMI-AUTOMATIC, SMALL FRAME



CHUTE HEIGHTS

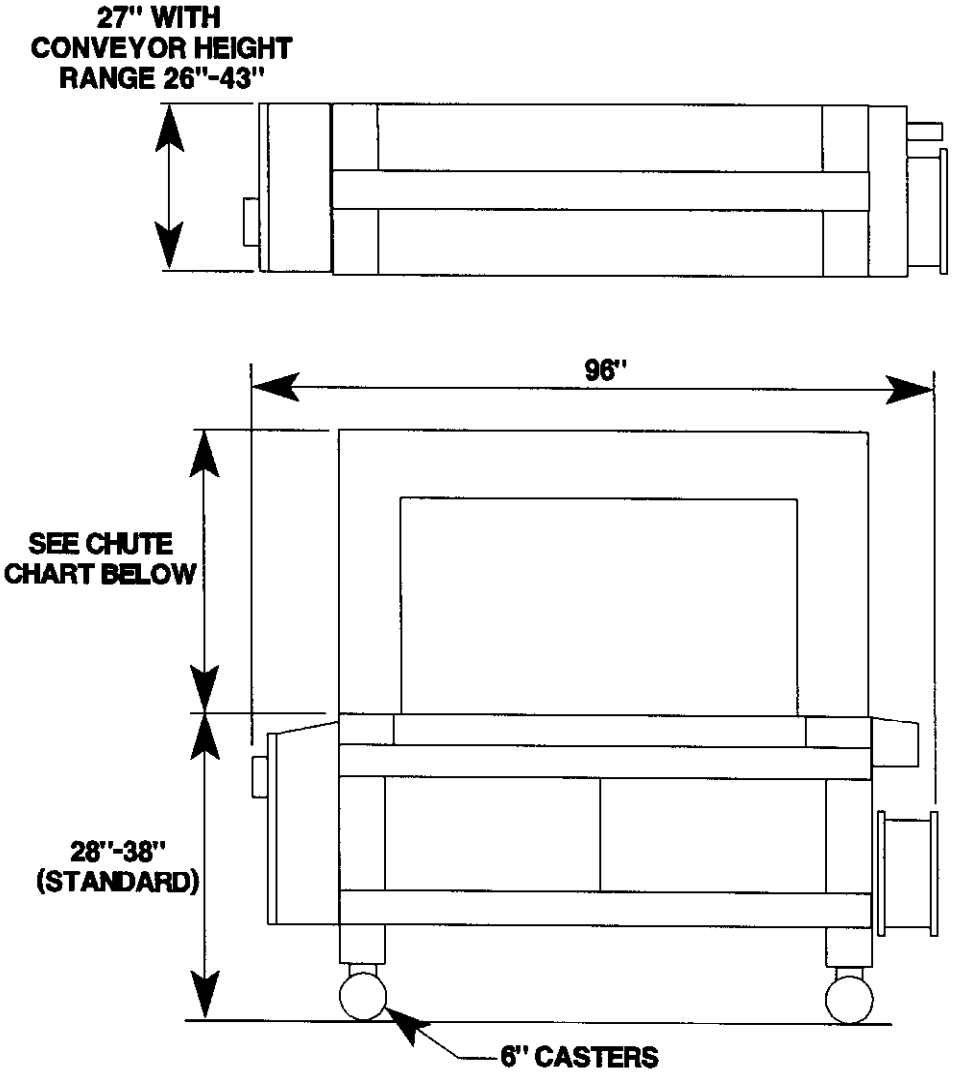
MACHINE CHUTE SIZE	OVERALL CHUTE HEIGHT		PACKAGE SIZE	
	W/O COMP.	WITH COMP.	MAXIMUM	MINIMUM
17 x 20	26"*	43"	17"W x 20"H	2 1/2"W x 1"H
28 x 20	26"*	43"	28"W x 20"H	2 1/2"W x 1"H
33 x 36	50"*	50"*	33"W x 36"H	2 1/2"W X 1"H

* If equipped with optional trouble indicator light assembly, add 9" to machine height.

** Optional Height Kits: 26"-36" With 4" casters (Kit No. 421052)
33"-43" With 6" casters (Kit No. 421053)

NOTE: At 26" table height, clearance between the floor and the bottom of the dispenser flange is approximately 1".

DIMENSIONS, SURETYER SEMI-AUTOMATIC, LARGE FRAME



CHUTE HEIGHTS

MACHINE CHUTE SIZE	OVERALL CHUTE HEIGHT		PACKAGE SIZE	
	W/O COMP.	WITH COMP.	MAXIMUM	MINIMUM
48 x 24	32"*	50"	48"W x 24"H	2 1/2"W x 1"H
48 x 48	56"	NA	48"W x 48"H	2 1/2"W x 1"H
60 x 20	28"*	46"	60"W x 20"H	2 1/2"W x 1"H

* If equipped with optional trouble indicator light assembly, add 9" to machine height.

** Optional Height Kits: 26"-36" With 4" casters (Kit No. 421052)
33"-43" With 6" casters (Kit No. 421053)

NOTE: At 26" table height, clearance between the floor and the bottom of the dispenser flange is approximately 1".

SECTION-3

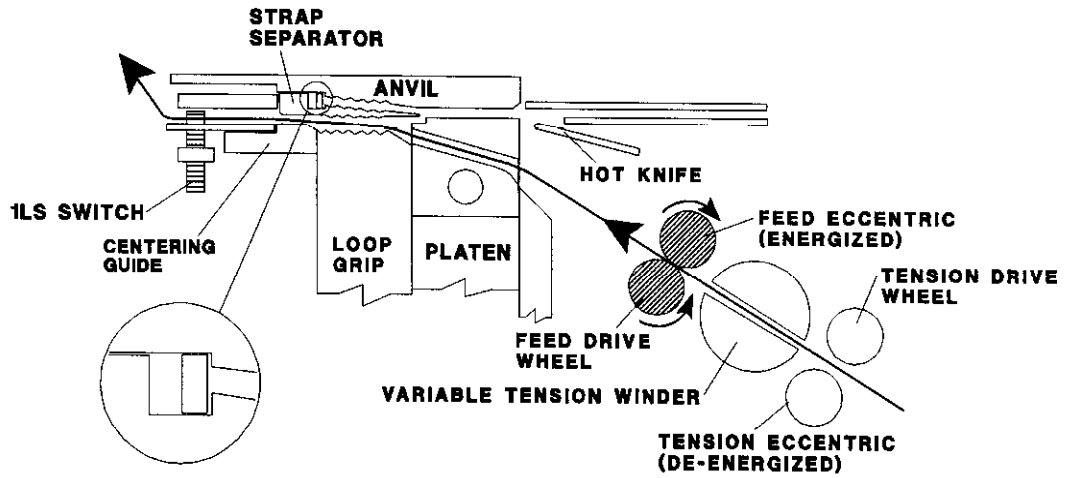
PRINCIPLES OF OPERATION, HEAD

Before operating the machine, it is important to know what to expect in terms of a sequence of events. This section describes the actions of the machine, beginning with the strapping head then moving outward to explain the function of the machine.

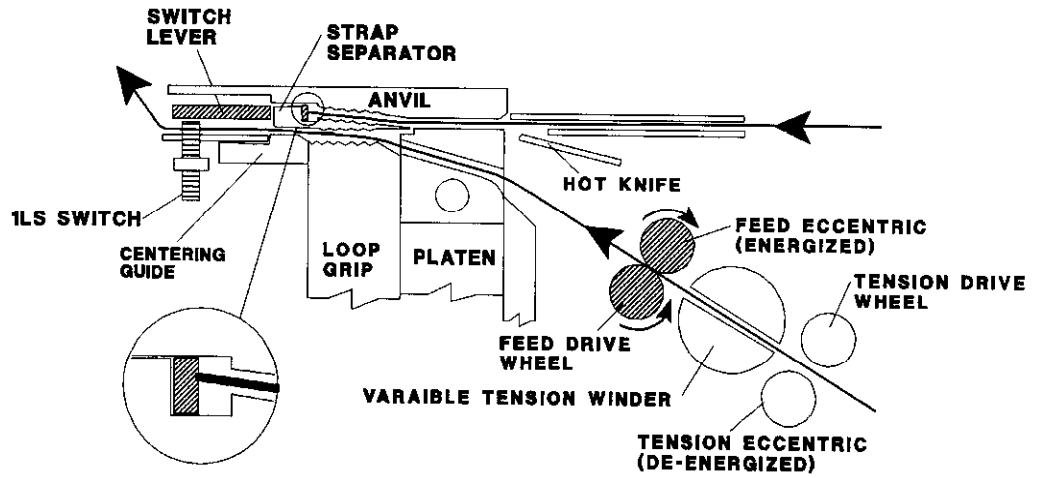
The strapping head draws strap tightly around the package, cuts it from the supply, welds the strap together, releases the sealed strap from the machine and force feeds strap around the chute for the next cycle. The following paragraphs detail the above operations for one complete cycle.

1. STRAP FEED

The strap, supplied by the dispenser, is fed up through the tension wheels, the variable tension winder and the feed wheels. It is then fed into the anvil head. The feed and tension wheels rotate in only one direction and the feed/tension functions are governed by selectively activating feed or tension eccentrics.

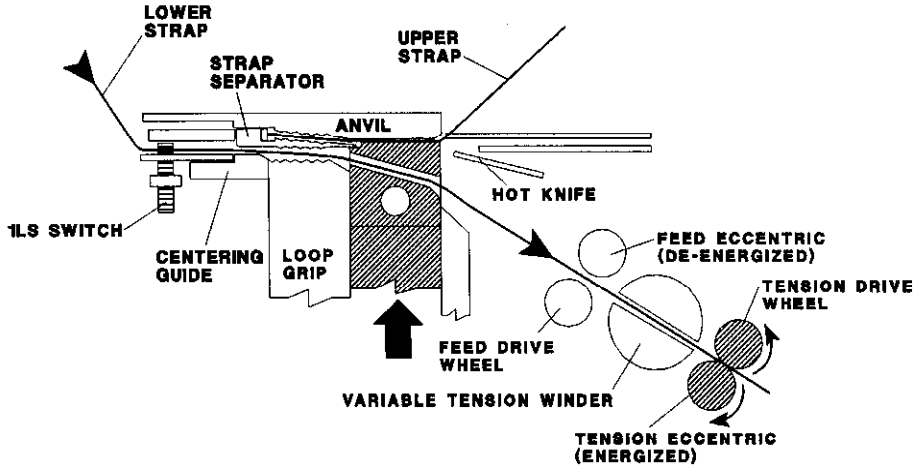


The strap is pushed up over the cutter, through the platen, over the loop grip and centering guide, beneath the end of the anvil and on into the chute assembly. It continues to travel around the chute until it re-enters the head, striking feed proximity switch lever (1LS). Tripping of the 1LS de-energizes feed eccentric (10SOL), leaving the strap end in the left-hand side of the anvil. The head and strap are now in the ready/rest position.



2. GRIP AND TENSION

At this point a cycle is activated by pushing the Cycle button. The upper strap must be gripped so that the lower strap can be drawn back around the package. The 10SOL feed solenoid is pulsed to assure the 1LS switch lever is tripped. The platen rises and firmly grips the upper strap beneath the anvil. The tension eccentric (9SOL) is energized and the strap is pulled tight around the package.

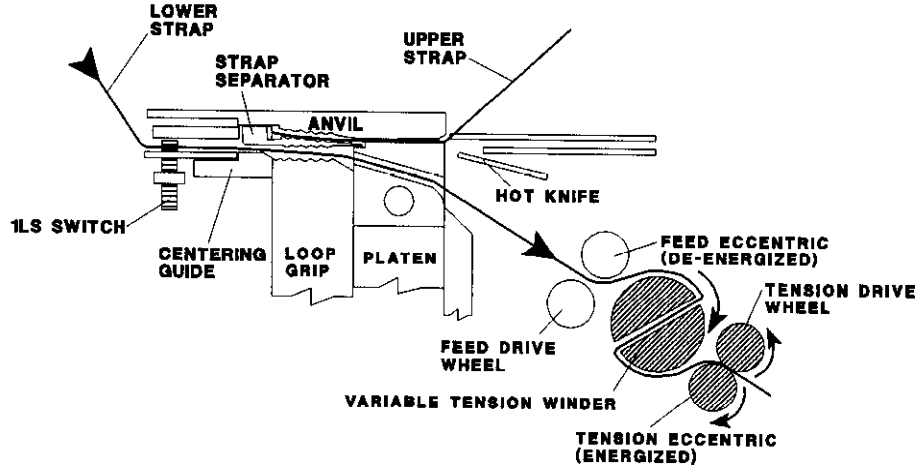


The spring pre-load on the tension drive assembly clutch will allow tension to be drawn until the clutches slip and the tension drive wheel stalls.

The tension wheel stalling is sensed by proximity switch, 1PRS, mounted on the rear side of the head. If the variable tension winder is selected, the tension drive assembly proximity switch, 1PRS, energizes the winder system. If the variable tension is not selected, then the machine goes into the weld and cut-off function.

3. VARIABLE TENSION

The variable tension winder will continue to rotate in the clockwise direction until it too begins to stall. The tension winder is controlled by an electromagnetic clutch. The tension eccentric is de-energized after the initial winder rotation begins.

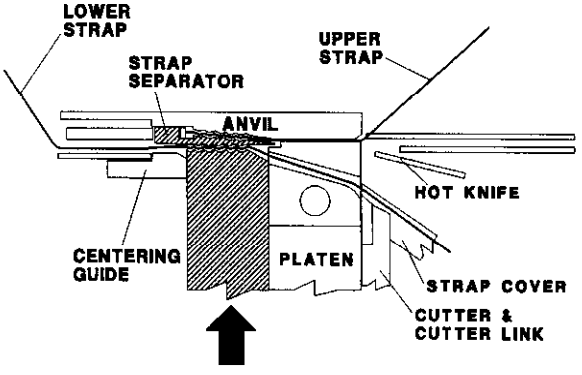


The electromagnetic clutch is controlled by the amount of electric energy sent to it. The potentiometer that determines the amount of energy is located with the main controls. As the winder begins to slip at the electromagnetic clutch, proximity switch, 5PRS, sends the head into the cut-off and weld functions. Tension on the strap is maintained by the electromagnetic clutch until the loop grip function is complete.

PRINCIPLES OF OPERATION, Continued

4. LOOP GRIP AND TENSION RELEASE

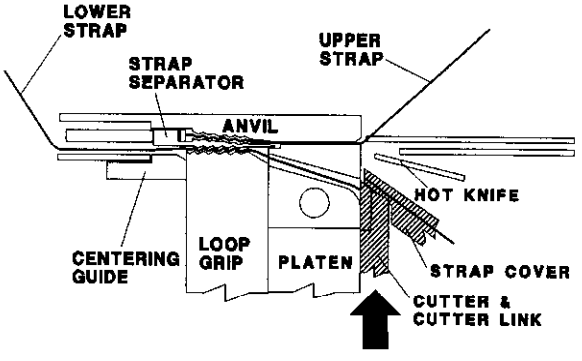
The loop grip rises and firmly presses the lower strap against the strap separator, upper strap and anvil. The strap is ready to be severed from the supply, but first, tension between the loop grip and the tension wheel or tension winder must be released. Tension is released by disengaging the low tension eccentric or opening the circuit to the tension winder electromagnetic clutch. The tension winder strap slot then is re-aligned with the feed and tension wheels when the strap is re-fed by a spring assist on the tension winder shaft.



NOTE: On 7/16" heads equipped with the high tension winder, the winder is returned to home position by energizing the take-up solenoid (9SOL) for brief moment.

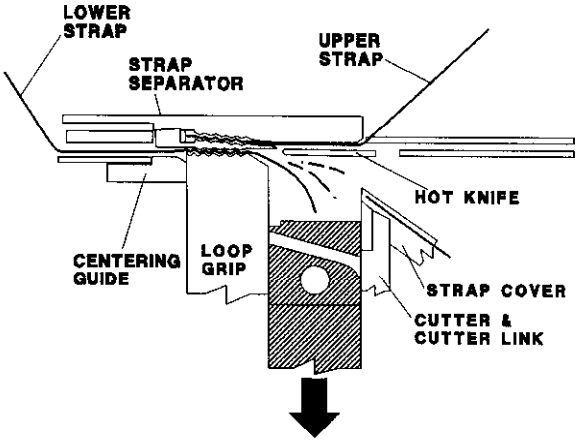
5. CUT-OFF

The cutter rises and severs the strap. The strap is held by the cutter link and strap guide cover and will feed into the upper head mechanism when all parts return to neutral. Note that the loop grip and the platen still maintain the tensioned strap beneath the anvil.



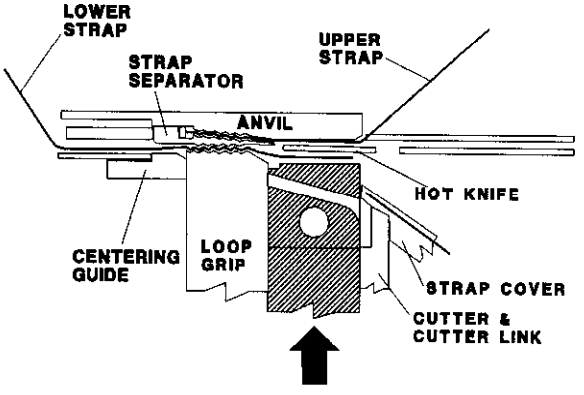
6. WELD TAIL RELEASE

The platen retracts and the weld tail pulls free of the slot in the upper portion of the platen. At the same time, the hot-knife enters beneath the upper strap. The lower strap springs upward and positions just beneath the hot-knife.



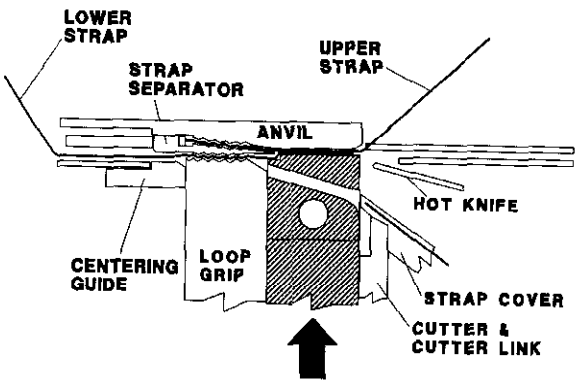
7. STRAPS ARE MELTED

The platen moves upward to press the lower strap against the hot-knife. In doing so, it presses the hot-knife against the lower side of the upper strap. The insides of both straps are melted and are ready to be welded together. The platen presses against the combination of strap/hot-knife/strap with a light force.



8. WELDING

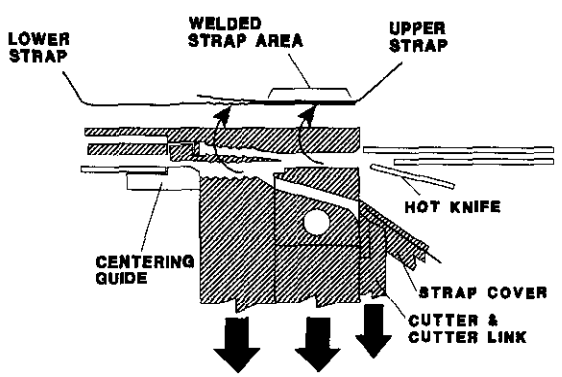
The hot-knife is retracted from between the two layers of strap. As it retracts, the platen snaps upward and instantly causes the two straps to fuse. Pressure from the platen is maintained long enough, to allow the interface to solidify and thus ensure a positive weld.



9. WELD RELEASE AND RETURN TO NEUTRAL

Several things occur at the end of the cycle at the same time:

1. The platen retracts to neutral.
2. The loop grip retracts to neutral.
3. The anvil tips back, and then forward, allowing the welded straps to be released from the machine.
4. The cutter returns.

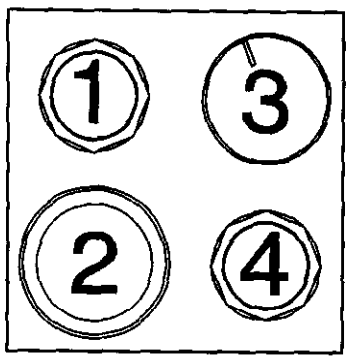


When complete, all parts are ready for the next feed cycle. The strap will then re-feed, as detailed in the Strap Feed section.

OPERATING INSTRUCTIONS

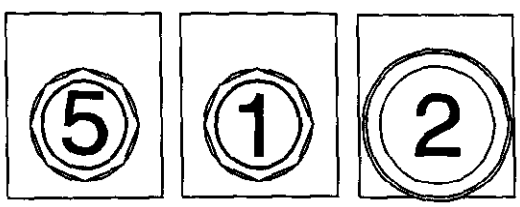
CONTROLS FOR SURETYER SEMI-AUTO MACHINES

There are two groups of operating controls available to the operator. The main controls are shown as follows:



MAIN CONTROLS

The secondary controls are those located on the top of the main electrical enclosure. These controls are shown as follows:



SECONDARY CONTROLS

The controls are as follow:

1. LOAD / CYCLE / DIAGNOSTICS
   This push button serves four different functions in the operation of the machine, each function is described below.

   A. LOAD - When loading strap into the machine, pushing this button is the final step of the loading procedure.

   B. CYCLE - This button allows the operator to apply straps.

   C. DIAGNOSTICS - The diagnostic mode is selected by holding this button down for approximately two seconds while simultaneously pulling ON the Emergency Stop button. Releasing the Cycle button should indicate 0 in the display. If the CYCLE button is not re-pushed within .5 seconds, function 0 will have been chosen. The CYCLE button can be continuously pressed to cycle through all diagnostic modes (0-12). See Input Diagnostics in Section 5 of this manual for additional information.

2. EMERGENCY STOP
   This is a three position pushbutton; full in, a central position, and full out. When pushed 'full in' the control circuit is de-energized and the machine stops. Since there are two Emergency Stop pushbuttons, the central position is used as a staging function to align both switches before starting the machine. When both switches are placed in the central position, the machine can be re-powered by momentarily pulling either switch to the full out position.

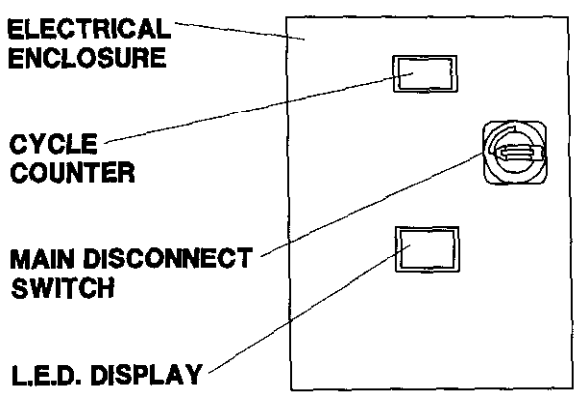
3. TENSION POTENTIOMETER WITH ON-OFF SWITCH W/ RESTRICTOR PLATE
   This is a potentiometer with an ON-OFF switch that allows the operator to turn ON or turn OFF the tension winder clutch. When the clutch is ON, the potentiometer allows the operator to vary the amount of energy sent to the tension winder clutch. The restrictor plate limits the maximum tension adjustment.

4. CLAMP
   This switch is the Clamp control. This switch is a two position selector switch, ON-OFF, that allows the operator to turn ON or turn OFF the optional compression clamp.

5. LOW VOLTAGE INDICATOR (OPTIONAL)
The low voltage indicator light and relay are designed to indicate the presence of low line voltage. Anytime the supply voltage drops below 100 volts for more than 500 miliseconds, the voltage relay drops out the control relay shutting off the machine and illuminating the Red light. To reset the relay it is necessary to turn the entire machine off with the main disconnect switch, and then back on. If the tripping of the red light becomes chronic, it is an indication that the supply line is not providing adequate power to operate the machine. This may indicate the need for a dedicated line, larger ampacity supply circuit or an excessively long run from the supply circuit. The local power company should also be consulted to make certain that their supply is within N.E.C. limits.

CONTROL ENCLOSURE, EXTERNAL

On the outside of the door is a single control; the disconnect switch, the LED display, and the cycle counter.



DISCONNECT SWITCH

The ON-OFF switch is operated by rotating between ON and OFF as needed.

⚠WARNING

When the switch is turned to the OFF position, power to the machine is disconnected, but power remains from the source to the input side of the switch.

LED DISPLAY

Located on the microprocessor board inside the control panel and displayed on the outside of the control panel door.

CYCLE COUNTER

The counter is viewed from the outside of the control enclosure door.

INDEXING THE STRAPPING HEAD

The strapping head can be indexed through it's cycle positions of Feed, Grip, Weld Cool, and Anvil Open using a combination of buttons at the main controls. See page 7-8 of this manual for additional information and details.

OPERATING INSTRUCTIONS, Continued

THREADING STRAP

⚠WARNING

Disconnect electrical power to machine before proceeding.

To install a coil in the dispenser flange assembly proceed as follows:

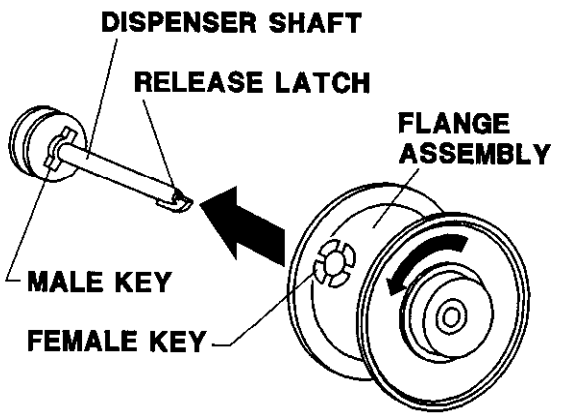
NOTE: Coils of strap are packaged in transparent shrink wrap and should be left intact during installation.

1. Unscrew the outer flange in a clockwise direction and separate the steel flanges. (Please note this is a left handed thread.)

2. Place a coil of strap over the hub of the base flange. The direction of the arrows on the tape that secures the lead end must point in the pay-off direction. When operating, the strap must pay-off in a counter-clockwise direction.

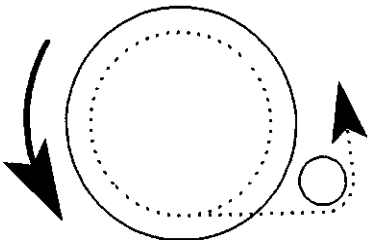
3. Replace the outer flange and tighten in a counter-clockwise direction.

4. Mount the dispenser flange assembly over the release latch and onto the dispenser drive shaft. Rotate the flange assembly back until it fully seats and the keys lock into place.

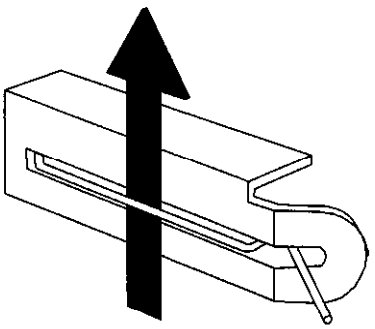


5. Carefully cut the shrink film then pull it and the corrugated belly band from the outer surface of the coil and re-tighten the outer flange.

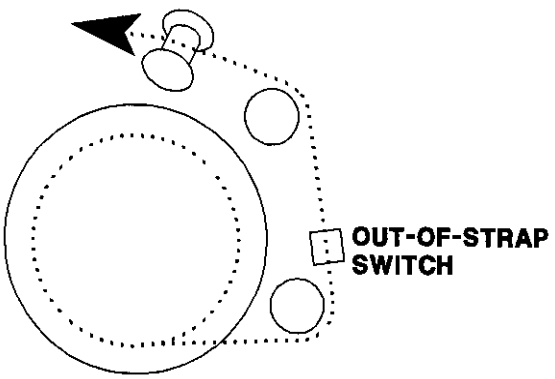
6. Thread strap as shown on the threading diagram.



7. Thread the strap through the Out-Of-Strap switch as shown.

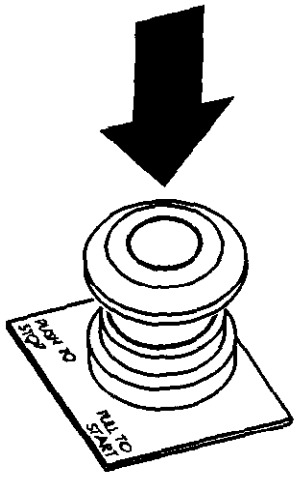


8. Continue to complete threading the strap through the uppermost guide rollers.



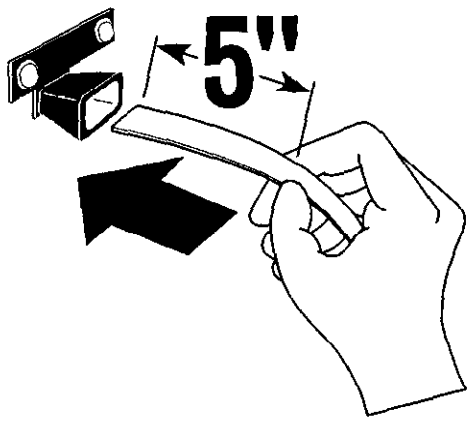
LOADING STRAP

1. Turn OFF the machine power by pressing in the Emergency Stop button. The light inside the switch will turn off.



2. Press and hold in the Blue LOAD lever.

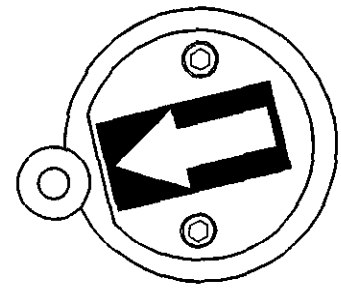
3. Insert approximately 5" of strapping into the machine with the curl down. NOTE: The lead edge should be cut as square as possible.



Release the load lever.

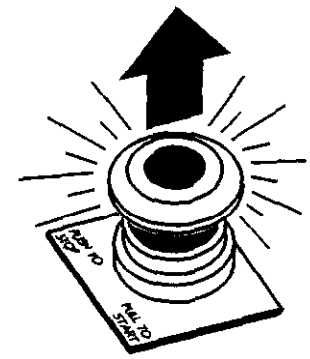
Continue with step 3 only if the machine is equipped with the optional high tension winder and strap is being reloaded due to a strap breakage within the machine, otherwise skip to step 4.

3. Open an access door on the control side of the machine and check to make sure the winder is in the home position.



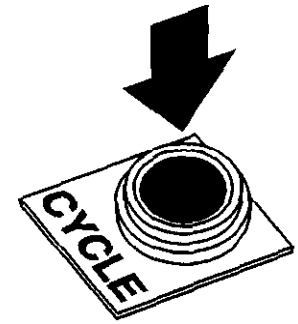
Home position is when the winder's arrow is aligned with the detent roller.

4. Turn the machine power ON by pulling the Emergency Stop button up until it becomes illuminated.



NOTE: Both Emergency Stop buttons must be on for the machine's power to come on. Only one Emergency Stop button needs to be depressed to turn power OFF.

5. Press the Cycle button to complete the loading sequence. The machine will have a five second delay before it loads and is ready to apply straps.



RE-LOADING UNDER ERROR CONDITIONS

⚠WARNING

Before proceeding, turn machine OFF by pressing in the Emergency Stop button.

There are two error conditions in which the machine will have to be re-loaded, these conditions are as follows.

ERROR CONDITION: Strap has been left in the machine's chute arch. NOTE: This procedure requires machine power to be left ON.

1. Remove all strap from the chute.
2. Press the Cycle button to index the machine back into the strapping mode. The machine will have a five second delay before it loads and is ready to apply straps.

ERROR CONDITION: All strap has been unthreaded back into the accumulator box.

1. Turn OFF the machine by pressing the Emergency Stop button.
2. Press and hold in the LOAD lever.
3. Pull all strap out from machine via the loading guide. NOTE: Modest effort may be required to remove strap as there may be up to 20 feet of material inside machine.
4. Remove any lengths of strap which may be caught in the head and strap chute.
5. On machine with the optional high tension winder (700 series strap only), the winder must be in the home position.
6. Cut off all strap which was removed from inside machine.
7. Insert approximately 5" of strapping into the machine with the curl down. Release the load lever.
8. Turn the machine power ON by pulling the Emergency Stop button up until it becomes illuminated.
9. Press the Cycle button to complete the loading sequence. The machine will have a five second delay before it loads and is ready to apply straps.

OPERATION MODES

MANUAL CYCLE - If a Manual Cycle is desired, place a bundle in the machine, position it where the strap is to be placed, and press in on the Cycle pushbutton or if optionally equipped, depress the foot switch. A strap will be applied.

VARIABLE TENSION WINDER - If higher tension is desired, turn the Potentiometer to the tension level most appropriate to the bundle. Otherwise the pot must be set fully counter clockwise to the off position.

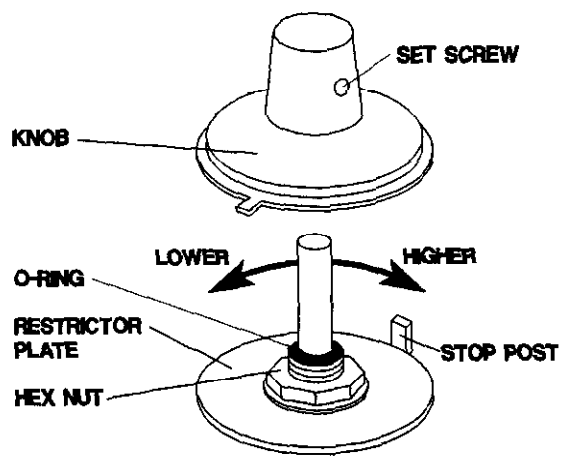
NOTE: Machine is capable of pulling tension higher than the strap holding grip of the head can handle. Desired maximum setting must not exceed the maximum tension rating for the strap being used.
Maximum tension setting are as follows:

100 Series [5mm]: 40lbs.
200 Series [6mm (1/4")] Strap: 65lbs.
600 Series [9mm (3/8")] Strap: 100lbs.
700 Series [10.5mm (7/16")] Strap: 100lbs.
SP-716 (10.5mm) Strap with HT: 200lbs.

If the potentiometer must be adjusted to suit higher tension than factory set, follow the steps below:

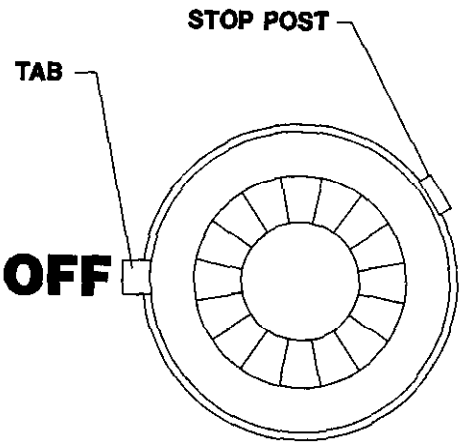
1. Using a 1/16" Allen wrench, back out the set screws which secure the knob to the potentiometer shaft and remove the knob.

2. Loosen the hex nut which secures the restrictor plate using a 1/2" wrench. Do not remove the hex nut.



3. Rotate the restrictor plate to the desired location. Tighten the hex nut.

4. Rotate the potentiometer shaft counter-clockwise to the Off position. Resecure the knob to the shaft, lining up the tab of the knob with the "OFF" of the legend plate.



5. Rotate the knob clockwise to the higher strap tension setting. Cycle the machine using a sample package to test the new setting.

⚠WARNING

When using the actual product for this test, the strap tension may increase more than predicted thereby destroying the test package.

Repeat steps 1 through 5 as required to achieve maximum desired strap tension on the actual product.

SELECT OPTIONS

COMPRESSION CLAMP - If the machine is equipped with a compression clamp and compression is desired, turn the selector switch to ON. Each bundle will be compressed before it is strapped. Refer to P8 & P9 controls on page 5-2 of this manual for variable settings.

SECTION 4

SCHEDULED MAINTENANCE

DAILY

1. Clean the machine of all debris especially around the sealing head, hot knife area, feed/tension rollers, infeed rollers and accumulator box.

2. Clean off and around the Auto Cut-Off and Refeed device if so equipped with compressed air.

WEEKLY

1. Check all sprockets and chains for proper tension, alignment, wear and lubrication.

2. Make sure the loop grip, platen link strap guide cover, and cutter link move freely and are well lubricated.

3. Inspect for proper strap weld and cut off.

4. Clean the feed/tension rollers and guides, and inspect for wear and/or damage.

5. Clean strap dust from accumulator box with compressed air.

6. Clean strap dust from the 1LS lever assembly in the anvil head with compressed air.

7. Clean the hot-knife, hot-knife area, and strap guide cover of all debris.

8. Clean the strap dust from the exhaust fan.

MONTHLY

1. Check all bearings for freedom of movement.

2. Check for loose electrical connections.

3. Tighten all screws.

4. Check cams for wear.

5. Remove the cover plate and lubricate the loop grip, platen link, cutter link and inspect the platen and cutter for wear or damage.

6. Check the clutch sheave for free movement on bearing and check slip washers for proper function.

7. Check entire chute assembly for proper operation and alignment with head.

8. Check the rotary solenoids for proper operation and clearances at the feed and tension wheels.

9. Check the accumulator box limit switch for proper operation.

10. Inspect the dispenser's braking belt for wear.

LUBRICATION

The machine is fully lubricated during assembly. However, there are several points that will require a reapplication of lubricant if parts within those points are changed or those parts are cleaned and the lubricant has been removed. The following types of lubricant and the areas to be lubricated are as follows:

- A lightweight grease, such as Lubriplate GR-132.
- Any silicone or graphite based light weight lubricant, usually packaged under pressure so that it can be applied to the machine in spray form.

HEAD

A thin coat of lightweight grease, Lubriplate GR-132, should be present at all times on all moving parts within the welding mechanism and on all pivot pins.

DISPENSER

The strap dispenser does not require any lubrication. Do not attempt to lubricate any components of the dispenser assembly.

TROUBLESHOOTING

The following items are the most common machine symptoms if problems occur. For symptoms or remedies not shown, contact your Signode service representative for additional information and details. The following machine symptoms are shown in this manual:

#1 - No weld.
#2 - Poor welds.
#3 - Short welds.
#4 - Short feeds.
#5 - Strap misfeeds at chute entry after feeding through platen.
#6 - Erratic tension.
#7 - Strap misfeeds in front of platen; does not feed under platen.
#8 - Anvil open at end of cycle.
#9 - Clamp will not operate.
#10 - Variable tension not working.
#11 - Cannot feed strap through head.
#12 - Strap bubbles out of chute.
#13 - Strap splitting.
#14 - Machine will not load strap when Cycle (Load) button is pushed.
#15 - Machine will not apply a strap when Cycle button is pushed.
#16 - The dispenser is malfunctioning.
#17 - 115V Option low voltage indicator illuminates.

#1 SYMPTOM: No weld.	
CAUSE	**REMEDY**
1. Hot knife cold.	1. Repair or replace hot knife. (Check for a possibly broken wire at stakons.)
2. Hot knife unable to enter between straps.	2. Yoke spring set too light, increase tension. Remove obstruction that is binding platen. Lubricate platen link.
3. Mechanical failure of knife yoke.	3. Replace or repair yoke or bearing.
4. The hot-knife is dirty.	4. Turn machine power OFF, clean the hot-knife surface with fine grit emery paper.

#2 SYMPTOM: Poor welds	
CAUSE	**REMEDY**
1. Hot knife temperature improperly set.	1. Adjust hot knife temperature. Adjust P1. Proper temperature is between 680°F and 720°F.
2. The hot-knife is dirty.	2. Turn machine power OFF, clean the hot-knife surface with fine grit emery paper.

#3 SYMPTOM: Short welds	
CAUSE	**REMEDY**
1. Yoke spring is set too light. 2. Obstruction in knife or yoke movement. 3. Yoke bearing has failed. 4. Yoke pivot hole worn.	1. Set yoke spring to proper dimension. 2. Remove obstruction. 3. Replace bearing. 4. Replace yoke assembly.

#4 SYMPTOM: Short feeds	
CAUSE	**REMEDY**
1. Feedwheel slipping due to excessive clearance. 2. Obstruction in strap path. 3. Excessive strap drag. 4. Improper entry and re-entry head to chute alignment. 5. Strap guides misaligned. 6. Dispenser not operating properly. 7. Platen/anvil clearance insufficient. 8. Strap slipping at feedwheel due to improperly adjusted spring load.	1. Set feedwheel clearance, .004" to .008" (0.1 to 0.2mm). 2. Remove obstruction. 3. Check feed system and accumulator for drag. Remove cause of drag. 4. Align chutes with strapping head. 5. Align strap guides. 6. Correct dispenser problem. 7. Set platen/anvil clearance. 8. Set feedwheel spring for optimum normal force. Set to as light as possible for positive feed of strap size being used.

#5 SYMPTOM: Strap misfeeds at chute entry after feeding through platen.	
CAUSE	**REMEDY**
1. Entry chute is not aligned with head. 2. Strap hitting stripper pin.	1. Align entry chute to head. 2. With entry chute closed, make sure stripper pin is out of the strap path.

#6 SYMPTOM: Erratic tension	
CAUSE	**REMEDY**
1. Improper tension wheel/guides clearance.	1. Set tension wheel clearance, .004" - .008" (0.1mm - 0.2mm). Eliminate guide interference.
2. Improper tension spring adjustment.	2. Adjust tension spring.
3. Slip washers improperly installed.	3*. Check slip washers for proper installation and smooth surfaces
4. Tension shaft binding.	4. Check tension shaft with belt removed for binding or looseness.
5. Belts slipping.	5. Adjust belt tensions.

* When installing new slip washers or after cleaning, the equivalent of 1000 take-up cycles must be "run-in" to obtain proper operating condition.

#7 SYMPTOM: Strap misfeeds in front of platen; does not feed under platen.	
CAUSE	**REMEDY**
1. Moving cutter dull, causing poor cut off.	1. Replace moving cutter.
2. Improper cutter to platen clearance.	2. Shim cutter, .001"-.003" (.02mm-.07mm).
3. Platen edge damaged.	3. Replace platen.
4. Platen not in correct position.	4. Clean and lubricate platen linkage and check head timing.
5. Track lever bearing worn.	5. Replace bearing.
6. Insufficient platen/anvil clearance.	6. Set platen anvil clearance.
7. Binding strap guide cover.	7. Clean and make sure strap guide cover pivots freely.
8. Debris between cover plate and anvil frame.	8. Open anvil, clean cover and anvil frame.

#8 SYMPTOM: Anvil open at end of cycle.	
CAUSE	**REMEDY**
1. Tension slip clutch set too high.	1. Check slip clutch and adjust.
2. 3PRS faulty.	2. Adjust or replace 3PRS.
3. Short feed.	3. See Short Feeds symptom.
4. Strap hangs up in chute.	4. Repair chute problem; springs, pins, etc.
5. Gripper not holding strap.	5. Clean or replace platen and anvil head assembly
6. Failure of take-up solenoid.	6. Replace solenoid.

#9 SYMPTOM: Clamp will not operate.	
CAUSE	**REMEDY**
1. Clamp ON/OFF selector switch is OFF or inoperative.	1. Turn selector switch to ON. Replace selector switch if necessary.
2. Air pressure not connected or too low.	2. Connect air supply. Set air pressure to 40 psig, minimum.
3. Clamp air valve (AV2-up and AV1-down) inoperative.	3. Replace air valve.
4. Air flow controls improperly adjusted.	4. Adjust flow controls.

#10 SYMPTOM: Variable tension not working.	
CAUSE	**REMEDY**
1. Potentiometer improperly adjusted or inoperative.	1. Set potentiometer correctly. Replace if necessary.
2. High tension switch is OFF or inoperative.	2. Replace switch if necessary.
3. Low tension slip clutch set too high.	3. Adjust slip clutch. Note that it must slip to activate high tension.

#11 SYMPTOM: Cannot feed strap through head.	
CAUSE	**REMEDY**
1. Strap jammed in strap guides.	1. Clear strap guides.
2. Strap jammed under platen.	2. Remove and clear path under platen.
3. 1LS switch closed.	3. Adjust 1LS or clear debris holding switch in closed position.
4. Debris in strap guide cover.	4. Clear strap guide cover.

#12 SYMPTOM: Strap bubbles out of chute.	
CAUSE	**REMEDY**
1. Gap in chute system too great.	1. Close gap as necessary.
2. Feed wheel spring set too tight.	2. Adjust spring length to proper setting.

#13 SYMPTOM: Strap splitting.	
CAUSE	**REMEDY**
1. Damaged feed or tension rolls.	1. Check all feed and tension rolls for rough or sharp surfaces and smooth as needed.
2. Damaged strap guides.	2. Inspect strap guides. File all edges and surfaces smooth.
3. Feed wheel or tension wheel and pinch roll not aligned.	3. Align wheels and pinch roll as required.
4. Improper drive wheel to strap guide clearances.	4. Check and reset strap guide clearances for strap size used.

#14 SYMPTOM: Machine will not load strap when Cycle (Load) button is pushed.	
CAUSE	**REMEDY**
1. Strap waffling at infeed wheels due to obstruction in path.	1.** Remove all damaged strap from machine. Clean and remove obstruction from the strap path.
2. Out-Of-Strap switch improperly threaded.	2. Inspect switch for possible binding and proper threading through the switch arm.
3. Load solenoid is inoperative.	3. Load strap using the manual loading method to prevent machine interruption. Repair solenoid.
4. Winder not in home position.	4.* Return winder to home position. Inspect winder spring for damage.

** If no other signs of obstruction are apparent, inspect for and remove debris and strap dust in the strap guide cover area.

* The optional high tension winder does not use a return spring.

#15 SYMPTOM: Machine will not apply a strap when Cycle button is pushed.	
CAUSE	**REMEDY**
1. The 1LS switch has not been tripped and not enough strap is in the accumulator box.	1. Turn OFF all power to the machine. Remove all strapping from inside machine and reload.
2. Out-Of-Strap switch improperly threaded.	2. Inspect switch for possible binding and proper threading through the switch arm.
3. Machine is not fully warmed up.	3. Wait approximately 17 seconds from a cold start.

#16 SYMPTOM: The dispenser is malfunctioning.	
CAUSE	**REMEDY**
1. Broken or worn dispenser braking belt. 2. Strap pulled down between coil and flange.	1. Replace dispenser braking belt. 2. Tighten flange locking nut by turning counter-clockwise.

#17 SYMPTOM: 115V Option low voltage indicator illuminates.	
CAUSE	**REMEDY**
1. Poor power supply to machine.	1. Check power supply for proper voltage. Consult local utility company if necessary.
2. Machine draws too much power from source during high tension portion of strap cycle.	2. Turn down the tension setting for the strap winder.

MACHINE ADJUSTMENT REFERENCE GUIDE

AREAS OF CONCERN		SPECIFICATION	REF. PG.
1. Tension wheel to pinch roller clearance:		.004 - .008" (0.1 - 0.2mm)	7-12
2. Feed drive wheel to pinch roller clearance:		.004 - .008" (0.1 - 0.2mm)	7-12
3. Feed coupling spring length: (Reference only, must be set for optimum performance.)		1 1/16" - 1 7/32" (27 - 31mm)	7-8
4. Tension wheel drive shaft spring length:			
	100 Strap:	3/4" - 7/8" (19 - 22mm)	7-7
	200/600/700 Strap:	5/8" - 7/8" (16 - 22mm)	
5. Feed wheel to strap guide clearance:			
	100/200 Series Strap:	.041" (1.05mm)	7-11
	600/700 Series Strap:	.045" (1.15mm)	
6. Take-up wheel to strap guide clearance:			
	100/200 Series Strap:	.049" (1.25mm)	7-11
	600/700 Series Strap:	.057" (1.45mm)	
7. Cutter blade clearance:		.001 - .003" (.02 - .07mm)	7-5
8. Platen to anvil clearance in the feed position:			
	100/200 Series Strap:	.051 - .060" (1.3 - 1.5mm)	7-2
	600/700 Series Strap:	.051 - .071" (1.3 - 1.8mm)	
9. Platen yoke spring height in the feed position:		1 31/32" (50mm)	7-2
10. Centering guide and stripper finger to anvil clearance:		.010 - .015" (.25 - .36mm)	7-3, 7-11
11. Main drive belt tension:		3/4" Deflection With 10 Lbs. force.	7-5
12. Hot knife compression spring length:		1 3/32" (28mm)	7-9
13. Hot knife temperature:		680-720° F.	5-2
13. Proximity switch clearance:		.002 - .028" (.05 - .70mm)	7-10
14. Loop grip spring height.	100/200 Series Strap:	3 15/16" (100mm)	7-9
	600/700 Series Strap:	3 1/2" (90mm)	7-9

MACHINE ADJUSTMENT REFERENCE GUIDE, Continued

AREAS OF CONCERN	SPECIFICATION	REF. PG.
15. Feed/Tension belt idler spring length:	3/4" (19mm)	7-6
16. Tension winder detent spring pressure: (Optional High Tension Winder for 700 strap.)	Tighten nut 5 threads from end of bolt.	
17. Centering guide clearance:		
100/200/600 Series Strap:	.030 - .033" (.76-.83mm)	7-3
SP-714 Strap:	.034 - .037" (.86-.94mm)	
SP-716 Strap:	.039 - .045" (.99-1.14mm)	
18. Stripper finger to anvil clearance (Top & Side):	.010" (.25mm)	7-11
19. Dispenser arm to stop clearance:	.040" (10mm)	6-8
20. Chute to frame arch clearance: (Measured in the platen grip position.)	13mm - 15mm	6-6
21. Strap chute entry and exit height:	As Required	6-5
22. End clearance between anvil and chute ends:	.020 - .030" (.50-.76mm)	6-5
23. Chute stripper finger to chute edge clearance:	±1mm	6-7

SECTION 5

ELECTRICAL SYSTEM

MICROPROCESSOR CIRCUIT BOARD

Electrical control of the machine is provided by the microprocessor circuit board found in the electrical enclosure. This circuit board provides the machine logic for proper machine sequencing and drives the various electrical output devices. Input devices (switches etc.) connected to the circuit board are isolated from the 5 volt logic devices on the board by the use of opto couplers, which are on the circuit board. Inputs to the opto couplers are at a 32 volt DC level, and the output of the opto coupler is not active until its input is switched to zero volts on the 32V DC supply.

FAST WARM-UP

The microprocessor circuit board has a special warm-up circuit to reduce the hot-knife warm-up time. This circuit overrides the normal temperature control and dominates the knife electrical circuit until proper operating temperature is reached. This warm-up period is indicated on the circuit board by flashing a diagnostic message of "0 0". When the hot-knife reaches operating temperature, the flashing diagnostic message "- -" will be displayed. The warm-up time from a cold start is approximately 15-17 seconds. Warm-ups from short interruptions will require proportionately less time to regain the proper operating temperature.

NOTE: If machine is powered up in the Anvil Open position, the hot knife will not reach the proper operating temperature. Be sure to index the machine to the Feed position for proper warm up.

CIRCUIT BOARD POTENTIOMETER ADJUSTMENTS

To access the circuit board, follow the steps below:

1. Press in and hold the CYCLE button.

2. Pull out on one of the two emergency stop pushbuttons. The other emergency stop button must be in the middle position. Both emergency stop switches will illuminate (Red), and all segments of the LED display will illuminate, displaying "88".

3. Release the CYCLE button.

4. The display should indicate 0. If the CYCLE button is not re-pushed within .5 seconds, function 0 will have been chosen. The CYCLE button can be continuously pressed to cycle through all diagnostic modes (0-12).

   Press the CYCLE button until diagnostic code 6 is displayed. Please note that there are seven timers on the PC board which can display a value at which they are set. Not all of the timers are adjustable with a pot. Some have fixed resistors or a jumper wire. All seven timers are referred to as a 'P' and a number in the following sequence:

DISPLAY	TIMER
1	P8
2	P9
3	P10 (Not used)
4	P1
5	P2 (Not adjustable)
6	P3 (Not adjustable)
7	P4 (Not adjustable)

   In this diagnostic function ("6"), the user may display a timer setting which is a number from 0 to 99. By depressing the CYCLE button and holding it, the display will show the number 1, indicating that the timer (P-8), will display its value setting, as soon as the CYCLE button is released.

Once the CYCLE button is released, and the P-8 timer is displaying its value, P-8 pot can be adjusted to change that value.

Depressing and holding the CYCLE button again, number '2' will be displayed, indicating that timer P-9 will display its value as soon as the index button is released. The value of all timers can be displayed by this method even if some of them are not adjustable.

P1 HOT KNIFE TEMPERATURE
P1 controls the pulse rate of electrical power supplied to the hot-knife. The higher the pulse rate setting on P1, the greater the amount of energy that flows to the hot-knife and the higher the temperature of the knife. P1 is factory-set to bring the hot-knife temperature to 680-720 degrees F. at a specific line voltage. Higher or lower incoming line voltages will require an adjustment of P1 to maintain proper temperature. An adjustment may be required when a hot-knife replacement is made or when the machine is used in extremely low temperature applications. A clockwise movement of P1 increases the knife temperature.

P2 BOOST (not shown)
P2 is used to control the duration of the BOOST pulse, which provides extra heat in the knife to replace that taken by the strap for each cycle. The factory has selected a fixed resistor to replace the P-2 pot. P-2 timer is not adjustable.

P6 TAKE-UP CONTROL
This potentiometer determines the amount of force with which the take-up rotary solenoid turns against the take-up wheel. This potentiometer is factory set and should not be adjusted.

P7 FEED CONTROL
This potentiometer determines the power level to the feed rotary solenoid. This potentiometer is factory set to maximum and should not be adjusted.

P8 - CLAMP DOWN CONTROL
This timer delays the strapping cycle to allow the clamp to contact the package. A clockwise movement of P8 increases the time duration. This feature allows the clamp to fully settle down on a package before the strapping cycle begins.

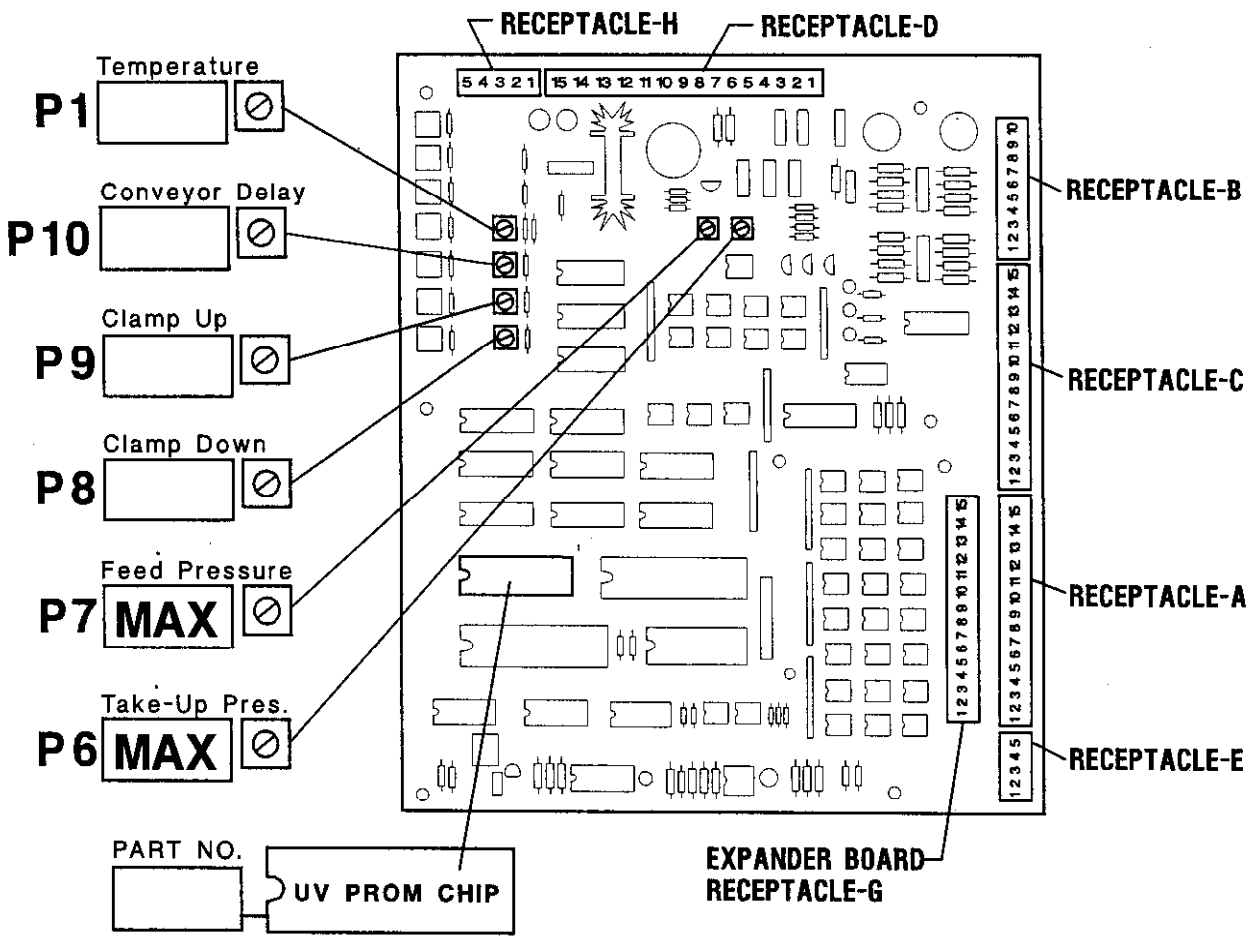
P9 CLAMP UP CONTROL
This timer controls how high the clamp rises from the package before it stops. A clockwise movement of P9 increases the time duration. This feature shortens the clamp's stroke to subsequent bundles, thereby increasing the machine cycle time.

P10 - NOT USED

UV PROM CHIP

This chip contains the specific program to operate the Machine. If replacement is necessary, chip must be inserted with notch oriented as shown on board layout.

MICROPROCESSOR BOARD LAYOUT FOR SURETYER SEMI-AUTO



NOTE: The rounded notch in the UV Prom Chip must be installed/oriented as shown above.

CIRCUIT BOARD REPLACEMENT

Replacement of the circuit board should be made only after all electrical service procedures found in this manual are exhausted.

1. Turn OFF the Control Switch and disconnect the machine from its power source.
2. Open the Control Panel.
3. Remove wiring harness plugs from their receptacles on the circuit boards.
4. Remove the 6 screws that secure the circuit board in the enclosure and replace with a new circuit board.
5. Carefully reinstall the harness plugs. Make sure that the plugs are in the correct location.
6. Return the machine to service or test.

CIRCUIT BOARD DIAGNOSTICS

The micro-processor circuit board has an on-board diagnostic capability. The diagnostic's feature is divided into two parts. The first part is the ability to monitor input devices for malfunction. The second part of the diagnostics feature is the tracking of the micro-processor sequence during operation of the machine and the output of an error code upon a malfunction.

These two diagnostic features provide a means to determine if the circuit board itself is faulty of if an input or output device is malfunctioning.

SEQUENCE MONITOR FEATURE

The sequence monitor feature of the diagnostics which have been designed into the circuit board is available at all times when the machine is turned on. Various messages will be displayed on the 2 digit L.E.D. display on the control enclosure door. These messages describe the operating condition of the machine and indicate various malfunctions during the cycling of the machine.

The first message will be a flashing "0 0". This message indicates that the fast warm-up circuit, designed to force the hot-knife to a proper welding temperature, is operating.

The time required is approximately 15 to 17 seconds from a cold start. Warm-ups from short interruptions will require proportionally less time to reach a proper temperature.

If the display fails to flash the digits "0 0" from a cold start-up, the fast warm-up feature of the circuit board is malfunctioning. To regain the fast warm-up feature, the circuit board must be replaced or repaired.

If the display is reading " - -", the machine is ready for cycling. Upon initiation of the strap cycle, the machine will perform a grip, tension - seal and cut off - feed sequence. If the machine malfunctions during the cycle, error messages, found in the Error Code Section, will appear.

SPECIAL SOFTWARE FEATURES

Machines equipped with an overhead light, are connected to illuminate anytime the machine error has occurred. This can be done by changing the connection on the Extender board terminal G9 to G8. Refer to the wiring diagram in this section for semi-automatic machines.

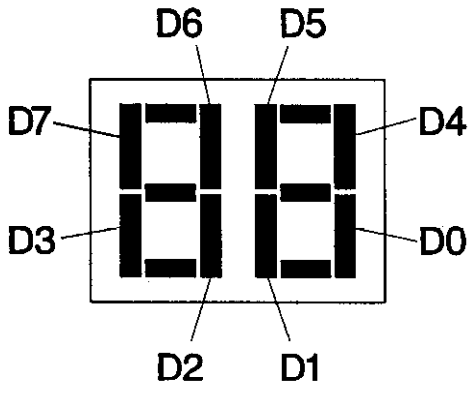
If the machine is first turned "ON", or an error is generated, or the clamp is de-selected, the clamp will raise to the top of its stroke. When a strap cycle is called for, and the clamp is selected, a fixed amount of time is added to the clamp down timer, but only for the first strap cycle. This is to allow the clamp to reach the bundle before the strap is tensioned around the bundle.

ELECTRICAL SYSTEM, Continued

INPUT DIAGNOSTICS

Using the eight vertical segments of the 2 digit display, the input diagnostics feature provides a means to identify malfunctions of input devices.

The vertical segments of the 2 digit displays are identified as follows:



To access the circuit board input diagnostics, follow the steps below:

1. Turn off the machine.

2. Press in and hold the CYCLE button.

3. Pull the Emergency Stop Switch to ON. In several seconds the display will show "88". Release the CYCLE button. If the CYCLE button is not pressed again within 0.5 seconds, diagnostic function "0" will be entered.

4. At this time the operator decides which of the thirteen diagnostic functions is to be entered. The functions are numbered from 0 to 12. Each time the CYCLE button is pressed and released, it will advance to the next numbered function. When the CYCLE button is released for .5 seconds, the function displayed will be entered.

   Function 0 - Index clutch solenoid
   Function 1 - Group 1 test
   Function 2 - Group 2 test
   Function 3 - Group 3 test
   Function 4 - Feed solenoid operation
   Function 5 - Take up solenoid operation
   Function 6 - Potentiometer timer display
   Function 7 - Comp. valve solenoids
   Function 8 - High tension winder
   Function 9 - Slow motion machine cycle

The following functions pertain to the optional auto cut-off and refeed device.

   Function 10 - Cam motor
   Function 12 - Drive motor
   Function 13 - Infeed solenoid
   Function 14 - Dispenser Clutch
   Function 15 - Head Clutch Relay

NOTE: Functions 10, 11 & 12 pertain to the optional auto cut-off and refeed device.

Function 0 is for the cycle index solenoid. The strapping head will index one step at a time for each push of the button. There are four electrical stopping points: Weld-Cool, Anvil Open, Feed and Platen Grip.

If diagnostic functions 1, 2, or 3 are selected, the display will show the group segments, and the operator must remember which group was selected.

If diagnostic functions 4, 5, 6, 7, or 8 are selected, the display will show that number.

Function 4, if selected, permits energizing the feed solenoid by pressing the CYCLE button once to energize and once again to de-energize.

Function 5 is for the take-up solenoid, energized in the same manner.

If diagnostic function 6 has been selected, refer to CIRCUIT BOARD POTENTIOMETER ADJUSTMENTS in this section.

Function 7 operates the clamp pneumatic solenoids to allow setting of the flow controls on machines equipped with compression.

Function 8 is for the purpose of testing the high tension winder. If the Index button is depressed after having selected function 8, the winder clutch will energize for .15 seconds only. If it is to be tested again, the machine will have to be reset, and function 8 will have to be selected again.

Function 9 is the slow motion machine cycle for diagnostic purposes. Push and release the CYCLE button once and the machine will go through a typical strap cycle pausing for approximately five seconds between each index position/function of the head.

Functions 10 and 12 are used with machines equipped with automatic cut-off/refeed option.

Function 10, if selected, permits energizing of the ACR cam motor when the CYCLE button is pressed.

Function 12, if selected, permits energizing of the ACR drive motor when the CYCLE button is pressed.

Function 13, if selected, permits energizing of the infeed solenoid by pressing the CYCLE button.

Function 14, if selected, energizes and de-energizes the dispenser clutch by pressing the CYCLE button.

Function 15, if selected, energizes and de-energizes the head clutch relay by pressing the CYCLE button.

Function 16, if selected, opens and closes the bundle stop gates by pressing the CYCLE button.

MICROPROCESSOR INPUT TEST

GROUP TEST 1, 2 & 3

NOTE: Any device connected to an input will illuminate its related segment on the display, if that input is in the selected group, and the input device is in a non-conducting state. For example, if a normally open contact is connected to terminal A-8 and group one has been selected, then the related segment on the display is "D 0", which would be illuminated.

If the contact is closed, then the display segment "D 0" would extinguish in response. All eight segments (D 0 to D 7) will respond in this manner according to the status of their related input devices, for that selected group.

FAULT TEST FOR 1PRS, 3PRS AND 4PRS.

1. Remove the PSM drive belt.
2. If the machine has any pneumatic options installed, make sure compressed air is disconnected at the source unless adjustments are being made.

⚠WARNING

This test must be conducted in areas which contain machine elements. The PSM motor will be rotating while conducting this test. Use care to avoid personal injury.

To test 1PRS, 3PRS, and 4PRS, manually release the spring clutch. Simultaneously rotate the clutch shaft by manually turning the jackshaft drive sheave in a clockwise direction. This action will rotate the control target past 3PRS, 4PRS and 1PRS. If the display segments D7, D4 and D5 do not turn on and off as described above, the corresponding proximity switch is either faulty or out of adjustment.

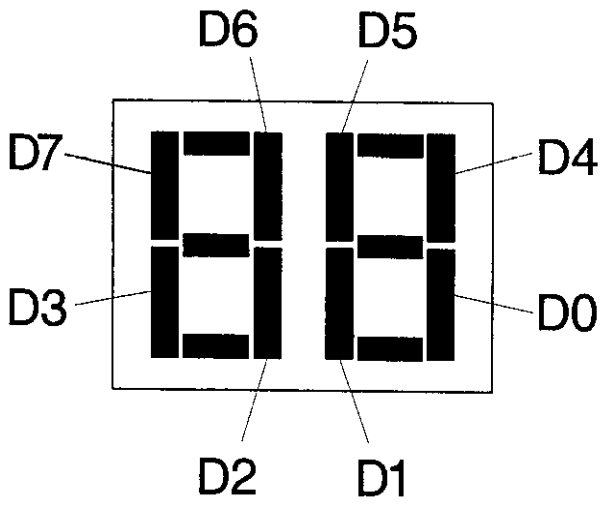
NOTE: Display segments related to proximity switches illuminate in opposition to LED's on the barrel of the proximity switch. Display segments related to photo switches do not illuminate if the photo switch is blocked.

MICROPROCESSOR INPUT TEST

SEGMENT	INPUT	DEVICE CONNECTED IN GROUP 1	
D0	A8	Auto cut-off, prefeed stall	(Interval Switch) option
D1	A7	Out of strap switch	(2PRS)
D2	A6	Dispenser accumulator	(6PRS)
D3	A5	High tension	(5PRS)
D4	A4	Cycle control	(4PRS)
D5	A3	Feed position	(3PRS)
D6	A2	Feed limit	(1LS)
D7	A1	Tension	(1PRS)

SEGMENT	INPUT	DEVICE CONNECTED IN GROUP 2	
D0	-	-	-
D1	-	-	-
D2	-	-	-
D3	-	-	-
D4	A13	Cycle (strap)	(1APB) (1PB)
D5	A12	Clamp (on/off)	(1SS)
D6	A11	High tension (on/off)	(2SS)
D7	-	-	-

SEGMENT	INPUT	DEVICE CONNECTED IN GROUP 3	
D0	-	-	-
D1			
D2	-	-	-
D3	-	-	-
D4	C7	Clamp-Up limit switch	(7PRS) option
D5	C6	Clamp return limit	(Jumper wire)
D6	-	-	-
D7	C4	Auto cut-off select	(Cycle Switch)



ERROR CODES

CODE	INDICATED SEQUENCE MALFUNCTION	COMMENTS
02	Excessive time to feed strap.	• Feed sequence failure. • Feed wheel slippage. • Chute system obstruction. • Chute system binding or an open gap in chute. • Feed solenoid 3SOL failure.
03	Excessive time waiting for the cycle sensor 4PRS to read target on cycle cam.	• Refer to INPUT DIAGNOSTICS for 4PRS test. • Check proximity clearance to target.
04	Excessive time waiting for the cycle sensor 4PRS to clear target on cycle cam.	• Refer to INPUT DIAGNOSTICS for 4PRS test. • Check proximity clearance to target.
05	Excessive time for take-up.	• Misgrip. • Strap breakage during tensioning. • Tension pinch roll slippage on strap. • Failure of take-up solenoid 4SOL to operate.
07	1LS not detecting strap on power-up, or 1LS not resetting at end of strap cycle.	• Normal condition - press Cycle button to clear. NOTE: Strap may be applied when Cycle button is pushed. • Check 1LS operation (Sticky lever or debris)
08	Take-up wheels stalled during automatic strap cut-off operation.	• Clear jammed strap from strap guides at take-up wheel area.
13	Out of phase or drive belt is off pulley. 1PRS not detecting rotating clutch plate.	• Switch incoming power leads. • Install drive belt. • Check movement of clutch plate. • Refer to input diagnostics for 1PRS test.
14	Attempting to feed while head is not in feed position.	• Check Index Clutch adjustments.
17	Excessive time during take-up waiting to sense notch in feed cam.	• Refer to INPUT DIAGNOSTICS for the 3PRS test.
18	Dispenser/Accumulator malfunction. 6PRS (Accumulator) not tripped.	• Check accumulator box and strap lever. • Clear strap path and reload strap chute. • Check 6PRS adjustment.
19	Accumulator box not full when automatic refeed is attempted.	• Clear strap from machine and reload.

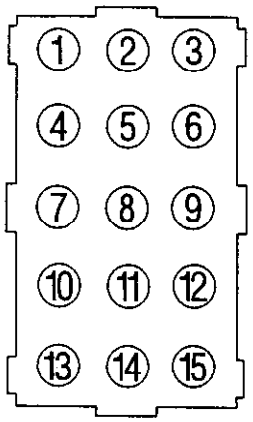
ELECTRICAL SYSTEM, Continued

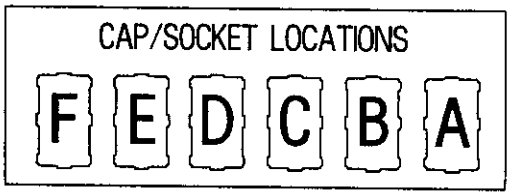
CODE	INDICATED SEQUENCE MALFUNCTION	COMMENTS
21	A.C.R. positioning error.	• Check cam motor. • Check interval & cycle switches.
26	Attempting to start a strap cycle in the feed position.	• Clear machine and re-feed strap. Reset machine by turning power OFF for 1 second. Restart machine and resume strapping.
32	Out of strap.	• Clear PSM of strap. • Reload new coil of strap.
33	A.C.R. not in Home position at machine power-up.	• Check cam motor. • Check interval & cycle switches.
88	Diagnostics ready to be entered.	
99	Conveyor eye blocked.	• Clear conveyor and restart machine. • See special software features on page 5-4 of this manual.
AU	Machine in Automatic mode, ready to cycle.	
BP	Machine in Bypass mode.	
--	Machine in Manual mode, ready to cycle.	
00	Machine in Warm-Up mode.	

ENCLOSURE SOCKETS & WIRE PINS

The illustrations below should be used for tracing wires within the electrical enclosure as well as the rest of the machine. Wire designations of the electrical schematic, shown later in this section will correspond to a matching enclosure socket and pin number.

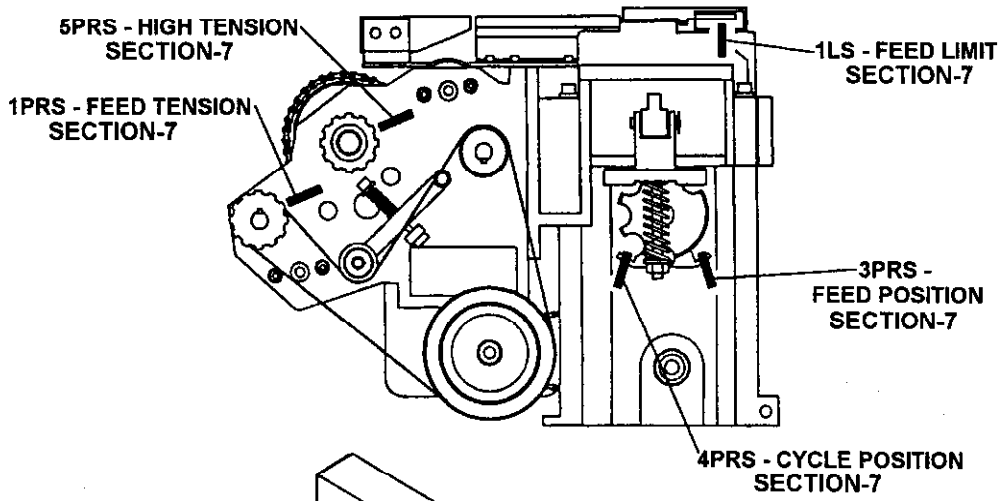
CAP/SOCKET
PIN LOCATIONS



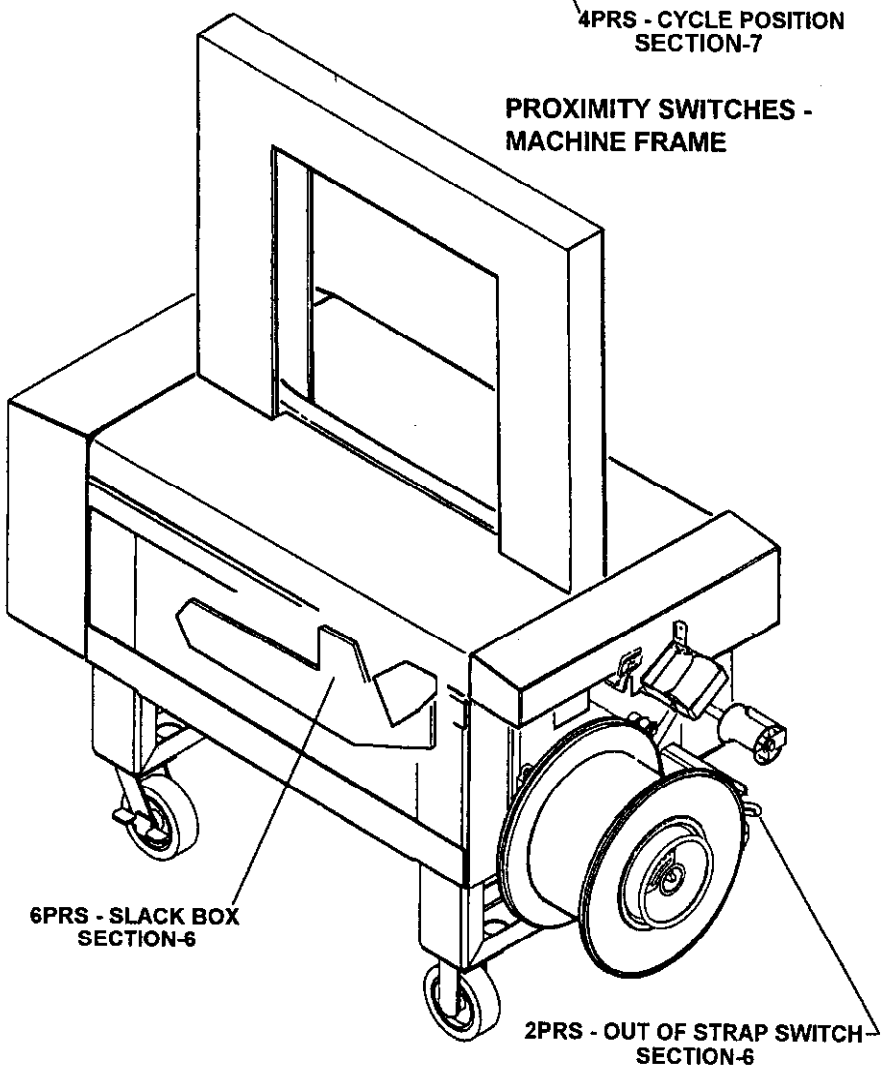


PROXIMITY SWITCH LOCATIONS

PROXIMITY SWITCHES - HEAD



PROXIMITY SWITCHES - MACHINE FRAME



SEMI-AUTO VOLTAGE KITS

VOLTAGE		115V 60HZ				208/230V 60HZ			
PHASE		1 PHASE				3 PHASE			
MACHINE BILL OF MATL		421551		ACR 421553		421554		ACR 421555	
KEY	DESCRIPTION	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.
1	MOTOR ASSY	1	420162			1	293159		
2	OVERLOAD RELAY (1M)	1	299131	1	299131	1	293542		
3	FUSE	2	299135	2	299135	3	293011		
4	TRANSFORMER	REF	264808			REF	265097		
5	RELAY	REF	293602						
6	AC CONTACTOR	REF	299133			REF	293357		
7	RELAY 7, 8 CR	N/A		2	272486	N/A		2	272486
8	RELAY SOCKET			2	272487			2	272487
9	PC BOARD			1	292899			1	292899
10	RIBBON			1	278826			1	278826
11	STANDOFF			4	269100			4	269100
14	RESISTOR (43 OHM 1/2W)			1	431806			1	431806
19	CONTROL PANEL	1	420700			N/A			
		-1	420391						

NOTE

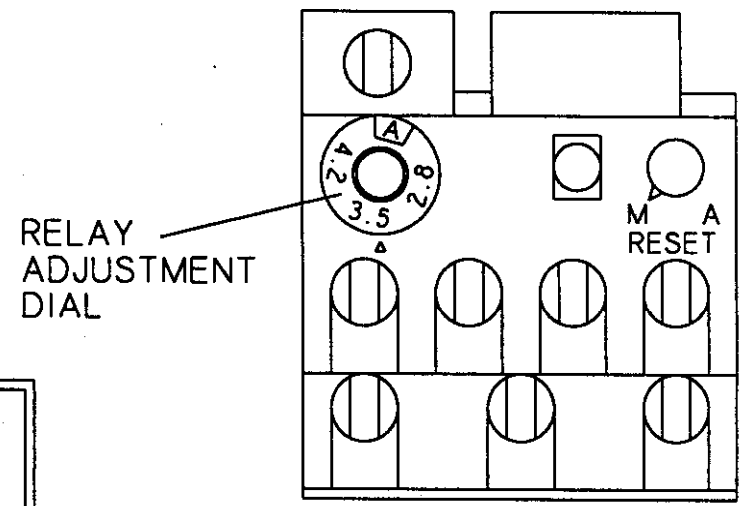
1: ACR = MACHINE WITH AUTO CUT-OFF/REFEED OPTION

SEMI-AUTO VOLTAGE KITS

	380 50HZ				460V 60HZ				575V 60HZ			
	3 PHASE											
	421556		ACR 421557		421558		ACR 421559		421560		ACR 421561	
KEY	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.
1	1	293842			1	293159			1	293658		
2	1	293541							1	293720		
3	3	293010										
4	1 -1	272042 265097			REF	265097			1 -1	272415 265097		
5	1 -1	293843 293602			REF	293602						
6	1 -1	293844 293357			REF	293357						
7	N/A		2	272876	N/A		2	272486	N/A		2	272486
8			2	272487			2	272487			2	272487
9			1	292899			1	292899			1	292899
10			1	278826			1	278826			1	278826
11			4	269100			4	269100			4	269100
14			1	431806			1	431806			1	431806
19	N/A											

OVERLOAD RELAY SETTINGS (KEY 2)

VOLTAGE	RELAY	SETTING
208/230 60Hz 3Ø	293542	3.3
380/415 50Hz 3Ø	293541	1.6
460 60Hz 3Ø	293541	1.7
575 50Hz 3Ø	293720	1.3



⚠ WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.

CONTROL PANEL ASSEMBLY SEMI-AUTOMATIC 3 PHASE

420391-20

KEY	QTY	PART NO	DESCRIPTION
1	1	420386	ENCLOSURE
2	1	278021	BEZEL AND FILTER
3	1	293340	DISCONNECT HANDLE (RED/YEL)
6	1	293338	COUNTER (7 DIGET NON-RESETTABLE)
7	2	293787	M3 X 12 SFHCS
8	1	293923	GROUND BUSS BAR
9	1	420387	COVER
10	1	420388	MTG PLATE
11	1	010028	M5 X 12 SHCS
12	1	010076	5MM LOCKWASHER
13	1	420385	LATCH
14	1	293351	PUSH BUTTON (1 N.O.) CYCLE BLACK
15	REF	431806	RESISTOR 43 OHMS 1/2 W
16	1	293352	LEGEND PLATE (MANUAL CYCLE)
17			
18	1	169440	M5 HEX NUT
19	1	420550	ILL. P.B. SWITCH (RED 3 POS)
20	1	292819	LEGEND PLATE (STOP START)
21	REF	420551	LED-RED
22	REF	293960	PROM CHIP CHART
23	1	293543	P.C. BOARD ASSEM.
24	2	293363	TERMINAL BLOCK (5 POS)
25	3	293361	TERMINAL BLOCK (15 POS)
26	REF	292899	EXPANDER BOARD ASSEM.
27	REF	278826	RIBBON CABLE ASSEM.
28	1	293362	TERMINAL BLOCK (10 POS)
29	1	265097	TRANSFORMER (208/230/460V 60HZ)
29	REF	272042	TRANSFORMER (380/415V 50 HZ)
29	REF	272415	TRANSFORMER (575V 60HZ)
30	1	292824	BRIDGE RECTIFIER (40A 800V)
31	1	420052	CAPACITOR (10,000 UF 50V)
32	1	292818	CAPACITOR BRACKET

KEY	QTY	PART NO	DESCRIPTION
33	A/R	420138	TORQUE SEAL
34	REF	269100	STANDOFF - PCB
35	1	293607	FUSE BLOCK (HIGH VOLTAGE)
36	1	292835	RELAY 2CR 'AB'
37	1	421870	RAIL SOCKET
38	REF	293010	FUSE 7.5A 460V 380/415V 575V
38	REF	293011	FUSE 10A 208/230V
39	1	293355	FUSED DISCONNECT SWITCH
40	1	293356	DISCONNECT CONNECTING ROD
41	A/R	292831	TERMINAL BLOCK (CHANNEL MTG.)
42	7	293364	CONNECTOR-CAP (15 POS)
43	A/R	293365	CONTACT-SOCKET
44	7	293366	KEYING PLUG
45	2	292477	FUSE 3A (4FU 5FU)
46	1	293012	FUSE 10A (6FU)
47	1	293014	FUSE 2A (7FU)
48	3	433295	FUSE 3.2A (8FU, 9FU, 10FU)
49	5	292829	FUSE TERMINAL BLOCK
50	2	262765	3MM EXT LOCKWASHER
51	2	420456	RESISTOR 100K 1/4W
52	1	269121	OUTPUT MODULE
53	1	293357	AC CONTACTOR (24 VAC COIL)
53	REF	293844	AC CONTACTOR (24 VAC 50HZ COIL)
54	2	174364	M3 HEX NUT
55	REF	293541	OVERLOAD RELAY (460V)(380/415)
55	REF	293542	OVERLOAD RELAY (208/230V)
55	REF	293720	OVERLOAD RELAY (575V)
56	1	293602	RELAY (60 HZ. COIL)
56	REF	293843	RELAY (50 HZ. COIL)
57	REF	272486	RELAY 4CR, 7CR, 8CR, 9CR, 10CR
58	REF	272487	SOCKET
59	1	420807	RESISTOR 1.2K 2W
60	1	NOTE 10	U.L. LABEL
61	A/R	280928	DIN RAIL

NOTES

[1] CONTROL PANEL ASSEMBLY WIRED PER SCHEMATIC 420393.

[2] LED (KEY 21) SUPPLIED AS PART OF ILLUMINATED SWITCH (KEY 19).

[3] TAKE-UP POT. P6 (REF KEY 23-PC BOARD) ADJUSTABLE ON MAG. FIXED SETTING ON SPB-FACTORY ADJUSTED FULLY CLOCKWISE AND SECURED WITH KEY 33 (TORQUE SEAL).

[4] KEY 15,26,27,34,57,58,61 AUTO CUT-OFF OPTION PARTS REQUIRED. SEE BOM/MATRIX 421550.

[5] KEY 57,58 ERROR RELAY OPTION ADDITIONAL QTY. REQUIRED SEE BOM. 293922

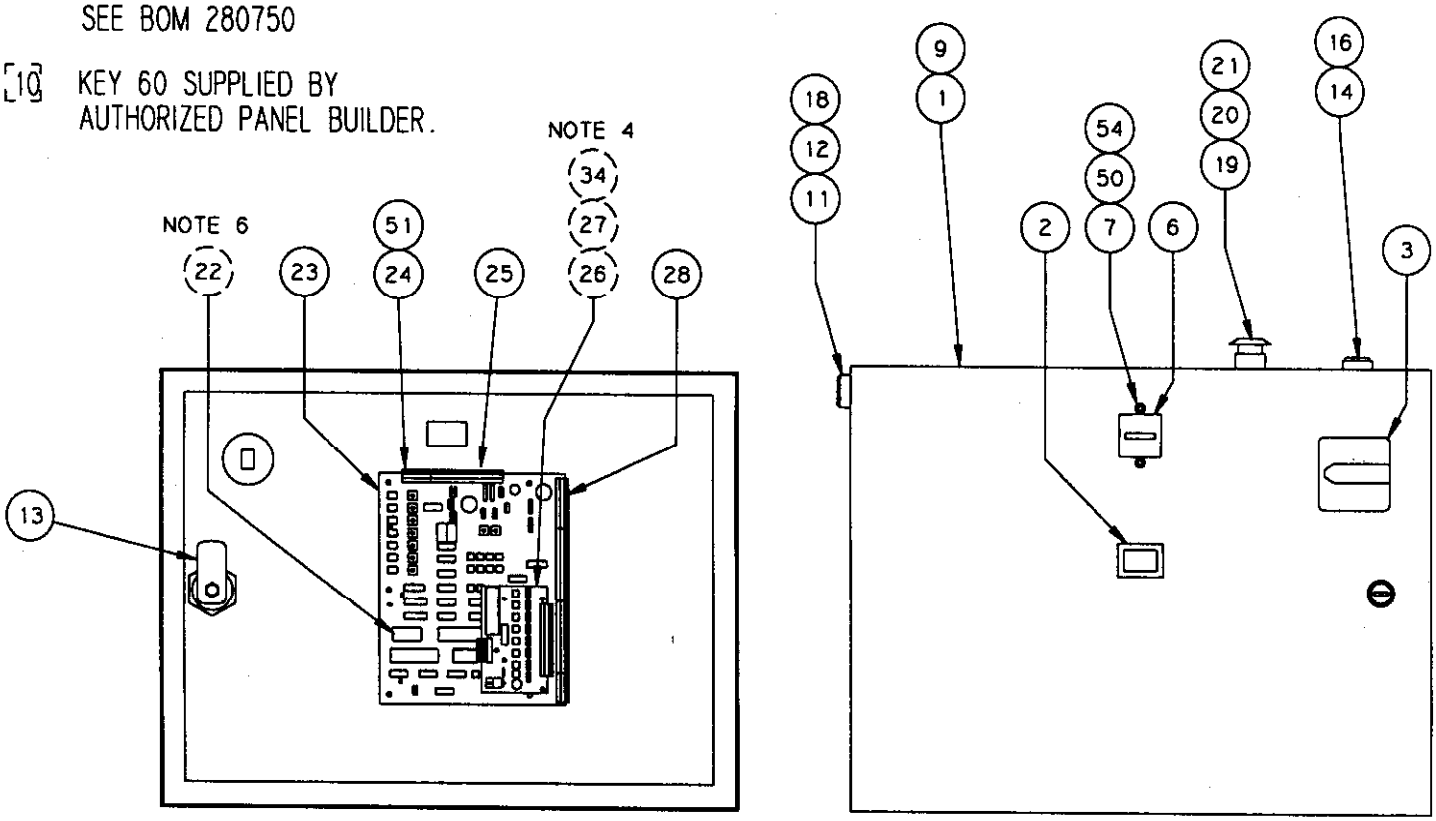
[6] KEY 22,38 AND 55 SUPPLIED BY SIGNODE

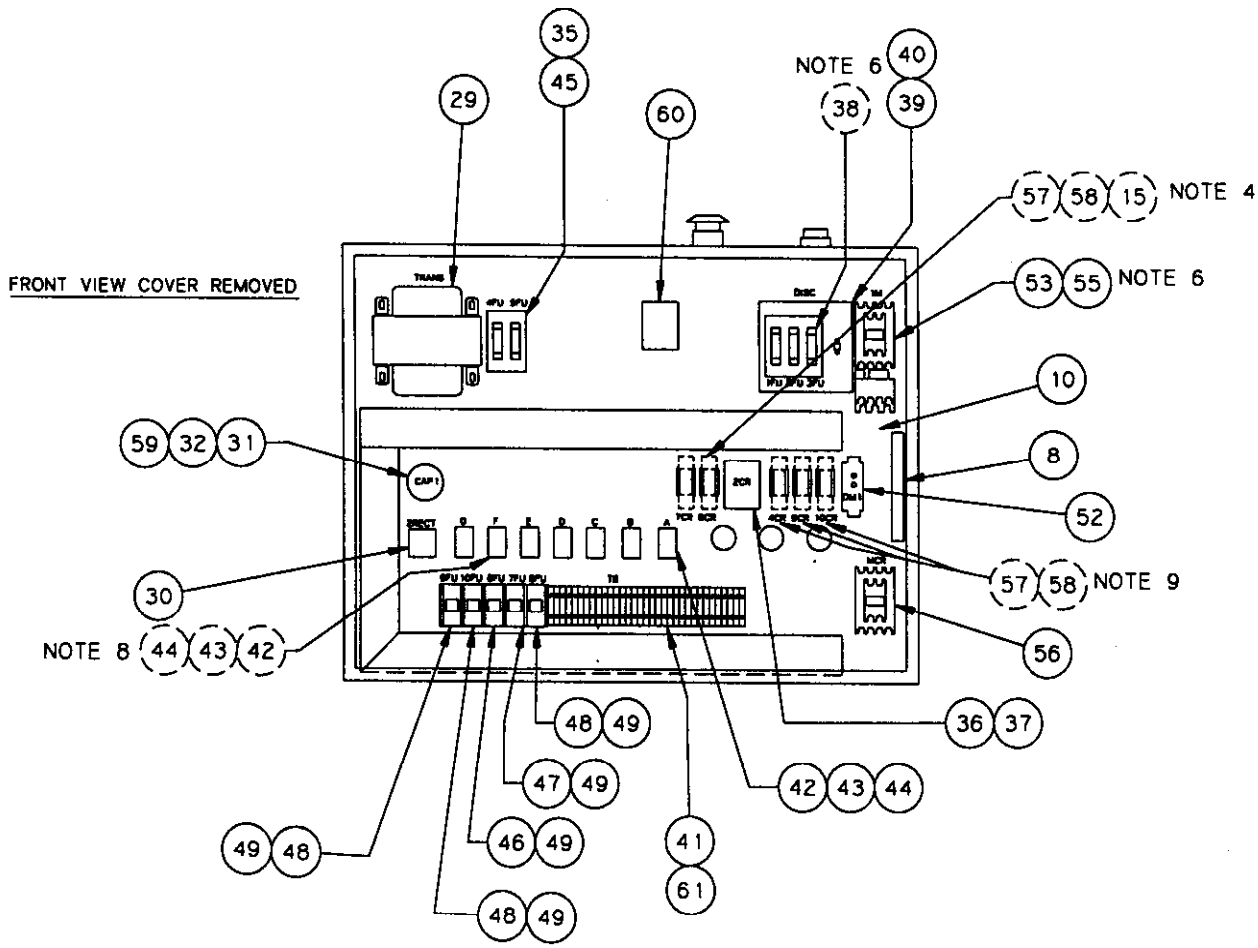
[7] FEED POT. P7 (REF KEY 23-PC BOARD) FIXED SETTING ON SPB-FACTORY ADJUSTED FULLY CLOCKWISE AND SECURE WITH KEY 33 (TORQUE SEAL).

[8] KEY 42,43,44 ANVIL GUIDE AIR OPTION ADDITIONAL QTY. REQUIRED SEE BOM. 421429

[9] KEY 25, 27, 34, 57 AND 58
OPERATORLESS INTERLOCK OPTION
ADDITIONAL QTY. REQUIRED
SEE BOM 280750

[10] KEY 60 SUPPLIED BY
AUTHORIZED PANEL BUILDER.





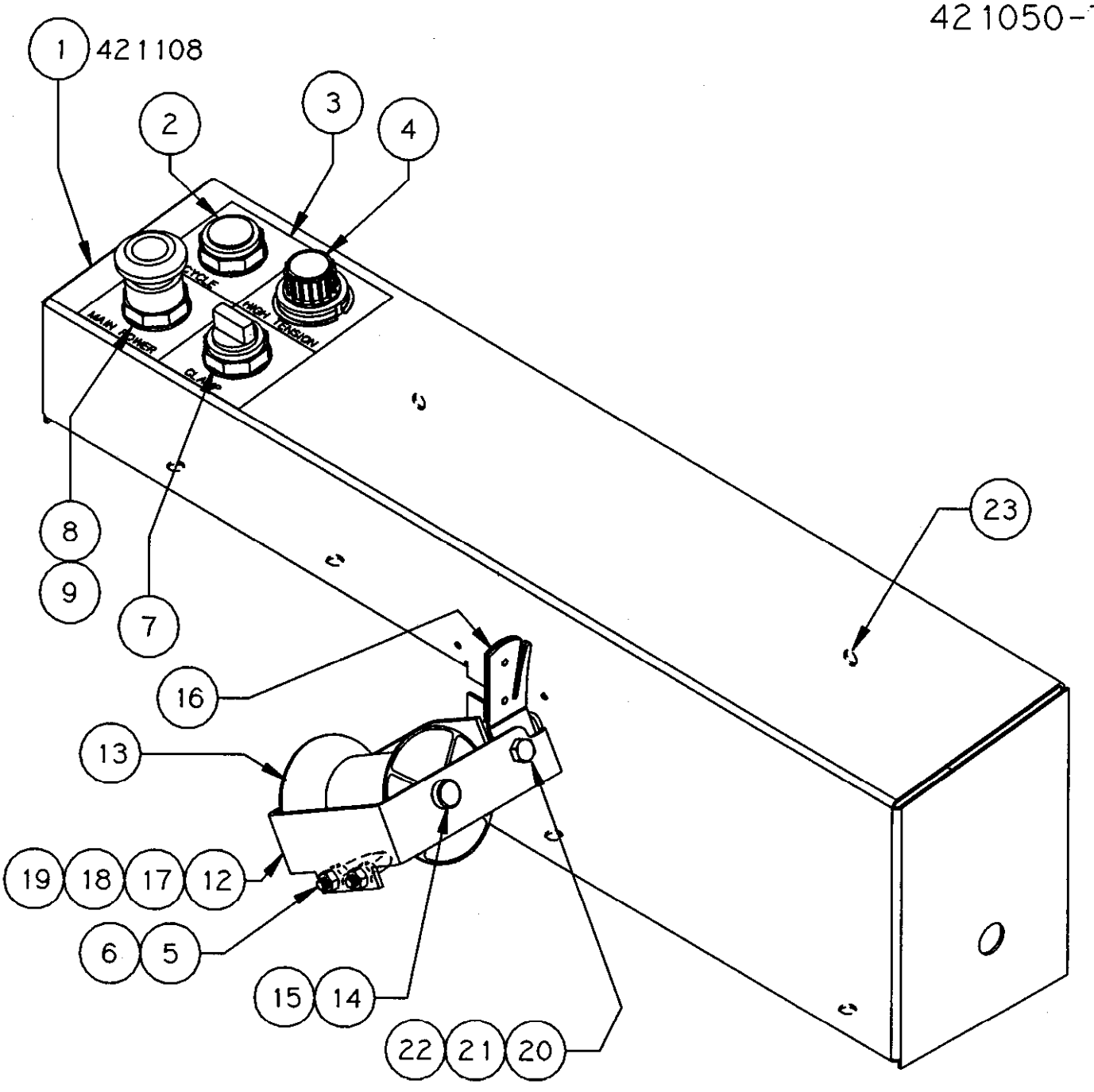
SEMI - AUTO MAIN CONTROL ASSY

CHUTE SIZE		ALL CHUTES EXCEPT 33 X 36				ONLY 33 X 36			
BILL OF MATERIAL		STD/DC 421022		W/SC 421023		STD 421024		W/SC 421025	
KEY	DESCRIPTION	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.
1	PB BOX	1	421108	1	421110	1	421109	1	421111
2	PB SWITCH-BLACK	1	293351						
3	LEGEND DECAL	1	420905	1	420906	1	420905	1	420906
4	TENSION POT ASSY	1	420860						
5	1/4 U-BOLT	1	432194						
6	1/4-20 HEX NUT	4	006227						
7	HOLE PLUG	1	293715		N/A	1	293715		N/A
	SEL. SWITCH-CLAMP		N/A	1	293341		N/A	1	293341
8	ILLUMINATED PB	1	420550						
9	LAMP	REF	420551						
10									
11	ELEC. DIAGRAM	REF	420393						
12	IDLER ROLL BRACKET	1	420780						
13	ROLLER	1	420691						
14	5/8" PIN	1	420779						
15	5/8" E-RING	1	420680						
16	STRAP CUTTER	1	420801						
17	M5 X 12 SHCS	3	010028						
18	5mm LOCKWASHER	3	010076						
19	5mm hex nut	3	169440						
20	M8 x 20 HHCS	1	252261						
21	8mm LOCKWASHER	1	162381						
22	8mm HEX NUT	1	164953						
23	M6 NUTSERT	6	272388						

NOTE 1: USE BOM 421022 WITH DUAL COMPRESSION.

⚠ WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.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19 18 17 12
6 5
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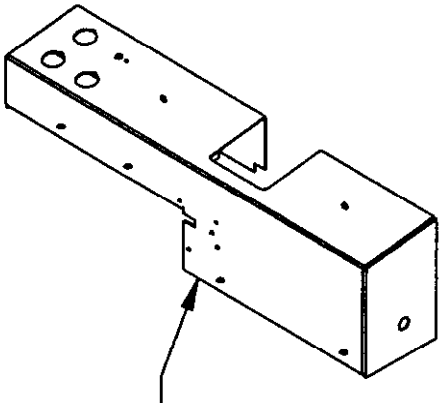
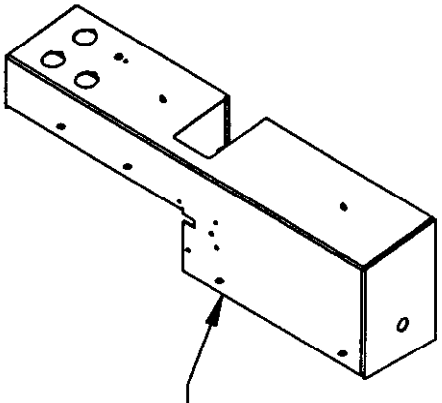
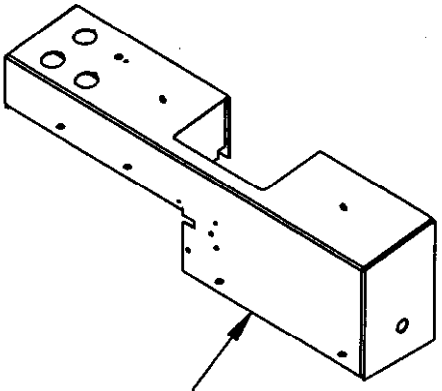
22 21 20

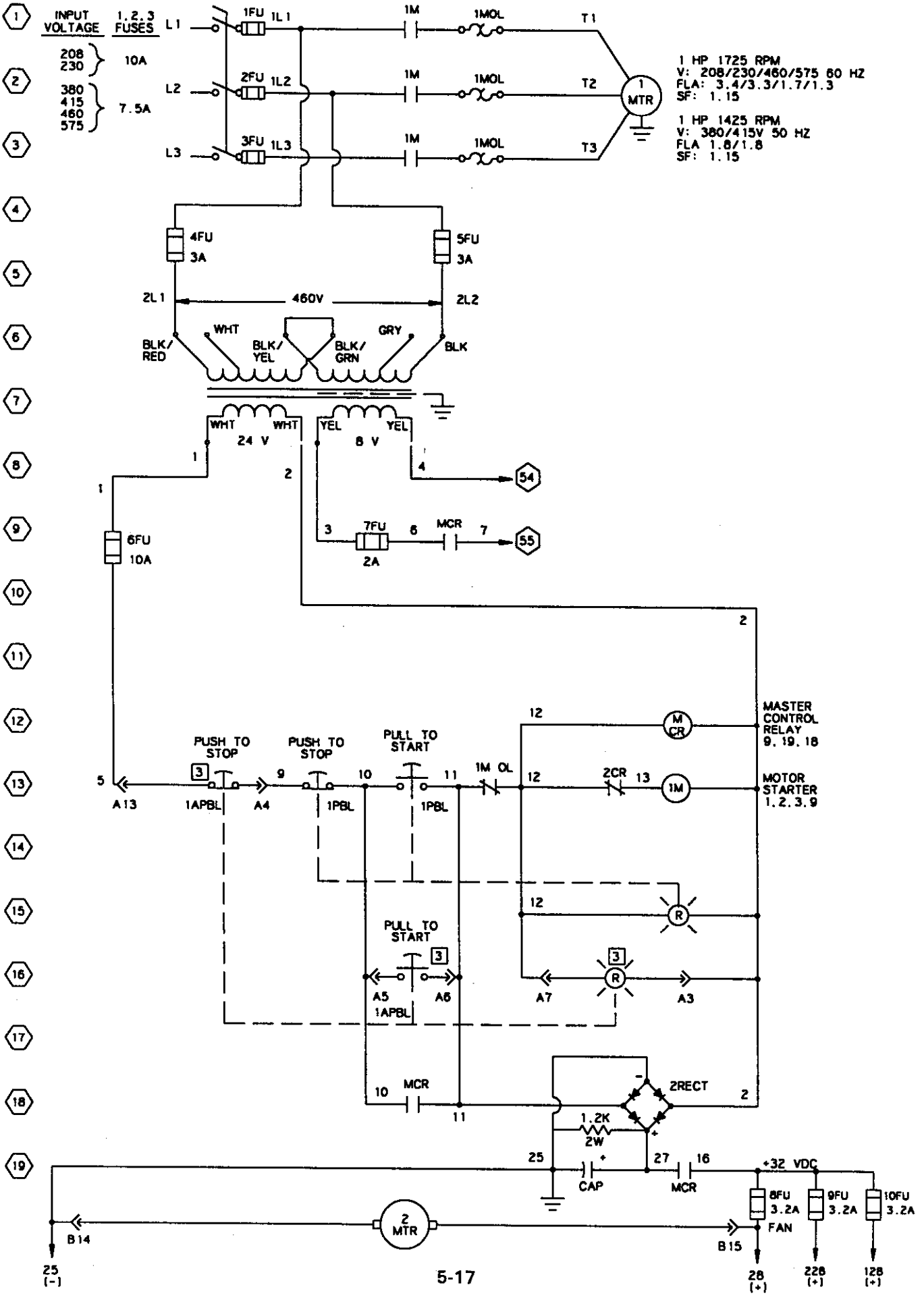

1 421110
W/SINGLE
COMPRESSION


1 421109
33 X 36

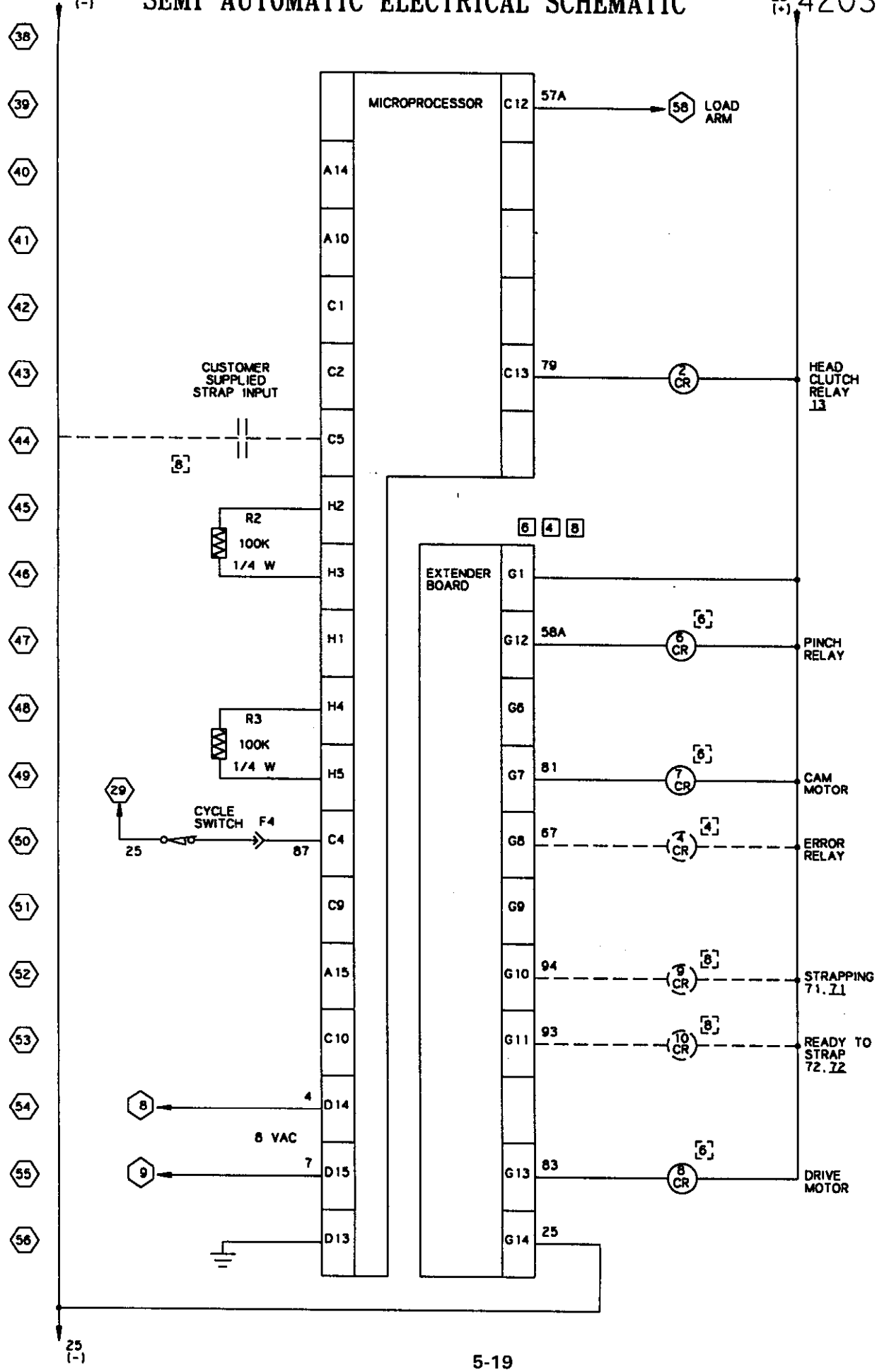

1 421111
33 X 36
W/SINGLE
COMPRESSION

SEMI-AUTOMATIC ELECTRICAL SCHEMATIC

420393-13

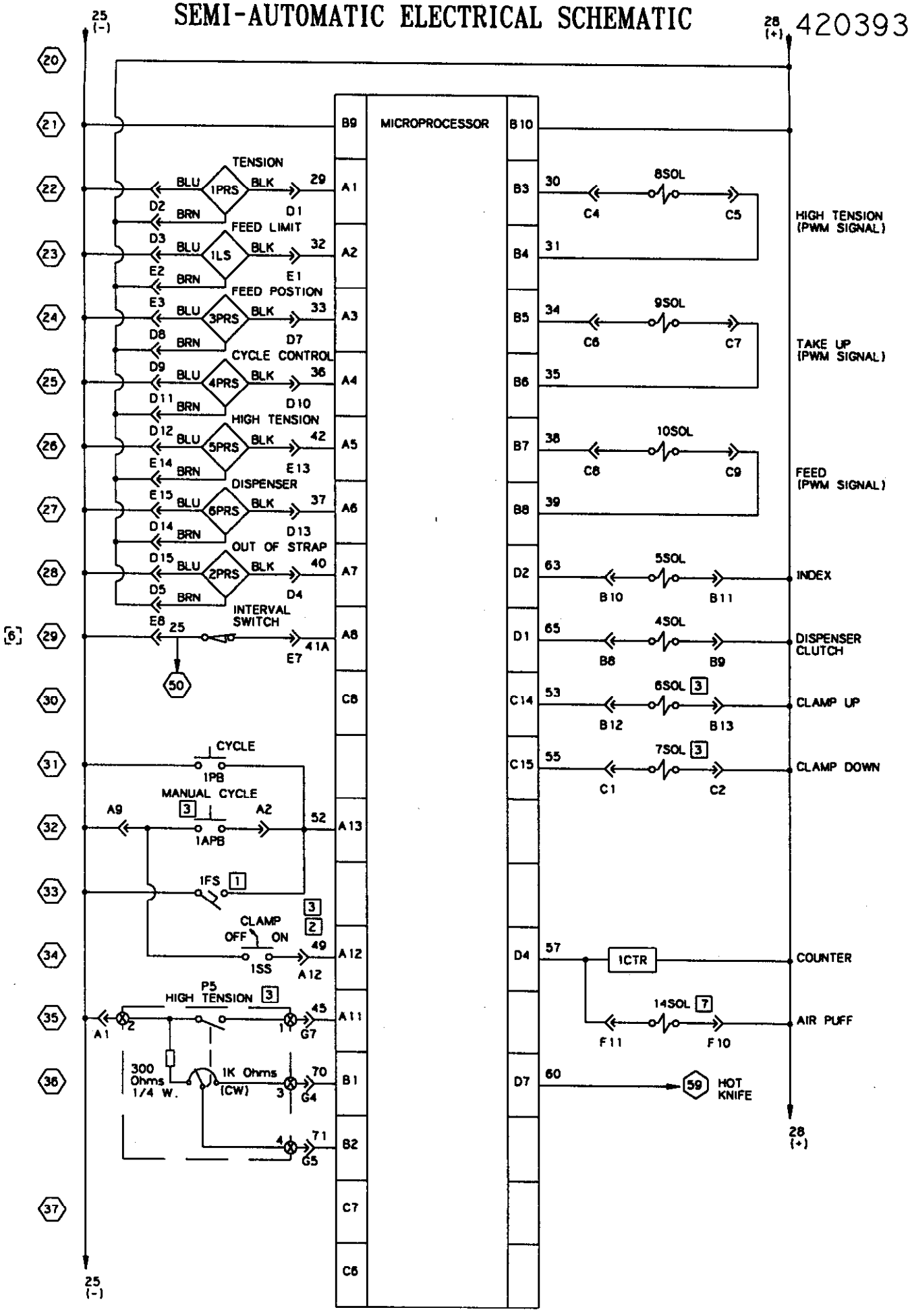


SEMI-AUTOMATIC ELECTRICAL SCHEMATIC 420393-13

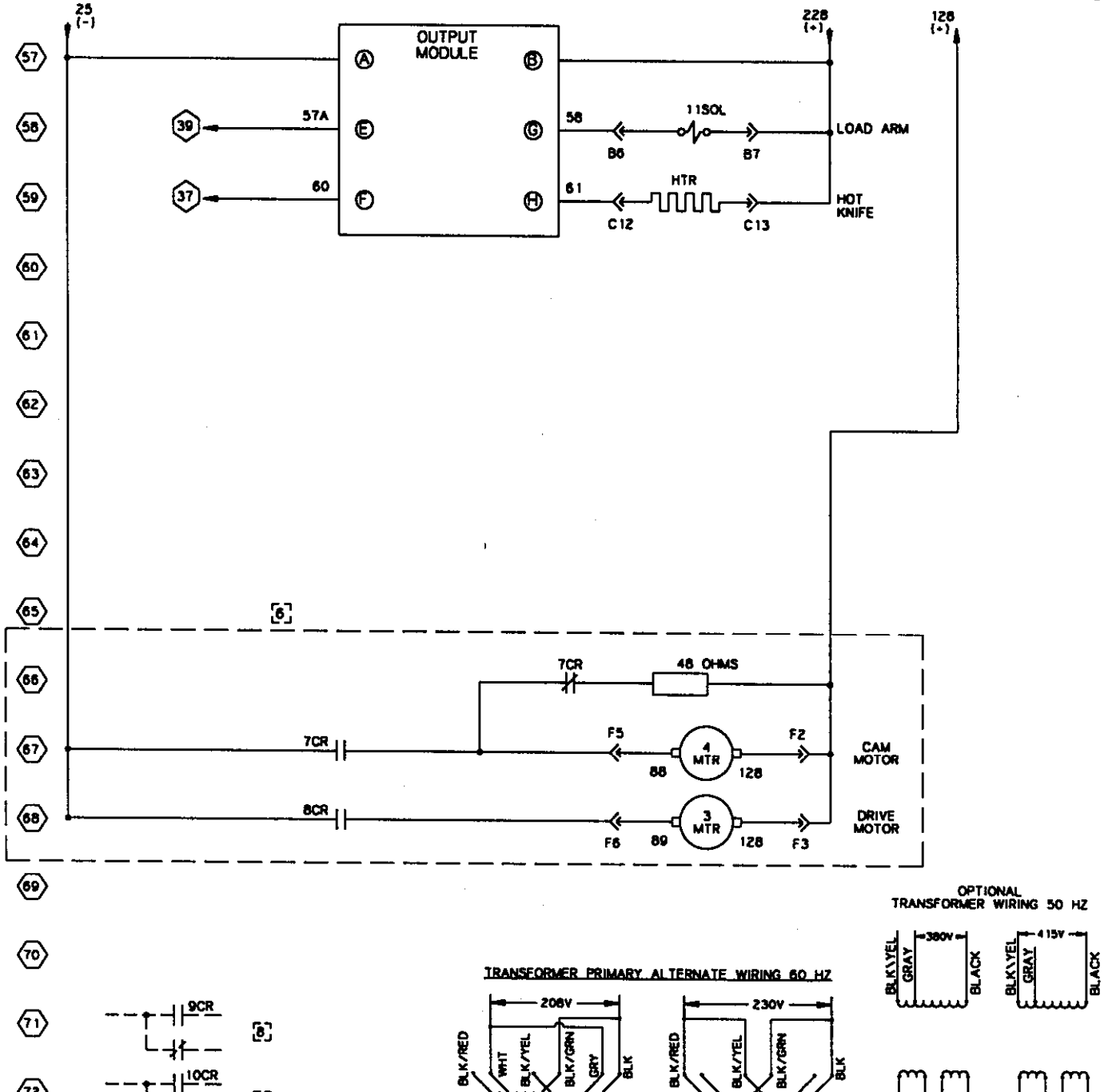


SEMI-AUTOMATIC ELECTRICAL SCHEMATIC

420393-13



SEMI-AUTOMATIC ELECTRICAL SCHEMATIC 420393-13



NOTES

1. USED ONLY ON FOOTSWITCH OPTION. (33)
2. USED ONLY ON CLAMP OPTION. (34)
3. MAIN CONTROLS (34) (13) (16) (32)
4. USED ONLY ON ERROR RELAY OPTION. (50)
6. USED WITH AUTO CUT-OFF OPTION. TO DISABLE ACR, UNPLUG INTERVAL AND CYCLE SWITCH WIRE HARNESS. (4) (29) (30) (47) (49) (55) (86) (87) (88)
7. OPTIONAL (35)
8. USED ONLY ON OPERATORLESS INTERLOCK OPTION
   9CR IS ENERGIZED WHILE MACHINE IS STRAPPING (NOT DURING FEED)
   10CR IS ENERGIZED WHEN MACHINE IS READY TO STRAP (AFTER FEED COMPLETE)
   CUSTOMER SUPPLIED INPUT CONTACT IS CLOSED TO APPLY A STRAP.
   MACHINE WILL ONLY RESPOND WHEN 10CR IS ENERGIZED.
   CONTACT MUST BE CLOSED FOR 100 MILLISECONDS OR UNTIL 9CR ENERGIZES.

(44) (52) (53) (71) (72)

LAST WIRE NO. USED - 228.

SURETYER SEMI-AUTOMATIC MACHINES

STRAP SIZE	SUPER HIGH TENSION WINDER	ACR DEVICE	PART NUMBER (CHIP VER.)	NOTE
100	NA	*	280663 (SPB40XJ)	
200/600/700	NO	NO	259903 (SPB96XJ)	1
	NO	YES	280670 (SPB60XJ)	5
600/700	YES	NO	259902 (SPB71XJ)	2
	YES	YES	433276 (SPB58XJ)	4

SURETYER SEMI-AUTOMATIC MACHINES WITH OPERATORLESS INTERLOCK

STRAP SIZE **	SUPER HIGH TENSION WINDER	ACR DEVICE	PART NUMBER (CHIP VER.)	NOTE
200/600/700	NO	NO	259536 (SPB47XJ)	
	NO	YES	280671 (SPB61XJ)	
600/700	YES	NO	259537 (SPB72XJ)	3
	YES	YES	433277 (SPB62XJ)	

* With or without ACR option.
** 100 Series strap not available on operatorless interlock semi-auto SureTyer.

NOTES:

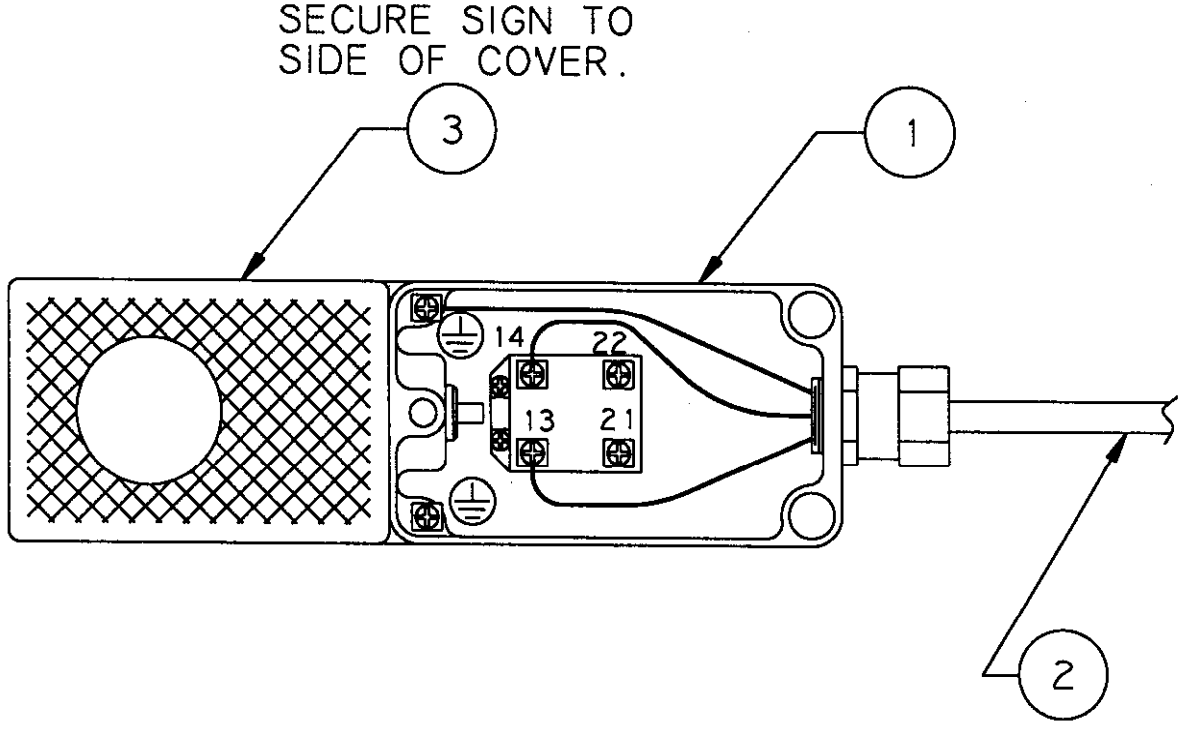
1. Use chip Part No. 280673 (Ver. SPB67XJ) for machines using high speed strapping option.
2. Use chip Part No. 433278 (Ver. SPB73XJ) for machines using high speed strapping option.
3. Use chip Part No. 433289 (Ver. SPB88XJ) for machines using high speed strapping option.
4. Use chip Part No. 433292 (Ver. SPB91XJ) for machines using high speed strapping option.
5. Use chip Part No. 433293 (Ver. SPB94XJ) for machines using high speed strapping option.

⚠ WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.

FOOTSWITCH ASSEMBLY

KEY	DESCRIPTION	QTY	PT. NO.
1	FOOTSWITCH	1	280778
2	CABLE ASSEMBLY	1	280779
3	WARNING SIGN	1	433300



CONTACT: 13 OPEN - WIRE 52 BLACK
14 OPEN - WIRE 25 WHITE
21 CLOSED
22 CLOSED

GROUND - GREEN

DRIVE MOTOR ASSEMBLIES, SEMI-AUTO MACHINES

259990-1

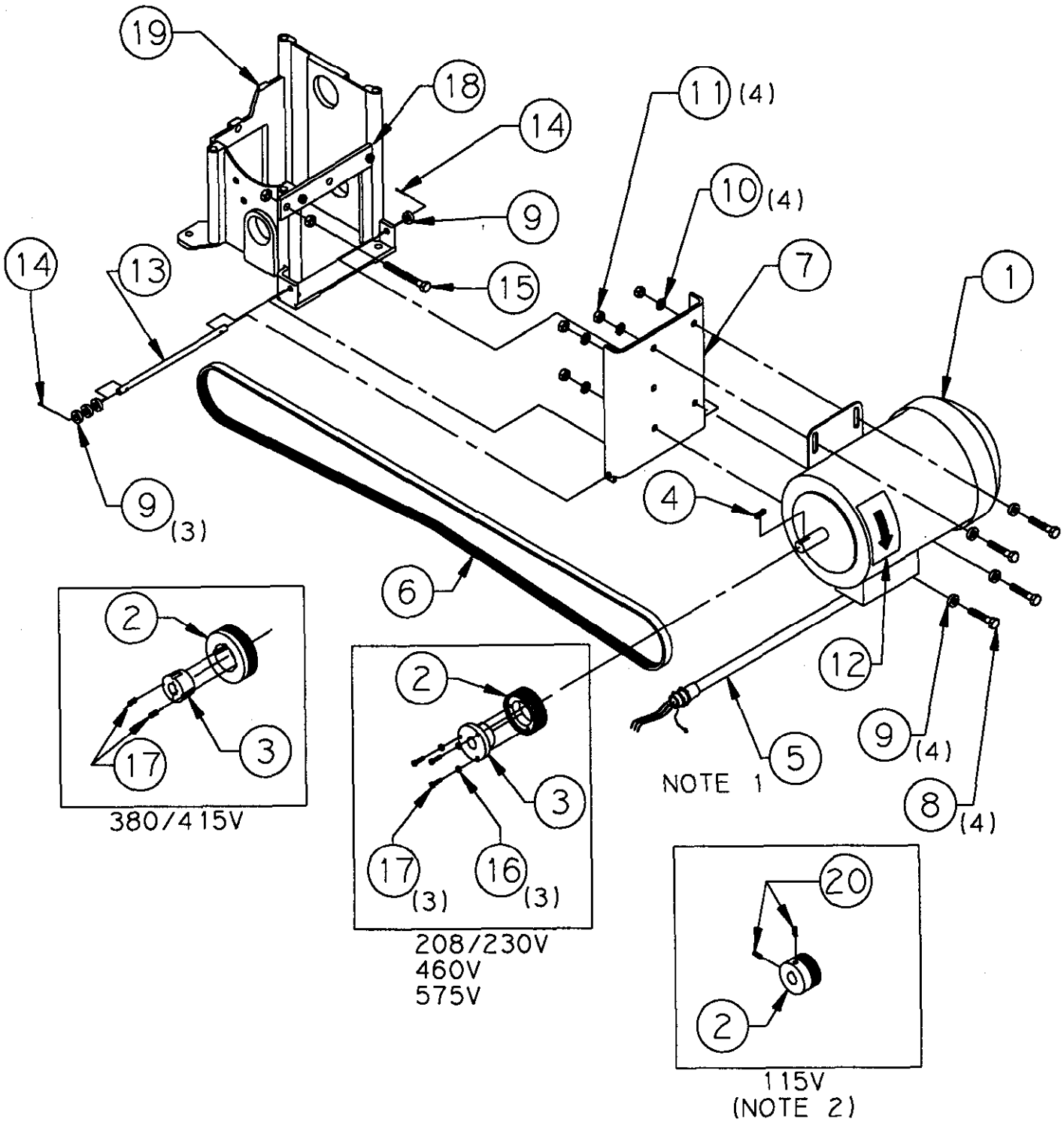
VOLTAGE		115V		208/330V		308/415V		575V	
BILL OF MATL		420162		293159		293842		293658	
KEY	DESCRIPTION	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.
1	1 H.P. TEFC MOTOR	1	299919	1	293158	1	293841	1	293657
2	SHEAVE	1	164921	1	268880	1	299020	1	268880
3	HUB		N/A	1	057905	1	420278	1	057905
4	3/16 X 3/16 X 5/8 KEY		1	264309			N/A	1	264309
5	MOTOR CABLE 34"	1	299012			1	299012		
	MOTOR CABLE 21"		N/A			REF	293024		
6	POLY-V-BELT					1	264312		
7	MOTOR PLATE					1	264410		
8	M8 X 25 HHCS					4	011031		
9	M8 FLATWASHER					8	251266		
10	M8 LOCKWASHER					4	162381		
11	M8 NUT					6	164953		
12	ROTATION SIGN					1	187584		
13	MOTOR PLATE PIN					1	264394		
14	3MM X 20 COTTER PIN					2	278081		
15	M8 X 60 HHCS		N/A			1	164965		
	M8 X 80 HHCS	1	299008				N/A		
16	NO: 10 LOCKWASHER		N/A	3	004238		N/A	3	004238
17	10-24 X 1 SHCS		N/A	3	004061	2	009040	3	004061
18	TENSION PLATE					REF	264368		
19	SEALER BASE					REF	272066		
20	M6 X 10 SSS	2	264562				N/A		

NOTE: 1. KEY 5 -293024 USED ON SURETYER SIDESEAL ONLY

2. 115V BOM 420162 USED ON SURETYER BOTTOMSEAL ONLY.

⚠ WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.



SECTION-6

* Optional machine equipment, see Section 8 for a brief description.

** Machine equipment which is standard but can be ordered as an option, see Section 8 for a brief description.

PARTS REMOVAL AND REPLACEMENT

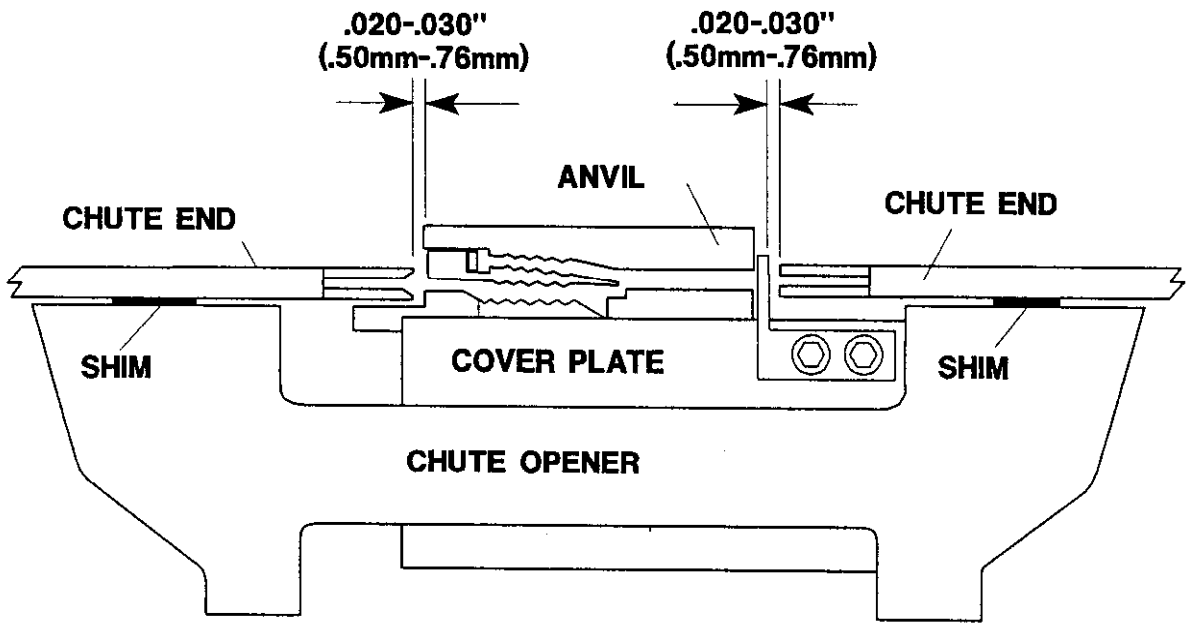
POWERED CHUTE OPENER & CHUTE ASSEMBLY

The chute assembly is spring loaded closed and is cam actuated open. The chute assembly entrance and exit sections must be aligned to the head. Once positioned, the powered chute opener and the chute assembly itself require little attention.

CHUTE ASSEMBLY ENTRANCE AND EXIT SECTIONS ALIGNMENT

Both sections must be aligned to the anvil in terms of height and clearance. Adjust the height of the sections by adding or removing shims, as shown in the exploded view.

Correct alignment will be when the strap passes through the centering guide and into the entry chute without rubbing on the bell mouth of the entry chute as well as re-entering the anvil head without interference. To check adjustments of the chute run a piece of strap back and forth over the centering guide and loop gripper into the chute ends. The chute clearance between the left end of the anvil and the stripper finger must both be within .020" to .030" (.50mm to .76mm). Additionally, both sections must close flush against the arch.

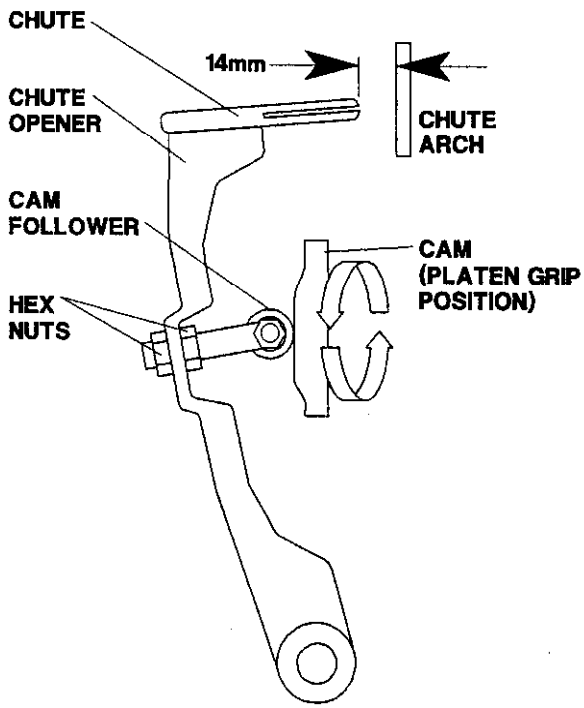


CHUTE OPENER CAM

All SureTyer machines are equipped with a cam driven chute opener. This device once properly set, will insure that the lower portion of the chute is always open when the head indexes to the take-up portion of the strap cycle. Inspect and adjust the chute cam as follows:

1. Index the head to the platen grip position.

2. Measure the distance from the chute to the arch. A properly adjusted chute should be 14mm ± 1mm.



3. If an adjustment is required, loosen the hex nuts which secure the cam follower to the chute opener.

4. Move the cam follower in or out by adjusting the hex nuts as necessary.

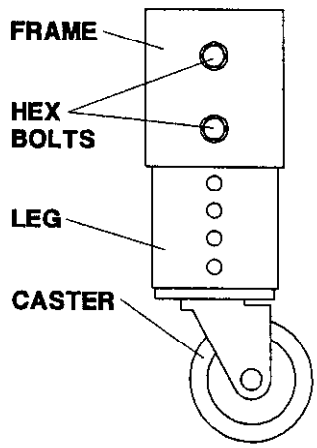
5. Tighten the hex nuts. Index the machine to the feed position, the chute to arch clearance must be zero. If there is a gap between the chute and arch the cam follower is set too high.

MACHINE HEIGHT

Machine height can be changed within the height range specified at the time of purchase. Change the height as follows:

1. Raise the machine off the floor using a fork lift truck or other suitable lifting device. Lift the machine by both the front and rear frame members.

2. Remove the eight mounting bolts (2 per each leg) which secure the machine legs.



3. Slide the legs up or down to achieve the desired machine height. The legs can be moved in one inch increments.

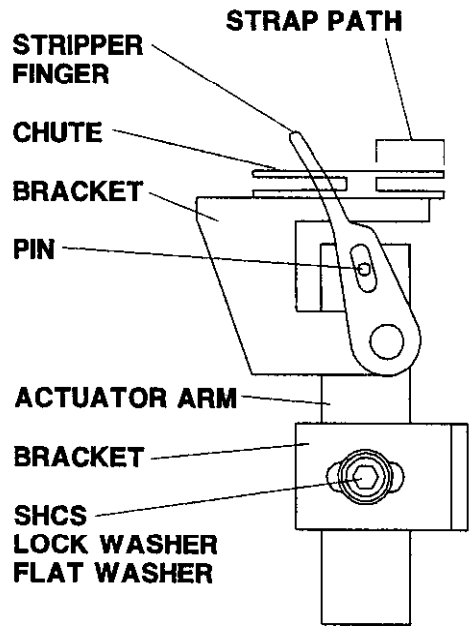
4. Reinstall all mounting bolts and tighten.

5. Please note all eight of the mounting bolts are required to secure the machine legs. Do not exceed the specified machine height range for your machine configuration or resecure the legs at uneven heights.

CHUTE STRIPPER FINGER

All SureTyer machines are equipped with a floating chute stripper finger to aid in strapping being drawn out of the chute. The assembly is found in the first corner of the chute which the strap is fed into. Inspect and adjust the stripper finger as follows:

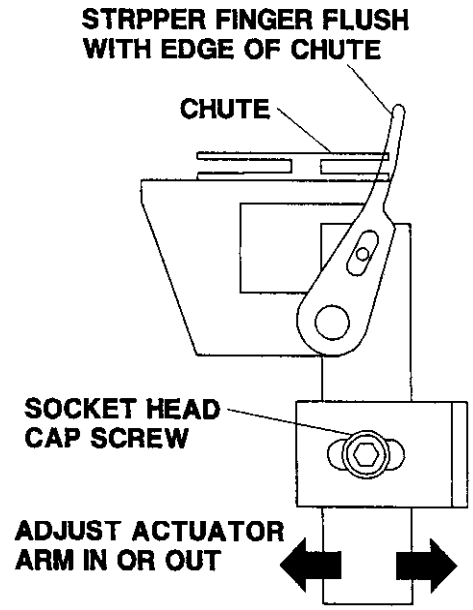
1. In the strap feed position when the chute is up against the arch the stripper finger must be behind the strap path of the chute. This can be determined by inspecting the chute to locate the center wall of the chute extrusion, this is the back edge of the strap path.



Positioning of the stripper finger is controlled primarily by the one socket head cap screw and hardware which secures the actuator arm.

2. The stripper finger must be approximately flush (± 1mm) with the edge of the chute when the machine is in the platen grip position.

The stripper finger's movement is controlled by the pin which extends out from the actuator arm, as the chute moves away from the arch the finger is kept in place yet pivoting forward.



3. To adjust the stripper finger's position cycle the machine to the platen grip position. Loosen the socket head cap screw which secures the actuator arm. Move the actuator arm in or out as required and tighten the screw.

4. The stripper finger must be free from any binding to operate properly. Inspect the finger for possible bends. Also inspect the pin which runs through the finger for being approximately in the middle of the slotted hole.

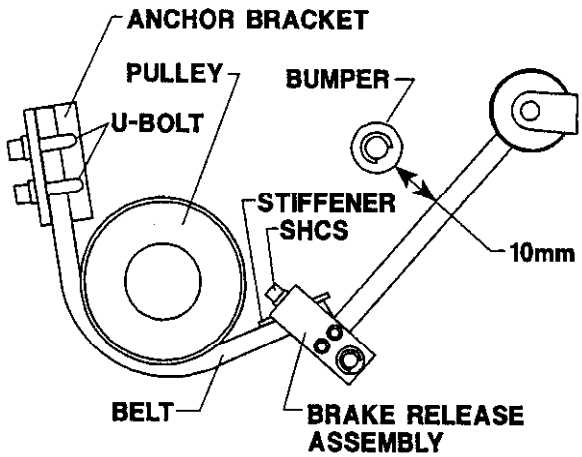
5. Recheck the finger position by cycling the machine to the feed and platen grip positions. Repeat steps one through four if necessary.

DISPENSER BRAKE

Replace the dispenser brake belt as follows:

1. Remove the coil of strapping from the dispenser spindle. Loosen the two U-bolts and socket head cap screw (SHCS) which secure the ends of the brake belt. Remove the old belt from the machine.

2. Insert one end of the new belt through the U-bolts flush with the end of the anchor bracket. Tighten the two U-bolts.



3. Loop the belt around the pulley and through the brake release assembly. Insert the strap stiffener through the assembly.

4. Pull the belt through the brake release assembly to remove any slack.

5. Set the gap between the brake arm and bumper to approximately 10mm as shown.

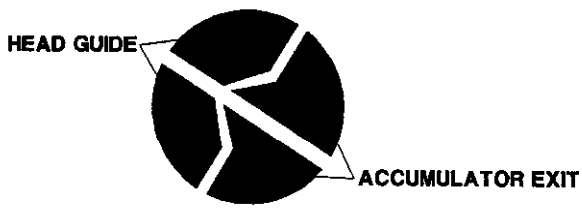
6. Secure the end of the belt by tightening the socket head cap screw.

ACCUMULATOR/SLACK BOX ALIGNMENT

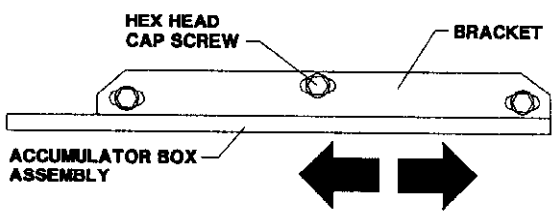
The accumulator/slack box must be properly aligned with the strapping head for the machine to operate trouble free. Please note that if replacing this assembly, the solenoid for the auto load feature must be removed to slide the accumulator/slack box out the bottom of the machine. The accumulator/slack box can be aligned as follows:

1. Loosen the three socket head cap screws which tie the accumulator box to the head. Loosen the two socket head cap screws which secure the accumulator box to the mounting bracket. Loosen the three hex head cap screws which secure the mounting bracket to the frame.

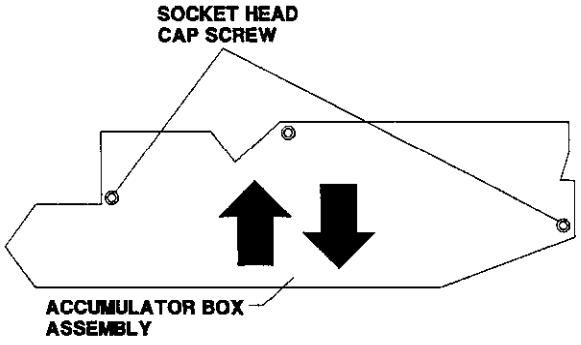
2. Proper alignment is achieved when the "Bird Mouth" of the accumulator/slack box exit fits up into the entry guide of the strapping head.



3. First, slide the accumulator box approximately to the correct lateral position and sightly tighten the hex head cap screws which secure the mounting bracket to the frame.



4. Lower or raise the accumulator box into the final position and tighten the two socket head cap screws which secure the accumulator box to the mounting bracket.



5. Securely tighten all remaining screws. Recheck the alignment to the head, readjust if necessary.

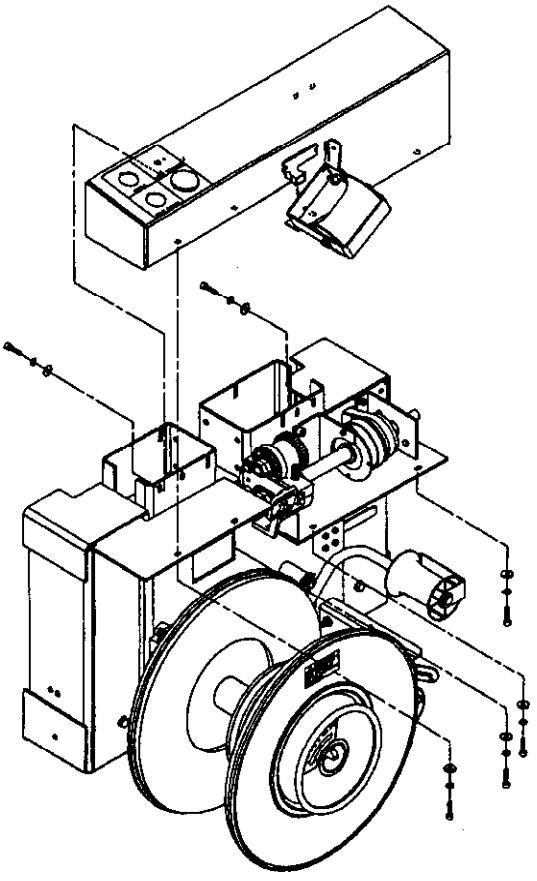
AUTO-LOAD / INFEED SERVICE

It may be required that in some auto-load or infeed service adjustments that a partial disassembly of the machine frame may be required due to the limited access through the removable side panels. To gain access to the various infeed devices, use the following instructions:

1. Disconnect and lock-out all machine power.

2. Remove the two table top covers at the dispenser end of the machine. Remove the two screws which are found under these covers which partially secure the enclosure. Remove the remaining four screws from the underside of the main control enclosure.

3. Carefully lift off the main control enclosure. Note that the wiring harness will still be attached. Place the enclosure on the machine table top.

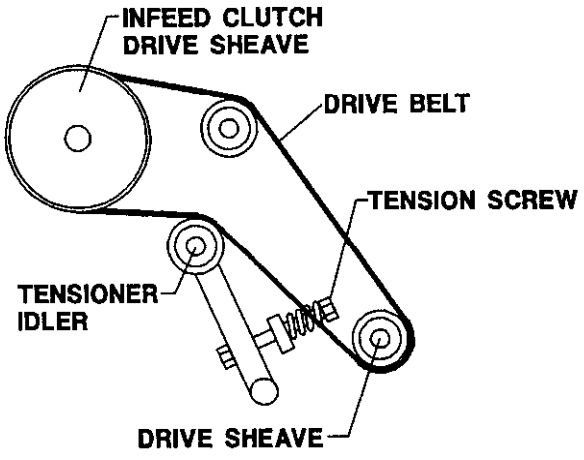


NOTE: Do not allow the main control enclosure to hang off the machine by the wiring harness.

4. Access to service the auto-load mechanism and replacement of the drive belt are now available.

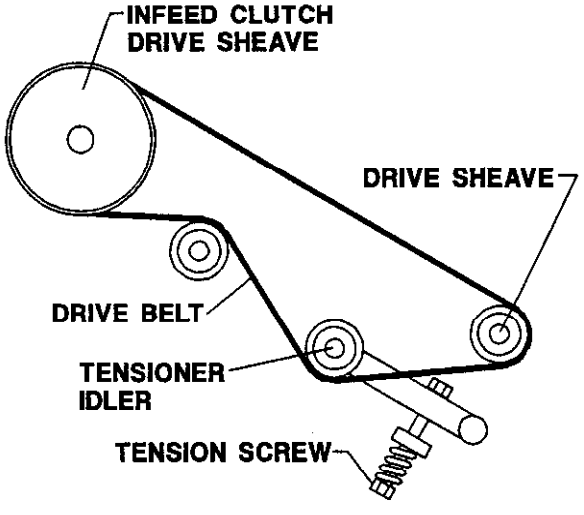
5. If necessary remove and replace the infeed drive belt from the machine by loosening the tension screw located on the belt tensioner mechanism. Slip the belt off and around the four sheaves.

SMALL FRAME



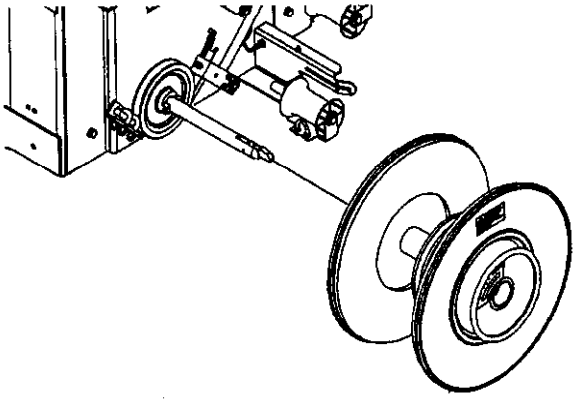
Install a new belt and re-tension until the belt deflects 3/8" to 1/2" at 10lbs. for small frame machines

LARGE FRAME



Tension the belt 3/4" to 1" deflection at 10 lbs. for large frame machines.

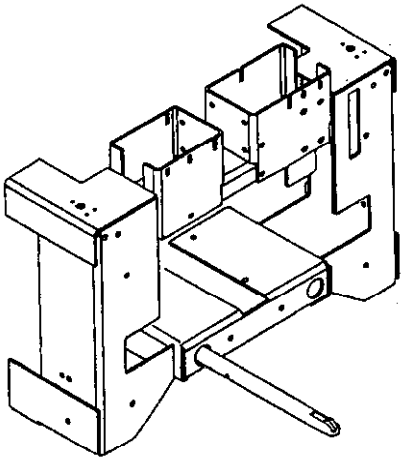
6. If additional access to the frame cabinet is required, remove the strapping coil from the machine.



Relieve dispenser belt tension. Remove the pin which secures the dispenser pulley to the spindle. Remove the pulley from the spindle.

7. Disconnect the Out-Of-Strap proximity switch at the connector.

8. Remove the screws which secure the dispenser end panel to the frame. Remove the end panel with assemblies mounted to it all at the same time.
   Additional cabinet access is now available.

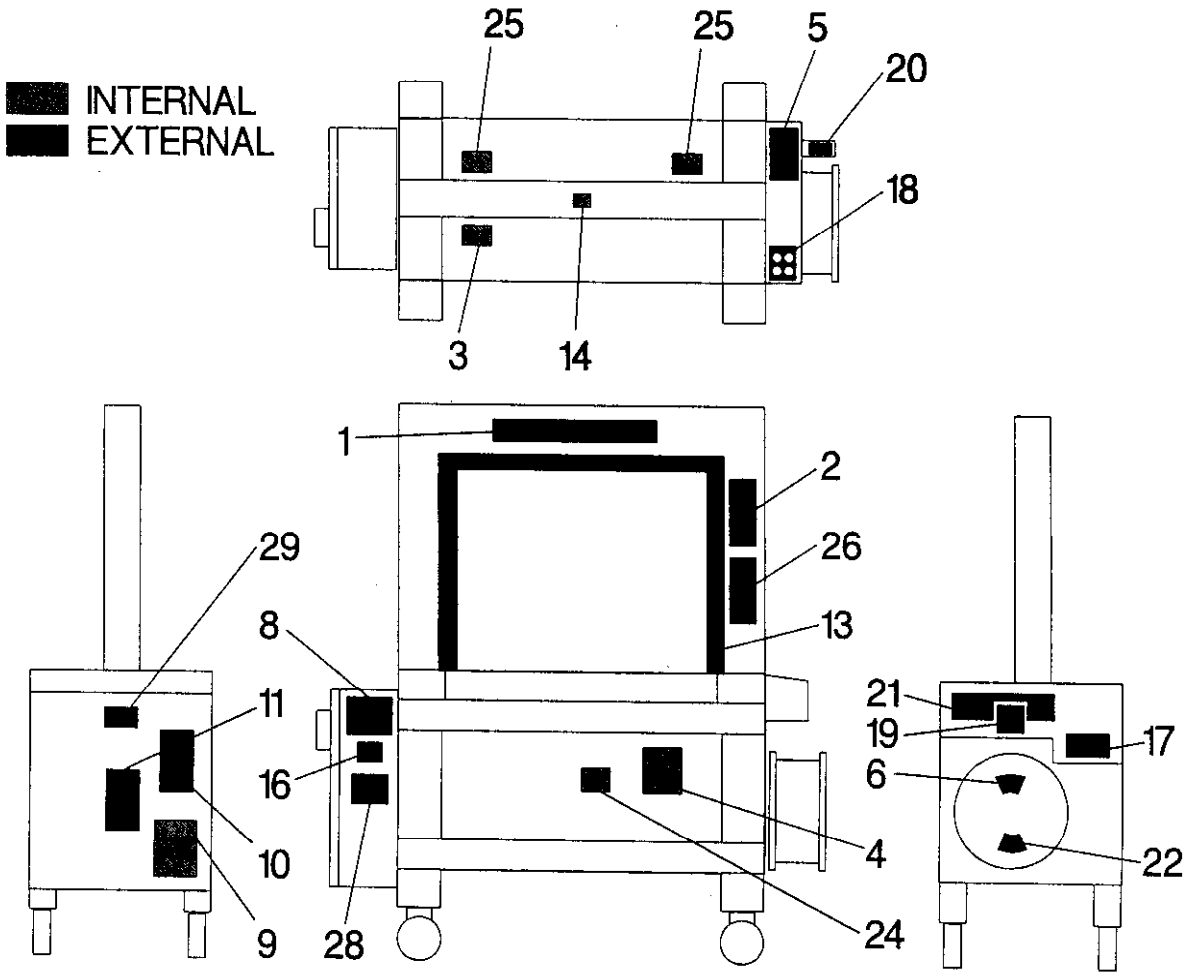


9. Replace all components in the manner in which they were removed. Make sure no wires are pinched or broken when reassembling the operating enclosure.

SIGN DISPOSITION, SMALL FRAME MACHINE

421036-10

KEY#	QTY	PART#	DESCRIPTION
	DWG	421036	LABEL KIT
1	2	280505	SURETYER LOGO
2	2	264579	SAFETY INST. (DANGER SIGN)
3	1	255004	BELT WARNING
4	REF	286386	INFORMATION SIGN
5	REF	286394	INFORMATION SIGN (LOADING)
5	1	286383	INFORMATION SIGN (LOADING)
6	REF	286384	DIRECTIONAL ARROW (PAYOFF)
8	1	264577	NAMEPLATE
9	1	280507	PC BOARD INFORMATION
10	1	266570	DANGER SIGN
11	1	280511	ERROR CODES
13	REF	421425	SAFETY STRIPE TAPE
14	1	264578	CAUTION SIGN - HOT
16	2	286317	INFO SIGN (FLAG)
17	1	280503	INFORMATION SIGN (THREADING)
18	REF	420905	COMBINATION LEGEND PLATE
18	REF	420906	COMBINATION LEGEND PLATE
19	1	286379	INFO SIGN (LOAD)
20	1	286382	INFO SIGN (OUT-OF-STRAP)
21	1	286380	INFO SIGN (INSERT)
22	REF	286368	DIRECTIONAL ARROW (TIGHTEN)
24	REF	286393	DIRECTIONAL ARROW
25	2	292364	WARNING SIGN
26	1	280543	INFORMATION SIGN
28	1	433318	INFORMATION SIGN - UL
29	REF	434385	INFO SIGN (SALES & SERVICE)


INTERNAL
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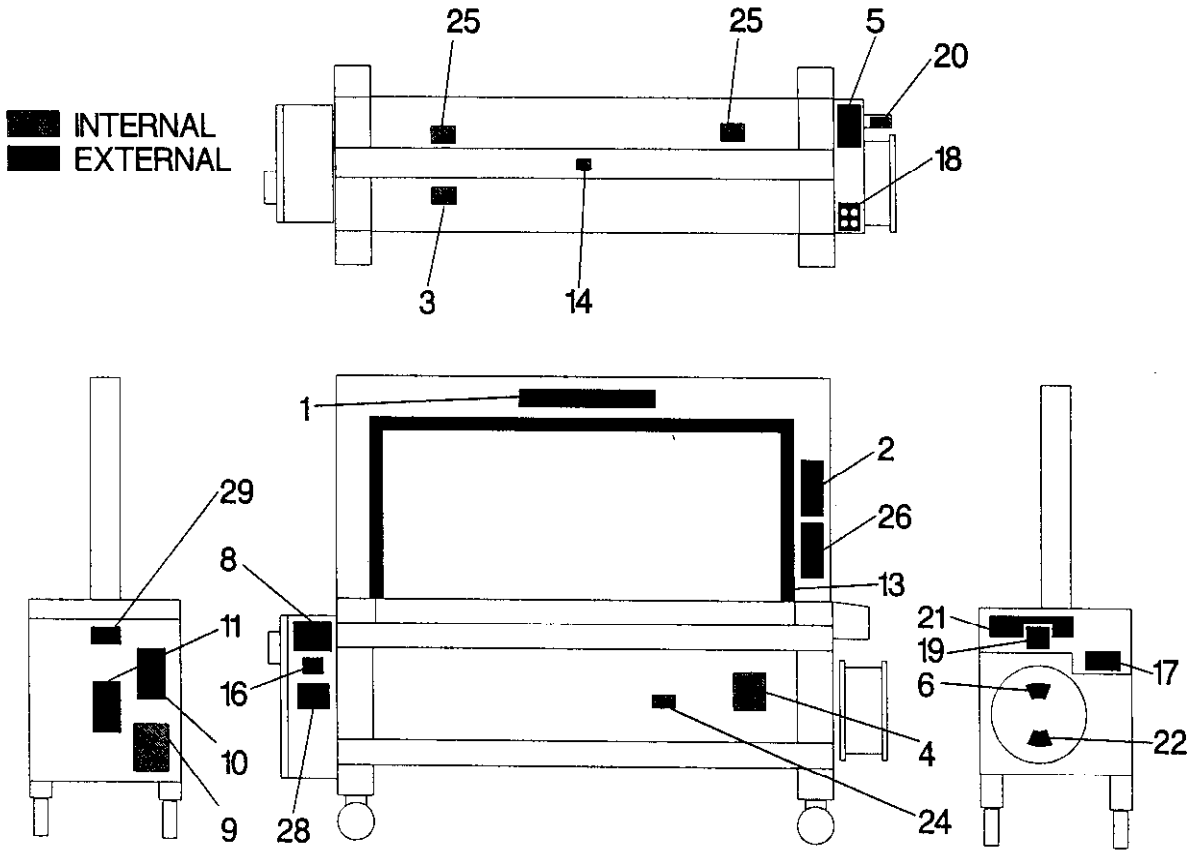
SIGN DISPOSITION, LARGE FRAME MACHINE

421037-10

KEY#	QTY	PART#	DESCRIPTION
	DWG	421037	LABEL KIT
1	2	280505	SURETYER LOGO
2	2	264579	SAFETY INST. (DANGER SIGN)
3	1	255004	BELT WARNING
4	REF	286386	INFORMATION SIGN
5	REF	286394	INFORMATION SIGN (LOADING)
5	1	286383	INFORMATION SIGN (LOADING)
6	REF	286384	DIRECTIONAL ARROW (PAYOFF)
8	1	264577	NAMEPLATE
9	1	280507	PC BOARD INFORMATION
10	1	266570	DANGER SIGN
11	1	280511	ERROR CODES
13	REF	421425	SAFETY STRIPE TAPE
14	1	264578	CAUTION SIGN - HOT
16	2	286317	INFO SIGN (FLAG)
17	1	280503	INFORMATION SIGN (THREADING)
18	REF	420905	COMBINATION LEGEND PLATE
18	REF	420906	COMBINATION LEGEND PLATE
19	1	286379	INFO SIGN (LOAD)
20	1	286382	INFO SIGN (OUT-OF-STRAP)
21	1	286380	INFO SIGN (INSERT)
22	REF	286368	DIRECTIONAL ARROW (TIGHTEN)
24	REF	286393	DIRECTIONAL ARROW
25	2	292364	WARNING SIGN
26	1	280543	INFORMATION SIGN
28	1	433318	INFORMATION SIGN - UL
29	REF	434386	INFO SIGN SET - PHOTO EYE ADJ.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SMALL FRAME ASSEMBLY

421015-17

KEY	QTY	PART NO	DESCRIPTION
1	1	420535	FRAME WELDMENT
2	2	420766	LEG WELDMENT
3	25	011031	M8 X 25 HHCS
4	4	010061	M8 X 30 SHCS
5	19	251266	M8 FLATWASHER
6	35	162381	M8 LOCKWASHER-ZINC
7	19	164953	M8 HEX NUT
8	2	421241	6" SWIVEL CASTER
9	2	421242	6" RIGID CASTER
10	16	011032	M10 X 25 HHCS
11	16	251267	M10 FLATWASHER
12	16	010078	M10 LOCKWASER-ZINC
13	16	164962	M10 HEX NUT
14	REF	420391	CONTROL PANEL (SEMI)
		420392	CONTROL PANRL (AUTO)
15	8	420896	RETAINING SPRING
16	REF	420790	HEAD ASSEMBLIES/MATRIX
17	10	421268	M8 X 25 SHCS
18	1	420646	SUPPORT BRACKET, SF
19	REF	421401	SLACK BOX ASSY (SF 100)
		259851	SLACK BOX ASSY (SF 200)
		259855	SLACK BOX ASSY (SF 600/700)
		421402	SLACK BOX ASSY (SF/ACR 100)
		259852	SLACK BOX ASSY (SF/ACR 200)
		259955	SLACK BOX ASSY (SF 600/700 ACR)
20	6	010032	M6 X 12 SHCS
21	1	421138	HEAD BRACKET
	REF	431726	HEAD BRACKET (200,600,700 ACR)
	REF	431771	HEAD BRACKET (100 ACR)
22	5	010028	M5 X 12 SHCS
23	1	171571	M5 FLATWASHER
24	3	010076	M5 LOCKWASHER - ZINC
25	4	169440	M5 HEX NUT
26	12	262617	M6 FLATWASHER
27	10	010077	M6 LOCKWASHER
28	1	420845	SPRING, AUTO-FEED
29	REF	259595	LOAD PADDLE (100)
		420989	LOAD PADDLE (200,600,700)
		420683	LOAD PADDLE (200 SF/ACR)
30	1	421417	MOUNTING BRACKET, LOAD SOLENOID
31	6	421876	M6 FENDER WASHER
32	REF	259572	SOLENOID ASSY (100)
		421672	SOLENOID ASSY (200)
		421673	SOLENOID ASSY (600/700)
33	4	259935	M3 X 12 SHCS
34	4	256901	M3 FLATWASHER
35	4	162568	M3 LOCKWASHER - ZINC
36	4	174364	M3 HEX NUT
37	1	421652	M5 X 30 SHCS
38	1	420660	INFEED ASSY
39			
40	1	420831	ANCHOR, TRANSITION BRACKET
41	1	256747	M5 X 16 SHCS
42	1	185700	M4 LOCKWASHER
43	1	421275	INFEED IDLER ASSY
44	1	421269	POLY-V-BELT 410J6
45	1	259882	CHUTE OPENER BRACKET
46	1	420569	CHUTE OPENER ASSY
47	REF	259875	COVER ASSY (SF 100)
		259825	COVER ASSY (SF 200,600,700)
		259876	COVER ASSY (SF 100 ACR)
		259826	COVER ASSY (SF 200,600,700 ACR)
48	1	420690	DISPENSER ASSY
49	REF	421050	MAIN CONTROL ASSY/MATRIX
50	8	010037	M6 X 20 SHCS
51	1	421340	INFEED FUNNEL
52	2	421893	SLOTTED HEX WASHER
53	REF	421331	CHUTE ARCH ASSY 17 X 20
		421332	CHUTE ARCH ASSY 28 X 20
		421333	CHUTE ARCH ASSY 33 X 36
54	REF	420557	CYLINDER GUIDE
55	REF	272072	DRIVE FRAME
57	1	252266	M8 X 30 HHCS
58	5	421795	M8 LOCKWASHER INT
59	REF	259986	COVER PLATE
60	REF	272418	M5 X 12 FLSHCS
80	REF	431772	AUTO CUT-OFF ASSY/MATRIX
85	REF	261108	M6 X 25 SHCS
86	REF	280806	M6 LOCKWASHER HC
87	REF	280050	M6 FLATWASHER
88	4	165366	M6 X 12 SBHCS
89	1	164966	M4 HEXNUT
90	1	421907	GUARD, PANEL COVER
91	4	005465	M6 HEX NUT

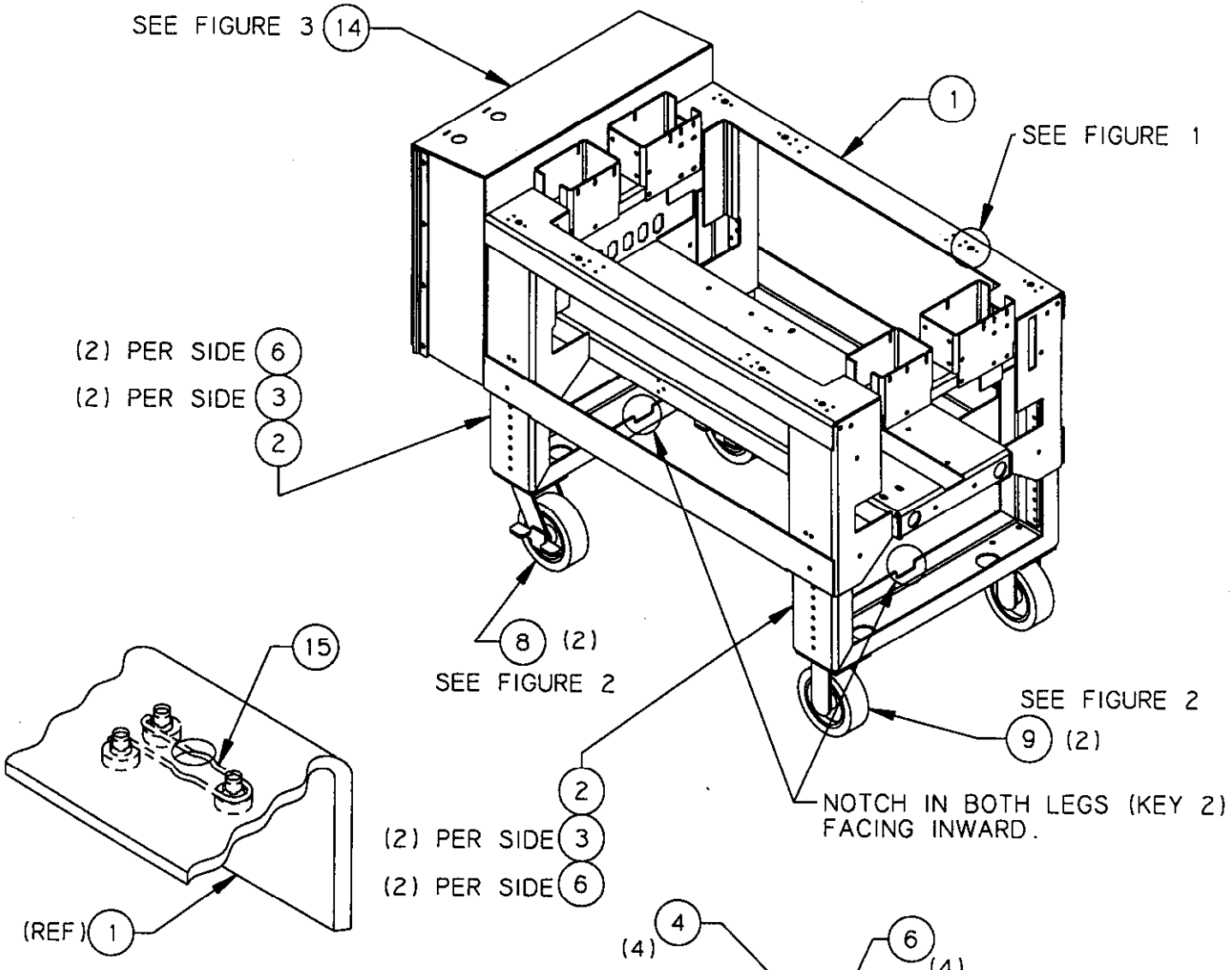


FIGURE 2
8 PLACES

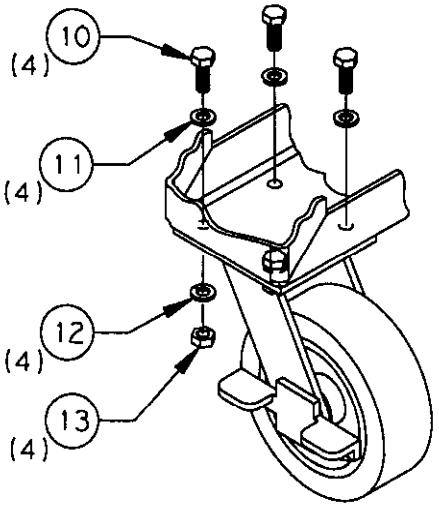


FIGURE 2
4 PLACES

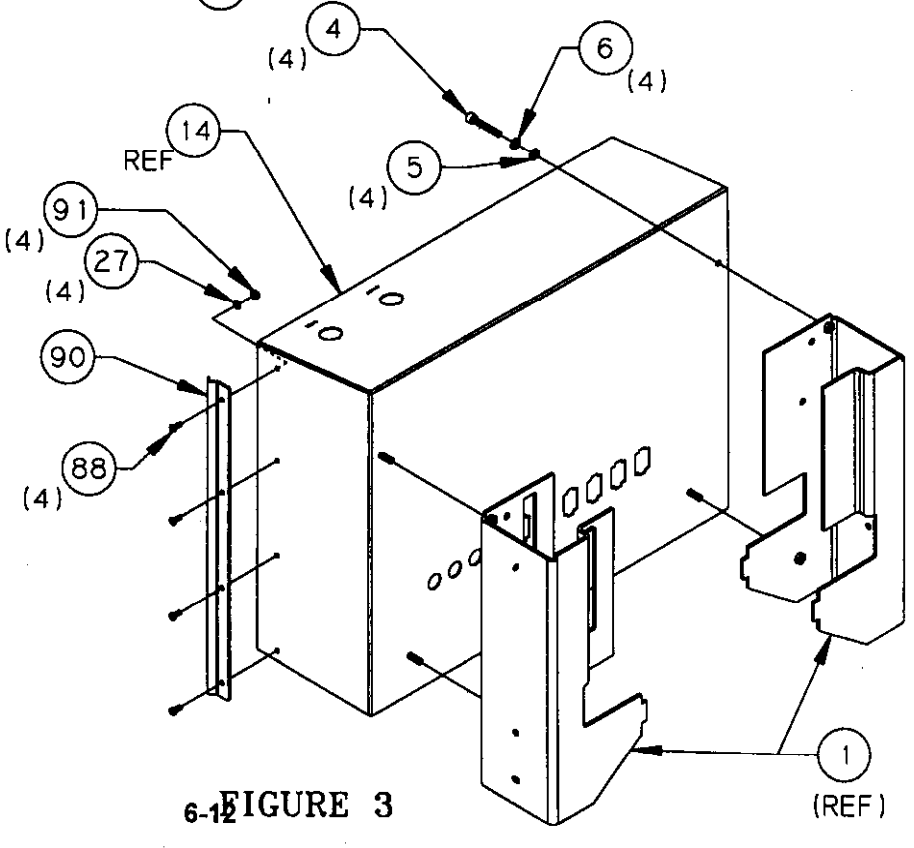
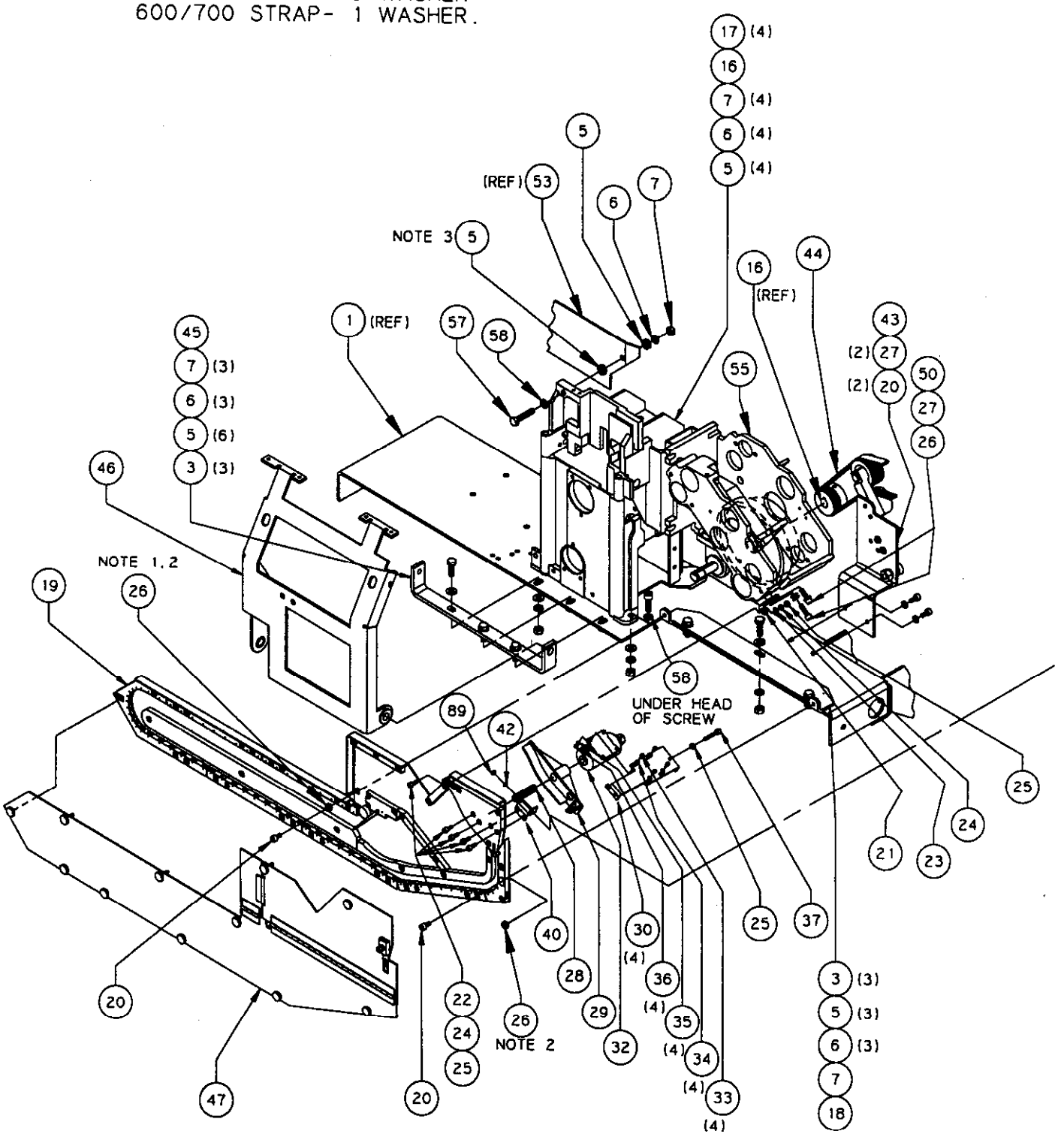


FIGURE 3

SMALL FRAME ASSEMBLY

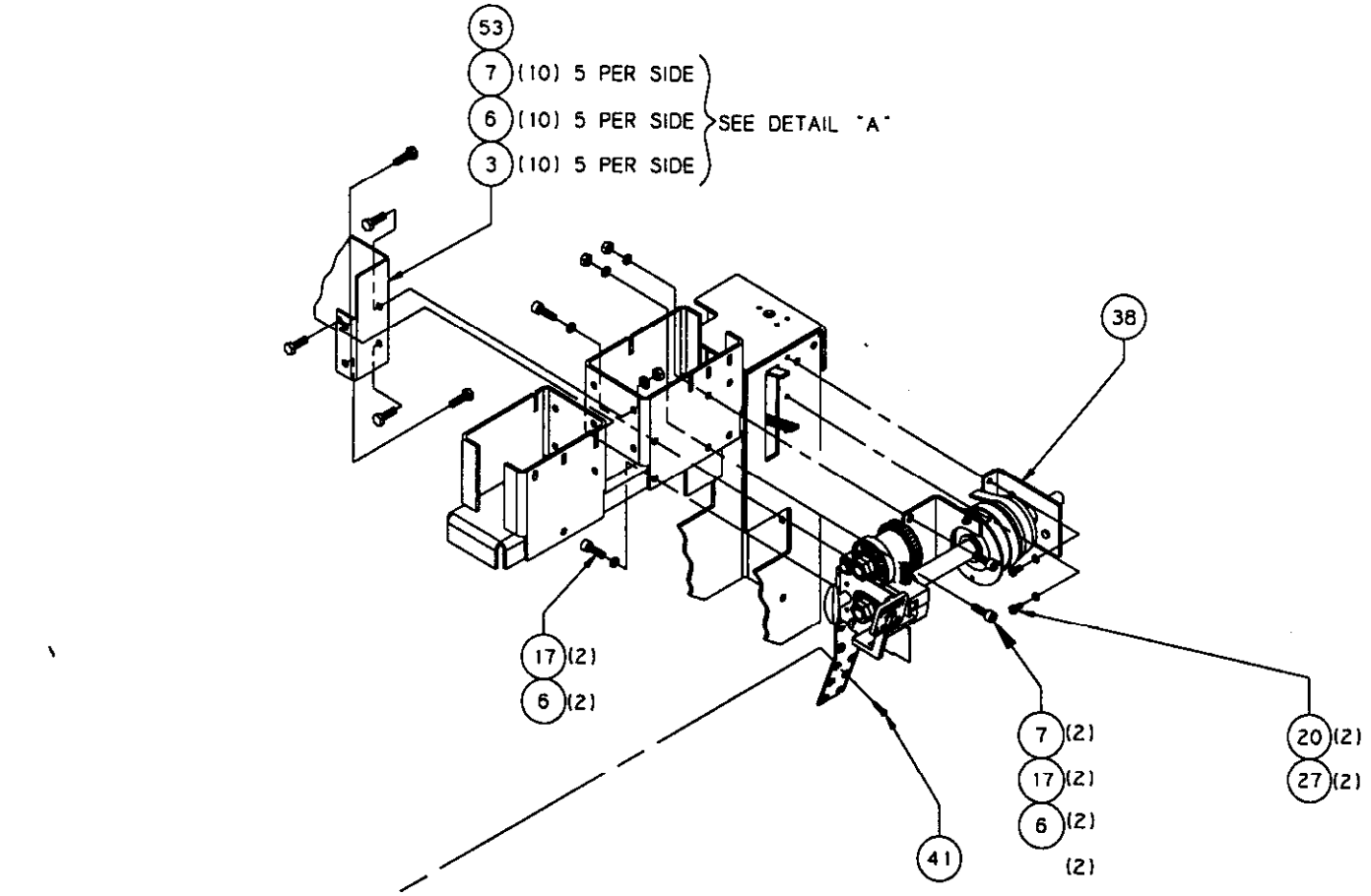
421015-17

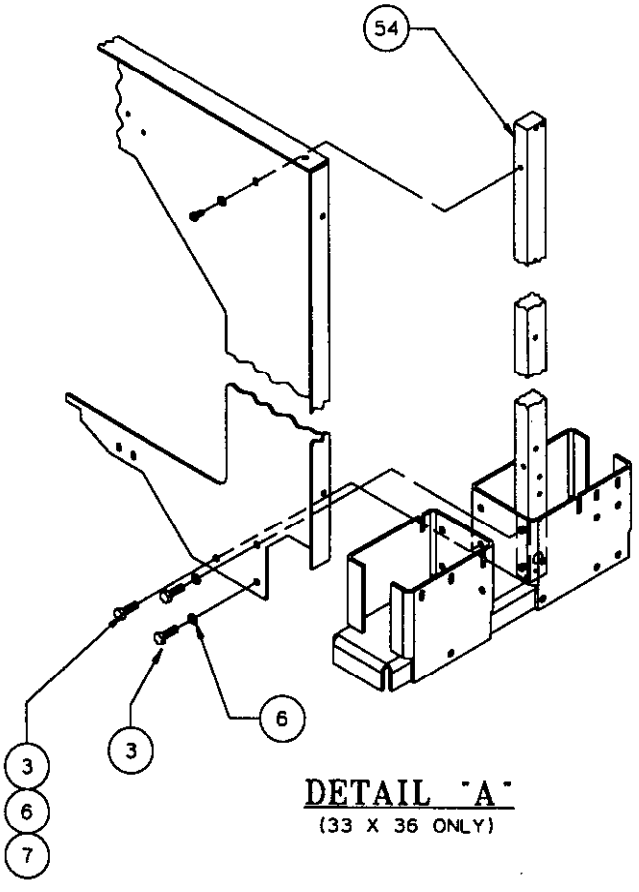
NOTES:
1. KEY 26; 100/200 STRAP
   WASHER THIS END ONLY.
2. KEY 26; 600/700 STRAP
   WASHER EACH END
   BETWEEN GUIDE AND BOX.
3. KEY 5; 100/200 STRAP- NO WASHER
   600/700 STRAP- 1 WASHER.



SMALL FRAME ASSEMBLY

421015-17

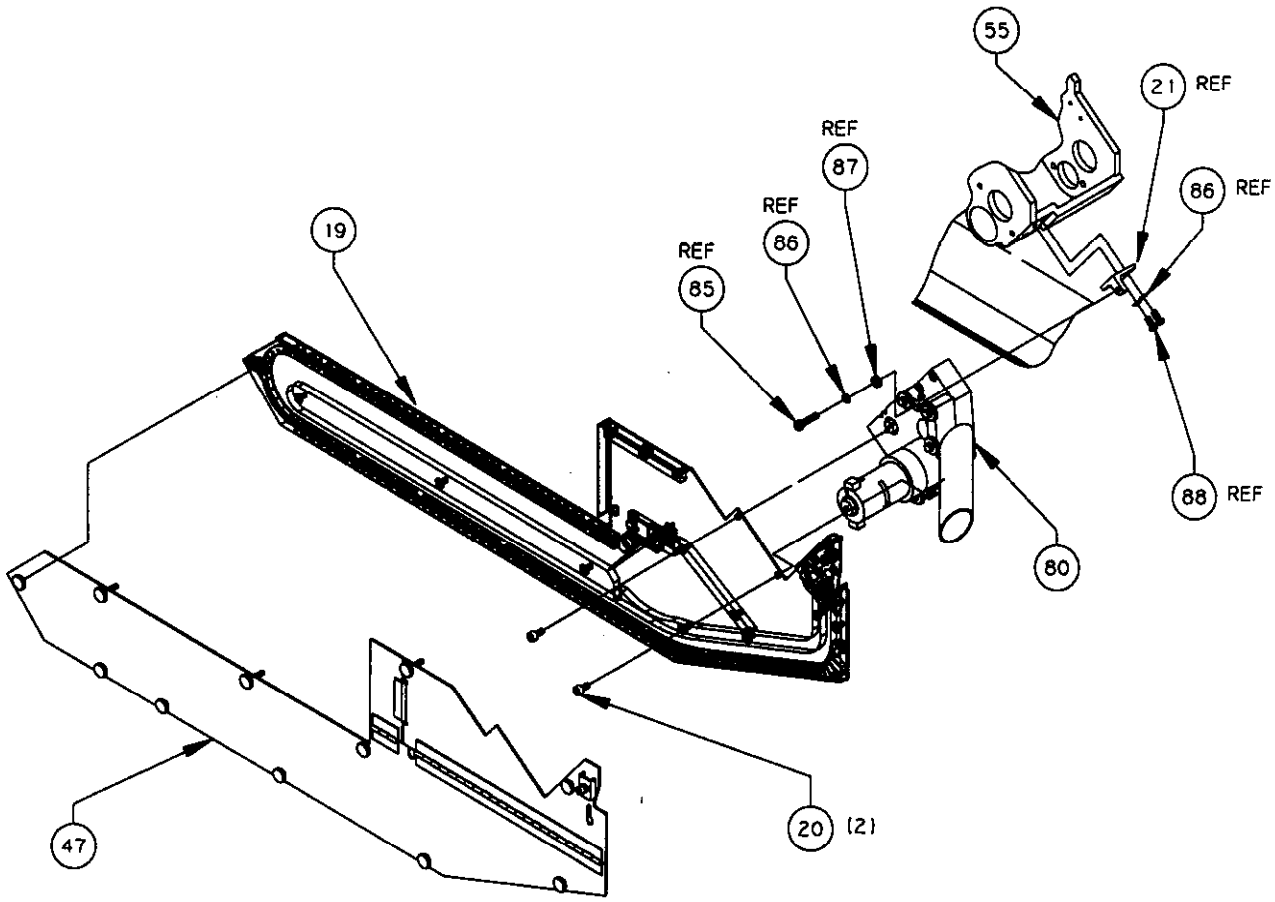




DETAIL "A"
(33 X 36 ONLY)

SMALL FRAME ASSEMBLY

421015-17



⚠ WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.

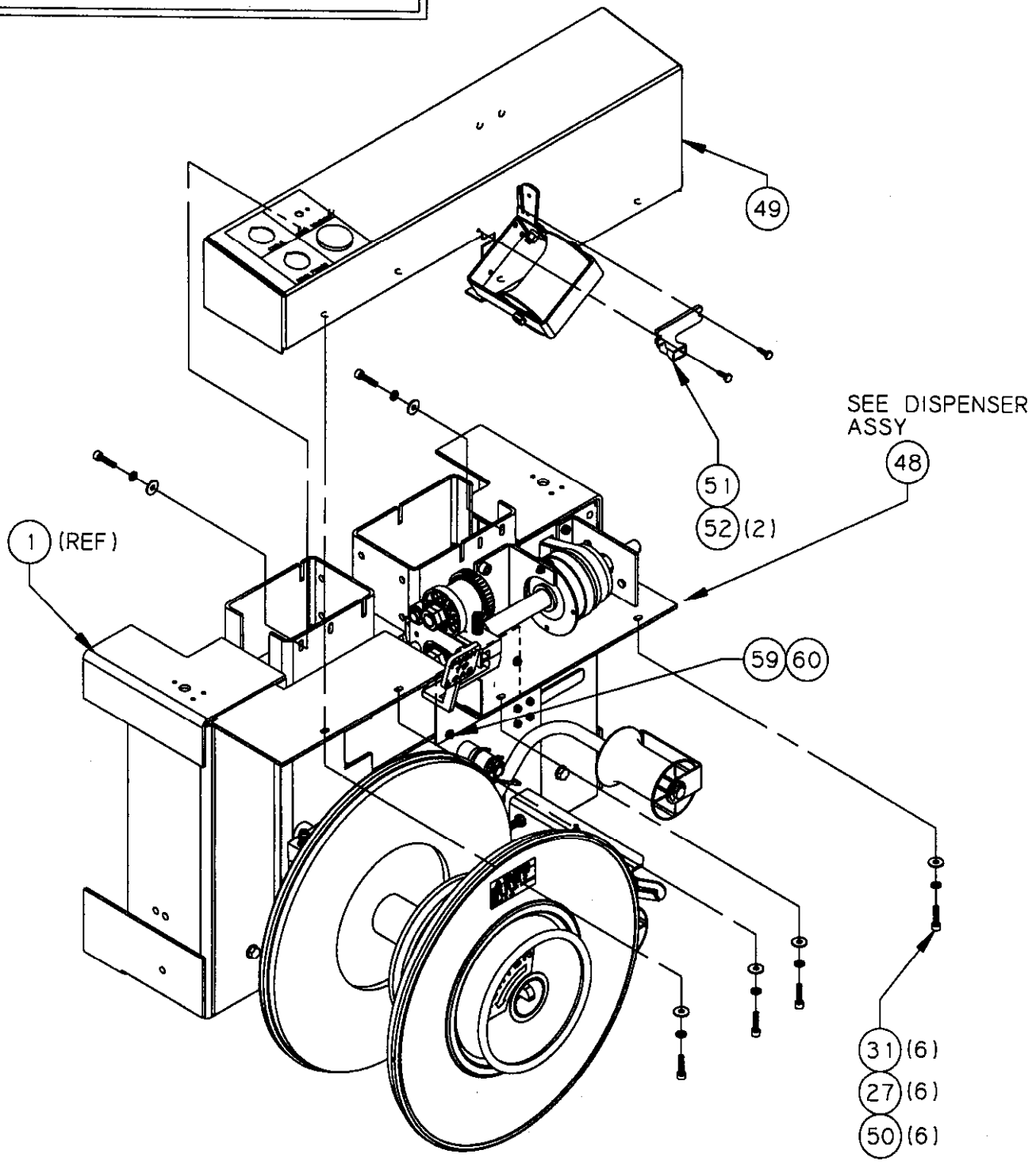


FIGURE 5

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LARGE FRAME ASSEMBLY

421014-16

KEY	QTY	PART NO	DESCRIPTION
1	1	420534	FRAME WELDMENT
2	2	420766	LEG WELDMENT
3	24	011031	M8 X 25 HHCS
4	4	010061	M8 X 30 SHCS
5	19	251266	M8 FLATWASHER
6	35	162381	M8 LOCKWASHER-ZINC
7	19	164953	M8 HEX NUT
8	2	421241	6" SWIVEL CASTER
9	2	421242	6" RIGID CASTER
10	16	011032	M10 X 25 HHCS
11	16	251267	M10 FLATWASHER
12	16	010078	M10 LOCKWASER-ZINC
13	16	164962	M10 HEX NUT
14	REF	420391	CONTROL PANEL (SEMI)
		420392	CONTROL PANRL (AUTO)
15	12	420896	RETAINING SPRING
16	REF	420790	HEAD ASSEMBLIES/MATRIX
17	8	421268	M8 X 25 SHCS
18	1	420647	SUPPORT BRACKET
19	REF	421403	SLACK BOX ASSY (LF 100)
		259853	SLACK BOX ASSY (LF 200)
		259856	SLACK BOX ASSY (LF 600/700)
		421404	SLACK BOX ASSY (LF 100 ACR)
		259854	SLACK BOX ASSY (LF 200 ACR)
		259956	SLACK BOX ASSY (LF 600/700 ACR)
20	6	010032	M6 X 12 SHCS
21	1	421138	HEAD BRACKET
	REF	431726	HEAD BRACKET (200,600,700 ACR)
	REF	431771	HEAD BRACKET (100 ACR)
22	5	010028	M5 X 12 SHCS
23	1	171571	M5 FLATWASHER
24	3	010076	M5 LOCKWASHER - ZINC
25	4	169440	M5 HEX NUT
26	16	262617	M6 FLATWASHER
27	8	010077	M6 LOCKWASHER
28	1	420845	SPRING, AUTO-FEED
29	REF	259587	LOAD PADDLE (100)
		420989	LOAD PADDLE (200,600,700)
30	1	421417	MOUNTING BRACKET, LOAD SOLENOID
31	6	421876	M6 FENDER WASHER
32	REF	259572	SOLENOID ASSY (100)
		421672	SOLENOID ASSY (200)
		421673	SOLENOID ASSY (600/700)
33	4	259935	M3 X 12 SHCS
34	4	256901	M3 FLATWASHER
35	4	162568	M3 LOCKWASHER - ZINC
36	4	174364	M3 HEX NUT
37	1	421652	M5 X 30 SHCS
38	1	420660	INFEED ASSY
39			
40	1	420831	ANCHOR, TRANSITION BRACKET
41	1	256747	M5 X 16 SHCS
42	1	185700	M4 LOCKWASHER
43	1	421276	INFEED IDLER ASSY
44	1	421270	BELT
45	1	259882	CHUTE OPENER BRACKET
46	1	420569	CHUTE OPENER ASSY
47	REF	259877	COVER ASSY (LF 100)
		259827	COVER ASSY (LF 200,600,700)
		259878	COVER ASSY (LF 100 ACR)
		259828	COVER ASSY (LF 200,600,700 ACR)
48	1	420690	DISPENSER ASSY
49	REF	421050	MAIN CONTROL ASSY / MATRIX
50	10	010037	M6 X 20 SHCS
51	1	421340	INFEED FUNNEL
52	2	421893	SLOTTED HEX WASHER
53	REF	421334	CHUTE ARCH 48 X 24
		421335	CHUTE ARCH 48 X 48
		421336	CHUTE ARCH 60 X 20
54	2	005465	M6 HEX NUT
55	REF	272072	DRIVE FRAME
56	A/R	421807	SHIM
57	1	252266	M8 X 30 HHCS
58	5	421795	M8 LOCKWASHER INT
59	REF	259986	END PLATE COVER
60	REF	272418	M5 X 12 FLSHCS
80	REF	431772	AUTO CUT-OFF ASSY/MATRIX
85	REF	261108	M6 X 25 SHCS
86	REF	280806	M6 LOCKWASHER HC
87	REF	280050	M6 FLATWASHER
88	REF	165366	M6 X 12 SBHCS
89	1	164966	M4 HEXNUT

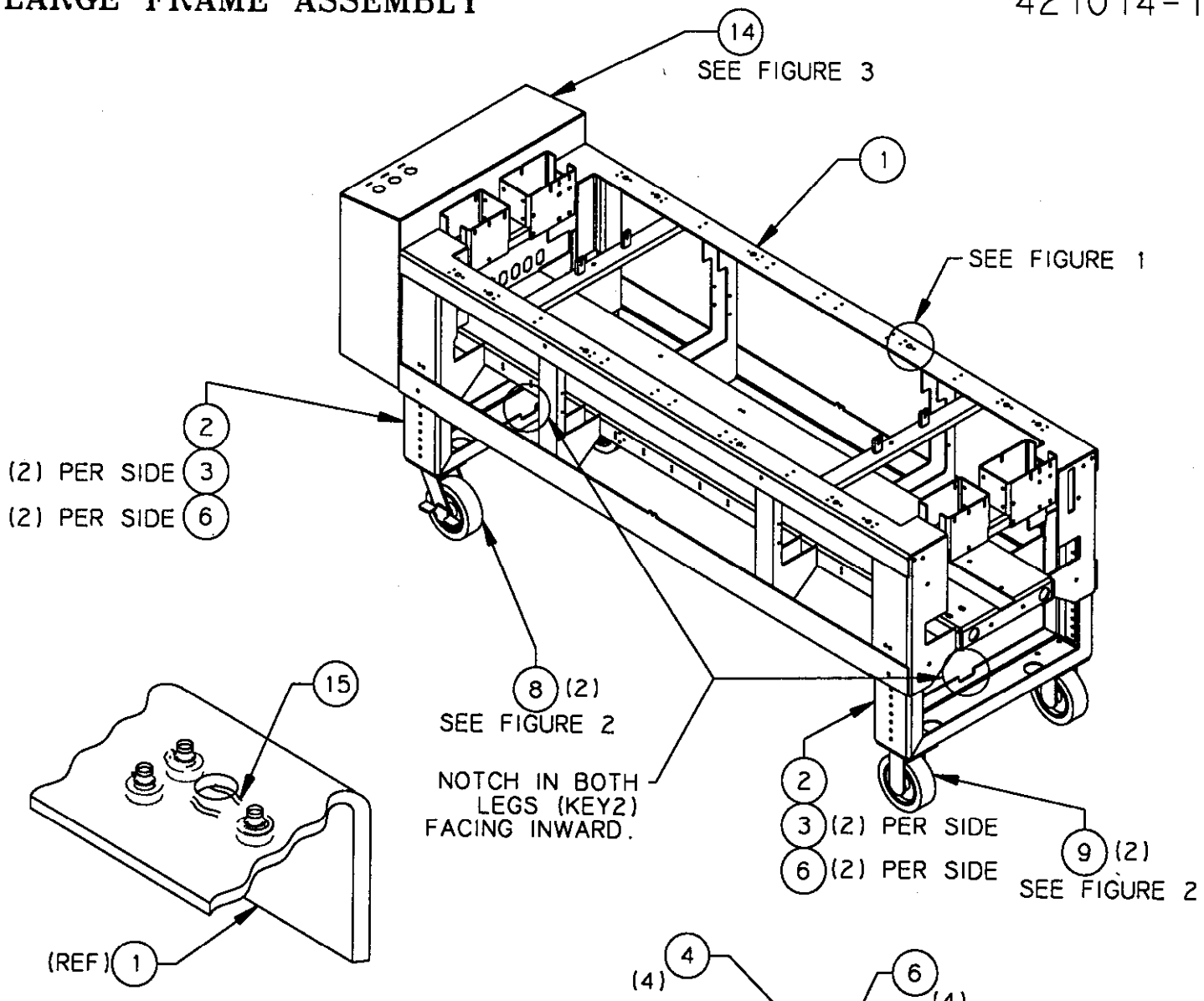


FIGURE 1
12 PLACES

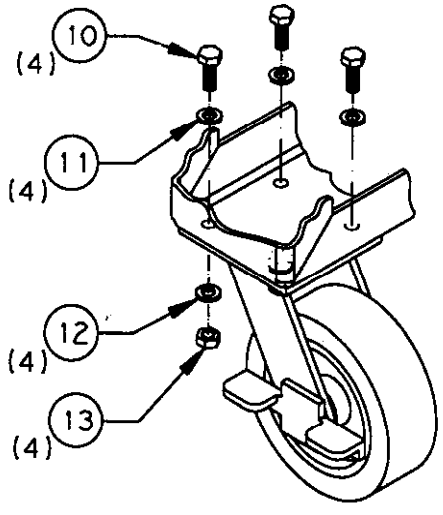


FIGURE 2
4 PLACES

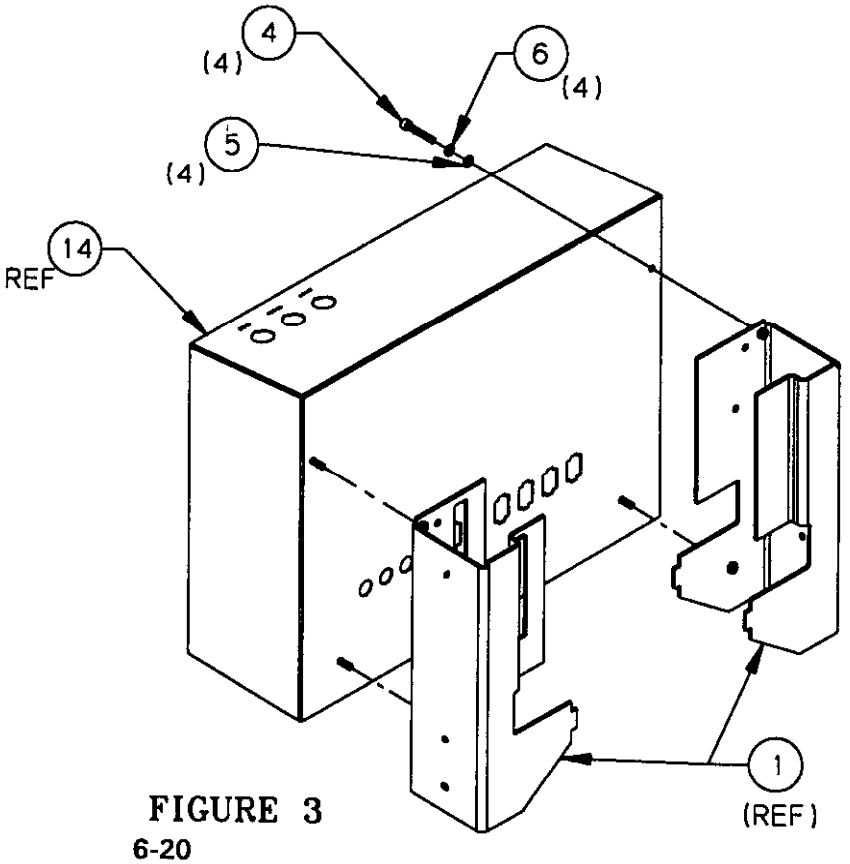


FIGURE 3

LARGE FRAME ASSEMBLY

421014-16

NOTES:
1. KEY 26: 100/200 STRAP
   WASHER THIS END ONLY.
2. KEY 26: 600/700 STRAP
   WASHER EACH END
   BETWEEN GUIDE AND BOX.
3. KEY 5: 100/200 STRAP- NO WASHER
   600/700 STRAP- 1 WASHER.

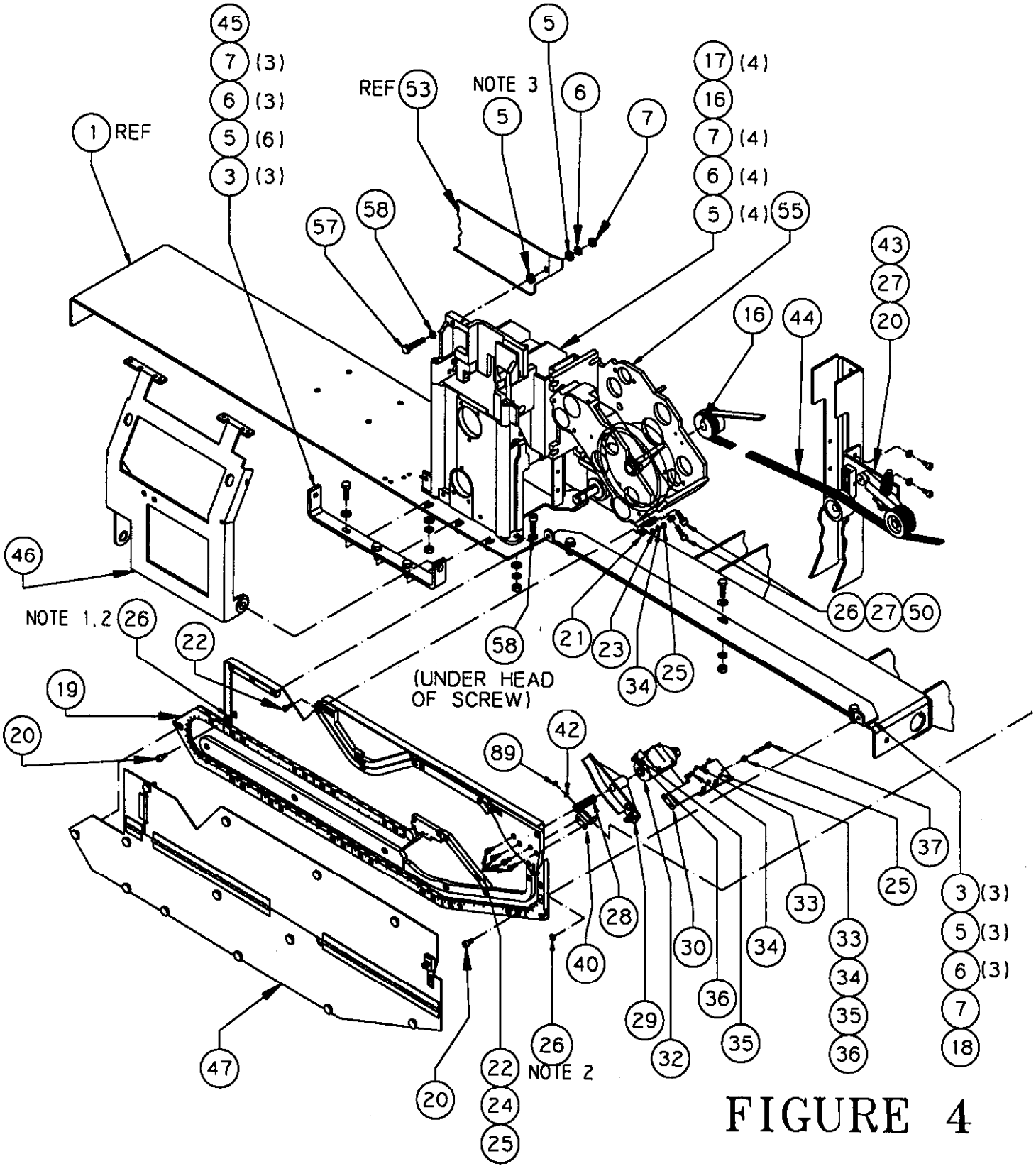
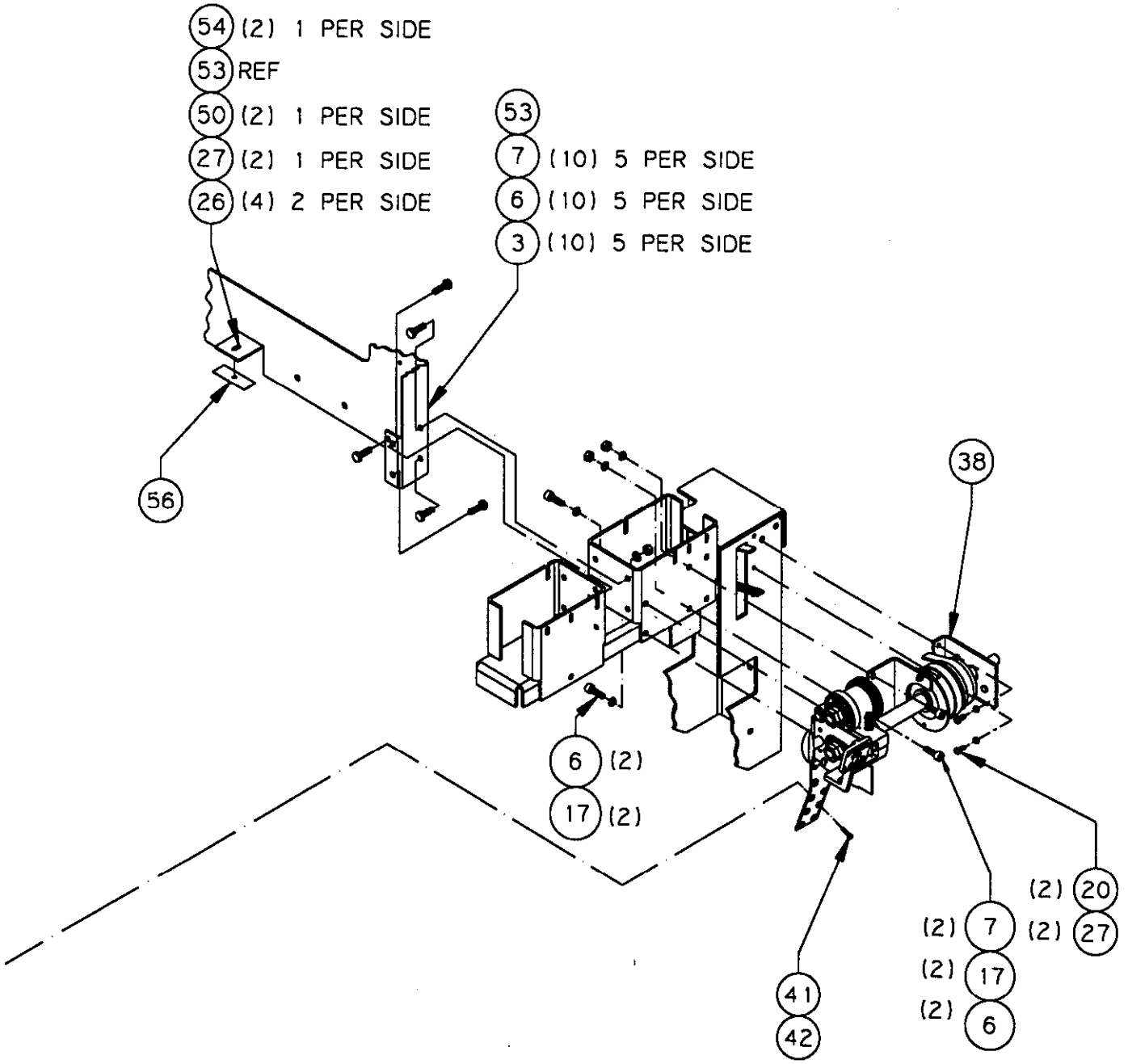


FIGURE 4

LARGE FRAME ASSEMBLY

421014-16

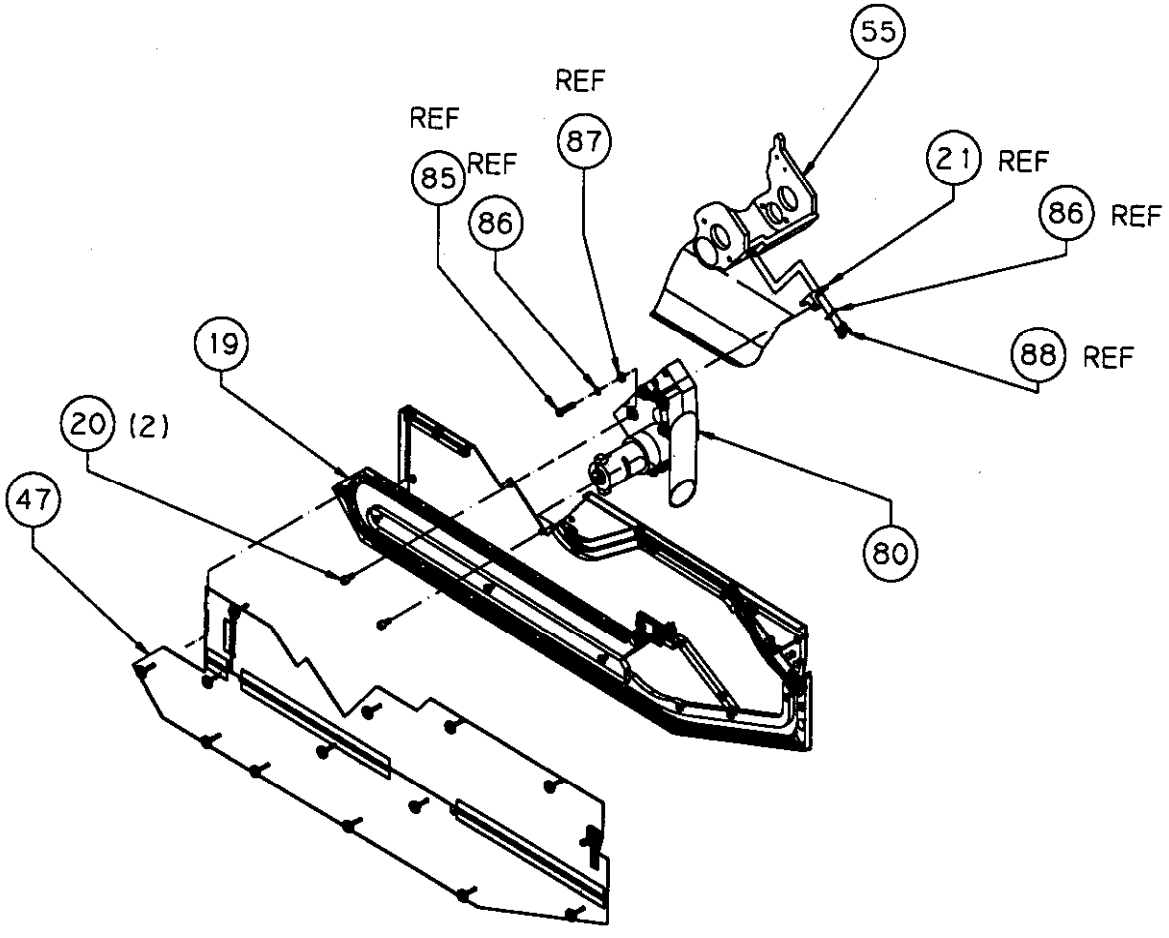


⚠ WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.

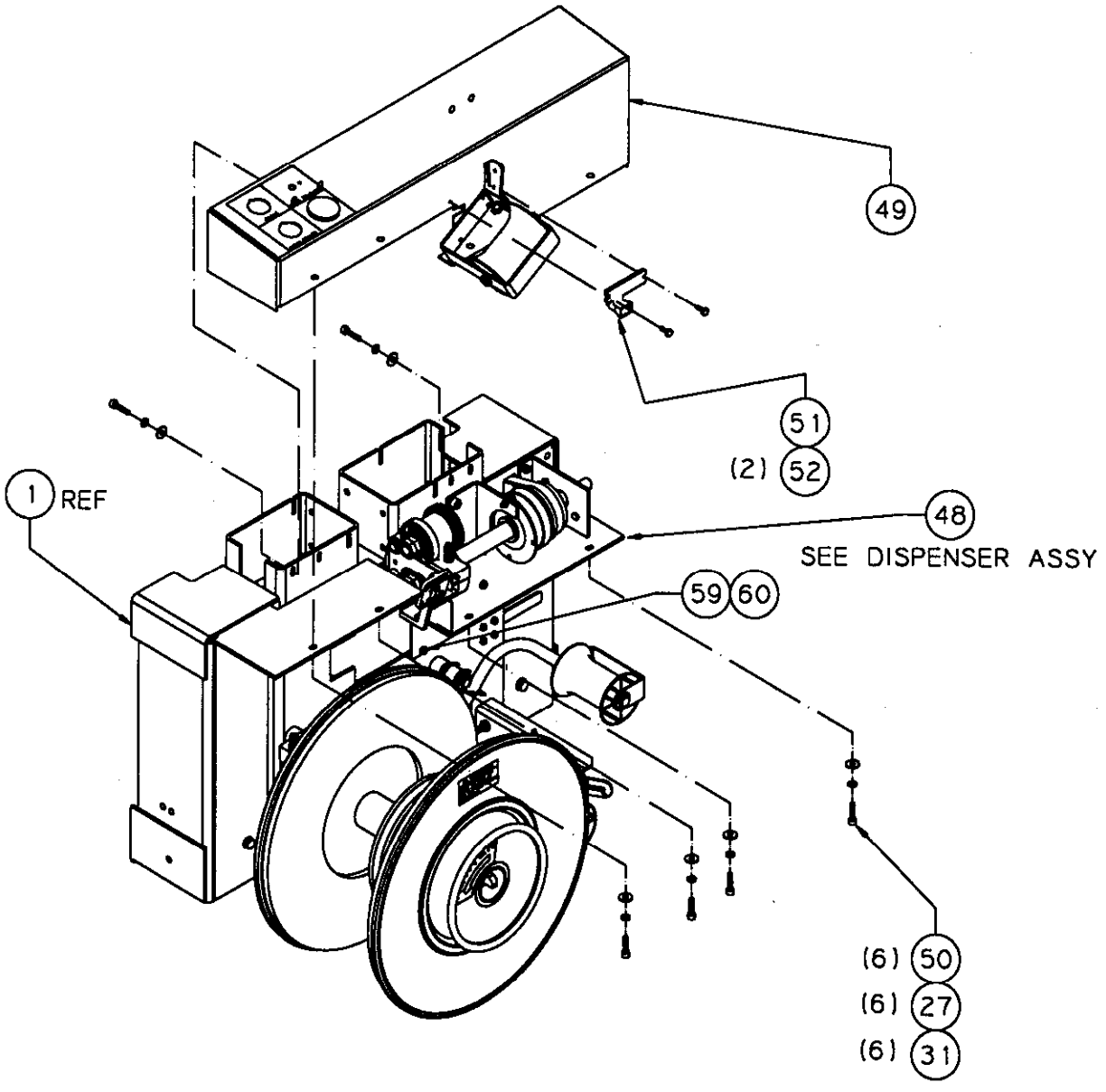
LARGE FRAME ASSEMBLY

421014-16



⚠ WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.



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SMALL FRAME FLAT TABLE TOPS

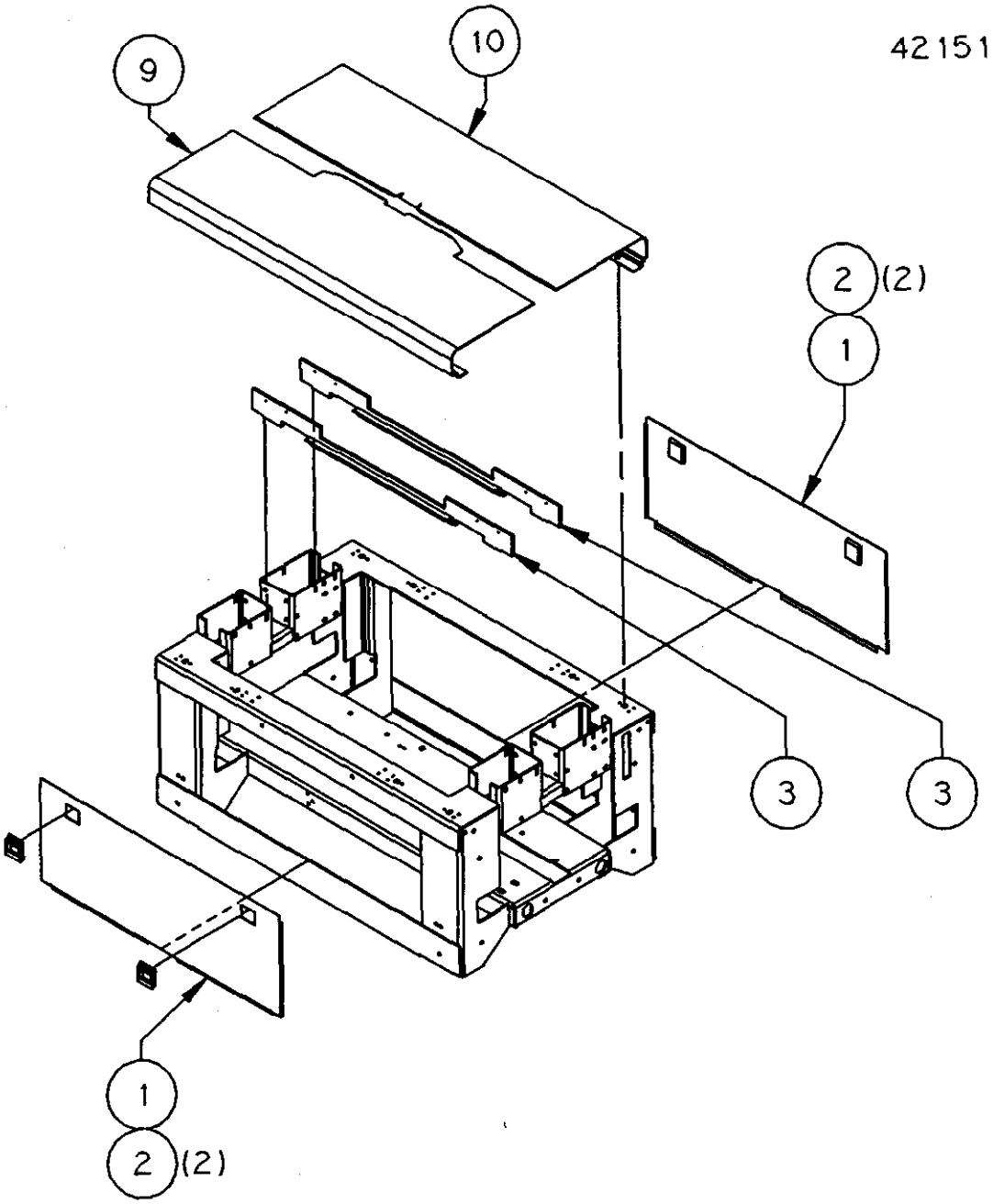
421515-5

CHUTE SIZE		17 X 20		28 X 20		33 X 36	
BILL OF MATERIAL		421516-1		421520-1		421524-1	
BILL OF MATERIAL S/COMP		421517-1		421521-1		421525-1	
KEY	DESCRIPTION	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.
1	SIDE PANEL	2	420890				
2	SIDE LATCH	4	420892				
3	REACTION BAR	2	420945				
9	ENTRY	1	421350	1	421363	1	421367
10	EXIT	1	421351			1	421368
10	EXIT S/COMP	1	421352				

NOTE:

ALL PARTS ARE APPLICABLE WITH OR WITHOUT SINGLE COMPRESSION UNLESS OTHERWISE SPECIFIED.

421515-5



⚠ WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.

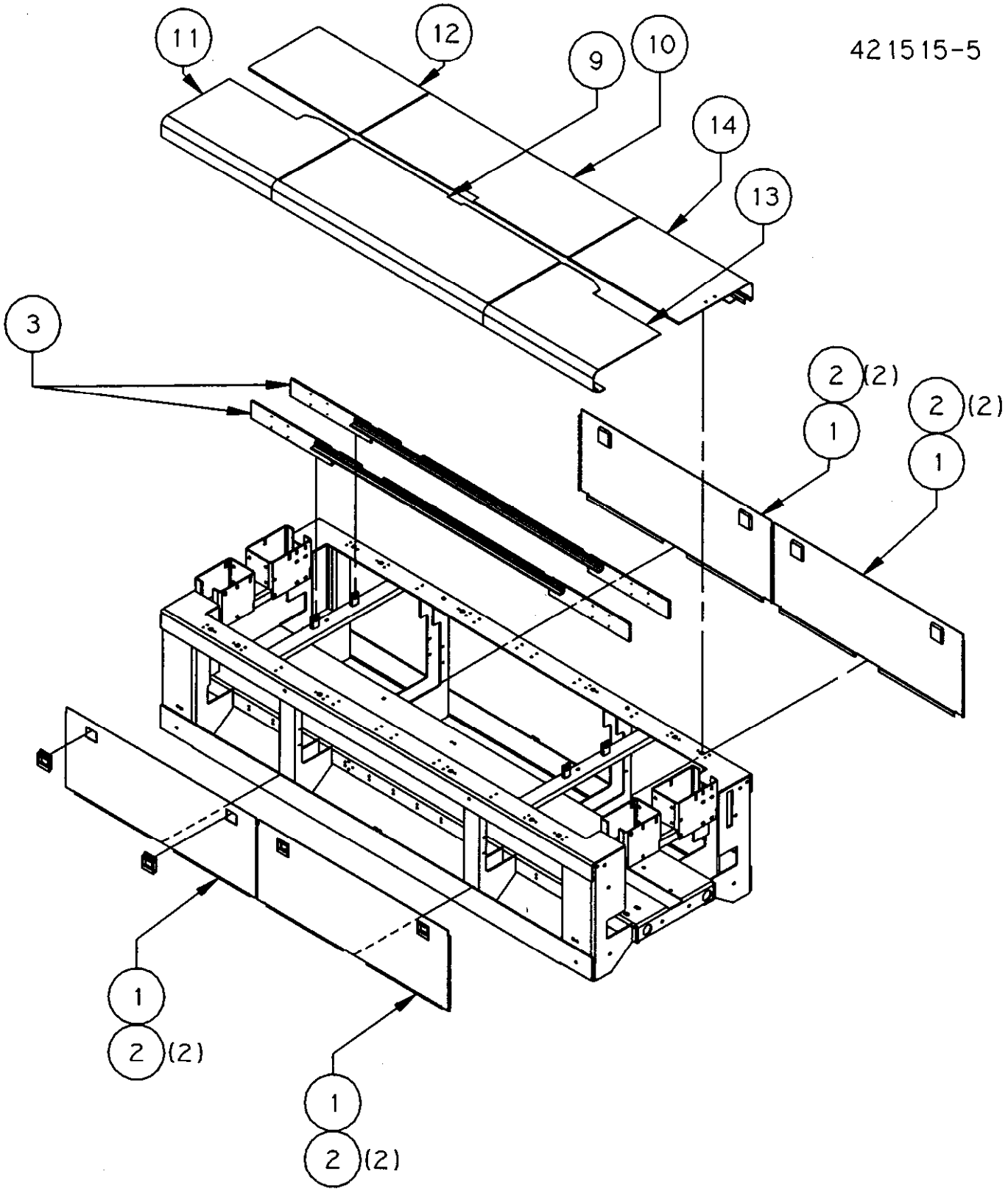
LARGE FRAME FLAT TABLE TOPS

421515-5

CHUTE SIZE		48 X 24		48 X 48		60 X 20	
BILL OF MATERIAL		421528-1		421528-1		421531-1	
BILL OF MATERIAL S/COMP		421529-1		NA		421532-1	
KEY	DESCRIPTION	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.
1	SIDE PANEL	4	420890				
2	SIDE LATCH	8	420892				
3	REACTION BAR	2	420944				
9	CENTER ENTRY	1	421376				
10	CENTER EXIT	1	421380				
11	LEFT ENTRY	1	421375			1	421384
12	LEFT EXIT	1	421548				
12	L. EXIT S/COMP	1	421379	NA		1	421379
13	RIGHT ENTRY	1	421377			1	421385
14	RIGHT EXIT	1	421378				
14	R. EXIT S/COMP	1	421381	NA		1	421381

NOTE:

ALL PARTS ARE APPLICABLE WITH OR WITHOUT SINGLE COMPRESSION UNLESS OTHERWISE SPECIFIED.



⚠ WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.

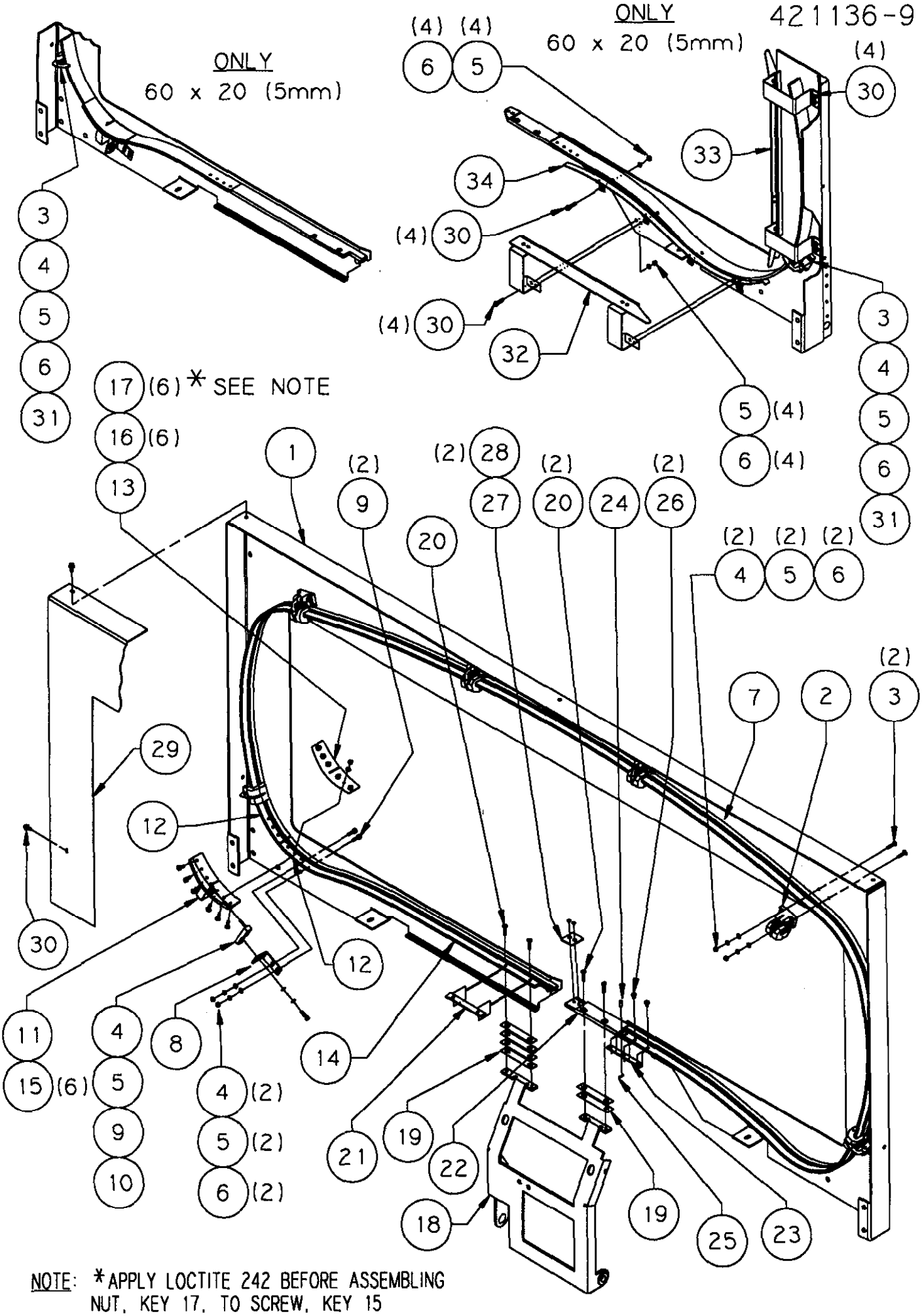
SMALL FRAME CHUTE ASSY

CHUTE SIZE BILL OF MATERIAL		17 X 20 421016		28 X 20 421017		33 X 20 259944		33 X 36 421018	
KEY	DESCRIPTION	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.
1	CHUTE ARCH ASSY	1	421331	1	421332	1	259862	1	421333
2	CHUTE BRACKET ASSY	3		3	421800	N/A		6	421800
3	M5 X 20 SBHCS	6		10	421801	12		12	
4	5mm FLATWASHER	9		13	171571	15		15	
5	5mm LOCKWASHER	9		13	010076	15		15	
6	5mm HEX NUT	8		12	169440	14		14	
7	CHUTE TRACK	1	421212	1	421213	1	259866	1	421214
8	ACTUATOR BRACKET			1	420626				
9	M5 X 12 SHCS			3	010028				
10	ACTUATOR ARM ASSY			1	421802				
11	STRIPPER PIN BRKT ASSY			1	421803				
12	CHUTE TRACK FILLER			2	421433				
13	COVER PLATE			1	420018				
14	ENTRY CHUTE SECTION	1	421224	1	421225	1	421226		
15	10-24 X 5/8" SBHCS			6	421804				
16	10# WASHER			6	006057				
17	10-24 HEX NUT			6	004653				
18	CHUTE OPENER ASSY			REF	420569				
19	EXIT SHIM			A/R	420761				
20	M5 X 20 BHCS			4	421801				
21	CHUTE TRACK FILLER			1	421434				
22	EXIT CHUTE SECT.(100)			REF	420762	N/A			
	EXIT CHUTE SECT.(200)			REF	420763				
	EXIT CHUTE SECT.(600)			REF	420764				
	EXIT CHUTE SECT.(700)			REF	420765				
23	SWIVEL CHUTE EXIT			1	421143				
24	PIN CHUTE EXIT			1	421144				
25	Ø1.6 X 8 COTTER PIN			1	265932				
26	M5 X 8 SBHCS			2	421805				
27	CHUTE COVER EXIT			1	420740				
28	M3 X 5 SFHS			2	420046				
29	COVER ASSY	1	421116	1	421133	1	259863	1	421120
30	M5 X 12 SHCS FLANGE	5		5	272418	7		7	

LARGE FRAME CHUTE ASSY

CHUTE SIZE BILL OF MATERIAL		48 X24 421019		48 X 48 421020		60 X 20 421021		60 X 20 (5mm) 421900	
KEY	DESCRIPTION	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.
1	CHUTE ARCH ASSY	1	421334	1	421335	1	421336		
2	CHUTE BRACKET ASSY	5		7	421800	6		4	421901
3	M5 X 20 SBHCS	10		14	421801	12		12	
4	5mm FLATWASHER	13		17	171571	15		23	
5	5mm LOCKWASHER	13		17	010076	15		23	
6	5mm HEX NUT	12		16	169440	14		22	
7	CHUTE TRACK	1	421215	1	421216	1	421217	1	421903
8	ACTUATOR BRACKET			1	420626				
9	M5 X 12 SHCS			3	010028				
10	ACTUATOR ARM ASSY			1	421802				
11	STRIPPER PIN BRKT ASSY			1	421803				N/A
12	CHUTE TRACK FILLER			2	421433				N/A
13	COVER PLATE			1	420018				N/A
14	ENTRY CHUTE SECTION	1	421227	1	421228	1	421229	REF	421904
15	10-24 X 5/8" SBHCS			6	421804				N/A
16	10# WASHER			6	006057				N/A
17	10-24 HEX NUT			6	004653				N/A
18	CHUTE OPENER ASSY			REF	420569				
19	EXIT SHIM			A/R	420761				
20	M5 X 20 BHCS			4	421801				
21	CHUTE TRACK FILLER			1	421434				N/A
22	EXIT CHUTE SECT.(100)				N/A	REF	420762	REF	421905
	EXIT CHUTE SECT.(200)	REF	420763		N/A	REF	420763		N/A
	EXIT CHUTE SECT.(600)			REF	420764				N/A
	EXIT CHUTE SECT.(700)			REF	420765				N/A
23	SWIVEL CHUTE EXIT			1	421143				N/A
24	PIN CHUTE EXIT			1	421144				N/A
25	Ø1.6 X 8 COTTER PIN			1	265932				N/A
26	M5 X 8 SBHCS			2	421805				N/A
27	CHUTE COVER EXIT			1	420740			REF	421906
28	M3 X 5 SFHS			2	420046				N/A
29	COVER ASSY	1	421124	1	421128	1	421132	1	421132
30	M5 X 12 SHCS FLANGE	5		7	272418	5		17	
31	CHUTE BRACKET ASSY				N/A			2	421902
32	HORIZONTAL BRUSH ASSY				N/A			1	299709
33	VERTICAL BRUSH ASSY				N/A			1	299980
34	STRAP SUPPORT BRT.				N/A			1	299658

421136-9



NOTE: *APPLY LOCTITE 242 BEFORE ASSEMBLING NUT, KEY 17, TO SCREW, KEY 15

CHUTE OPENER ASSEMBLY

420569-17

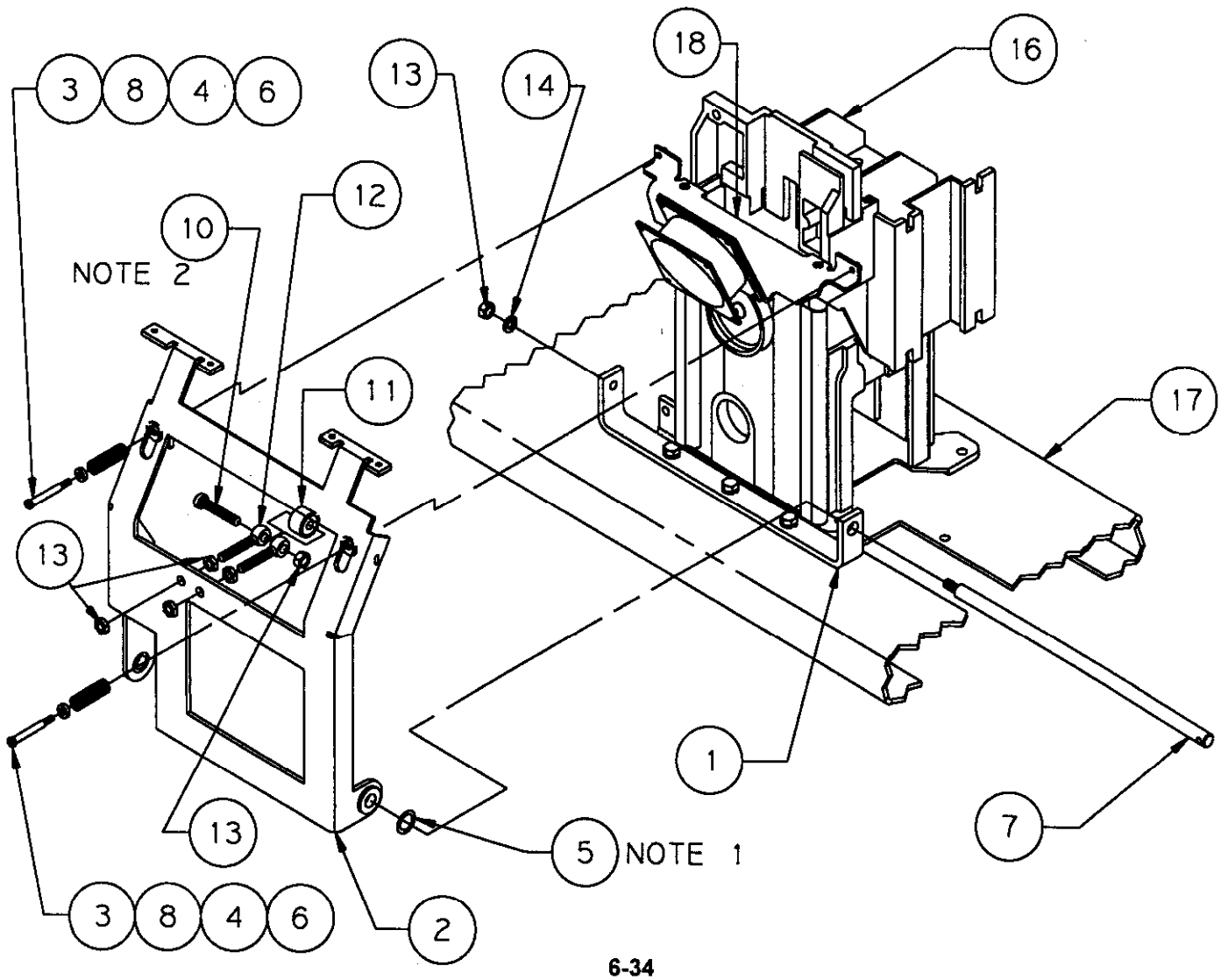
KEY	DESCRIPTION	QTY	PT. NO.
1	GATE HINGE BRACKET	REF	259882
2	CHUTE OPENER WELDMENT	1	259881
3	M5 X Ø6 X 50 S.H.S.S.	2	420753
4	COMPRESSION SPRING	2	420755
5	SHIM	A/R	278020
6	M6 FENDER WASHER	2	421876
7	GATE HINGE SHAFT	1	420571
8	6mm FLAT WASHER	2	262617
9			
10	M8 X 40 S.H.C.S.	1	172079

KEY	DESCRIPTION	QTY	PT. NO.
11	CAM FOLLOWER	1	420112
12	EYE BOLT MOD.	2	421848
13	8mm HEX NUT	6	164953
14	8mm LOCK WASHER	1	162381
15			
16	SEALER ASSY	REF	420701
17	FRAME ASSY (SF)	REF	421015
	FRAME ASSY (LF)	REF	421014
	FRAME ASSY (SIDESEAL)	REF	433510
18	FAN ASSEMBLY	REF	420759

NOTE 1: SHIM BETWEEN KEY 1 AND KEY 2 AS REQUIRED. SIDE PLAY TO BE WITHIN .05mm TO 0.2mm.

2: KEY 10, SECURE WITH NO. 242 BLUE LOCTITE.

3: KEY 6: INSTALL FENDER WASHER BETWEEN SPRING AND WELDED TAB ON KEY 2.



CHUTE COVER ASSEMBLIES
SMALL FRAME

280770-4

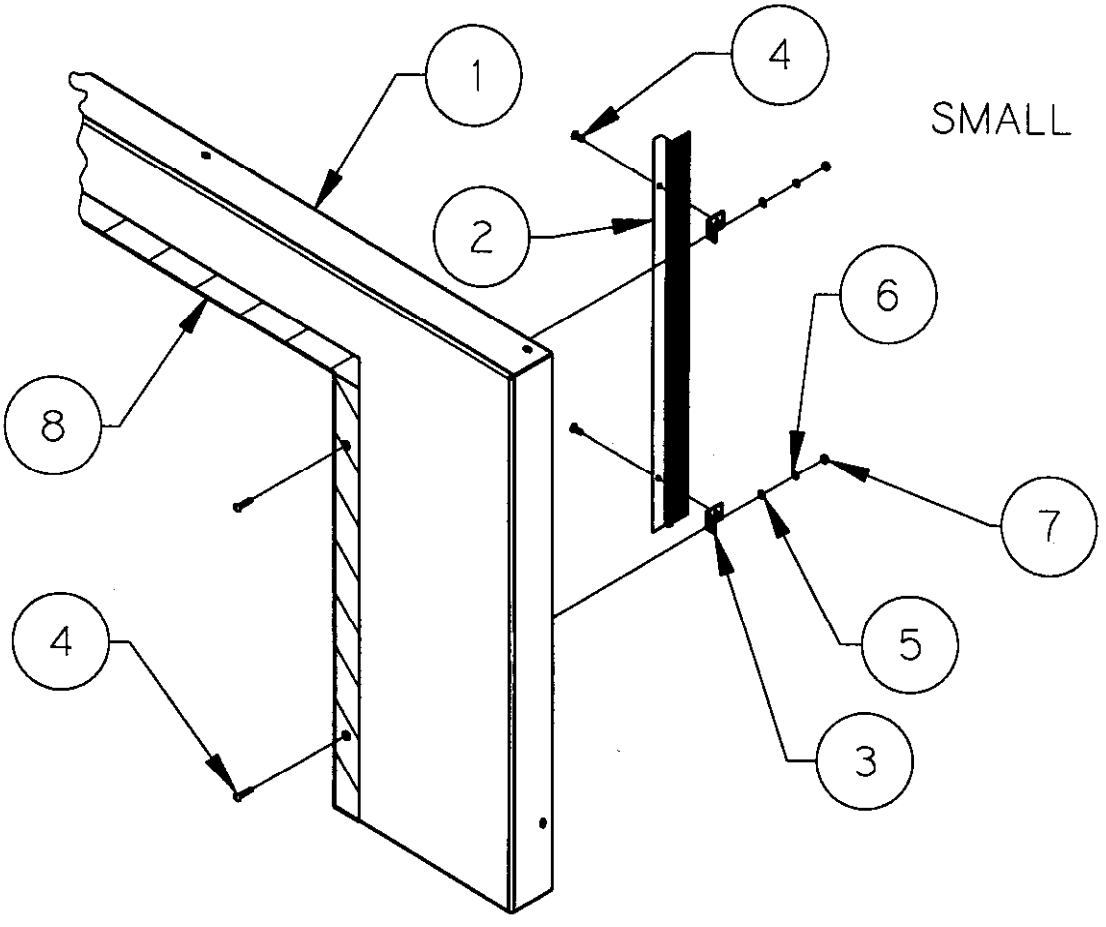
CHUTE SIZE BILL OF MATERIAL		17 X 20 421116		28 X 20 421133		33 X 20 259863		33 X 36 421120	
KEY	DESCRIPTION	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.
1	ARCH COVER	1	420538	1	420540	1	259865	1	420542
2	BRUSH ASSY	1		1	421115	1		1	421119
3	BRACKET	2		2	421112	2		2	
4	M5 X 12 FL SHCS	4		4	272418	4		6	
5	5mm FLATWASHER	2		2	171571	2		3	
6	5mm LOCKWASHER	2		2	010076	2		3	
7	5mm HEX NUT	2		2	169440	2		3	
8	STRIPED TAPE	5.4'		6.3'	421425	6.8'		10.5'	

NOTE: PUNCH HOLE IN KEY 8
FOR CLEARANCE OF KEY 4.

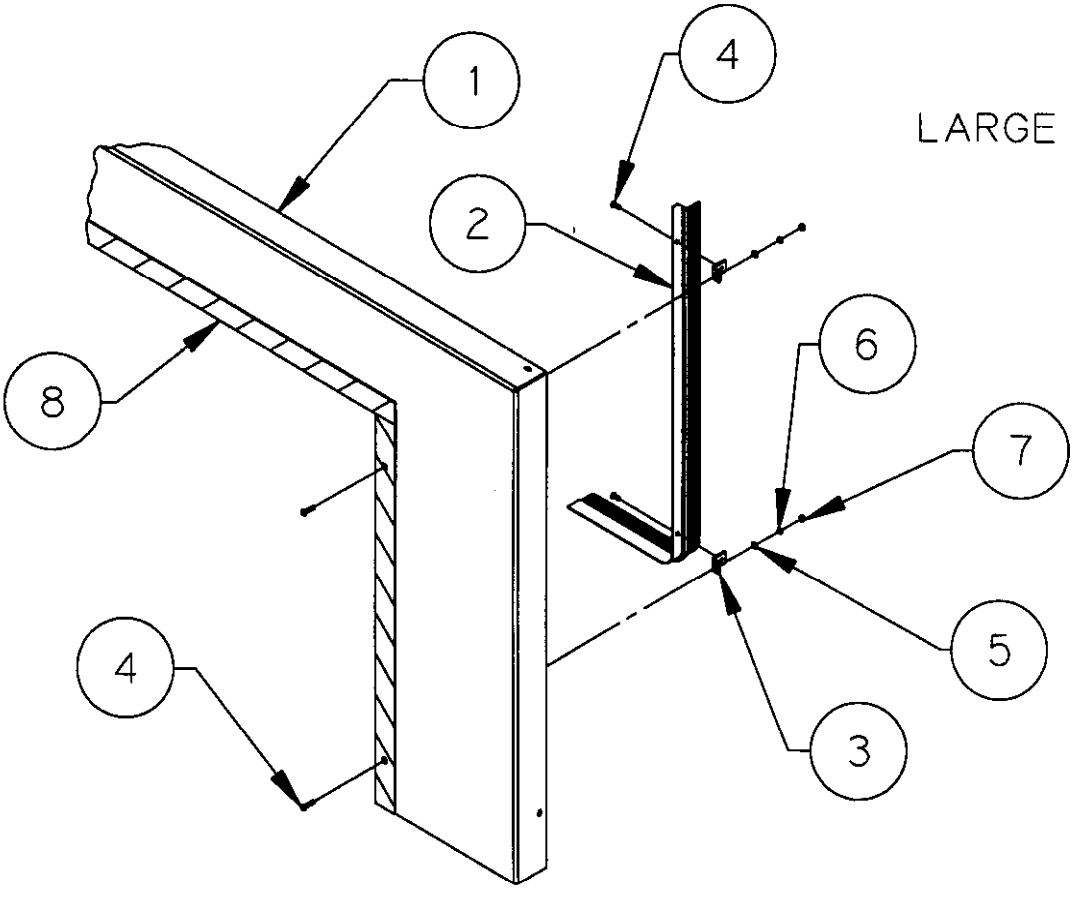
CHUTE COVER ASSEMBLIES
LARGE FRAME

CHUTE SIZE BILL OF MATERIAL		48 X 24 421124		48 X 48 421128		60 X 20 421132	
KEY	DESCRIPTION	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.
1	ARCH COVER	1	420544	1	420546	1	420548
2	BRUSH ASSY	1	421123	1	421127	1	421131
3	BRACKET	2		3	421112	2	
4	M5 X 12 FL SHCS	4		6	272418	4	
5	5mm FLATWASHER	2		3	171571	2	
6	5mm LOCKWASHER	2		3	010076	2	
7	5mm HEX NUT	2		3	169440	2	
8	STRIPED TAPE	8.8'		12.7'	421425	9.5'	

SMALL FRAME



LARGE FRAME



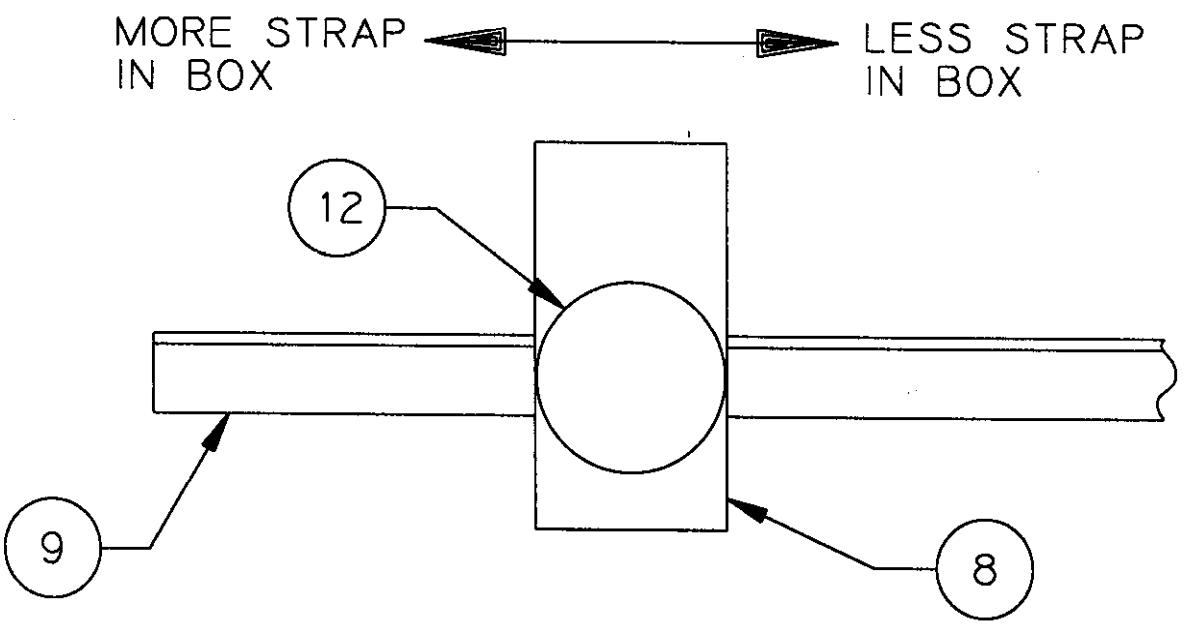
100 SERIES SLACK BOX ASS'Y (SF)

421401-6

KEY	QTY	PART NO	DESCRIPTION
1	1	259588	SF SLACKBOX
2	1	259551	RIGHT GUIDE
3	1	259560	ENTRY GUIDE
4			
5			
6	1	259566	CORNER GUIDE LF
7	6	259554	LEFT GUIDE
8	1	259593	BALANCE WEIGHT
9	1	259590	BALANCE ARM
10	1	259591	PIVOT BLOCK
11	21	421341	POP RIVET
12	1	259945	HAND KNOB
13			
14	1	171044	Ø6 X 10 SHSS
15	2	169440	M5 HEX NUT
16	1	171571	M5 FLATWASHER
17	1	010076	M5 LOCKWASHER
18	2	251967	M3 X 8 SFHCS
19	1	292943	PROX ASSY
20	1	420676	Ø6 X 25 SHSS

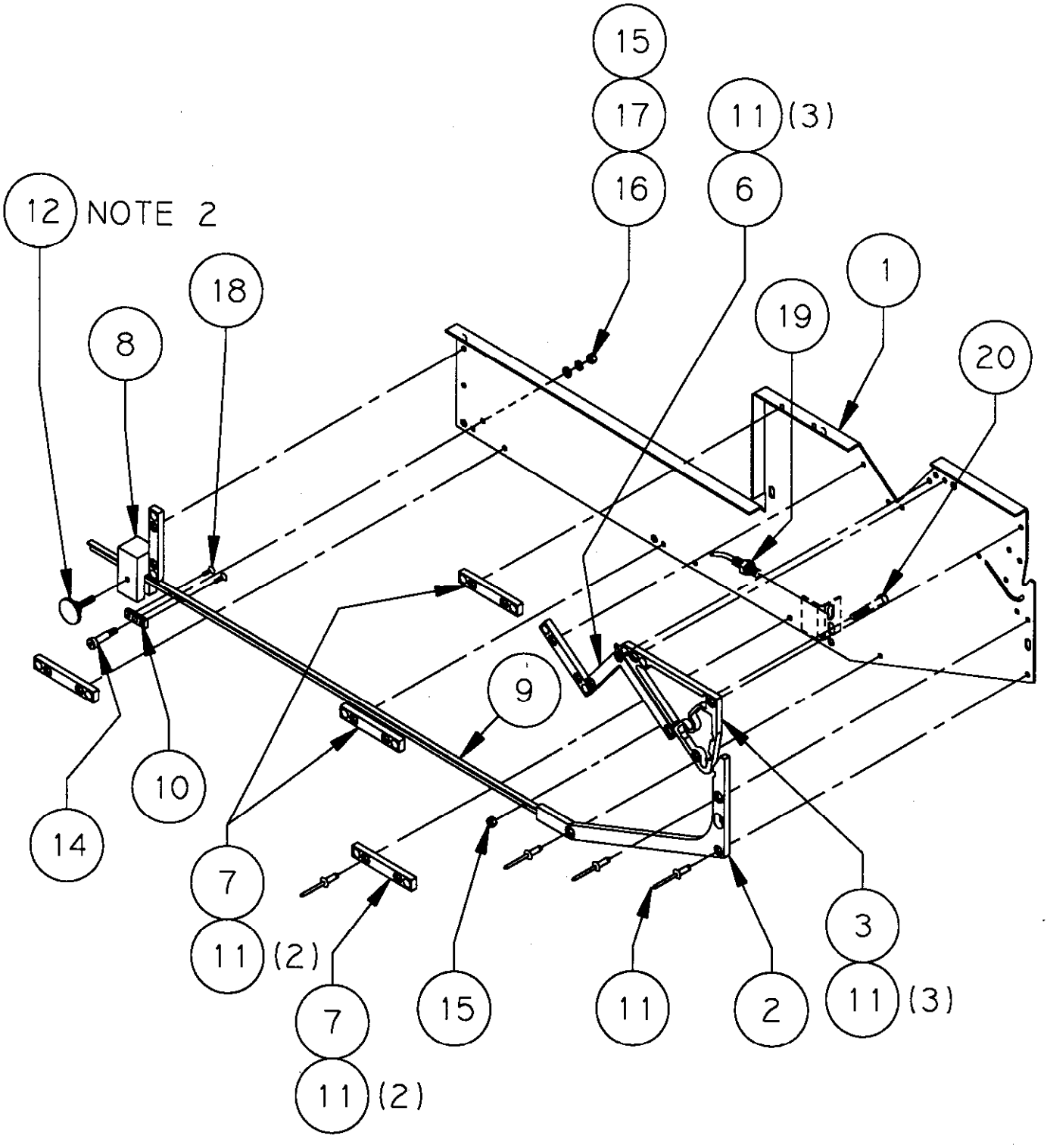
⚠ WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.



NOTE: 1) ADJUST KEY 8 (BALANCE WEIGHT), TO ACCOMODATE PACKAGE SIZE.

2) SECURE KEY 12 WITH NO.222 PURPLE LOCTITE.



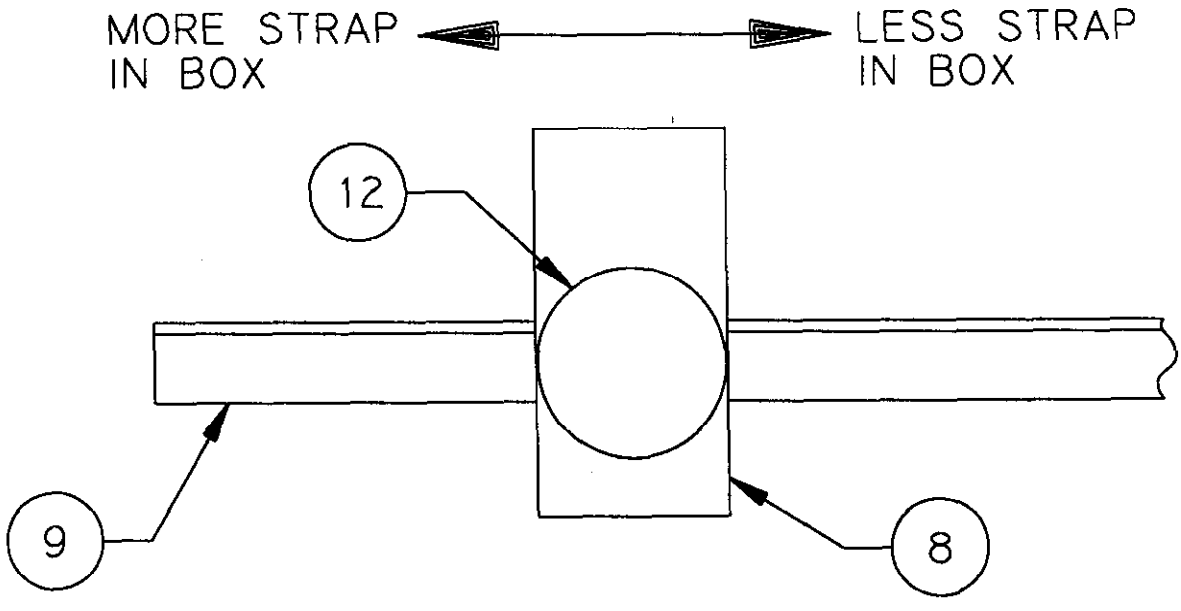
100 SERIES SLACK BOX ASS'Y (LF)

421403-6

KEY	QTY	PART NO	DESCRIPTION
1	1	259585	LF SLACKBOX
2	1	259551	RIGHT GUIDE
3	1	259560	ENTRY GUIDE
4	1	259567	LOWER GUIDE
5	1	259564	UPPER GUIDE
6	1	259566	CORNER GUIDE LF
7	6	259554	LEFT GUIDE
8	1	259593	BALANCE WEIGHT
9	1	259590	BALANCE ARM
10	1	259591	PIVOT BLOCK
11	28	421341	POP RIVET
12	1	259945	HAND KNOB
13			
14	1	171044	Ø6 X 10 SHSS
15	2	169440	M5 HEX NUT
16	1	171571	M5 FLATWASHER
17	1	010076	M5 LOCKWASHER
18	2	251967	M3 X 8 SFHCS
19	1	292943	PROX ASSY
20	1	420676	Ø6 X 25 SHSS

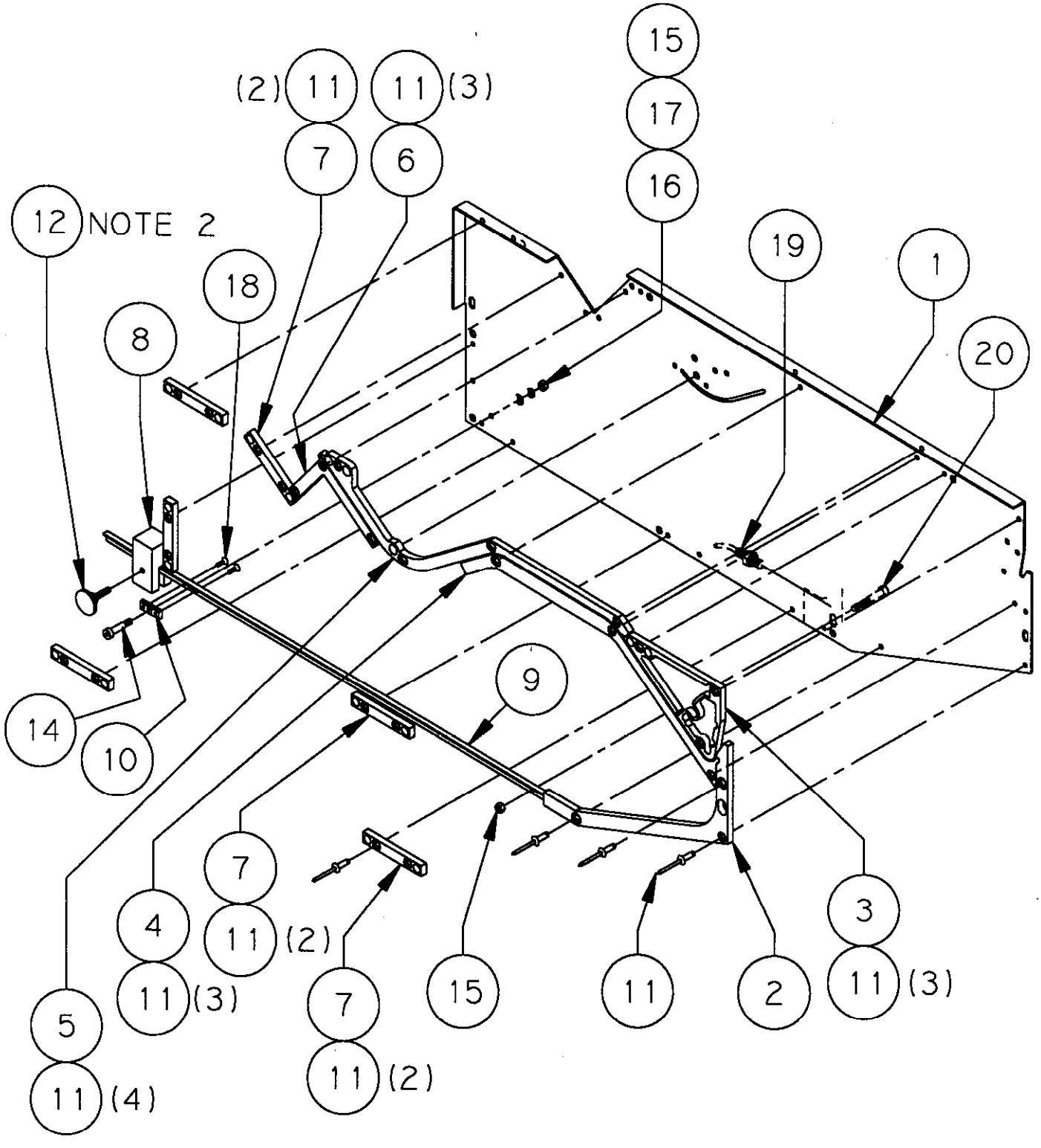
⚠ WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.



NOTE: 1) ADJUST KEY 8 (BALANCE WEIGHT), TO ACCOMODATE PACKAGE SIZE.

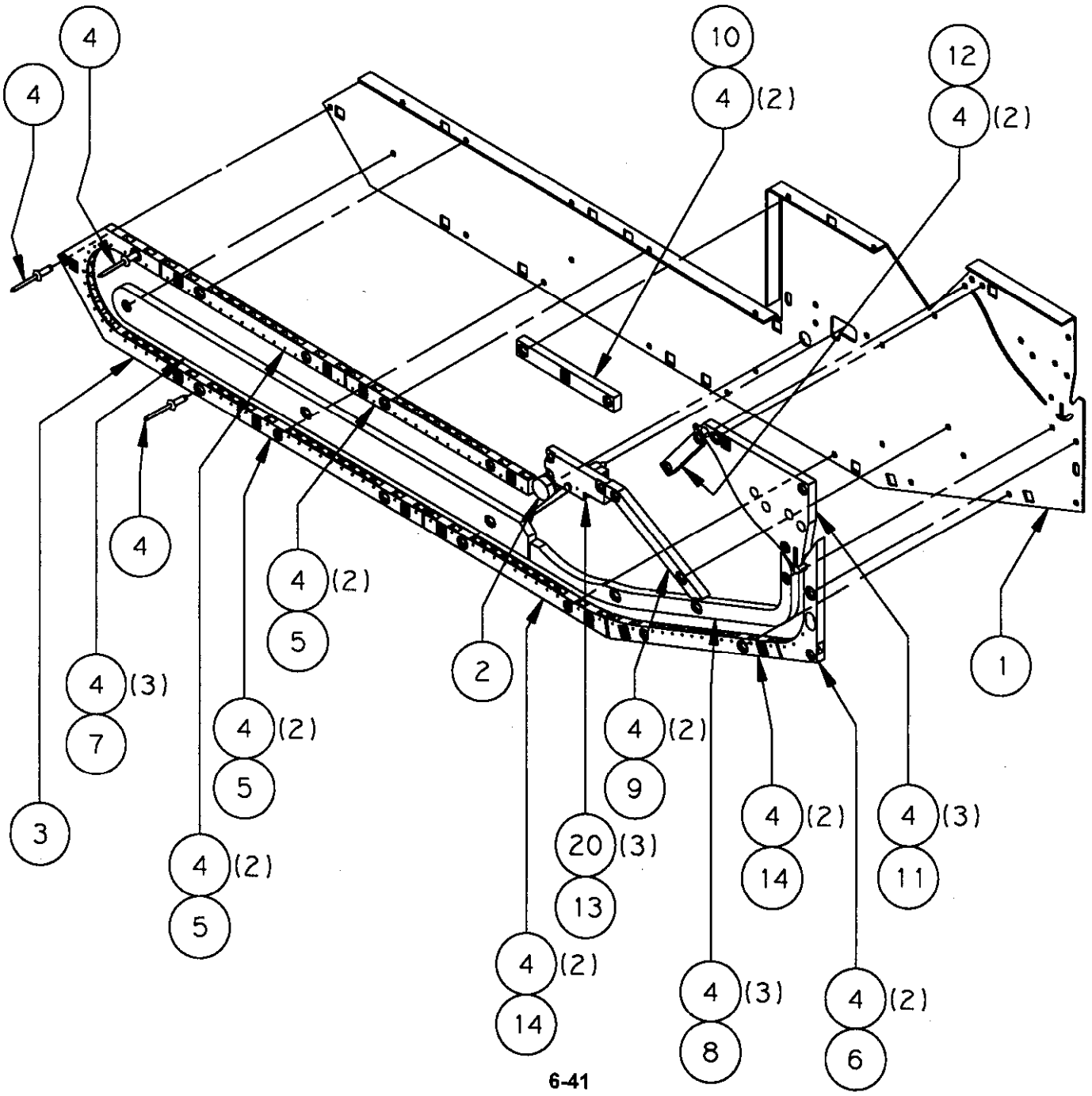
2) SECURE KEY 12 WITH NO. 222 PURPLE LOCTITE.



200 SERIES SLACK BOX ASS'Y (SF)

259851-2

KEY	QTY	PART NO	DESCRIPTION
1	1	259843	SLACK BOX
2	1	420984	GROMMET
3	1	259869	LEFT GUIDE ASS'Y
4	30	421341	POP RIVET
5	3	259868	LONG GUIDE ASS'Y
6	1	421180	RIGHT GUIDE ASS'Y
7	1	420607	CENTER GUIDE
8	1	421394	SIDE GUIDE
9	1	420604	DIVIDER
10	1	420605	DOOR ANCHOR
11	1	259870	ENTRY GUIDE ASS'Y
12	1	420652	CORNER GUIDE
13	1	259873	SWITCH BLOCK ASS'Y
14	2	259867	END GUIDE ASS'Y
15			
16			
17			
18			
19			
20	3	280279	M5 X 16 SFHCS



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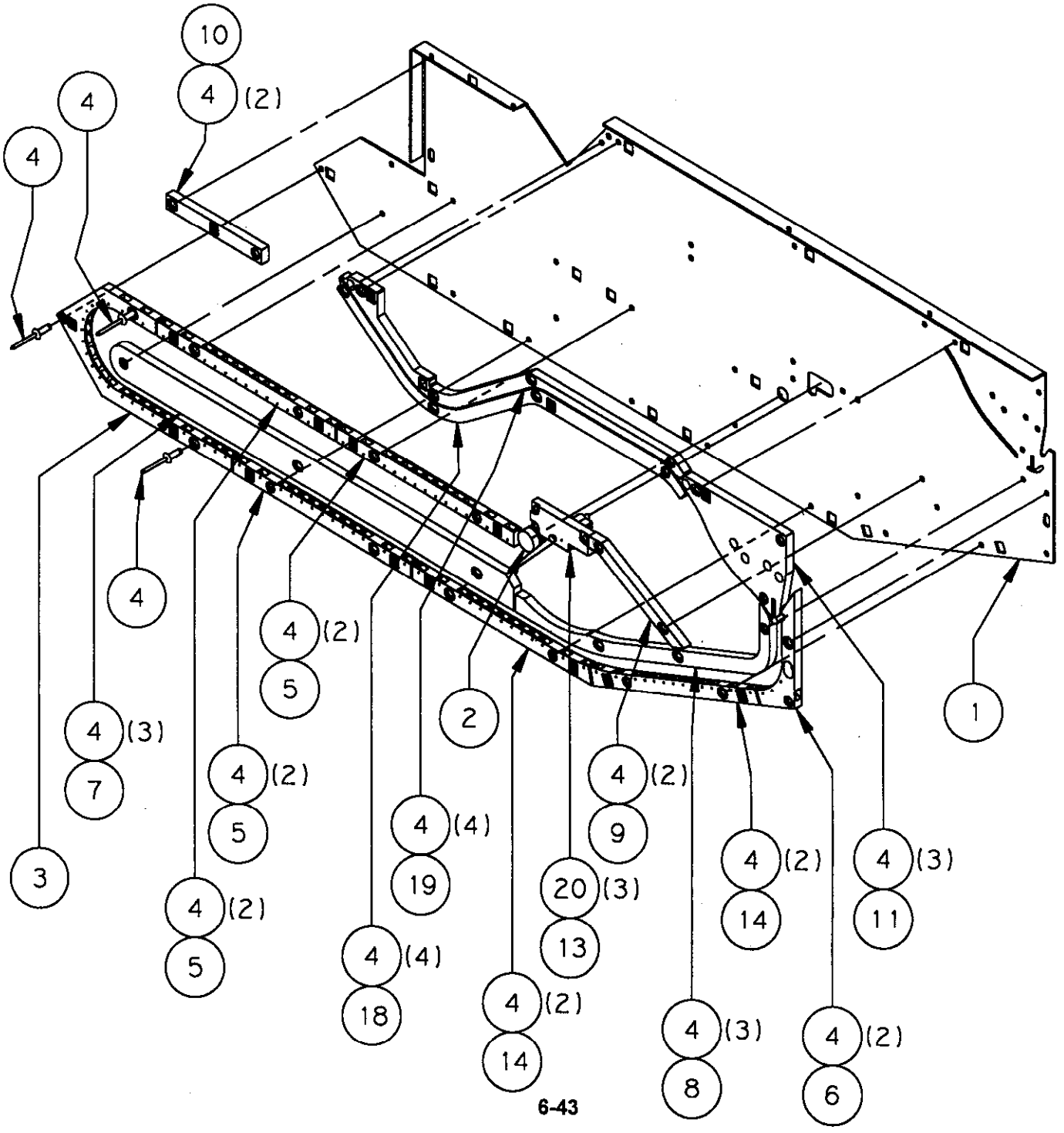
200 SERIES SLACK BOX ASS'Y (LF)

259853-2

KEY	QTY	PART NO	DESCRIPTION
1	1	259845	SLACK BOX
2	1	420984	GROMMET
3	1	259869	LEFT GUIDE ASS'Y
4	36	421341	POP RIVET
5	3	259868	LONG GUIDE ASS'Y
6	1	421180	RIGHT GUIDE ASS'Y
7	1	420607	CENTER GUIDE
8	1	421394	SIDE GUIDE
9	1	420604	DIVIDER
10	1	420605	DOOR ANCHOR
11	1	259870	ENTRY GUIDE ASS'Y
12			
13	1	259873	SWITCH BLOCK ASS'Y
14	2	259867	END GUIDE ASS'Y
15			
16			
17			
18	1	421195	LOWER GUIDE
19	1	421194	UPPER GUIDE
20	3	280279	M5 X 16 SFHCS



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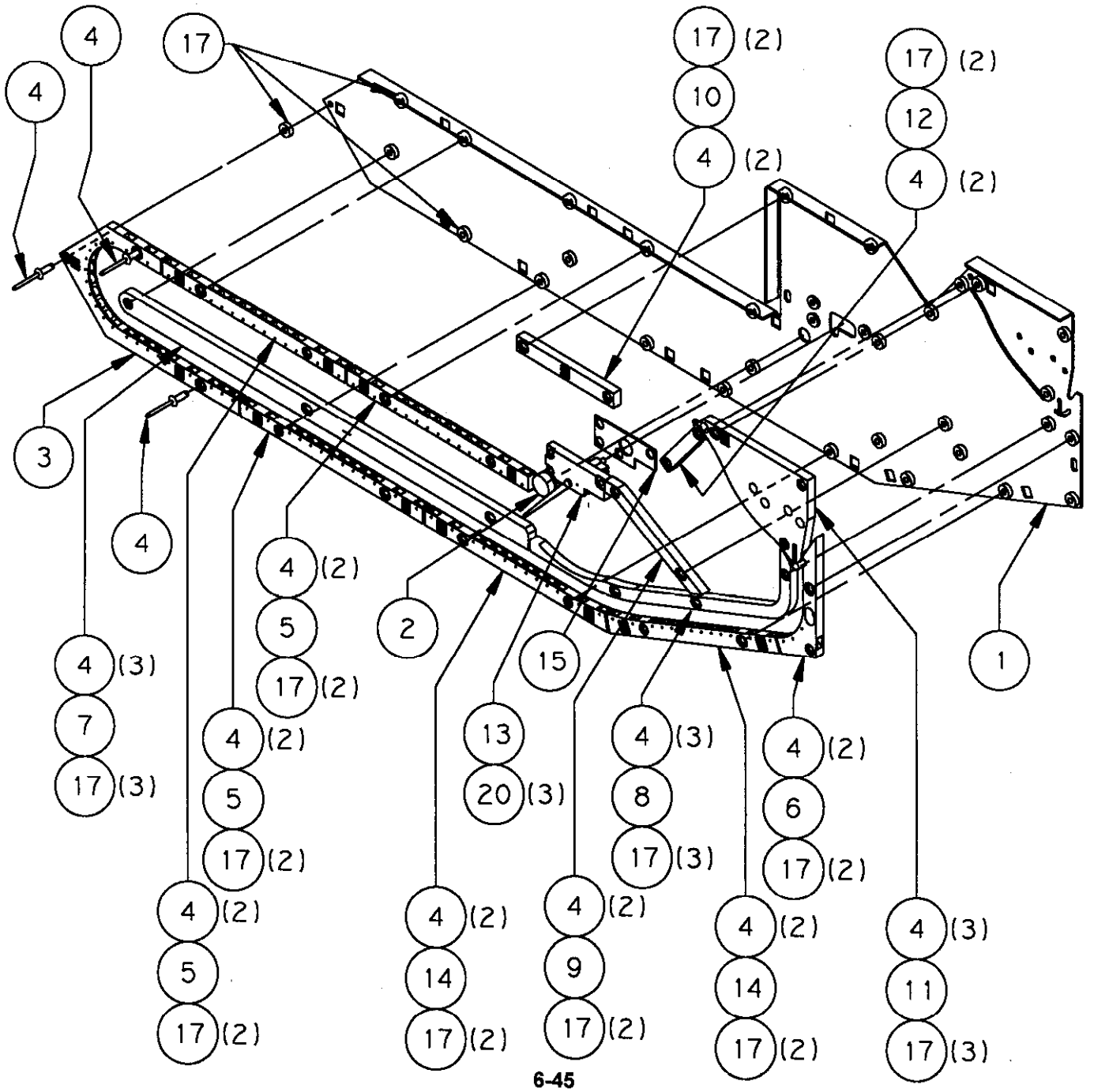
600 & 700 SERIES SLACK BOX ASS'Y (SF)

259855-2

KEY	QTY	PART NO	DESCRIPTION
1	1	259843	SLACK BOX
2	1	420984	GROMMET
3	1	259869	LEFT GUIDE ASS'Y
4	30	421342	POP RIVET
5	3	259868	LONG GUIDE ASS'Y
6	1	421180	RIGHT GUIDE ASS'Y
7	1	420607	CENTER GUIDE
8	1	420603	SIDE GUIDE
9	1	420604	DIVIDER
10	1	420605	DOOR ANCHOR
11	1	259870	ENTRY GUIDE ASS'Y
12	1	420652	CORNER GUIDE
13	1	259873	SWITCH BLOCK ASS'Y
14	2	259867	END GUIDE ASS'Y
15	1	259872	SPACER
16			
17	30	420618	SPACER
18			
19			
20	3	280279	M5 X 16 SFHCS



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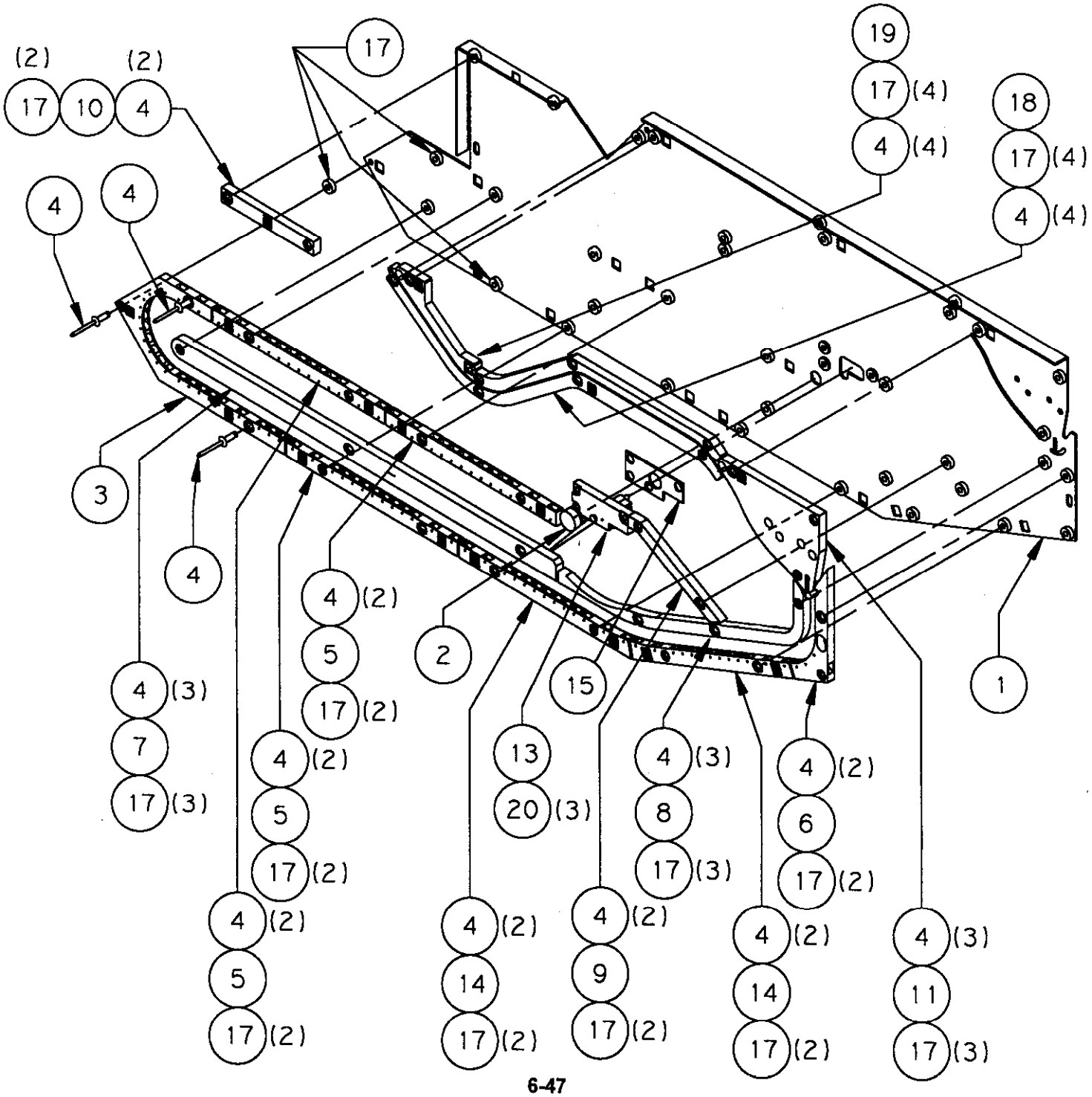
600 & 700 SERIES SLACK BOX ASS'Y (LF)

259856-2

KEY	QTY	PART NO	DESCRIPTION
1	1	259845	SLACK BOX
2	1	420984	GROMMET
3	1	259869	LEFT GUIDE ASS'Y
4	36	421342	POP RIVET
5	3	259868	LONG GUIDE ASS'Y
6	1	421180	RIGHT GUIDE ASS'Y
7	1	420607	CENTER GUIDE
8	1	420603	SIDE GUIDE
9	1	420604	DIVIDER
10	1	420605	DOOR ANCHOR
11	1	259870	ENTRY GUIDE ASS'Y
12			
13	1	259873	SWITCH BLOCK ASS'Y
14	2	259867	END GUIDE ASS'Y
15	1	259872	SPACER
16			
17	36	420618	SPACER
18	1	421195	LOWER GUIDE
19	1	421194	UPPER GUIDE
20	3	280279	M5 X 16 SFHCS



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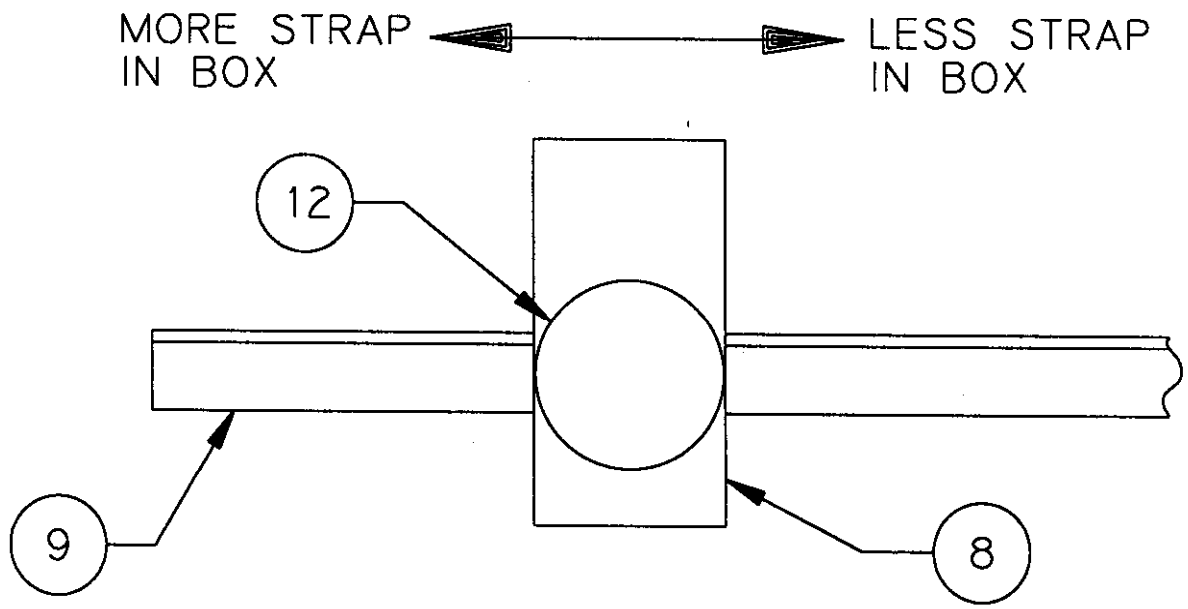
100 SERIES SLACK BOX ASS'Y (SF) WITH AUTO CUT-OFF AND REFEED

421402-6

KEY	QTY	PART NO	DESCRIPTION
1	1	259589	SF SLACKBOX W/ ACR
2	1	259551	RIGHT GUIDE
3	1	259561	ENTRY GUIDE (SF ACR)
4			
5			
6	REF	259563	ACR BLOCK
7	6	259554	LEFT GUIDE
8	1	259593	BALANCE WEIGHT
9	1	259590	BALANCE ARM
10	1	259591	PIVOT BLOCK
11	17	421341	POP RIVET
12	1	259945	HAND KNOB
13			
14	1	171044	Ø6 X 10 SHSS
15	2	169440	M5 HEX NUT
16	1	171571	M5 FLATWASHER
17	1	010076	M5 LOCKWASHER
18	2	251967	M3 X 8 SFHCS
19	1	292943	PROX ASSY
20	1	420676	Ø6 X 25 SHSS

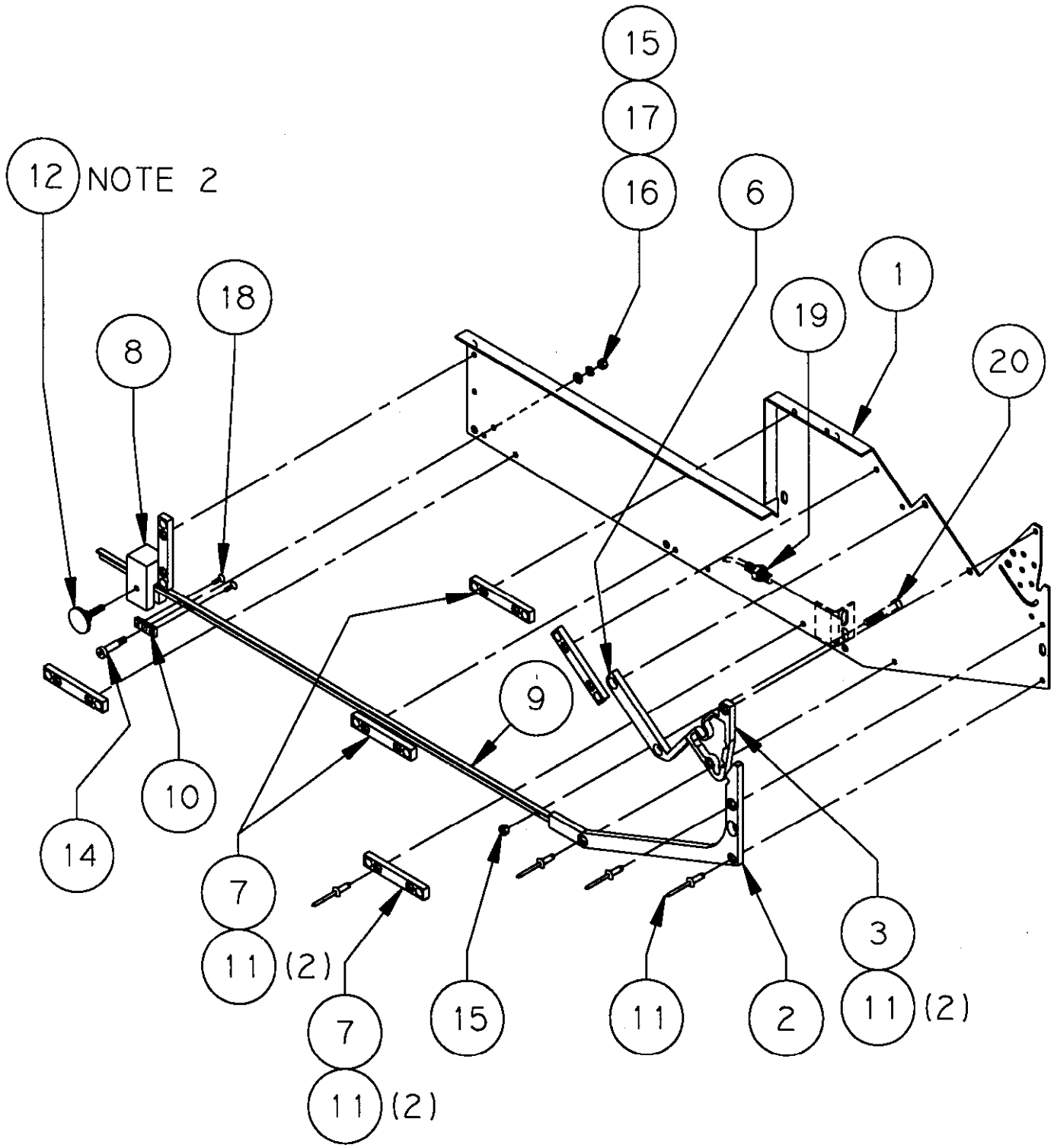
⚠ WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.



NOTE: 1) ADJUST KEY 8 (BALANCE WEIGHT), TO ACCOMODATE PACKAGE SIZE.

2) SECURE KEY 12 WITH NO. 222 PURPLE LOCTITE.



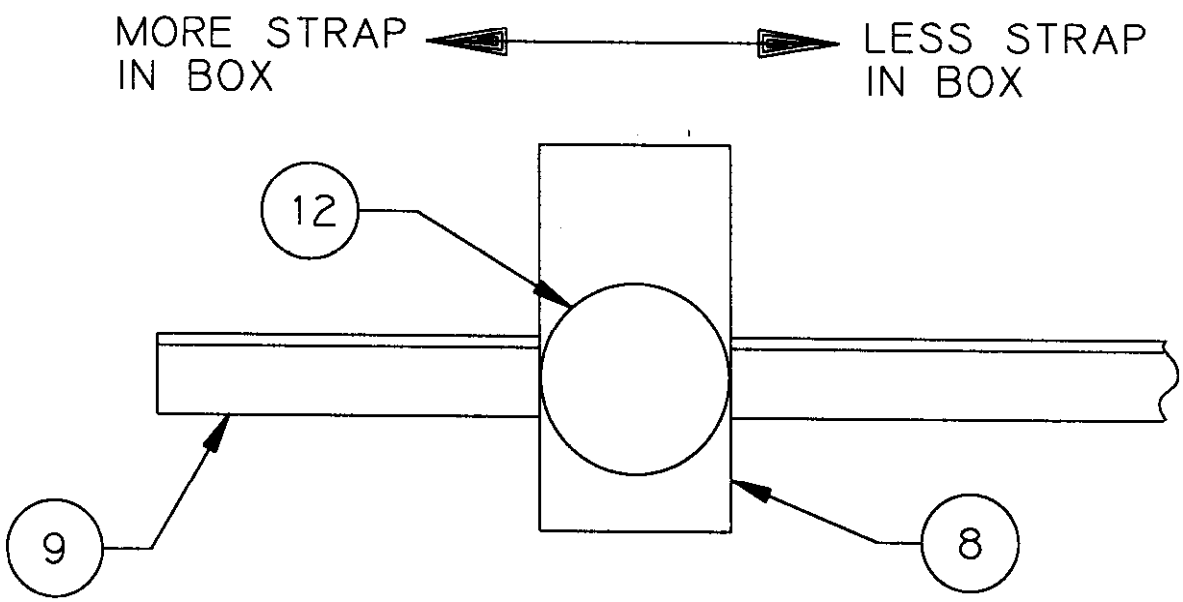
100 SERIES SLACK BOX ASS'Y (LF) WITH AUTO CUT-OFF AND RE-FEED

421404-6

KEY	QTY	PART NO	DESCRIPTION
1	1	259586	LF SLACKBOX W/ ACR
2	1	259551	RIGHT GUIDE
3	1	259560	ENTRY GUIDE
4	1	259567	LOWER GUIDE
5	1	259565	UPPER GUIDE ACR
6	REF	259563	ACR BLOCK
7	6	259554	LEFT GUIDE
8	1	259593	BALANCE WEIGHT
9	1	259590	BALANCE ARM
10	1	259591	PIVOT BLOCK
11	24	421341	POP RIVET
12	1	259945	HAND KNOB
13			
14	1	171044	Ø6 X 10 SHSS
15	2	169440	M5 HEX NUT
16	1	171571	M5 FLATWASHER
17	1	010076	M5 LOCKWASHER
18	2	251967	M3 X 8 SFHCS
19	1	292943	PROX ASSY
20	1	420676	Ø6 X 25 SHSS

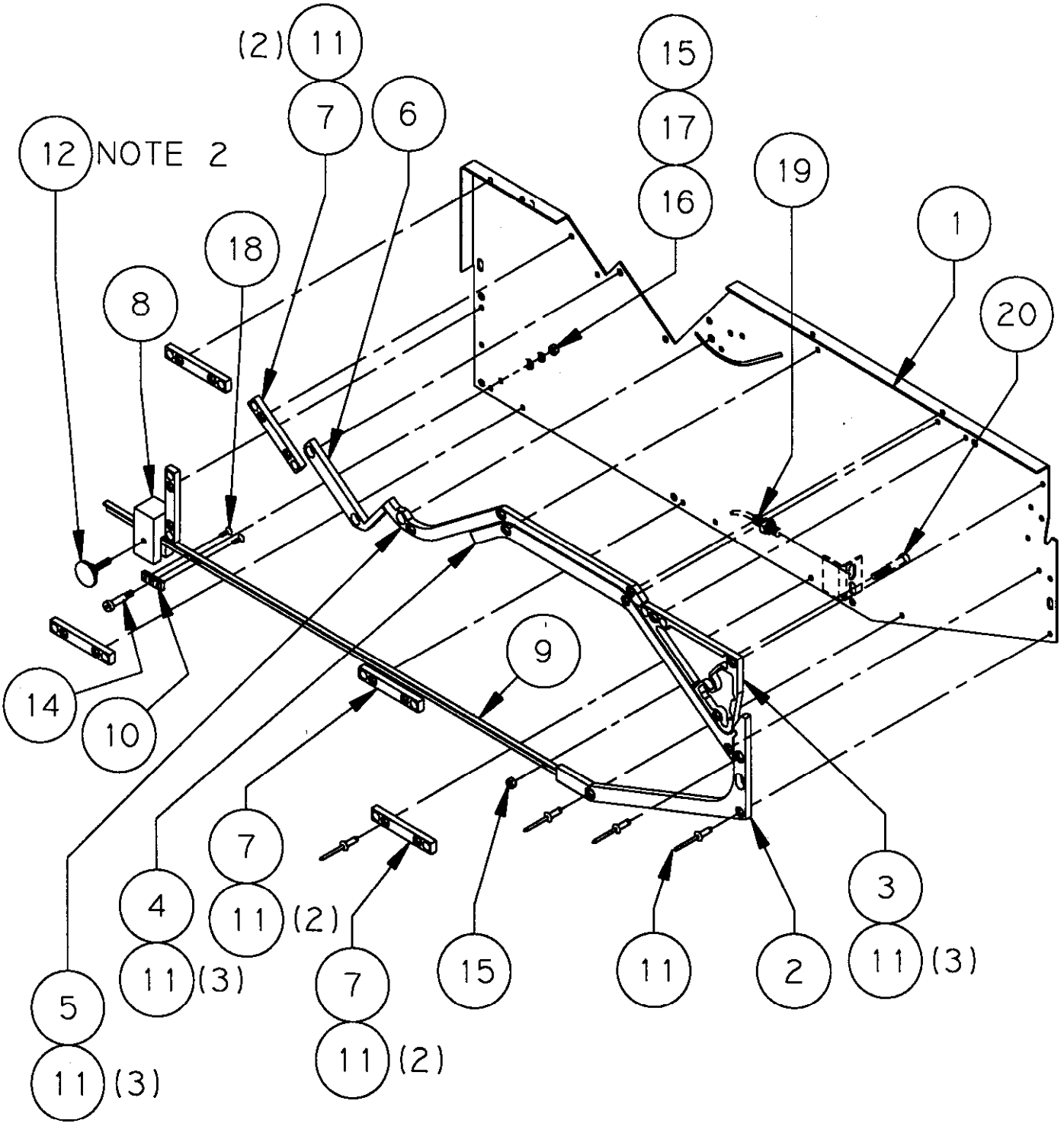
⚠ WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.



NOTE: 1) ADJUST KEY 8 (BALANCE WEIGHT), TO ACCOMODATE PACKAGE SIZE.

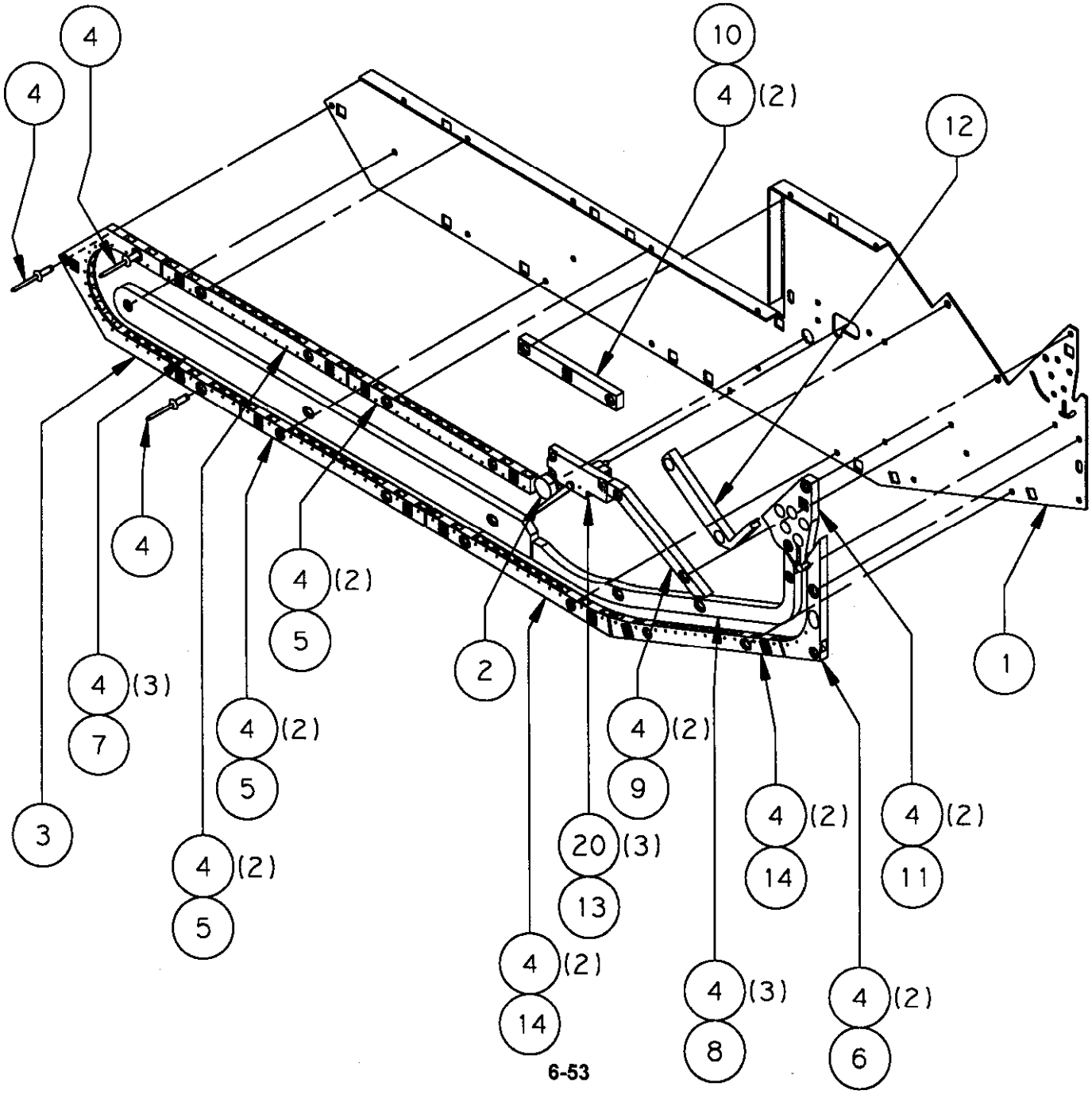
2) SECURE KEY 12 WITH NO. 222 PURPLE LOCTITE.



200 SERIES SLACK BOX ASS'Y (SF) WITH AUTO CUT-OFF AND RE-FEED

259852-3

KEY	QTY	PART NO	DESCRIPTION	KEY	QTY	PART NO	DESCRIPTION
1	1	259844	SLACK BOX	11	1	259871	ENTRY GUIDE ASS'Y
2	1	420984	GROMMET	12	1	420611	ACR BLOCK
3	1	259869	LEFT GUIDE ASS'Y	13	1	259873	SWITCH BLOCK ASS'Y
4	27	421341	POP RIVET	14	2	259867	END GUIDE ASS'Y
5	3	259868	LONG GUIDE ASS'Y	15			
6	1	421180	RIGHT GUIDE ASS'Y	16			
7	1	420607	CENTER GUIDE	17			
8	1	421394	SIDE GUIDE	18			
9	1	420604	DIVIDER	19			
10	1	420605	DOOR ANCHOR	20	3	280279	M5 X 16 SFHCS



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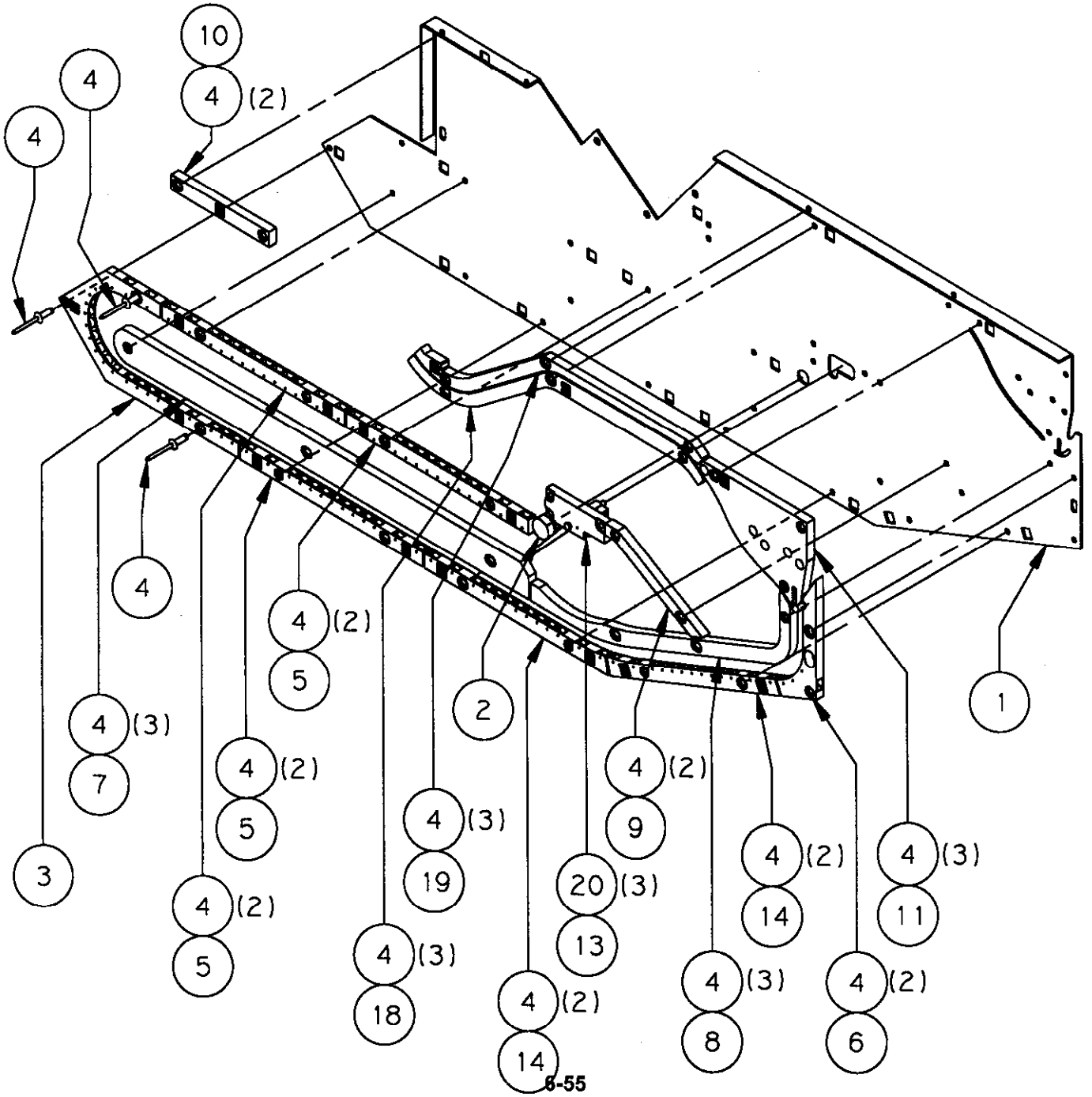
200 SERIES SLACK BOX ASS'Y (LF)
WITH AUTO CUT-OFF AND RE-FEED

259854-2

KEY	QTY	PART NO	DESCRIPTION
1	1	259846	SLACK BOX
2	1	420984	GROMMET
3	1	259869	LEFT GUIDE ASS'Y
4	34	421341	POP RIVET
5	3	259868	LONG GUIDE ASS'Y
6	1	421180	RIGHT GUIDE ASS'Y
7	1	420607	CENTER GUIDE
8	1	421394	SIDE GUIDE
9	1	420604	DIVIDER
10	1	420605	DOOR ANCHOR
11	1	259870	ENTRY GUIDE ASS'Y
12			
13	1	259873	SWITCH BLOCK ASS'Y
14	2	259867	END GUIDE ASS'Y
15			
16			
17			
18	1	420653	LOWER GUIDE
19	1	420657	UPPER GUIDE
20	3	280279	M5 X 16 SFHCS



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600/700 SERIES SLACK BOX ASS'Y (SF) WITH AUTO CUT-OFF AND RE-FEED

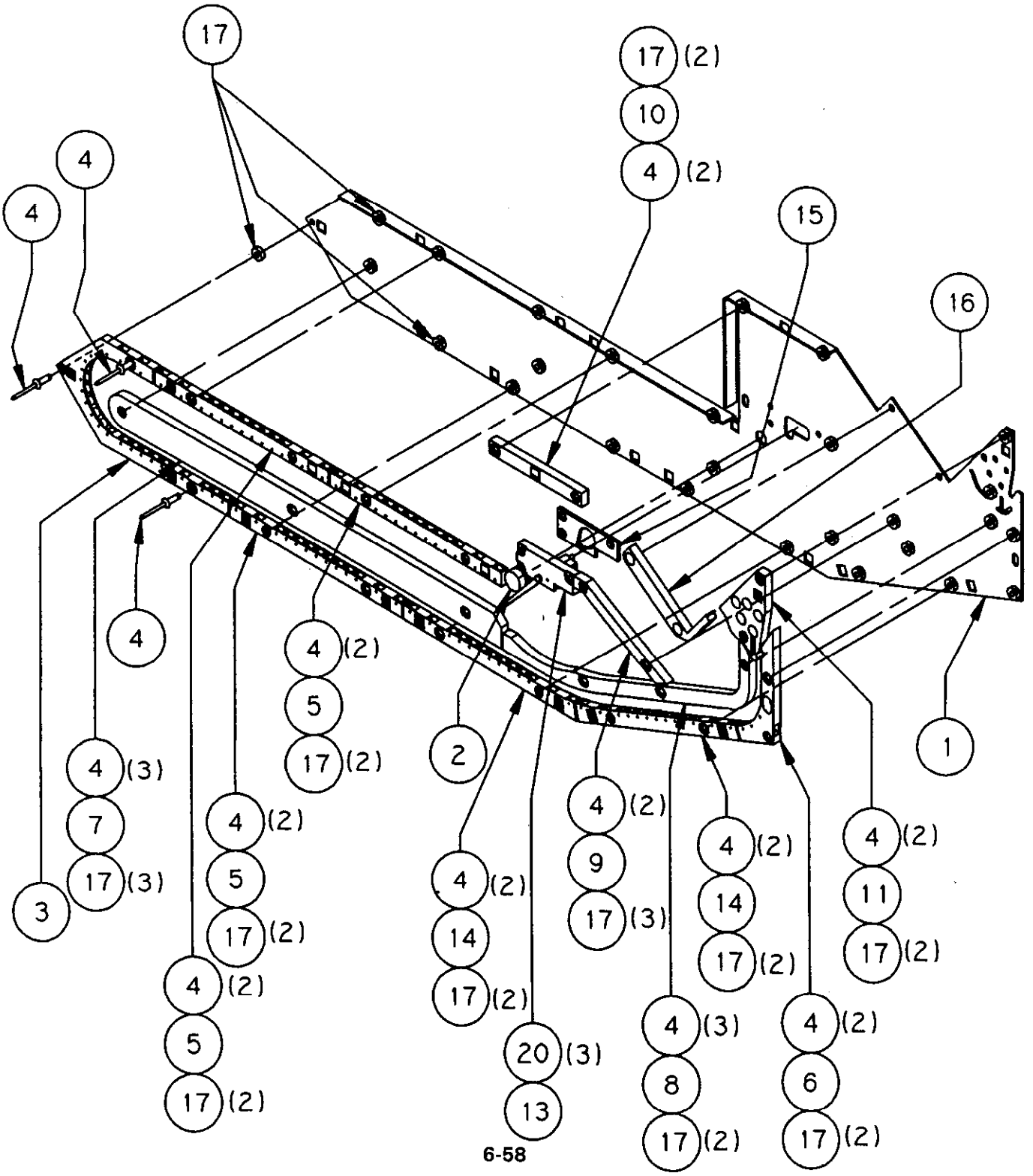
259955-1

KEY	QTY	PART NO	DESCRIPTION
1	1	259844	SLACK BOX
2	1	420984	GROMMET
3	1	259869	LEFT GUIDE ASS'Y
4	27	421341	POP RIVET
5	3	259868	LONG GUIDE ASS'Y
6	1	421180	RIGHT GUIDE ASS'Y
7	1	420607	CENTER GUIDE
8	1	421394	SIDE GUIDE
9	1	420604	DIVIDER
10	1	420605	DOOR ANCHOR
11	1	259871	ENTRY GUIDE ASS'Y
12			
13	1	259873	SWITCH BLOCK ASS'Y
14	2	259867	END GUIDE ASS'Y
15	1	259872	SPACER
16	1	420611	ACR BLOCK
17	27	420618	SPACER
18			
19			
20	3	251836	M5 X 20 SFHCS

⚠ WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.

259955-1



600/700 SERIES SLACK BOX ASS'Y (LF) WITH AUTO CUT-OFF AND RE-FEED

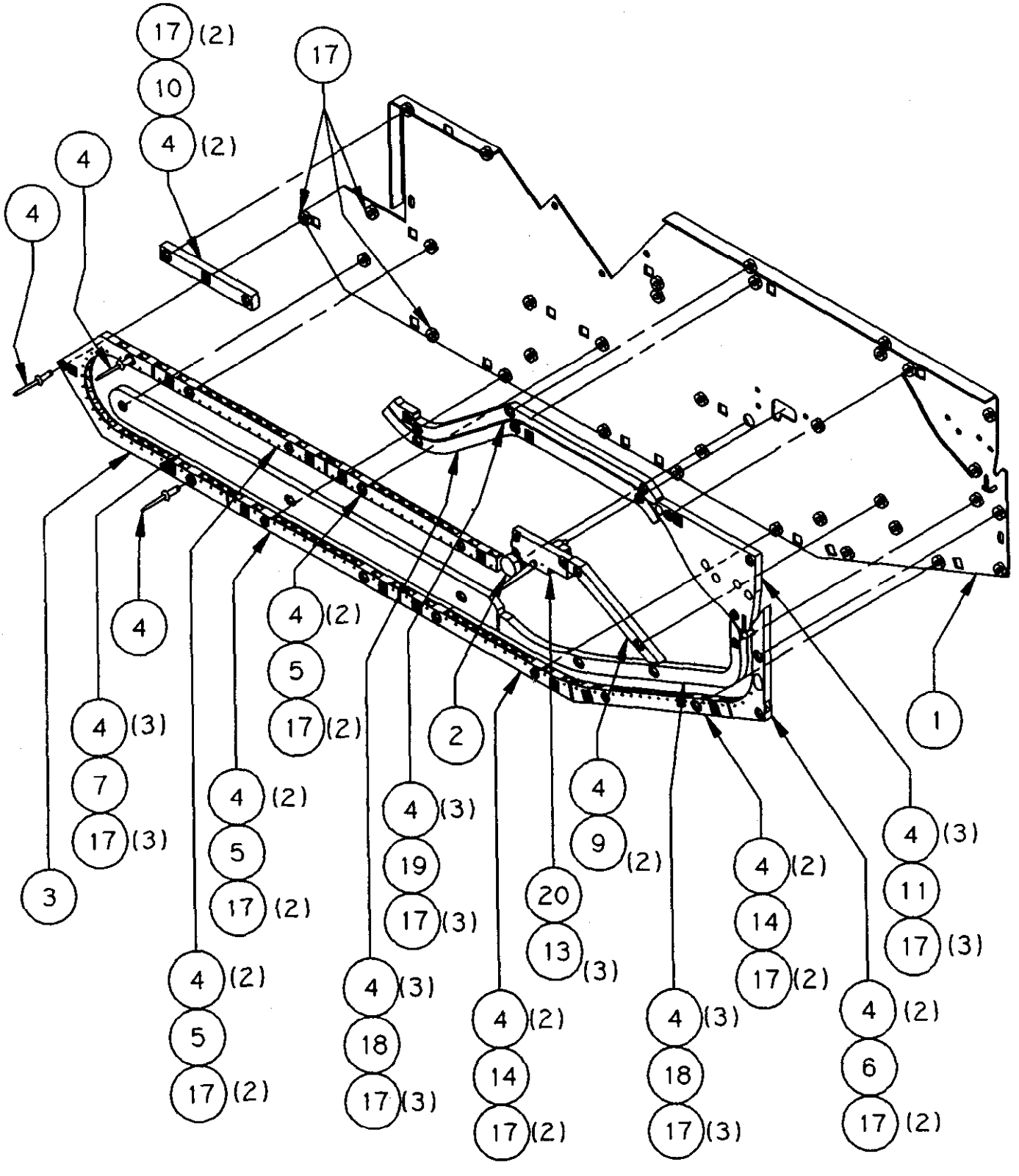
259956-1

KEY	QTY	PART NO	DESCRIPTION
1	1	259846	SLACK BOX
2	1	420984	GROMMET
3	1	259869	LEFT GUIDE ASS'Y
4	34	421341	POP RIVET
5	3	259868	LONG GUIDE ASS'Y
6	1	421180	RIGHT GUIDE ASS'Y
7	1	420607	CENTER GUIDE
8	1	421394	SIDE GUIDE
9	1	420604	DIVIDER
10	1	420605	DOOR ANCHOR
11	1	259870	ENTRY GUIDE ASS'Y
12			
13	1	259873	SWITCH BLOCK ASS'Y
14	2	259867	END GUIDE ASS'Y
15	1	259872	SPACER
16			
17	34	420618	SPACER
18	1	420653	LOWER GUIDE
19	1	420657	UPPER GUIDE
20	3	251836	M5 X 20 SFHCS

⚠ WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.

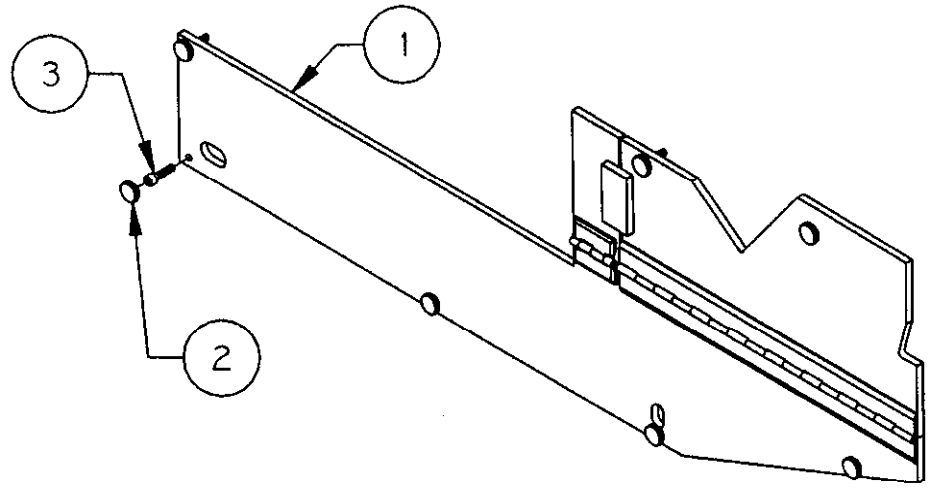
259956-1



100 STRAP SERIES, SMALL FRAME SLACK BOX COVER

259875-1

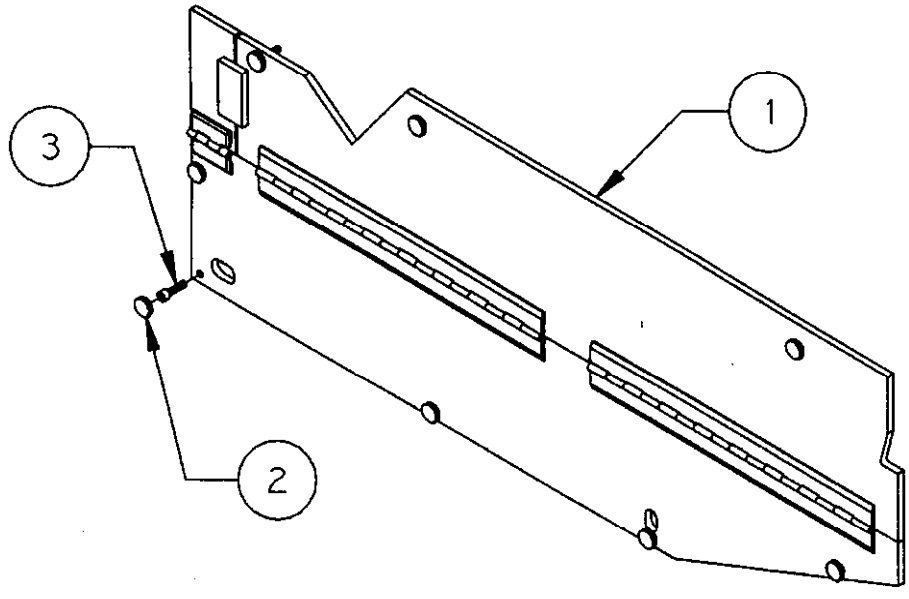
KEY	QTY.	PART NO.	DESCRIPTION
1	1	259848	COVER WELDMENT
2	7	274936	M5 THUMB SCREW KNOB
3	7	166063	M5 X 20 SHCS



100 STRAP SERIES, LARGE FRAME SLACK BOX COVER

259877-1

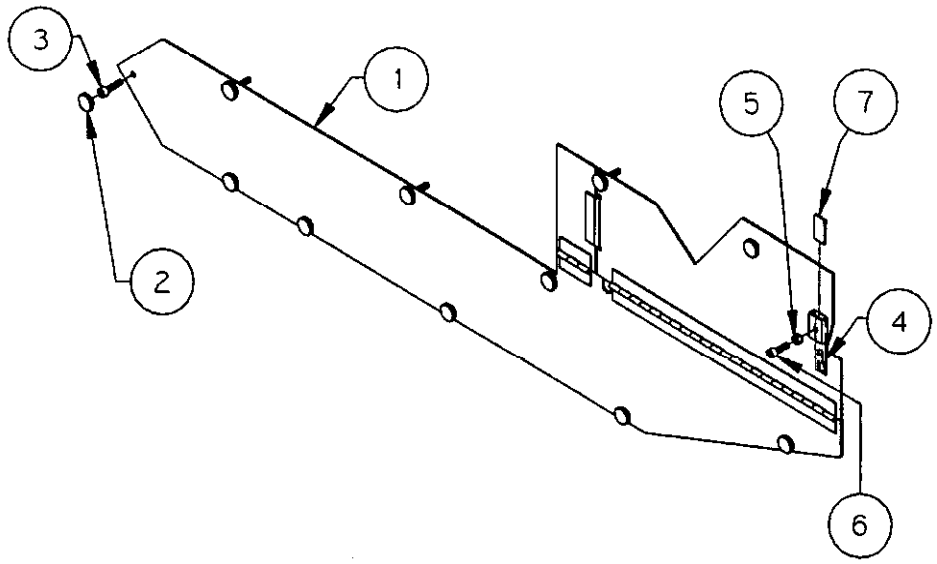
KEY	QTY.	PART NO.	DESCRIPTION
1	1	259857	COVER WELDMENT
2	8	274936	M5 THUMB SCREW KNOB
3	8	166063	M5 X 20 SHCS



200/600/700 STRAP SERIES, SMALL FRAME SLACK BOX COVER

259825-2

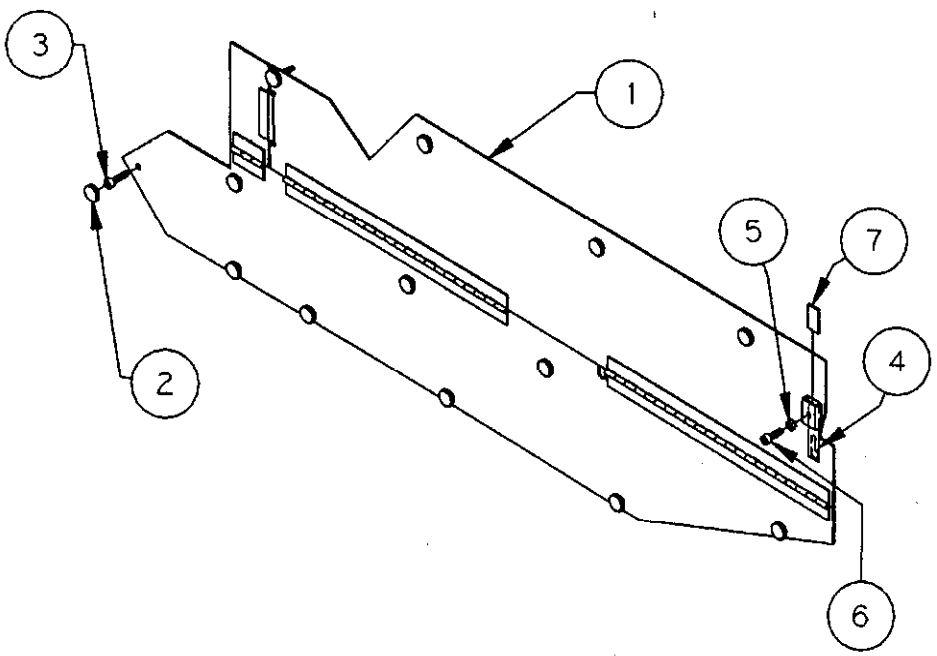
KEY	QTY.	PART NO.	DESCRIPTION
1	1	259839	COVER WELDMENT
2	11	274936	M5 THUMB SCREW KNOB
3	11	166063	M5 X 20 SHCS (200)
	11	010031	M5 X 25 SHCS (600/700)
4	1	421400	LEAF SPRING
5	1	169440	5MM HEXNUT
6	1	011214	M5 X 16 SHCS
7	1	421474	BACKUP PLATE



200/600/700 STRAP SERIES, LARGE FRAME SLACK BOX COVER

259827-2

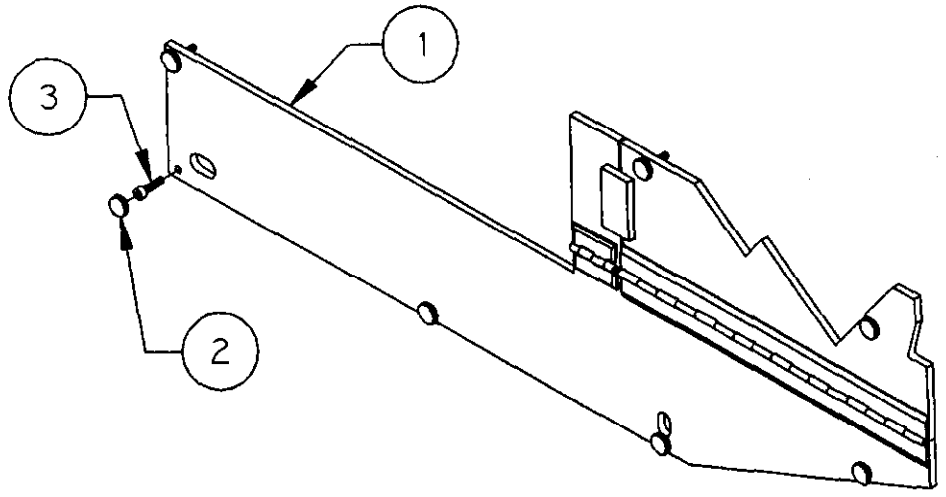
KEY	QTY.	PART NO.	DESCRIPTION
1	1	259841	COVER WELDMENT
2	13	274936	M5 THUMB SCREW KNOB
3	13	166063	M5 X 20 SHCS (200)
	13	010031	M5 X 25 SHCS (600/700)
4	1	421400	LEAF SPRING
5	1	169440	5MM HEXNUT
6	1	011214	M5 X 16 SHCS
7	1	421474	BACKUP PLATE



100 STRAP SERIES, SMALL FRAME SLACK BOX COVER
WITH AUTO CUT-OFF & RE-FEED

259876-1

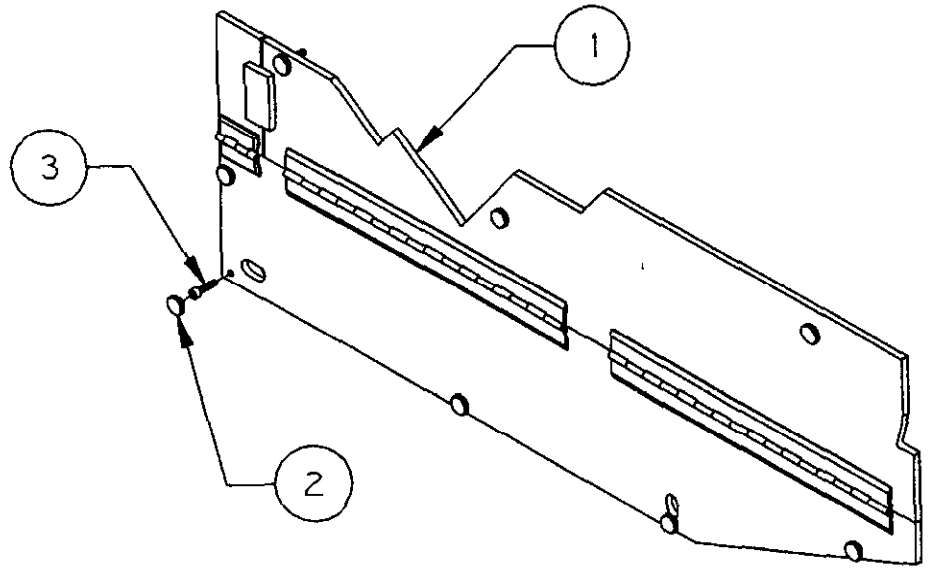
KEY	QTY.	PART NO.	DESCRIPTION
1	1	259849	COVER WELDMENT
2	7	274936	M5 THUMB SCREW KNOB
3	7	166063	M5 X 20 SHCS



100 STRAP SERIES, LARGE FRAME SLACK BOX COVER
WITH AUTO CUT-OFF & RE-FEED

259878-1

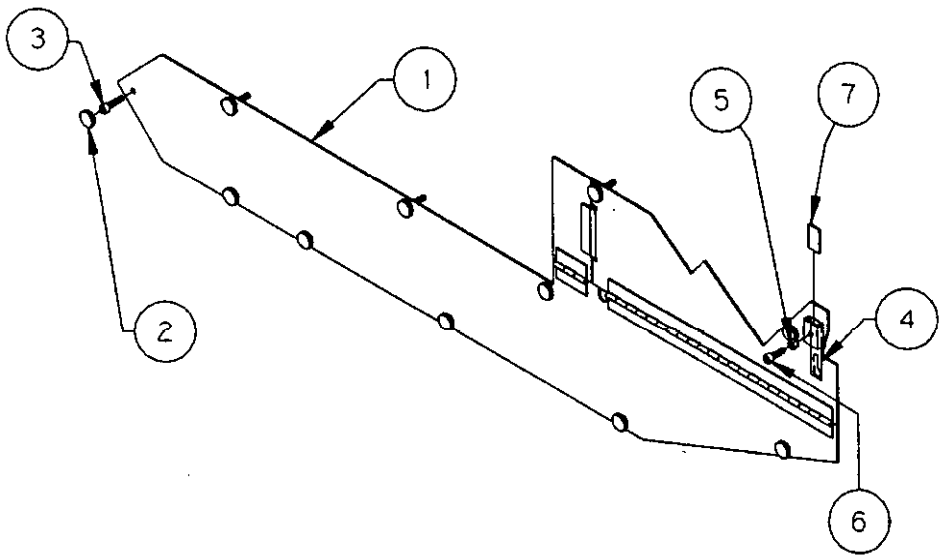
KEY	QTY.	PART NO.	DESCRIPTION
1	1	259858	COVER WELDMENT
2	8	274936	M5 THUMB SCREW KNOB
3	8	166063	M5 X 20 SHCS



200/600/700 STRAP SERIES, SMALL FRAME SLACK BOX COVER WITH AUTO CUT-OFF & RE-FEED

259826-4

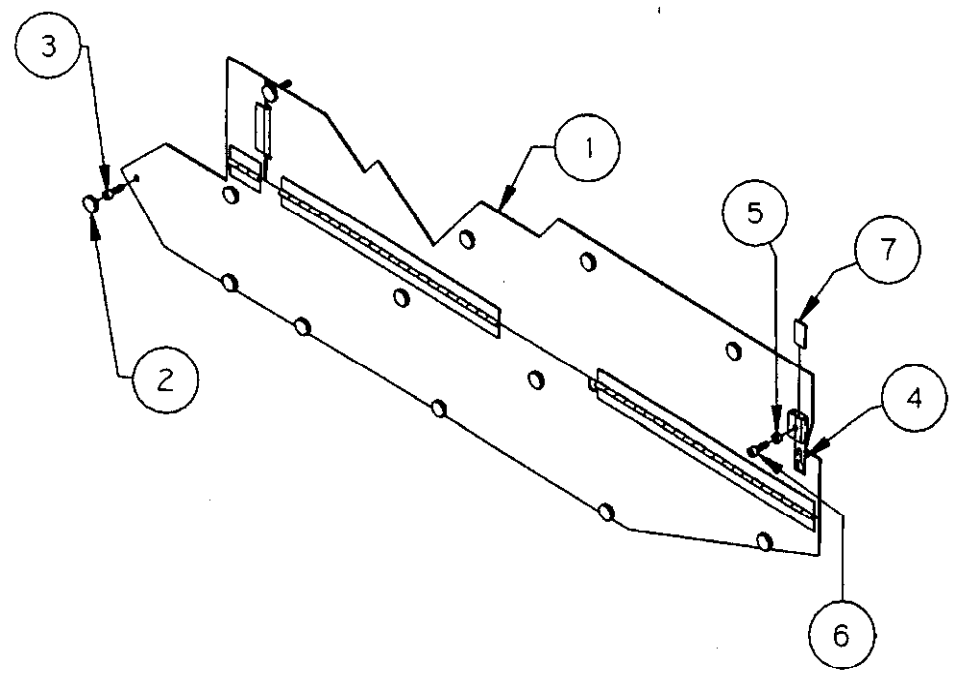
KEY	QTY.	PART NO.	DESCRIPTION
1	1	259840	COVER WELDMENT
2	11	274936	M5 THUMB SCREW KNOB
3	11	166063	M5 X 20 SHCS (200)
	11	010031	M5 X 25 SHCS (600/700)
4	1	421400	LEAF SPRING
5	1	169440	5MM HEXNUT
6	1	011214	M5 X 16 SHCS
7	1	421474	BACKUP PLATE



200/600/700 STRAP SERIES, LARGE FRAME SLACK BOX COVER WITH AUTO CUT-OFF & RE-FEED

259828-5

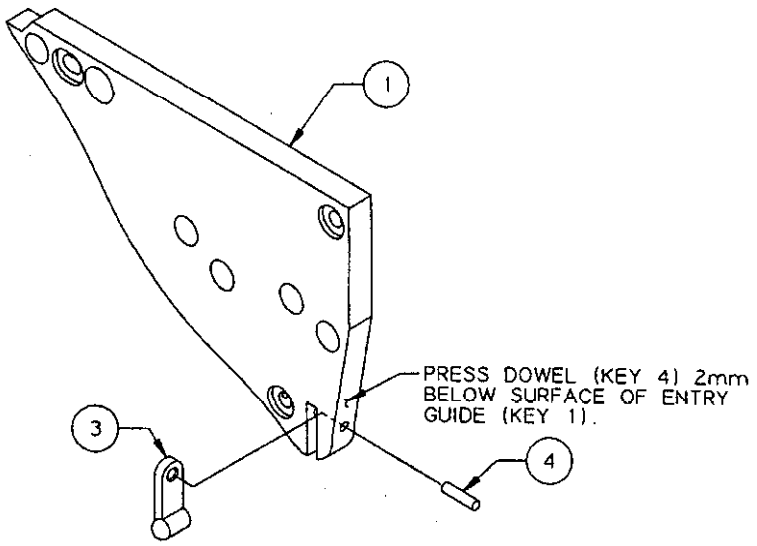
KEY	QTY.	PART NO.	DESCRIPTION
1	1	259842	COVER WELDMENT
2	13	274936	M5 THUMB SCREW KNOB
3	13	166063	M5 X 20 SHCS (200)
	13	010031	M5 X 25 SHCS (600/700)
4	1	421400	LEAF SPRING
5	1	169440	5MM HEXNUT
6	1	011214	M5 X 16 SHCS
7	1	421474	BACKUP PLATE



ENTRY GUIDE ASSEMBLY 259870

259870-1

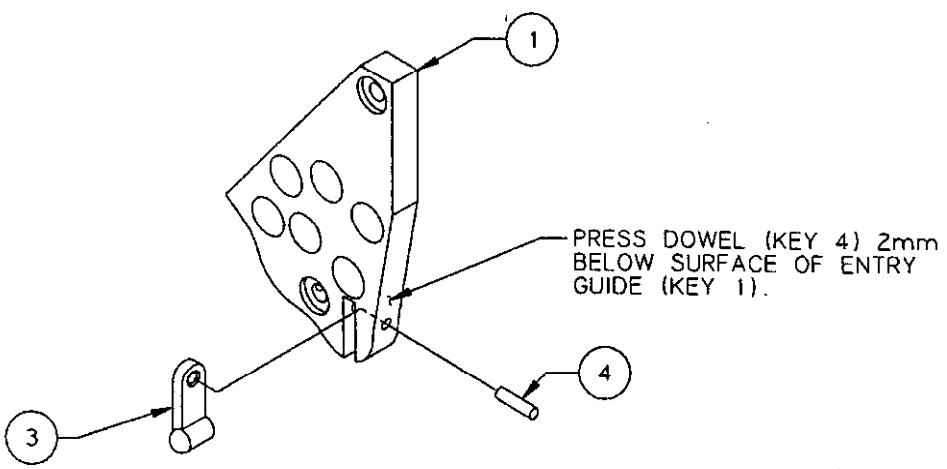
KEY	QTY.	PART NO.	DESCRIPTION
1	1	421193	ENTRY GUIDE
3	1	421391	LOOP FINGER
4	1	274931	DOWEL PIN, ϕ3 X 12



ENTRY GUIDE ASSEMBLY 259871

259871-2

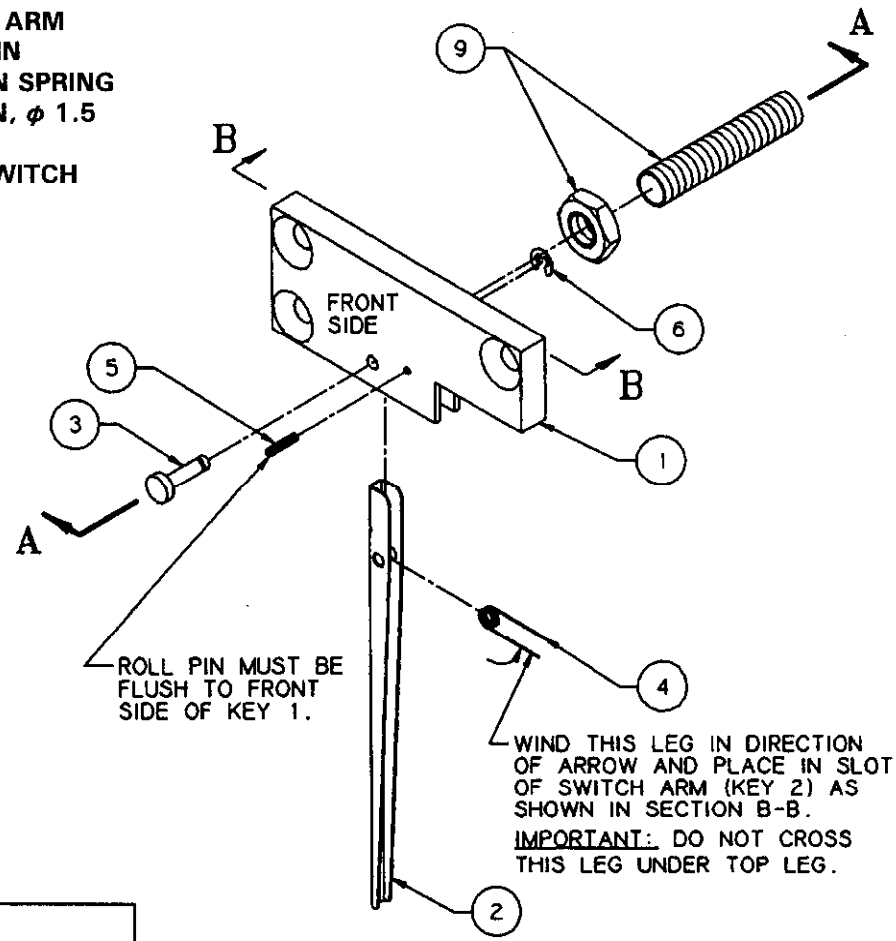
KEY	QTY.	PART NO.	DESCRIPTION
1	1	280766	ENTRY GUIDE
3	1	421391	LOOP FINGER
4	1	274931	DOWEL PIN, ϕ3 X 12

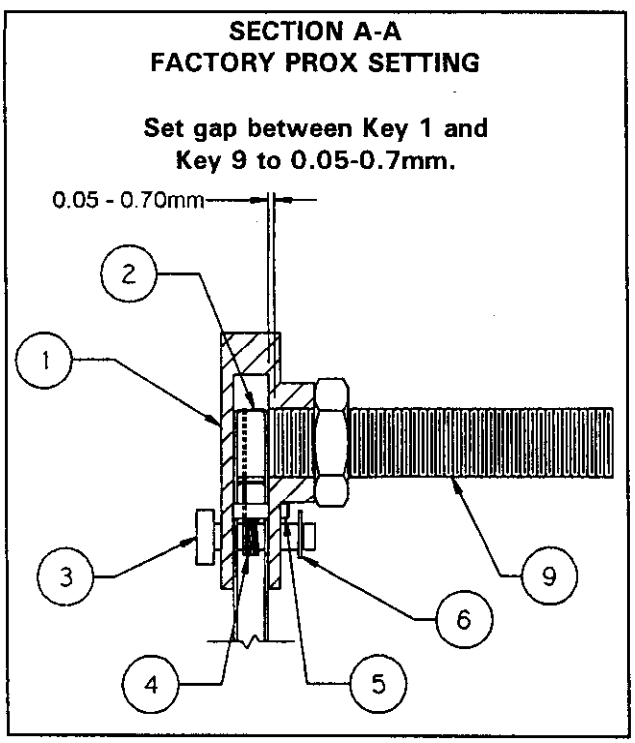


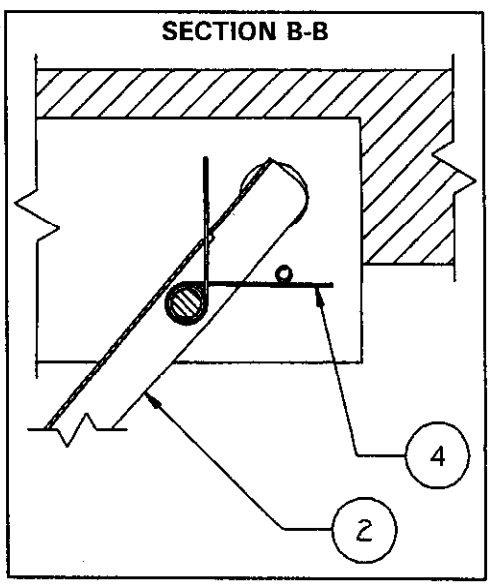
SLACK BOX PROXIMITY SWITCH ASSEMBLY

259873-5

KEY	QTY.	PART NO.	DESCRIPTION
1	1	259558	SWITCH BLOCK
2	1	421897	SWITCH ARM
3	1	420977	PIVOT PIN
4	1	420978	TORSION SPRING
5	1	420979	ROLL PIN, ϕ 1.5
6	1	420981	E-RING
9	1	292943	PROX SWITCH







DISPENSER ASSEMBLY

420690-15

KEY	DESCRIPTION	QTY	PT. NO.
1	FRAME WELDMENT (SPB SF)	REF	420535
	FRAME WELDMENT (SPB LF)	REF	420534
2	DISPENSER SHAFT ASS'Y	1	420899
3	M10 X 20 SHCS	4	293699
4	10mm LOCKWASHER	4	010078
5	10mm FLATWASHER	4	251267
6	END COVER WELDMENT	1	420771
7	M8 X 25 HHCS	6	011031
8	8mm FLATWASHER	6	251266
9	8mm LOCKWASHER	6	162381
10	1/4-20 HEXNUT	8	006227
11	BRAKE PULLEY	1	420774
12	CLEVIS PIN	1	421798
13	COTTER PIN	1	421799
14	E-RING 1/2 DIA	2	016538
15	M6 HEX NUT	1	005465
16	1/4 FLATWASHER	2	008428
17	M6 X 20 SBHCS	2	162399
18	M6 JAM NUT	2	421884
19	3/8-16 HEXNUT	4	009069
20	3/8 LOCKWASHER	4	006243
21	3/8 U-BOLT	2	432195
22	1/4 U-BOLT	2	432194
23	BELT	1	420693
24	STIFFENER BELT	1	420784
25	1/2" FLATWASHER	1	071806
26	E-RING 5/8 DIA	2	420680
27	M5 LOCKWASHER	1	187415
28	M8 X 20 SBHCS	2	010051
29	COVER PLATE	1	259986
30	M5 X 12 FLSHCS	2	272418
31	BRAKE RELEASE ASS'Y	1	420830
32	M6 X 20 BHCS	1	162399
33	SPRING	1	421792
34	DANCER ARM	1	420778
35	STRAP RETAINER BRACKET	1	432071
36	ROLLER	2	420691
37	STOP DANCE ARM	1	420773
38	PROX ASS'Y	1	292943
39	SHOULDER BOLT	1	420676
40	LEVER WELDMENT	1	420838
41	SPRING	1	420834
42	5mm HEX NUT	3	169440
43	FLANGE ASS'Y	1	421312
44	5mm FLATWASHER	3	171571
45	BELT ANCHOR	1	421793
46	M5 X 12 SBHCS	2	175914
47	M5 LOCKWASHER	2	010076
48	MTG. BRKT. BRUSH	1	259939
49	BRUSH ASSY.	1	259936
50	SHIM (.008")	A/R	278020
51	STRAP RETAINER BRACKET	1	259974
52	M6 X 40 HHCS (ZINC)	1	259972
53	M6 LOCKNUT (NYLOC)	1	259973

NOTES:

1. KEY 16, 46, 47, 48, 49 ARE USED ON FLEXTYER II ONLY.

2. WHEN REPLACING KEY 23 (BELT), MAINTAIN 10MM CLEARANCE BETWEEN KEY 34 (DANCER ARM) AND KEY 37 (STOP).

3. KEY 25, 31, 50 - SHIM AS REQUIRED TO REDUCE EXCESSIVE PLAY.

4. KEY 34: TIGHTEN KEY 51 WITH KEY 52, KEY 53 SECURELY TO DANCER ARM.

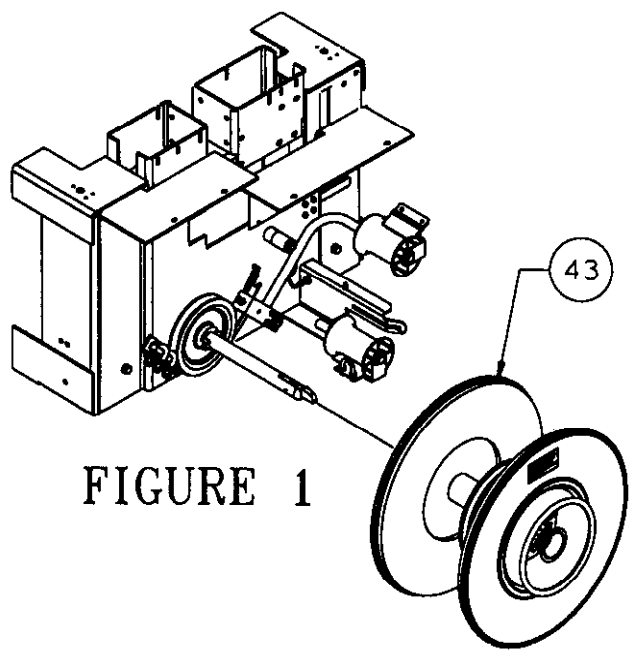


FIGURE 1

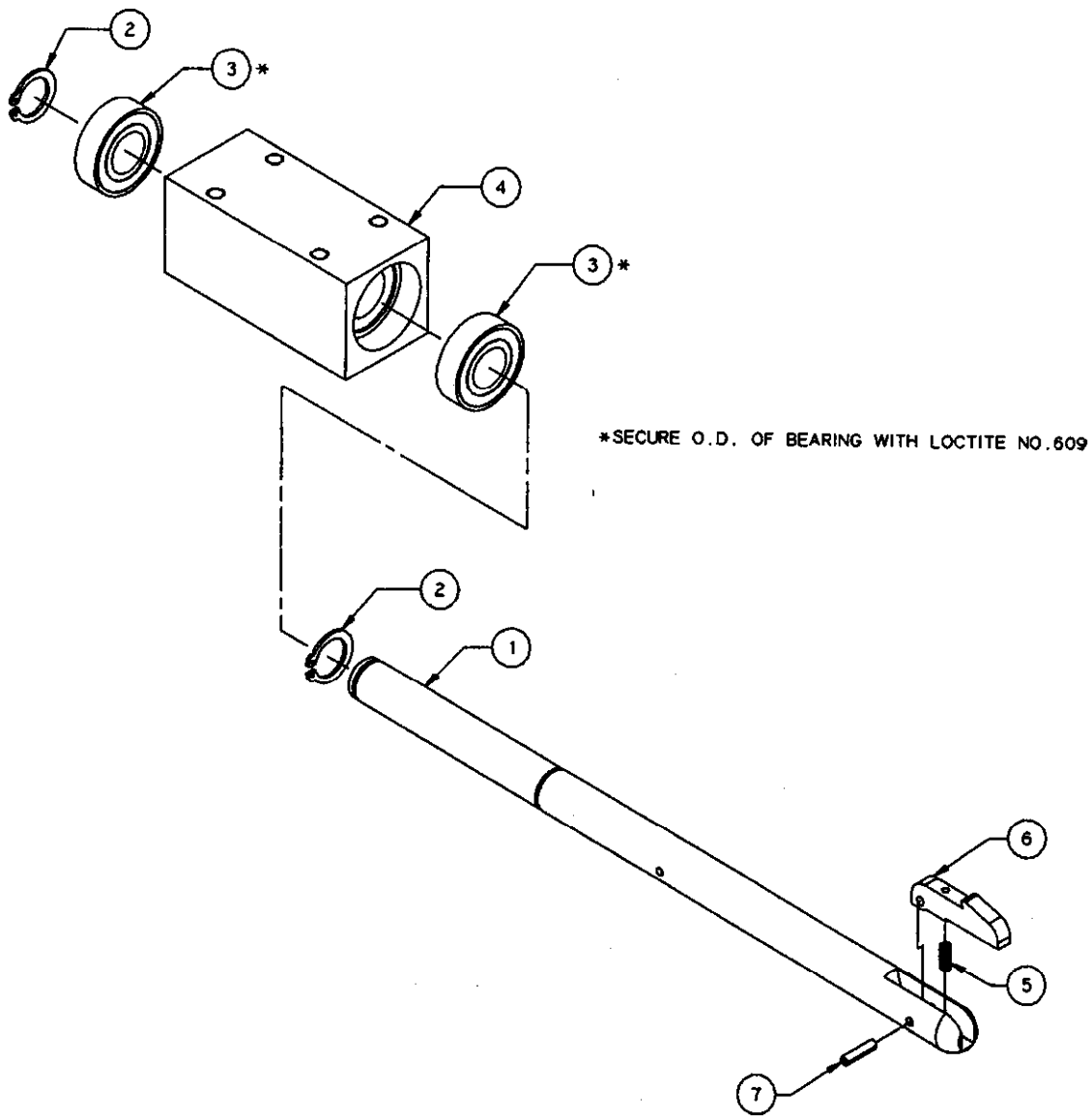
FEED/TAKE-UP ASSEMBLIES

STRAP SERIES BILL OF MATL		100 421826		200 421827		600/700 421828	
KEY	DESCRIPTION	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.
1	DRIVE FRAME ASSY			1	272072		
2	PINCH ROLL GEAR ASSY	1	421346	1	420377	1	420379
3	WHEEL GEAR			1	264334		
4	TAKE-UP DRIVE WHEEL	1	421348	1	292402	1	292379
5	PINCH ROLLER ASSY	1	420462	1	420376	1	420378
6	FEED DRIVE WHEEL	1	421349	1	420643	1	420644
7	PINCH ROLL SHAFT			1	292469		
8	SOLENOID COUPLING			1	281939		
9	SOL LEDEX 191838-00			1	264305		
10	SPRING LOAD COUPLING			1	420267		
11	TENSION SHAFT ASSY			1	420466		
12	FEED WHEEL SHAFT			1	420642		
13	IDLER PIVOT SHAFT			1	292611		
14	RETAIN. RING Ø1/2"			1	293003		
15	5 X 24mm KEY			1	293735		
16	4 X 11mm KEY			1	420645		
17	BEARING			4	264536		
18	BEARING			2	264535		
19	PINCH ROLL ECCENTRIC			2	292470		
20	SHIM ECCENTRIC WASHER			A/R	281405		
21	SHIM (.003 IN.)			A/R	309790		
22	RETAINING RING			3	264434		
23	M10 HEX NUT			2	164962		
24	M10 FLAT WASHER			2	251267		
25	M4 X 8 LG. S.H.C.S.			2	162383		
26	M6 X 10 LG. S.S.S.			2	264562		
27	M6 FLAT WASHER			4	262617		
28	1/4" LOCK WASHER			4	002187		
29	1/4-28 HEX NUT			4	001620		
30	RETAINING RING			4	171549		
31	SHIM (.003 IN.)			A/R	278020		

DISPENSER SHAFT ASSEMBLY

420899-4

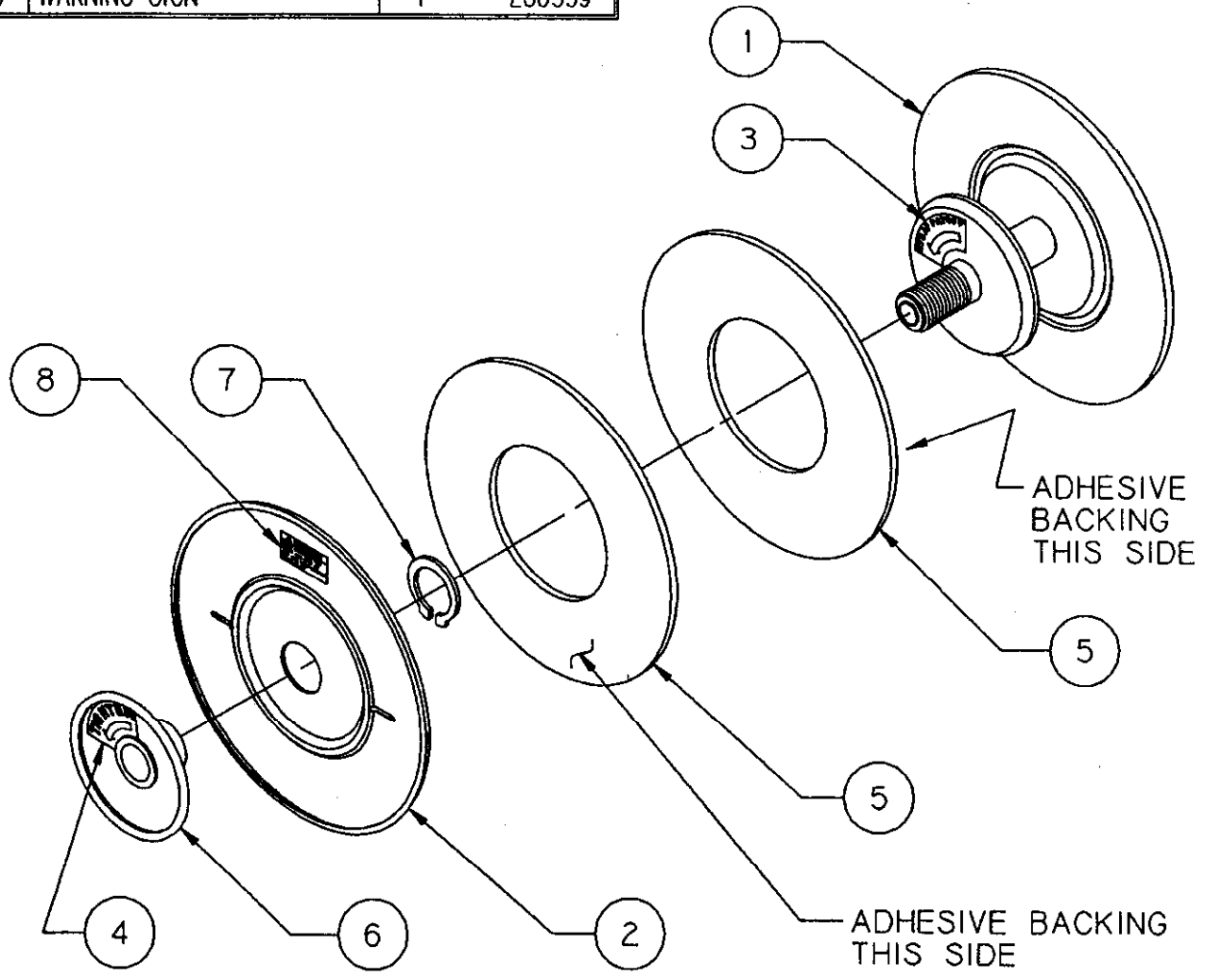
KEY #	QTY	PART #	DESCRIPTION
1	1	420888	DISPENSER SHAFT
2	2	253254	RETAIN RING SIZE #11-16
3	2	420893	BEARING
4	1	420889	DISPENSER MOUNTING BLOCK
5	1	040931	COMP SPRING
6	1	281482	LATCH
7	1	005458	5 X 22 ROLL PIN



DISPENSER FLANGE ASSEMBLY

421312-2

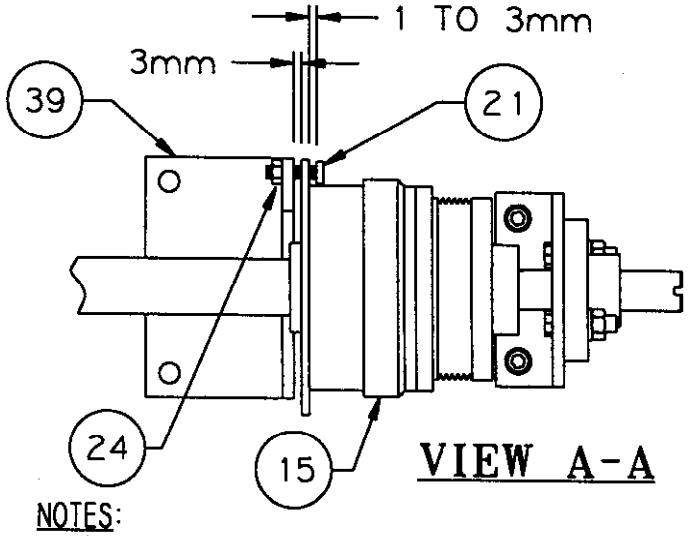
KEY	DESCRIPTION	QTY	PT. NO.
1	FLANGE, FIXED ASSY	1	421311
2	FLANGE, OUTER ASSY	1	421308
3	DIRECTION ARROW, LH	1	286384
4	DIRECTIONAL ARROW	1	286368
5	FOAM PAD	2	421309
6	HUB WELDMENT	1	421307
7	RETAINING RING 2.5"	1	421304
8	WARNING SIGN	1	286359



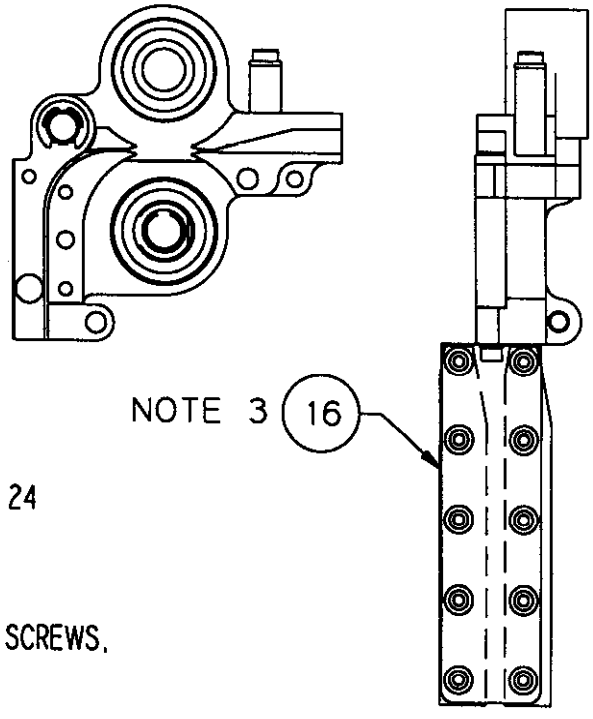
INFEED ASSEMBLY

420660-15

KEY	DESCRIPTION	QTY	PT. NO.	KEY	DESCRIPTION	QTY	PT. NO.
1	WHEEL, INFEED	2	420661	20	M5 X 10 SHCS	4	281532
2	GEAR, INFEED	2	420662	21	M5 X 20 S.H.C.S.	1	166063
3	ASSY, BOTTOM BEARING BLK	1	259874	22	M5 X 20 LG. S.F.H.C.S.	1	251836
4	ASSY, TOP BEARING BLOCK	1	420698	23	M5 LOCK WASHER	2	010076
5	BLOCK PIN ASSY	1	420197	24	M5 LOCKNUT	1	266059
6	LOAD LEVER	1	420854	25	Ø6/M5 X 40 SHSS	1	420933
7	SHAFT, PIVOT	1	420667	26	M6 FLAT WASHER	1	262617
8	SHAFT, BOTTOM	1	420668	27	M5 FLAT WASHER	2	171571
9	SHAFT, TOP	1	420669	28	FLANGE BEARING	1	272184
10	SPACER, BOTTOM	1	420670	29	CARRIAGE BOLT 1/4-20 X 1"	2	293298
11	INFEED MOUNTING BRACKET	1	421873	30	1/4 LOCKWASHER	2	002187
12	COVER, INFEED	1	421896	31	M16 FLAT WASHER	2	420678
13	SPRING, INFEED	1	420674	32	M16 HEX JAM NUT	4	420679
14	SHOULDER BOLT, Ø6/M5 X 25	1	420676	33	E-RING, Ø 1/2 IN.	2	016538
15	CLUTCH	1	293160	34	1/4-20 X 3/4 SHCS	1	009041
16	ASSY, TRANSITION BRKT 600-	REF	420699	35	DECAL, LOAD LEVER	REF	286379
	ASSY, TRANSITION BRKT 200-	REF	420832	36	GUIDE COVER PIN ASSY	1	420196
	ASSY, TRANSITION BRKT 100-	REF	259570	37	HANDLE, INFEED COVER	1	421393
17	KEY, 3/16 IN. SQ. X 43 LG	1	292905	38	1/4 HEX NUT	2	006227
18	KEY, 5 SQ. X 12 LG. RAD.	4	264338	39	CLUTCH STOP BRACKET	1	421390
19	M5 SCREW KNOB	2	274936	40	M8 FLATWASHER	2	251266



VIEW A-A



NOTES:

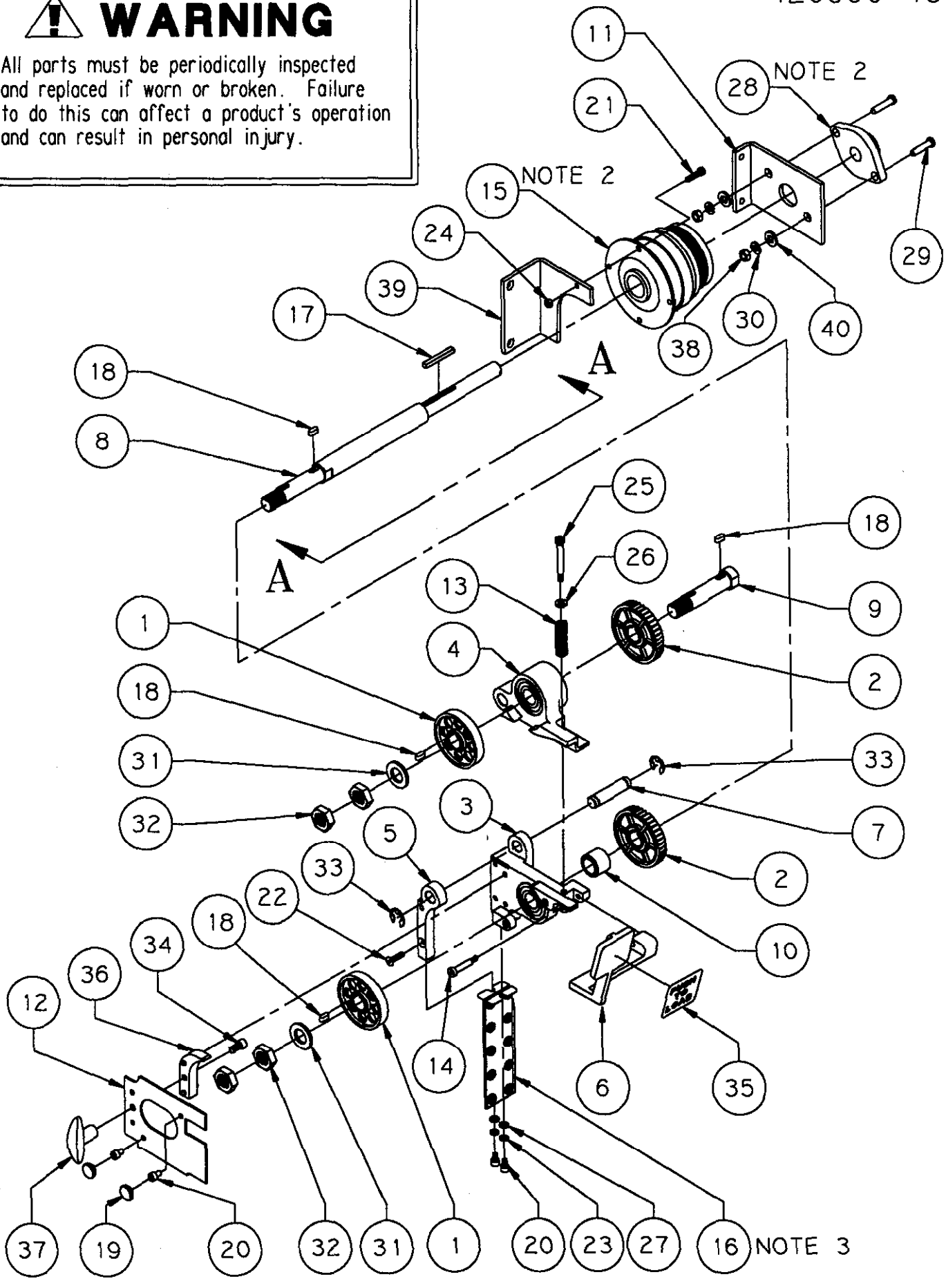
1) MAINTAIN APPROX. CLEARANCE BETWEEN KEY 15, 21, 24 AS SHOWN TO PREVENT BINDING OF BRACKET, KEY 39 AND CLUTCH, KEY 15. USE KEY 24 AS A JAM NUT.

2) SECURE KEY 15, CLUTCH, AND KEY 28, BEARING SET SCREWS, WITH NO.242 LOCTITE.

3) IMPORTANT KEY 16 (100,200) MOUNT AS SHOWN.

⚠ WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.



SECTION 7

PLEASE NOTE:

- *Head views are oriented in the service position.*
- *100 Series strap not available on Side-Seal machines.*
- *100 Series Strapping is 5mm wide.*
- *200 Series Strapping is 6mm (1/4") wide.*
- *600 Series Strapping is 9mm (3/8") wide.*
- *700 Series Strapping is 10.5mm (7/16") wide.*

PARTS REMOVAL, REPLACEMENT & ADJUSTMENT PROCEDURES

⚠WARNING

WEAR SAFETY GLASSES WITH SIDE SHIELDS WHICH CONFORM TO ANSI STANDARD Z87.1 OR EN 166.

FAILURE TO WEAR SAFETY GLASSES COULD RESULT IN SEVERE PERSONAL INJURY.

PROTECT YOUR EYES.

- **Only trained people should service machine.**
- **Unless specified, disconnect and lock out all power.**
- **Follow all service instructions.**
- **Make sure the hot-knife blade is cool.**
- **Use correct tools.**
- **Never adjust, repair or oil moving machinery.**

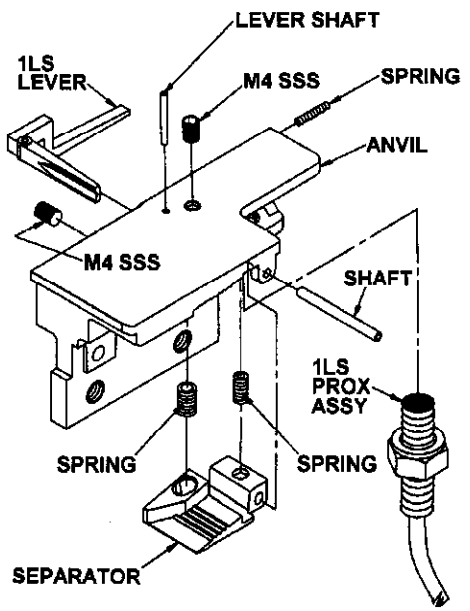
READ GENERAL SAFETY INSTRUCTIONS IN THE FRONT OF THIS MANUAL.

ANVIL HEAD REMOVAL

1. **To gain necessary working room, open the entry table top.**
2. **Access Function "0" of the input diagnostics and index the head to the ANVIL OPEN position.**
3. **Disconnect the electrical power before proceeding.**
4. **Release the 1LS wiring quick disconnect.**
5. **Loosen the three socket head mounting screws which secure the anvil head to the anvil frame. Gently tap on the heads of the screws to drive the anvil head from the two locating pins.**
6. **When loose, remove the three screws and lift the anvil head from the anvil frame.**
7. **Reverse the above procedure for reassembly of the anvil head.Install the three mounting screws using Loctite #242 and tighten securely.**

ANVIL HEAD DISASSEMBLY

1. **To remove the strap separator, remove the M4 set screw which threads in through the top of the anvil.**



PLEASE NOTE:

- *Head views are oriented in the service position.*
- *100 Series strap not available on Side-Seal machines.*

2. Push out the separator shaft to remove the separator.

NOTE: Both the separator and the 1LS lever contain springs under load, use care when removing and replacing parts.

3. Remove the 1LS lever by first removing the M4 set screw which threads in through the back of the anvil.

4. Push out the lever shaft to remove the lever.

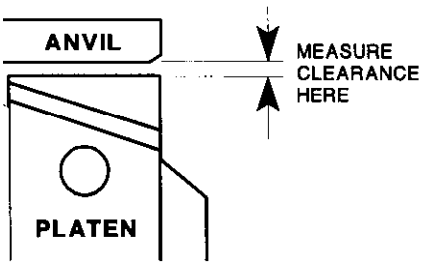
5. Assemble components in reverse order. Use Loctite #242 to secure set screws in place.

ANVIL CLEARANCE

Make sure the head is in the feed position and measure the clearance between the platen and the anvil. Adjustments are made at the rear of the machine and measurements are taken in the weld area, between the anvil and the platen. Before adjusting, make sure the head is in the feed position. Note: Feed position is the next INDEX position after Anvil Open.

Measure the clearance between the platen and the anvil with a feeler gauge.

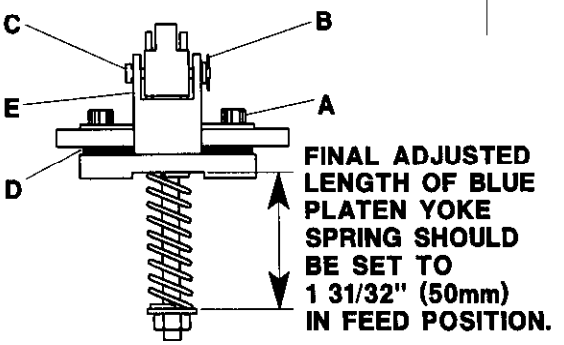
100 Series Strap: .051-.060" (1.3-1.5mm)
200 Series Strap: .051-.060" (1.3-1.5mm)
600 Series Strap: .051-.071" (1.3-1.8mm)
700 Series Strap: .051-.071" (1.3-1.8mm)



If the clearance is correct no adjustments are needed. If an adjustment is needed, follow the steps below:

1. Loosen and remove the two socket head cap screws (A) that secure the shelf brace to the welder frame.

2. Remove the hitch pin (B) from the end of the yoke pin (C) and withdraw the pin from the platen arm yoke. Remove the arm yoke and spring assembly (E). This will make the shims (D) accessible.



3. If the clearance was less than .051" (1.3mm) remove one or more shims. If the clearance was greater than desired, add one or more shims.

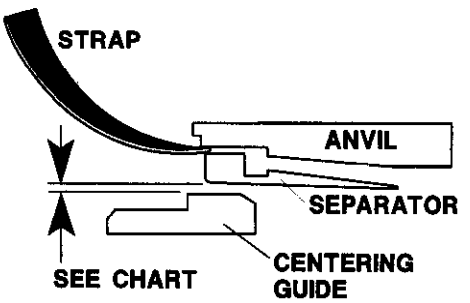
4. Reassemble all parts and remeasure the clearance. Continue to add or remove shims, as needed until the clearance falls within the approved range.

CENTERING GUIDE CLEARANCE

Follow the procedure below for checking the centering guide clearance.

1. Place the head in the feed position. Measure the clearance between the anvil and the stripper finger of the centering guide.

2. The strap separator will float in an upward direction, therefore, one must insert/wedge a piece of strapping in between the anvil and separator to keep the separator in the downward position.



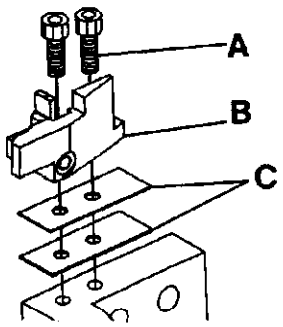
3. After wedging the separator into the downward position, measure the clearance from the separator to centering guide. Clearances are as follows.

CENTERING GUIDE CLEARANCES

Strap	Clearance
100 Series	.030-.033" (.76-.83mm)
200 Series	.030-.033" (.76-.83mm)
600 Series	.030-.033" (.76-.83mm)
700* Series	.034-.037" (.86-.94mm)
716 Strap	.039-.045" (.99-1.14mm)

* Except for SP-716 Strap.

4. If adjustments are needed, add or remove centering guide shims (Part #'s 268871, 264344) by following the instructions below:



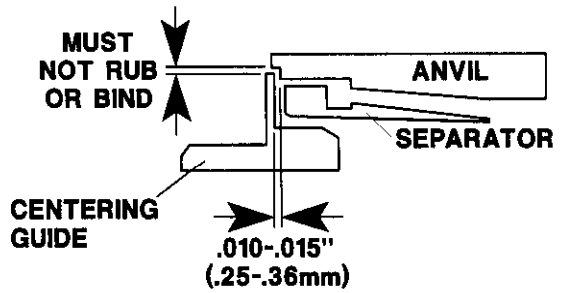
a. Index the machine until the anvil is in the open position. Loosen and remove the guide mounting screws (A).

b. Insert a large screwdriver between the anvil and the sealer frame. Carefully pry the anvil backwards until the anvil clears the centering guide (B).

c. Hold the anvil open and lift the centering guide from the sealer frame. Note the presence of the shims (C). Refer to the chart for proper clearance selection. Remove the screwdriver and allow the anvil to return to its normally open position.

d. Insert the centering guide mounting screws and tighten. Return the machine to the feed position. Measure the clearance with a feeler gauge and add or remove shims, as needed.

5. The stripper finger should have a clearance of .010"-.015" (.25-.36mm) between the left-hand side of the anvil and the right-hand side of the stripper finger.



NOTES:

A. Assure that the centering guide does not bind the loop grip. The anvil must not rub against the centering guide's stripper finger when cycling the head.

B. The anvil frame has a small amount of play from side to side. Push and hold the anvil frame in the direction opposite of the side being checked for clearance.

CLUTCH REMOVAL & ADJUSTMENTS

1. Make sure the electrical and pneumatic power has been disconnected.

2. Remove the four large extension springs which hook around the spring shaft. Remove the two socket head cap screws which secure the motor tension plate.

   Remove the motor tension plate with the attached spring shaft. Use care to avoid damaging electrical leads in the area.

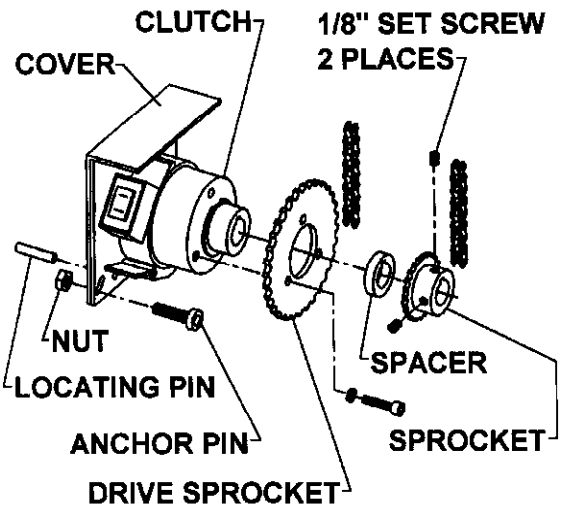
3. Disconnect the electrical leads from the clutch and move them to the side so that they will not be damaged. The small sprocket located at the rear of the head is secured with two 1/8" Allen head standard set screws, placed 90° apart. Loosen these set screws before proceeding.

4. Remove the retaining rings from both ends of the drive shaft. Then, with a large drift pin placed on the center of the rear end of the shaft, tap the drive shaft out of the clutch. As the shaft is withdrawn, a small spacer between the rear sprocket and the clutch will fall free. It must be kept for reuse.

PLEASE NOTE:

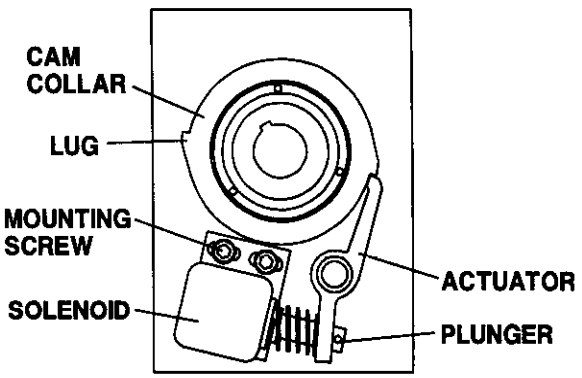
- *Head views are oriented in the service position.*
- *100 Series strap not available on Side-Seal machines.*

5. The front end bearing will be withdrawn with the drive shaft. Remove the bearing and the long key that runs the length of the shaft then reinsert the shaft through the clutch and allow it to butt up against the inside of the rear bearing.



6. Carefully tap on the center of the shaft to remove the rear bearing.

7. Lift the rear sprocket and push it into the bearing hole to allow room for the clutch to be pulled from its two locating pins. Push the clutch rearward then to the right of the head to allow the drive chain to fall free of the clutch sprocket.

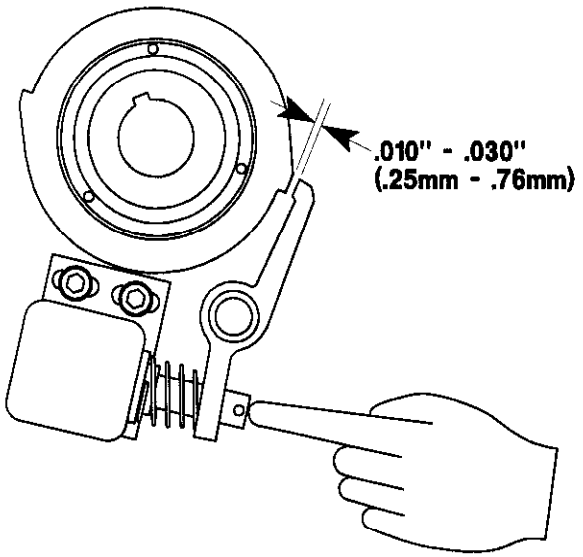


8. Remove the clutch from the head. It may be necessary to work the clutch out from between the head casting and the drive motor.

9. Before inserting a new clutch, or re-installing the original clutch, check the setting of the actuator with respect to the collar.

a. Press down on the solenoid plunger until it bottoms out. Do not press down on the end of the actuator as it will compress the return spring and the core will not bottom out.

b. Push the stop cam collar towards the actuator and measure the clearance between each stop cam collar lug and the actuator. Set the stop cam collar lug which gives the least clearance to .010"-.030" (.25mm-.76mm). The opposite collar lug should be equal to or greater than the recommended setting.



10. Place the new clutch within the head. Insert the long key into the keyway of the drive shaft and insert it into the clutch.

11. Move the clutch to the right of the head and hang the drive chain on the clutch sprocket.

12. Realign the clutch and press the clutch plate onto the two locating pins.

13. Move the drive shaft forward and hang the small spacer on the end of the shaft.

14. Orient the small sprocket so that the drive shaft key enters the sprocket keyway.

15. Install the rear bearing on the drive shaft, then follow with the front bearing. Using a non-metallic drift, set each bearing in its seat and attach the two retaining rings to contain the assembly.

16. Tighten the two set screws, using Loctite #242, in the small sprocket. Re-time the head. Refer to the Adjustments section for head timing details.

17. Reinstall all components and properly tension the motor drive belt.

18. Connect the electrical leads and operationally test the head to make sure the new clutch is working properly.

19. Re-check proximity switches 3PRS and 4PRS. Refer to the proximity switch settings under Adjustments and Clearances.

CUTTER BLADE

⚠WARNING

The cutter blade is very sharp. Use care when handling this part.

1. With the head in feed position, disconnect the four extension springs that connect to the track roller lever and the anvil frame assembly.

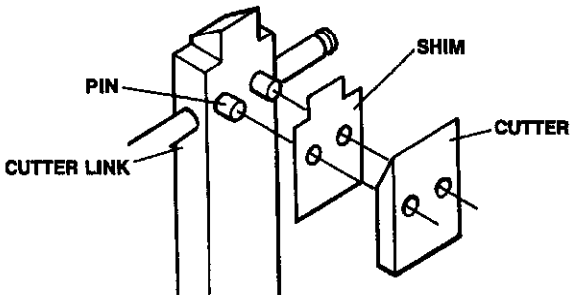
2. Manually hold the anvil open and raise the platen.

3. Remove the platen pin then remove the platen.

4. Manually advance the head until the platen link lowers to the lowest point on the cam.

5. Disconnect the yoke pin at the track roller lever and manually lower the platen link by pulling up on the track roller lever.

6. The cutter blade can be lifted from the pins that extend from the cutter link. Remove and replace the cutter blade.



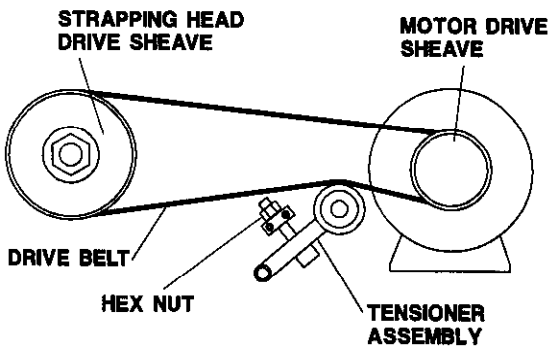
7. Reassemble all components in reverse order and check the clearance between the cutter blade and the platen with the head in the feed position. If the clearance is between .001" (.02mm) and .003" (.07mm) the cutter is properly set. If the clearance is greater than it should be, add shims, 268893 (.004") and 299298 (.001") until the clearance is within the proper range.

DRIVE BELT - MAIN

There are two types of drive belt configurations for SureTyer equipment. Use the appropriate instructions.

FRAME MOUNTED MOTOR - Remove the main drive belt from the machine by loosening the hex nut located on the belt tensioner mechanism. Slip the belt off from the two sheaves. Install a new belt and re-tension until the belt deflects 3/4" at 10lbs.

SURETYER BOTTOM-SEAL AUTOMATIC

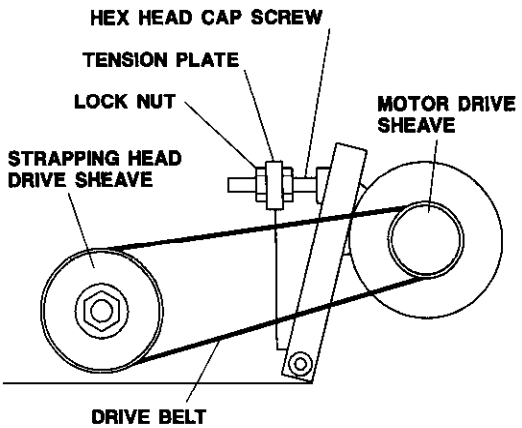


PLEASE NOTE:

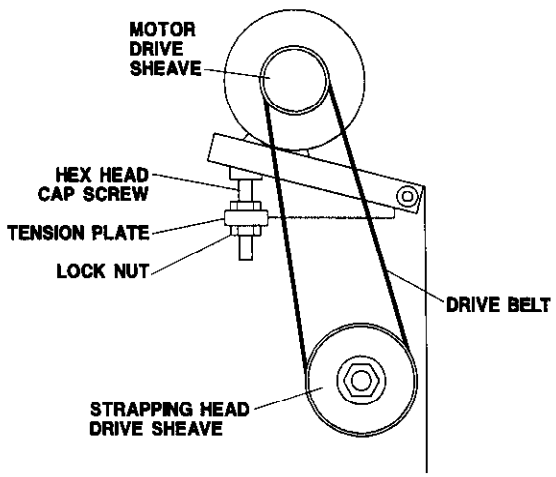
- *Head views are oriented in the service position.*
- *100 Series strap not available on Side-Seal machines.*

HEAD MOUNTED MOTOR - Remove the main drive belt by loosening the locking nuts and turn the hex head cap screw in towards the motor tension plate to relieve the tension on the belt. Support the motor so it will not be damaged as the belt is lifted from the motor drive sheave and then from the belt sheave on the other end. Install a new belt and re-tension until the belt deflects 3/4" at 10lbs.

SURETYER BOTTOM-SEAL SEMI-AUTO

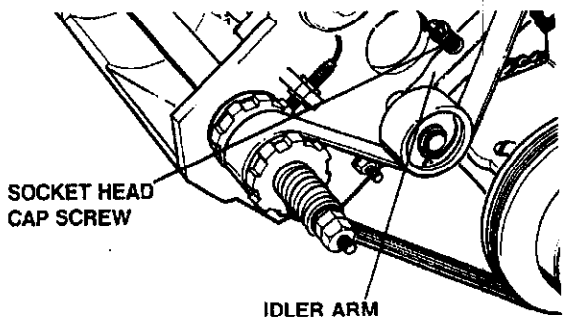


SURETYER SIDE-SEAL



DRIVE BELT - FEED & TENSION

To remove the feed/tension drive belt, first remove the main drive belt then loosen the socket head cap screw by holding the locknut with a wrench and backing the socket head cap screw out. This will relieve tension on the belt by allowing the idler to rise.



When loose, remove the belt, install the new one and retighten until the spring compresses to 3/4" (19mm). Reinstall the main drive belt and tension it accordingly.

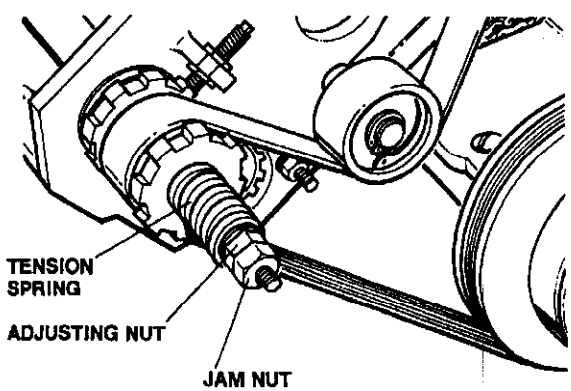
DRIVE SHAFT SPRING LOAD - TENSION

The tension drive shaft spring load determines the ultimate amount of low tension the machine will draw. Keep in mind that the spring load can be set too low. As a result the tension assembly may not pull the strap from the chute. On the other hand, the spring load can be set too tight. If the spring load is set too high, the strap may slip on the take-up wheels, which in turn, will cause a loose strap or pre-seal condition.

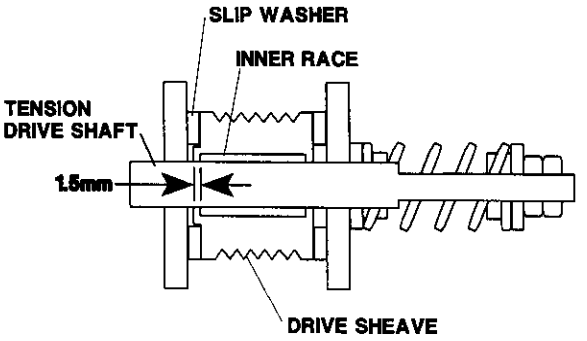
Between these two extremes is the desired low tension range. Initially adjust the spring length to 3/4" for 100 Series strap and 5/8" for all others. When an acceptable operation has been found, tighten the outer nut against the inner to maintain the setting.

Replace the slip washers as follows:

1. **Loosen and remove the two hex head jam nuts, the spring keepers and the compression spring. Pull off the outer friction plate/slip washer assembly, the small key, the tension wheel and the inner slip washer. Inspect the inner race of the drive sheave for wear.**



2. Under normal circumstances, the inner race should not have to be removed. If however it must be replaced, the race should be installed approximately 1.5mm ±1mm to within the back face of the installed position of the drive sheave.



3. Replace both slip washers. Make sure that the slip washers are mounted flush with the working surface of the inner and outer friction plates.

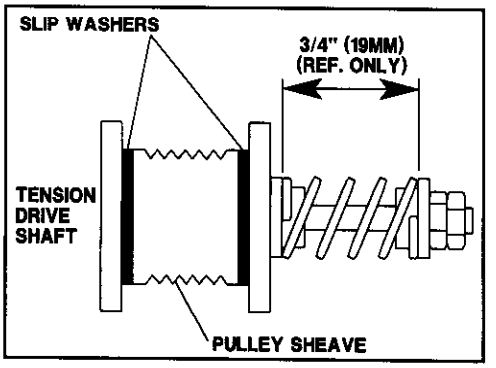
4. When the washers have been replaced, reassemble and tighten all parts and adjust the length of the compression spring to proper load.

   Set initial adjustments to the tension spring by turning the adjusting nut until the length of the spring itself measures:

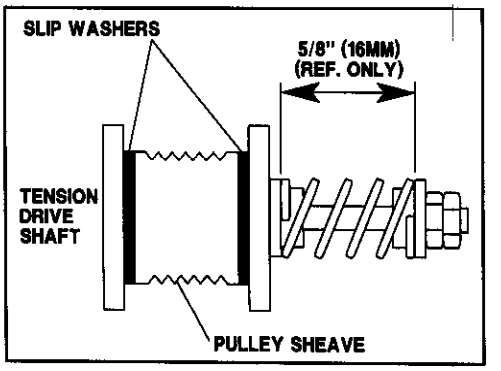
   100 Strap: 3/4"-7/8"(19-22mm)
   200/600/700 Strap: 5/8"-7/8"(16-22mm)

   NOTE: This adjustment is to be used to optimize machine performance. This adjustment is not to be used to adjust for strap tension on the bundle.

100 SERIES STRAP

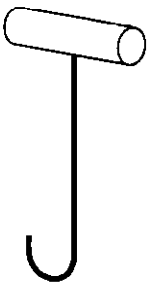


200/600/700 SERIES STRAP



5. Tighten the outside jam nut to hold the adjustment.

EXTENSION SPRINGS - REAR



Removal and replacement of the four extension springs, located at the rear of the machine, require the use of a special tool. This tool can be made from a heavy gauge wire, sufficient in strength to maintain the hook while extending the springs.

This tool is available from Signode as Part No. 293492.

Hook Diameter: 1/2" Tool length: 8"

1. Remove the main drive belt. See details, this section.

2. With the special tool, hook the upper tang of the extension spring, lift and release each end from its seat; the seats are the left and right sides of the track roller lever and the left and right sides of the anvil frame assembly.

3. Remove both socket head cap screws to remove the motor tension plate. Remove the old springs.

4. Install new springs, one at a time, by threading them onto the spring shaft and passing them around the cam assemblies until they are in proper position. The two inside springs are longer than the two outside springs. Remount the motor tension plate.

PLEASE NOTE:

- *Head views are oriented in the service position.*
- *100 Series strap not available on Side-Seal machines.*

5. With the special tool, hook the upper tang of each spring, lift and extend, then engage the tang in its appropriate slot.

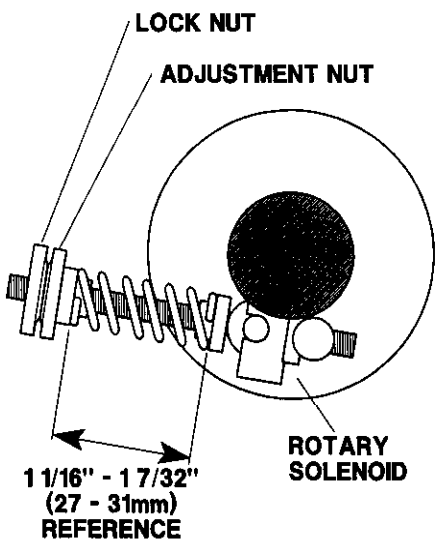
6. Reassemble all components in reverse order and properly tension the main drive belt.

FEEDWHEEL SPRING LOADED COUPLING ASSEMBLY & ROTARY SOLENOID

Make sure the rotary solenoid is NOT energized when the following measurement is being taken and adjustments are being made:

The draw screw must be positioned so that it is nearly horizontal, but canted up slightly so that the compression spring clears the feed wheel shaft. Loosen the spring arm mounting screw, correctly position the draw screw then securely tighten the mounting screw.

Turn the two-piece adjustment nut until the compression spring is set for optimum machine performance.



A spring length of 1 1/16"-1 7/32" (27-31mm) should be used as a starting point for the spring length. The spring should be set to the maximum length which will allow the machine to feed strap consistently around the chute. Lock the adjustment nuts together to maintain the setting.

HOT-KNIFE ASSEMBLY

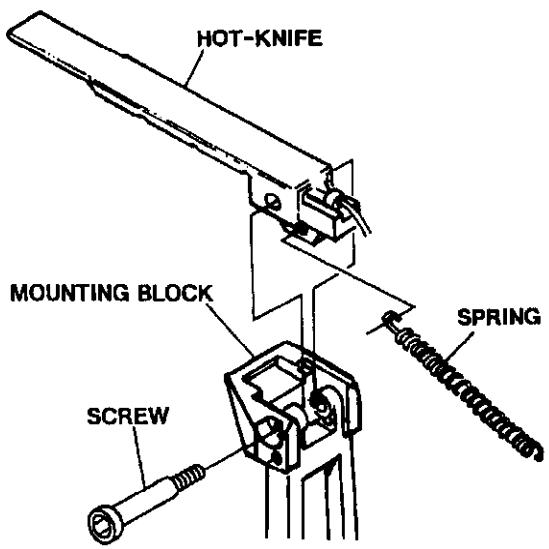
⚠WARNING

Allow 5 minutes to lapse after disconnecting the electrical power before touching the hot-knife.

Failure to allow the hot-knife to cool will result in personal injury.

1. Remove the front panel, and lift the entry conveyor assembly upright.

2. Disconnect the hot-knife spring.



3. Remove the socket head shoulder screw which secures the knife assembly.

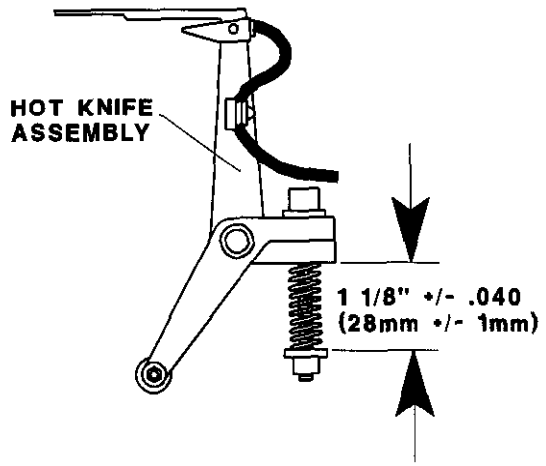
4. Remove the cable hangers and disconnect the leads, remove the hot-knife assembly from the machine.

5. Reverse the above procedure to replace the assembly. Reinstall the socket head shoulder screw using Loctite #242.

6. Lower the entry conveyor assembly and reinstall the front panel.

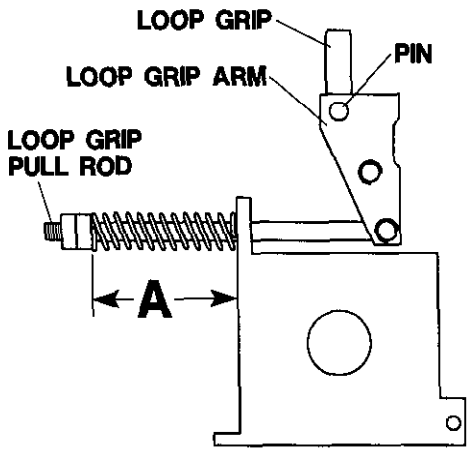
HOT-KNIFE SPRING LOAD

If the hot-knife yoke assembly has been disassembled, adjust the compression spring to the dimension shown in the illustration.



LOOP GRIP

1. Remove the main drive belt. See details, this section.
2. Loosen and remove the hex nuts on the end of the loop grip pull rod. Remove the spring.
3. Disconnect the four extension springs that connect to the track roller lever and the anvil frame assembly. See details, this section.
4. Remove the two small extension springs from the front and rear of the head, the knife yoke, the strap guide cover and the re-entry chute assembly.
5. Remove the anvil shaft from the anvil frame assembly by removing the two socket head cap screws on the left-hand end of the shaft. Withdraw the anvil shaft from the left-hand side of the casting. This will allow the anvil assembly to be lifted forward enough to provide clearance at the cover plate.
6. Loosen and remove the three socket head cap screws that secure the cover plate to the sealer frame.
7. Pull the cover plate forward and up, freeing it from the head.
8. Remove the upper pin from the loop grip then lift the loop grip from between the two loop grip arms.



9. Install the new loop grip and reassemble all components in reverse order.
10. Tighten the loop grip pull rod spring to a compressed length [A] of:

    100 Series Strap: 3 15/16" (100mm)
    200 Series Strap: 3 15/16" (100mm)
    600 Series Strap: 3 1/2" (90mm)
    700 Series Strap: 3 1/2" (90mm)

INDEXING THE HEAD

The strapping head can be indexed either electrically using the machine controls or by physically moving the parts of the head. Certain adjustments and parts removal require the head to be indexed physically whereas other procedures can be performed by electrically indexing the head.

The following describes both electrical and non-powered head indexing procedures:

ELECTRICALLY INDEXING

Index the strapping head electrically by using the following steps:

1. Press in and hold the CYCLE button.
2. Pull the Emergency Stop Switch to ON. The LED segments will display an "88".

PLEASE NOTE:

- *Head views are oriented in the service position.*
- *100 Series strap not available on Side-Seal machines.*

3. Release the CYCLE button. Function No. 0 is displayed in the LED segments.

4. Once function 0 has been entered the strapping head will index one step at a time for each push of the button. There are four electrical stopping points: Weld-Cool, Anvil Open, Feed and Platen Grip.

NON-POWERED INDEXING

⚠WARNING

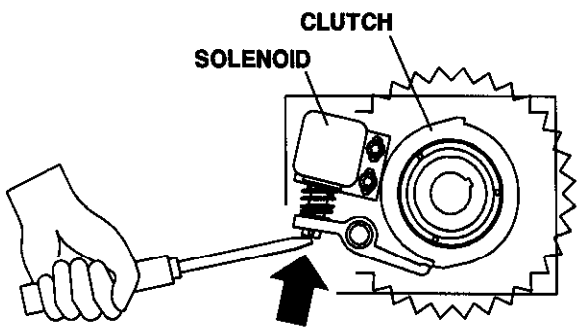
Disconnect and lock-out all electrical power before proceeding.

Never index the head manually by hand with power to the machine.

Keep fingers and hands away from pinch points while rotating the drive sheave.

Index the strapping head manually using the following steps:

1. Using a flat-head screwdriver, press in the solenoid plunger to release the clutch.



2. Rotate the drive sheave until the head has been indexed to the desired position.

3. The clutch will recatch several times throughout one complete cycle of the head. Therefore, to obtain the desired head position, the clutch may have to be re-released.

4. Before restoring power, make sure the head has been rotated to the next cycle position.

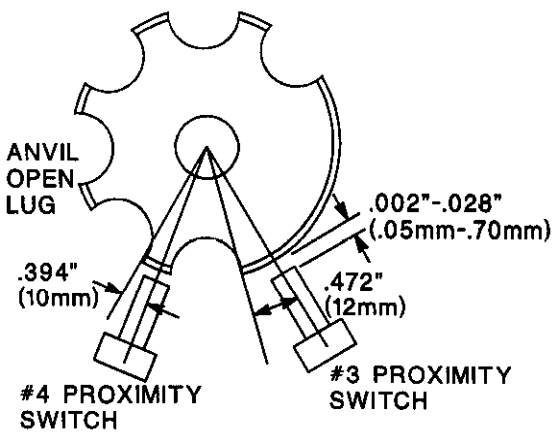
5. Restore power and index machine electrically to insure that the clutch wrap springs are disengaged to prevent premature failure of index clutch.

PROXIMITY SWITCHES

All proximity switches, listed below, must be set to a minimum of .002 (.05mm) to a maximum of .028" (.70mm) from their respective cam assemblies. To adjust, loosen both nuts, correctly position the sensor, and re-secure. NOTE: Do not over tighten locking nuts.

- 1LS Feed limit
- 1PRS Take-Up
- 2PRS Out of strap
- 3PRS Feed position
- 4PRS Cycle control
- 5PRS Tension winder
- 6PRS Dispenser fill
- 8PRS Automatic cut-off (option)

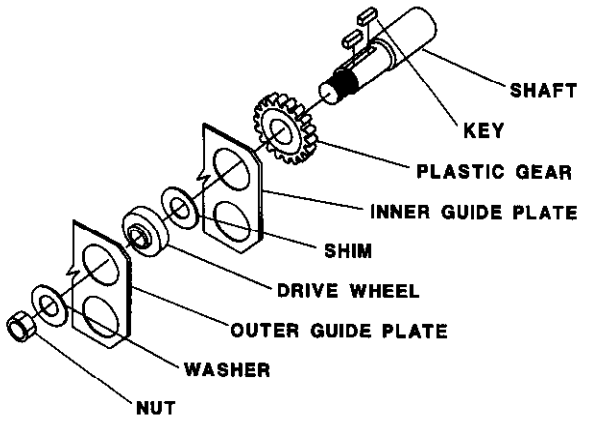
Proximity sensors #3 and #4 also require positioning as shown. Note that the target cam is shown in the FEED position.



As the target cam turns to the ANVIL OPEN position, proximity sensor #4 must be completely covered by the Anvil Open lug shown to the left (Note: must be checked under power).

STRAP GUIDES, INSERTS & PLASTIC GEAR

1. Remove the M6 thumb screws that secure the outer guide plate to the inner guide plate and remove the outer guide plate from the head.
2. Remove the feed and take-up drive wheel assemblies as well as the feed and take-up pinch roll eccentrics.
3. Remove the four M6x16 mounting screws which secure the inner guide plate to the head. Remove the inner guide plate.
4. If necessary, at this time remove the plastic gear from the take-up drive wheel shaft.



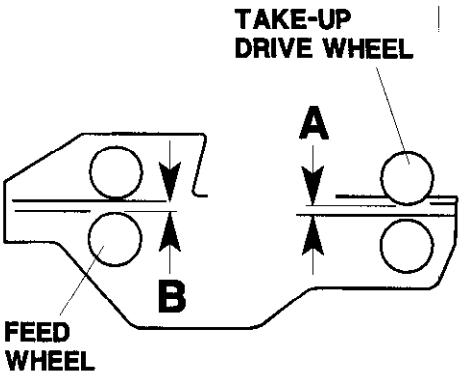
5. Replace the plastic gear on the take-up drive wheel shaft.
6. Replace the inner guide plate and drive wheels. It may be necessary to shift the plate to align the strap guide to drive wheel clearances. Guide clearances are as follows.

   Take-Up Clearance (A)

   100 Series Strap: 1.25mm
   200 Series Strap: 1.25mm
   600 Series Strap: 1.45mm
   700 Series Strap: 1.45mm

   Feed Clearance (B)

   100 Series Strap: 1.05mm
   200 Series Strap: 1.05mm
   600 Series Strap: 1.15mm
   700 Series Strap: 1.15mm

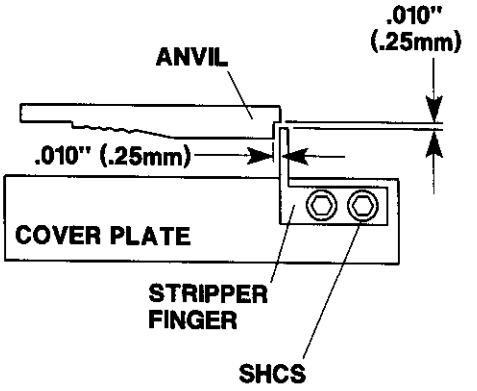


7. After clearances have been set, securely tighten inner guide plate mounting screws. Recheck clearances.
8. Reassemble remaining pieces in proper order.

STRIPPER FINGER

Adjust the strap stripper finger as follows:

1. Cycle the head to the feed position.
2. Loosen the two socket head cap screws (SHCS) which secure the stripper finger to the cover plate.



3. Adjust the stripper finger to have a clearance of .010" (.25mm) between the overhanging edge of the anvil and the top of the stripper finger.

PLEASE NOTE:

- *Head views are oriented in the service position.*
- *100 Series strap not available on Side-Seal machines.*

4. Adjust the stripper finger to have a clearance of .010" (.25mm) between the right-hand side of the anvil and the left-hand side of the stripper finger.

5. Once properly set, tighten the two socket head cap screws. Re-check the clearance between the stripper finger and the edge of the strap chute.

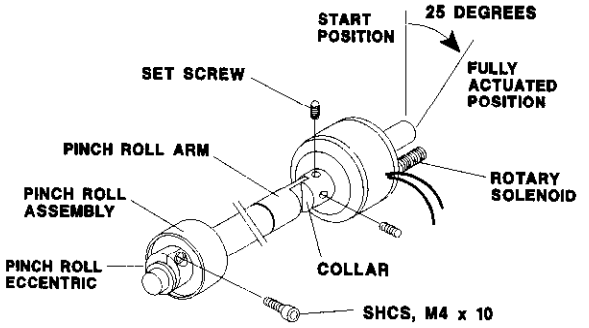
NOTES:

A. The anvil and exit chute must not rub against the stripper finger when cycling the head.

B. The anvil frame has a small amount of play from side to side. Push and hold the anvil frame in the direction opposite of the side being checked for clearance.

TAKE-UP & FEED PINCH ROLL ROTARY SOLENOID

The take-up solenoid is spring loaded to the neutral position and rotates a maximum of approximately 25 degrees.



1. Remove the main drive belt from the strapping head, then remove the quick access guide outer plate.

2. Hold in on the CYCLE button and turn on the control switch. When the display shows "88" release the CYCLE button. Within 0.5 seconds, begin to repeatedly press in on the CYCLE button until the number 5 appears as a right hand digit on both displays. The machine is now in Function 5, which permits operation of the take-up solenoid when the CYCLE button is pressed. Insert a .006" (.15mm) shim between the pinch roller and the drive wheel. Press the CYCLE button to energize the rotary solenoid to check the take-up wheel clearance.

3. When the eccentric is actuated the clearance between the two rollers should fall between .004" to .008" (0.1mm to 0.2mm). If the eccentric needs to be adjusted, loosen the M4x10 socket head cap screw, correctly position the eccentric and tighten down. Recheck clearances.

NOTE: The feed solenoid is adjusted identically as the take-up but using function 4 in the display.

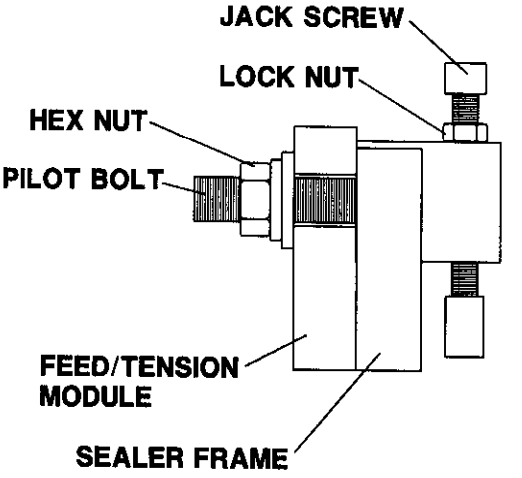
4. Reinstall quick access guides. Reinstall the main drive belt and tension it to the proper tension level.

TENSION FRAME TO SEALER FRAME ADJUSTMENT

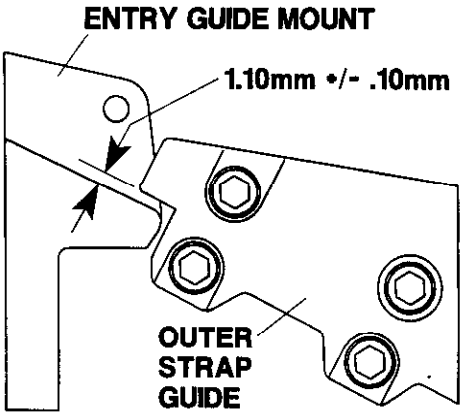
During the initial assembly of the head or any time the feed/tension module is removed from the sealer frame, it will be necessary to realign the modules. This is accomplished using the alignment bracket assemblies. Align the feed/tension module as follows:

1. Loosen the four pilot bolts that secure the feed/tension module to the sealer frame.

2. Loosen the jam nuts which secure the jack screws. Turn the jack screws clockwise or counter-clockwise to appropriately raise or lower the feed/tension module



3. With the strap guide plates fastened to the feed/tension module, adjust the tension frame height so the outer guide plate and the entry guide have an approximate gap of 1.1mm ± 0.1mm.



4. Align the guide plates from front to back so the strapping can pass freely from the guides into the sealer frame.

5. Tighten the jam nuts which secure the two jack screws. Continue to tighten the four hex nuts which secure the feed/tension module to the sealer frame.

TIMING THE HEAD

1. Press in and hold the CYCLE button.

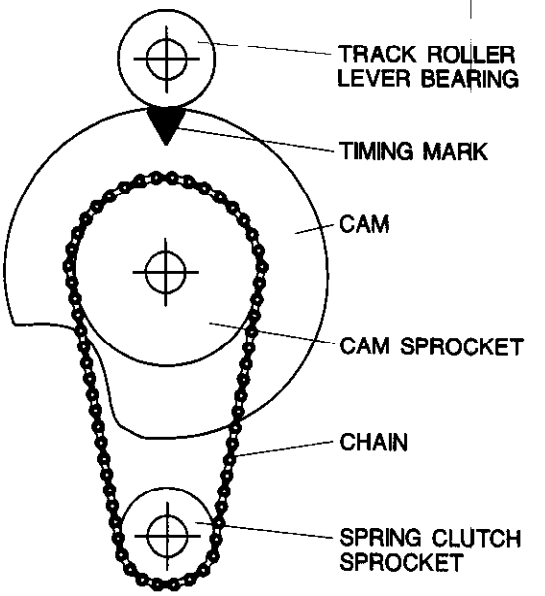
2. Pull the Emergency Stop Switch to ON. The LED segments will display an "88".

3. Release the CYCLE button. Function No. 0 is displayed in the LED segments. When the CYCLE button is released for .5 seconds, the function displayed will be entered.

4. To determine if the head needs to be timed, press the CYCLE control button until the head stops in the platen grip position.

⚠WARNING

Disconnect and lock out electrical power to machine before proceeding.



When viewed from the rear of the head the track roller lever bearing should be positioned directly over the timing mark, as seen in the illustration. If not, then the head requires retiming.

Retime the head if necessary as follows:

1. Manually release the clutch index lever, as shown, and further described in the Manually Indexing Head instructions on page 7-10.

2. Note that the spring clutch must be partially disassembled to allow proper positioning of the cam.

3. Work the retaining ring from the groove on the collar and slide it to the rear.

⚠CAUTION

DO NOT pull the coupling sleeve with the stop cam. If coupling sleeve is accidently removed from the brake sleeve, complete removal and resetting of the clutch assembly will be required. See page 7-3 for clutch removal and adjustments.

4. While holding the lever clear of the stop cam, slide the stop cam rearward to disengage it from the splines. This allows the cam to be manually turned.

PLEASE NOTE:

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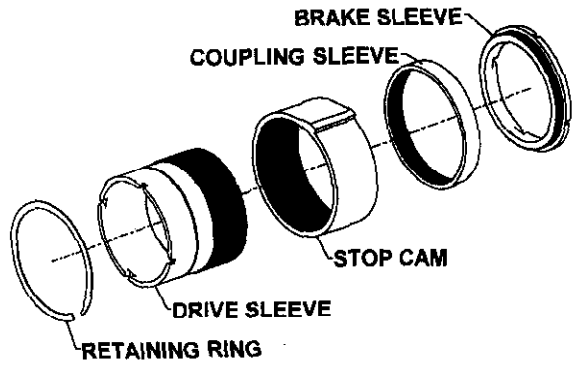
- *100 Series strap not available on Side-Seal machines.*



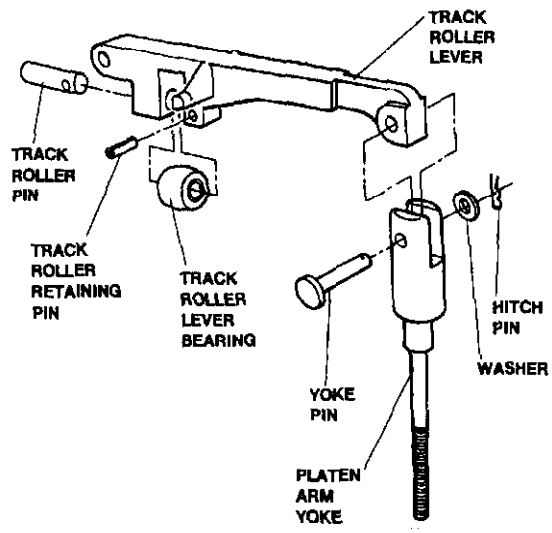
5. When set, fully re-engage the cam with the sleeve and reinsert the retaining ring.

6. Check to affirm that the timing is correct by repeatedly indexing the head to the tension position and noting the position of the timing mark and the track roller lever bearing.

TRACK ROLLER LEVER BEARING

1. Make sure the strapping head is in the feed position. Remove the entry table top assembly, and make sure the electrical and pneumatic power has been disconnected.

2. Remove the yoke pin retaining ring to separate the track roller lever from the platen arm yoke.



3. From the side of the head, using a long, thin drift pin, drive the small track roller retaining pin from its position in the track roller lever.

4. Then, from the front of the head, drive the track roller pin rearward until the bearing is free.

5. Lift out the old bearing, install the new and reinstall the pin. Secure it in place with the retaining pin and reattach the track roller lever and platen arm yoke.

6. Reinstall the retaining pin.

HEAD ASSEMBLIES

STRAP SERIES			100	200	600	700	600HT	700HT
BILL OF MATERIAL			4520791	420792	420794	420796	420795	420798
KEY	DESCRIPTION (ASSY NO.)	QTY	PT. NO.	PT. NO.	PT. NO.	PT. NO.	PT. NO.	PT. NO.
1	FEED/TAKE-UP (421825)	1	421826	421827	421828			
	SPRING COUPLING	REF	420267					
	TENSION SHAFT	REF	420466					
2	UPPER DRIVE	1	421420					
3	LOWER DRIVE (421829)	1	421846		421847			
4	RE-ENTRY CHUTE	1	420885					
5	STRAP GUIDES (421830)	1	421211	299961	299962	299963	299468	299928
6	INDEX CLUTCH	1	421831					
7	INDEX CAM	1	421832					
8	STRAP GUIDE / FAN	1	421833					
9	HOT KNIFE	1	421834					
10	TRACK LEVER	1	421835					
11	ANVIL / PLATEN / CENTERING GUIDE (421840)	1	421841	421842	421843	421844	421843	421844
	ANVIL HEAD (421845)	REF	420936	420562	420565	420568	420565	420568
12	TENSION WINDER (421850)	1	421851	421852	421853		421854	

PLEASE NOTE:

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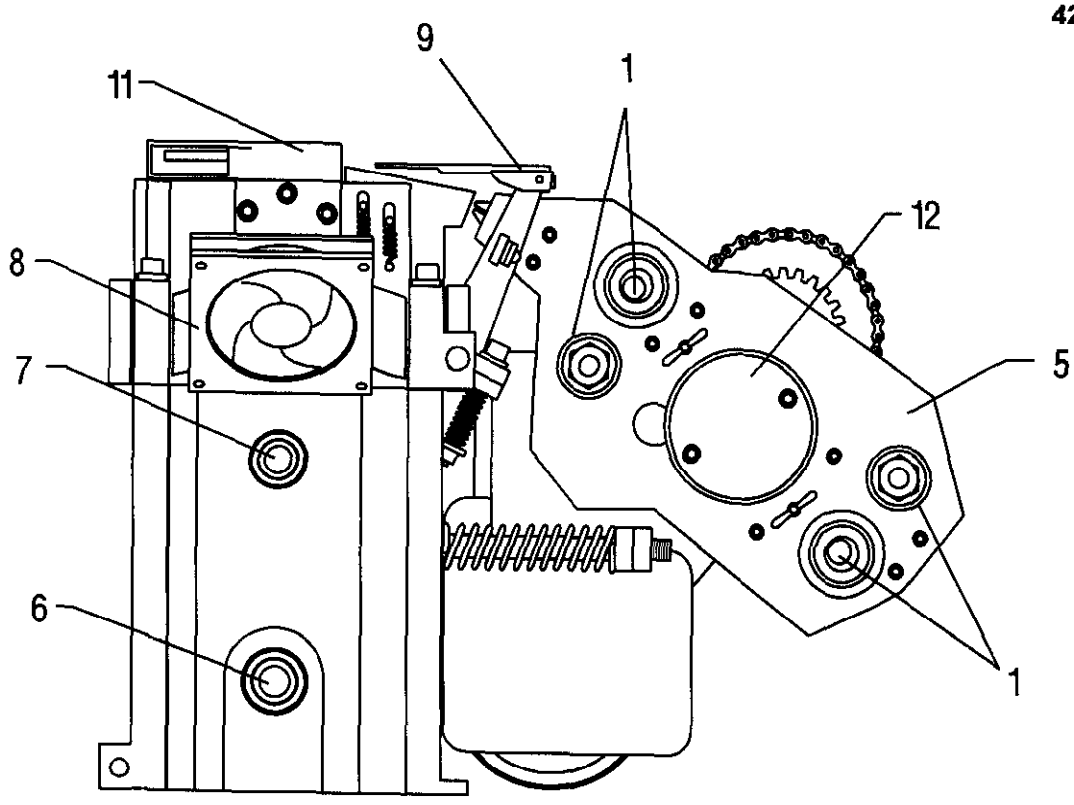
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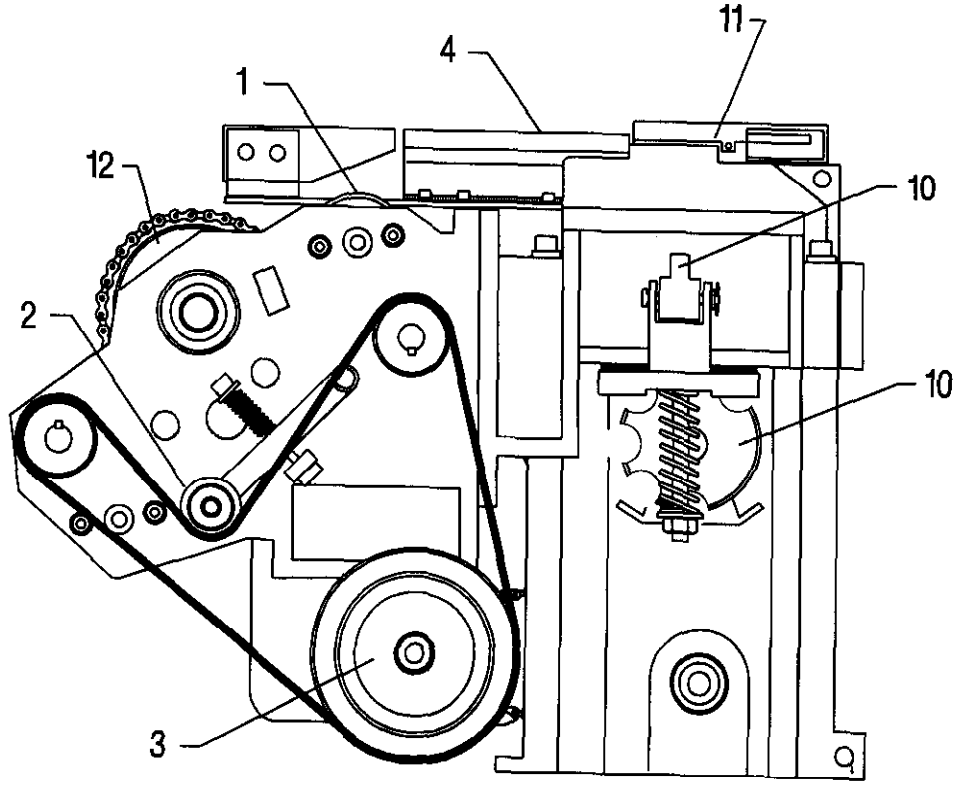
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FEED/TAKE-UP ASSEMBLIES

	STRAP SERIES	100		200		600/700	
	BILL OF MATL	421826		421827		421828	
KEY	DESCRIPTION	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.
1	DRIVE FRAME ASSY			1	272072		
2	PINCH ROLL GEAR ASSY	1	421346	1	420377	1	420379
3	WHEEL GEAR			1	264334		
4	TAKE-UP DRIVE WHEEL	1	421348	1	292402	1	292379
5	PINCH ROLLER ASSY	1	420462	1	420376	1	420378
6	FEED DRIVE WHEEL	1	421349	1	420643	1	420644
7	PINCH ROLL SHAFT			1	292469		
8	SOLENOID COUPLING			1	281939		
9	SOL LEDEX 191838-00			1	264305		
10	SPRING LOAD COUPLING			1	420267		
11	TENSION SHAFT ASSY			1	420466		
12	FEED WHEEL SHAFT			1	420642		
13	IDLER PIVOT SHAFT			1	292611		
14	RETAIN. RING Ø1/2"			1	293003		
15	5 X 24mm KEY			1	293735		
16	4 X 11mm KEY			1	420645		
17	BEARING			4	264536		
18	BEARING			2	264535		
19	PINCH ROLL ECCENTRIC			2	292470		
20	SHIM ECCENTRIC WASHER			A/R	281405		
21	SHIM (.003 IN.)			A/R	309790		
22	RETAINING RING			3	264434		
23	M10 HEX NUT			2	164962		
24	M10 FLAT WASHER			2	251267		
25	M4 X 8 LG. S.H.C.S.			2	162383		
26	M6 X 10 LG. S.S.S.			2	264562		
27	M6 FLAT WASHER			4	262617		
28	1/4" LOCK WASHER			4	002187		
29	1/4-28 HEX NUT			4	001620		
30	RETAINING RING			4	171549		
31	SHIM (.003 IN.)			A/R	278020		

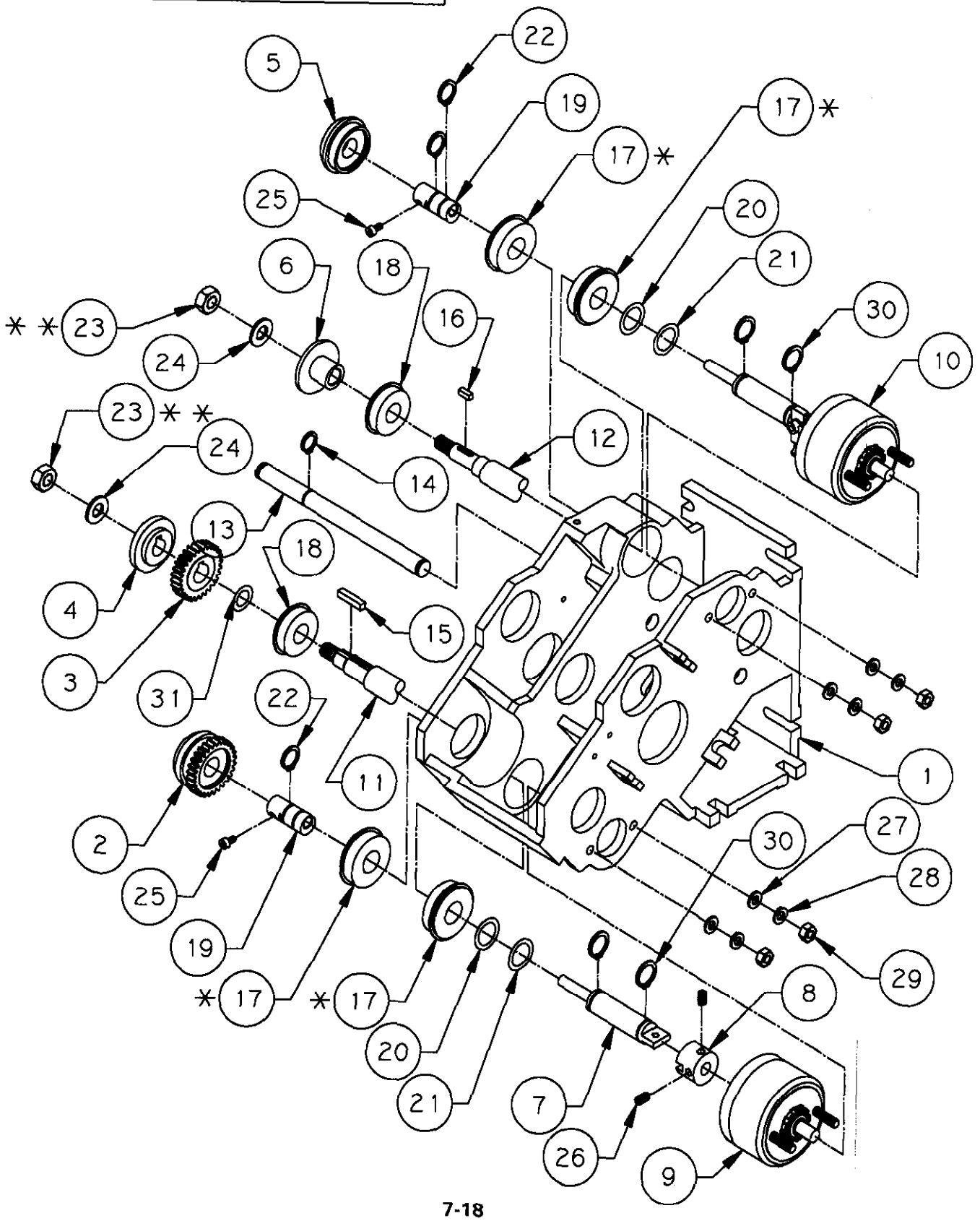
PLEASE NOTE:

- *Head views are oriented in the service position.*
- *100 Series strap not available on Side-Seal machines.*

⚠ WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.

* SECURE WITH LOCTITE
* * SECURE WITH LOCTITE #242



SPRING LOADED COUPLING ASSY

BILL OF MATERIAL			
KEY	DESCRIPTION	QTY	PT. NO.
1	PINCH ROLL SHAFT	1	292469
2	ROTARY SOLENOID	1	264305
3	M5 X 12 SHCS	1	010028
4	SPRING ARM	1	299694
5	FOLLOWER ARM	1	299688
6	SLIDING SPOOL	1	299692
7	M4 X 5 SSSCP	1	293902
8	M5 X 20 SHCS	1	166063
9	5mm LOCKWASHER	2	187415
10	SPOOL	1	299693
11	SPRING POST	2	299689
12	SPRING O.D. .480" X 1-1/4"	1	420029
13	DRAW SCREW	1	299690
14	5mm HEX NUT	2	169440

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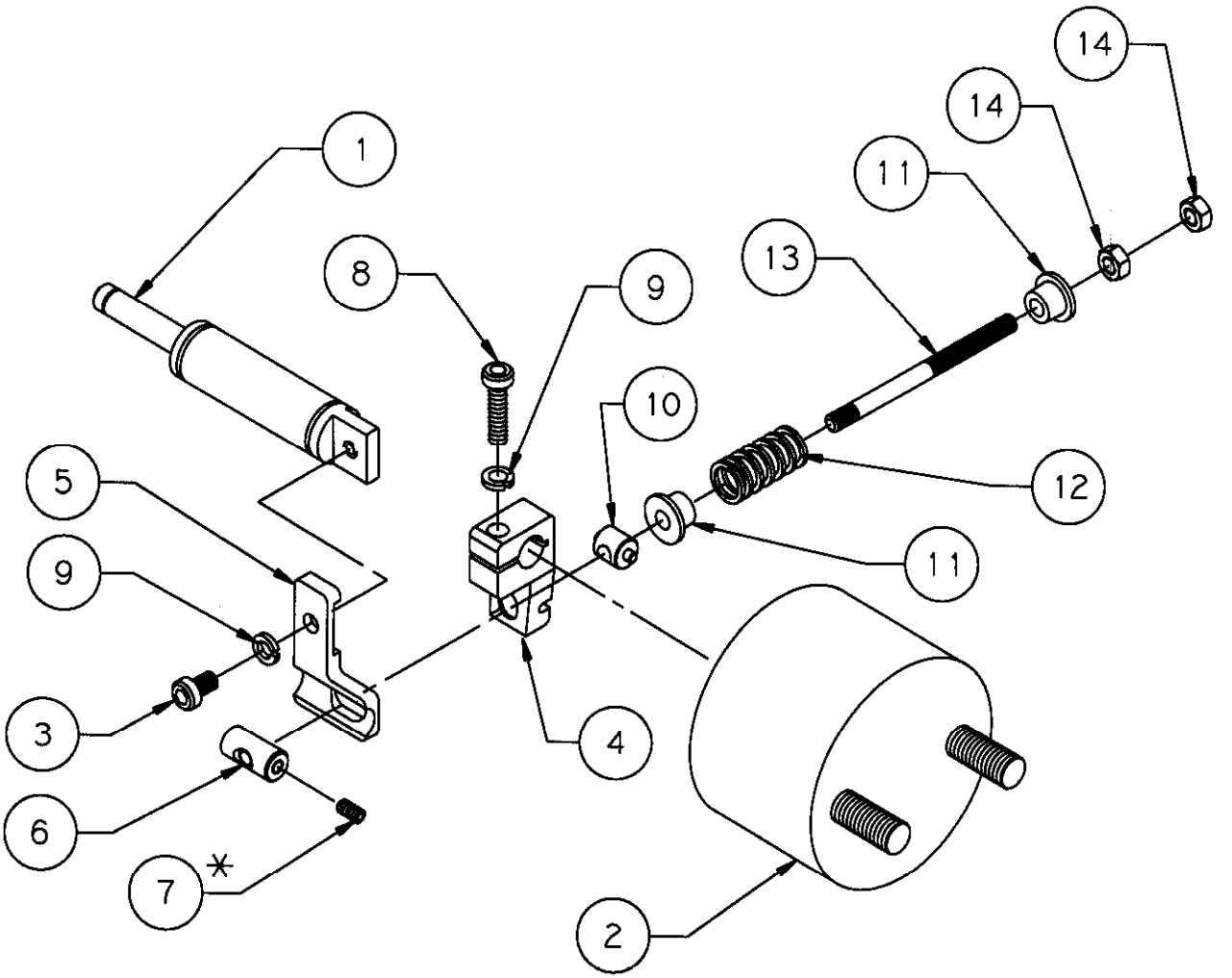

*SECURE WITH LOCTITE NO. 242

KEY	QTY.	PART NO.	DESCRIPTION
1	REF	272072	DRIVE FRAME ASSY
2	REF	420466	TENSION SHAFT ASSY
3	REF	420642	FEED WHEEL SHAFT
4	1	264535	BEARING
5	A/R	278020	SHIM, .007 IN. (0.18 mm)
6	A/R	309030	SHIM, .003 IN. (0.08 mm)
7	1	272824	SPACER
8	1	264434	RETAINING RING
9	1	281406	KEY, 5 mm
10	1	272815	DRIVE SHEAVE (STD)
	REF	433153	DRIVE SHEAVE (HS)
11	2	264562	M6 X 10 LG. S.H.S.S.
12	REF	292611	SHAFT, IDLER PIVOT
13	1	293003	RETAINING RING
14	1	292612	IDLER ARM
15	1	272036	IDLER ROLL ASSY
16	1	165434	M8 X 75 LG. S.H.C.S.
17	2	251266	M8 FLAT WASHER
18	1	047446	COMPRESSION SPRING
19	1	181257	M8 LOCK NUT
20	1	292943	PROXIMITY SWITCH ASSY

NOTE:

1) * KEY 11 SECURE WITH LOCTITE 242 BLUE.

2) ** KEY 2,4 SECURE WITH LOCTITE 609 GREEN. (OUTER RACE OF BEARINGS ONLY)

3) KEY 10 STD = STANDARD HEAD
HS = HIGH SPEED HEAD

PLEASE NOTE:

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⚠ WARNING

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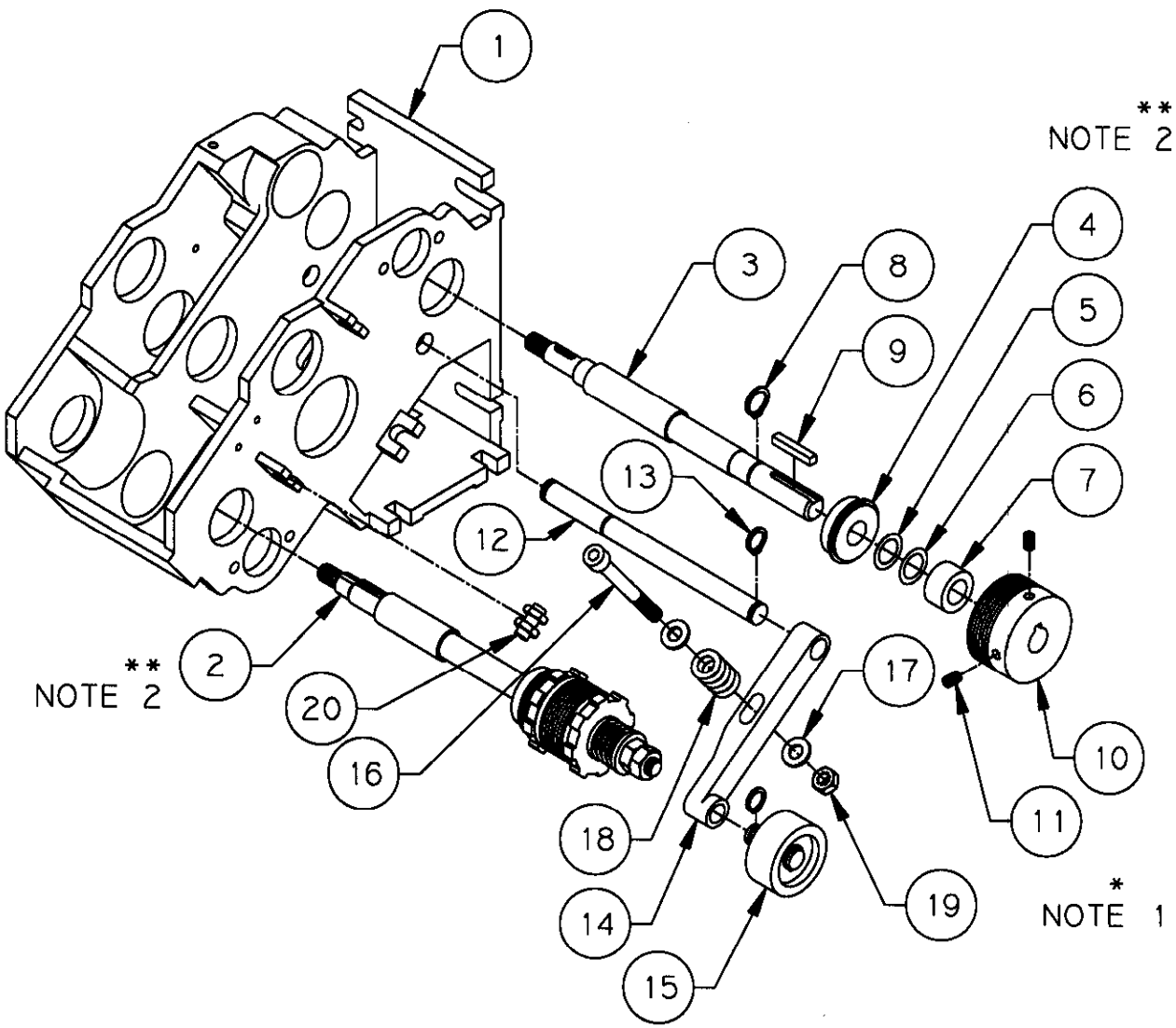

TENSION SHAFT ASSY

BILL OF MATERIAL			
KEY	DESCRIPTION	QTY	PT. NO.
1	RETAINING RING	1	264434
2	SPROCKET SPACER	1	264316
3	BEARING	1	264535
4	WHEEL SHAFT	1	292682
5	CLUTCH PLATE	1	420126
6	SLIP WASHER	2	292802
7	CLUTCH SHEAVE ASSY (STD) CLUTCH SHEAVE ASSY (HS)	1 REF	299454 433155
8	NUT, 10mm	2	164962
10	SPRING SPACER	1	272817
11	SPRING SPACER	1	292873
12	COMPRESSION SPRING	1	299038
13	KEY, 5mm X 10	2	293004
14	INNER RACE	1	293005
15	CLUTCH PLATE	1	420109
16	SHIM SHIM	A/R A/R	309030 278020

NOTE:

1) KEY 5, 14 CRITICAL DIMENSION 1.5 ±0.1

2) KEY 12 SET SPRING HEIGHT:

100 STRAP 19±1MM

200, 600, 700 16±1MM

3) KEY 8 MEASURED DYNAMIC TORQUE TO BE:

100 STRAP 8±1 IN/LB

200, 600, 700 11.5 - 16 IN/LB

4) ** KEY 3 SECURE WITH LOCTITE NO.609 GREEN.

5) KEY 7 SEE DETAIL "A".

STD = STANDARD HEAD

HS = HIGH SPEED HEAD

PLEASE NOTE:

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- *100 Series strap not available on Side-Seal machines.*

⚠ WARNING

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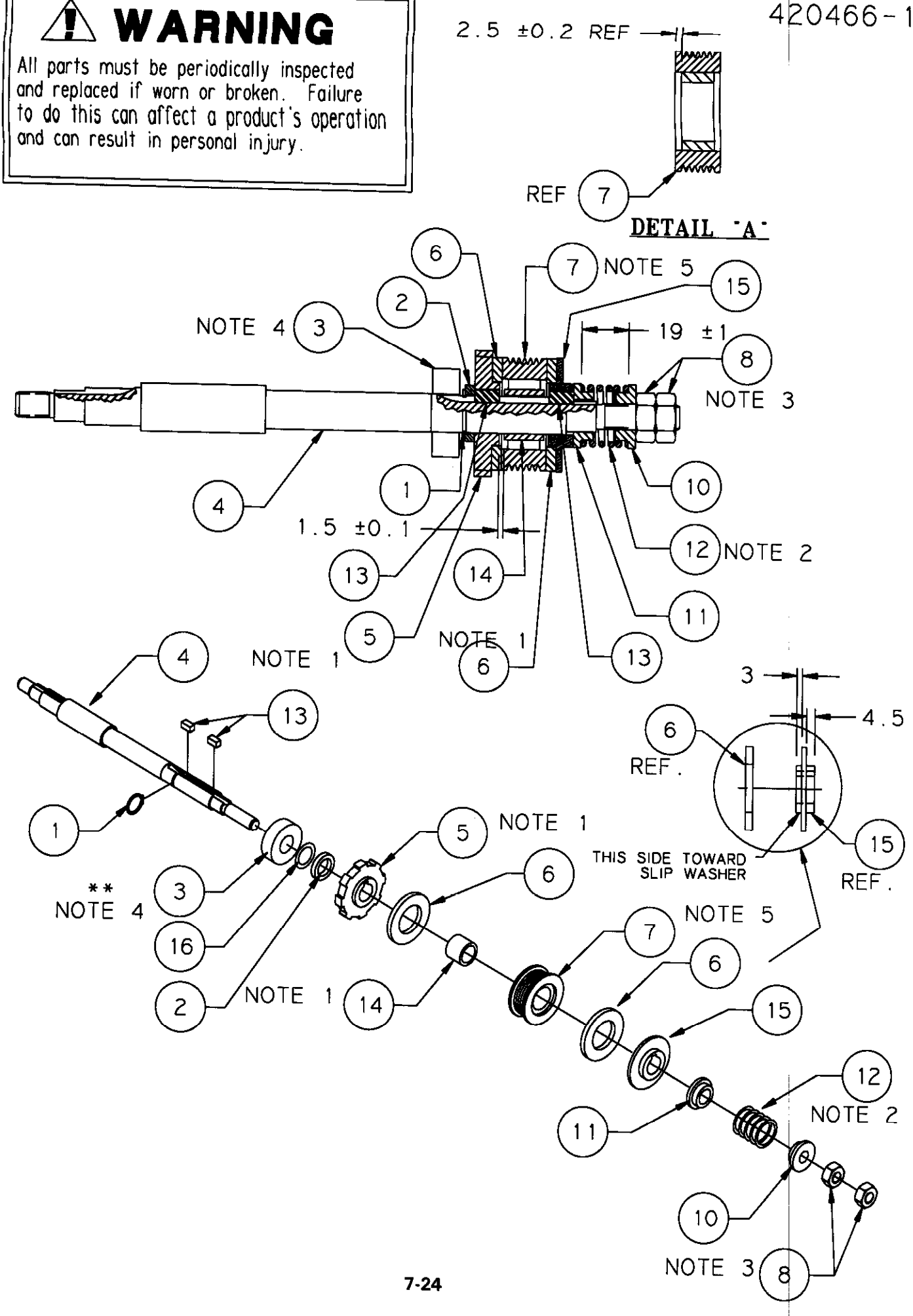

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PLEASE NOTE:

- *Head views are oriented in the service position.*
- *100 Series strap not available on Side-Seal machines.*

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LOWER DRIVE (JACK SHAFT ASSY)

STRAP SERIES BILL OF MATERIAL		100-200 421846		600-700 421847	
KEY	DESCRIPTION	QTY	PT. NO.	QTY	PT. NO.
1	KEY, 5mm-18	2	264337		
2	JACK SHAFT	1	259958		
3	RETAINING RING, NO.11	1	264434		
4	SPROCKET SPACER	2	264316		
5	ROLLER CHAIN, NO.35, 64 PITCH	1	292804		
6	SPROCKET	1	264315		
7	BALL BEARING	2	264535		
8	SHEAVE HOUSING	1	264399		
9	WASHER, M8	4	251266		
10	NUT, M8	4	164953		
11	POLY-V-BELT 360J6 (STD) POLY-V-BELT 370J6 (HS)	1 REF	264311 433151		
12	SHEAVE (STD) SHEAVE (HS)	1 REF	264402 433152		
13	KEY, 5mm X 73 lg	1	259957		
14	DRIVE FRAME ASSEMBLY	REF	272072		
15	WASHER, M10	1	251267		
16	PILOT BOLT	4	292661		
17	LOCK NUT, NYLON, M10	1	292534		
18	LOCK WASHER, M8	4	162381		
19	CLUTCH CHAIN	REF	292806	REF	292805
20	SHIM	A/R	265949		
21	SHEAVE 43.2 (BOTTOM SEAL) SHEAVE 53.8 (SIDE SEAL)	1 REF	272815 278467		
22	SPROCKET	1	281357	1	264315
23	M6 X 10 SSS	2	264562		

NOTE:

1) ** SECURE KEY 7 WITH LOCTITE NO.609 GREEN.
2) * SECURE KEY 6,22 (SET SCREWS) WITH LOCTITE NO.242 BLUE.
3) KEY 11, 12 STD = STANDARD HEAD, HS = HIGH SPEED HEAD.

PLEASE NOTE:

- *Head views are oriented in the service position.*
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⚠ WARNING

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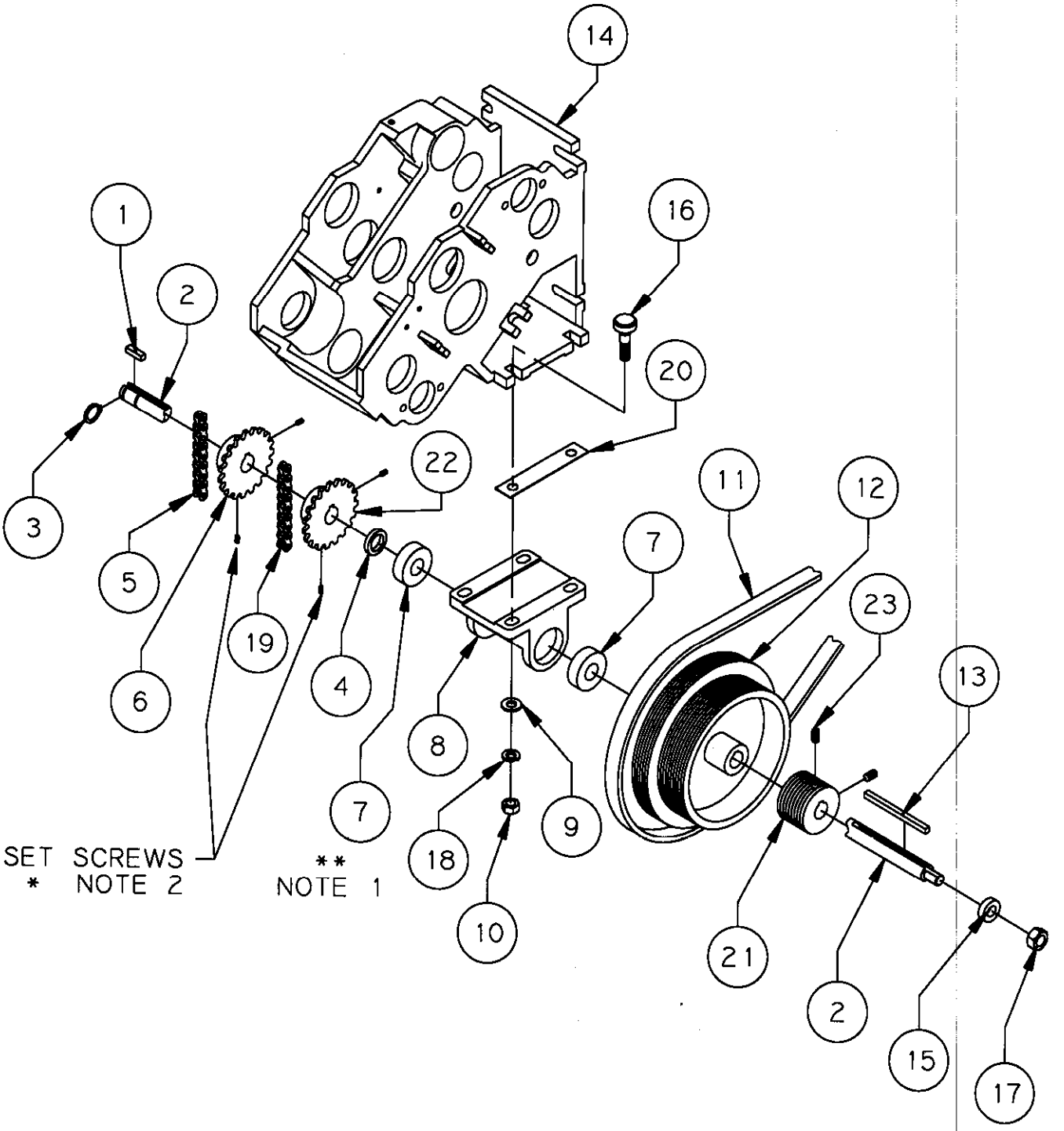

KNIFE SPRING BRACKET ASSY

BILL OF MATERIAL			
KEY	DESCRIPTION	QTY	PT. NO.
1	M5 X 12 S.H.C.S.	3	010028
2	5mm LOCKWASHER	5	187415
3	5mm WASHER	5	171571
4	M5 X 16 S.H.C.S.	2	011214
5	M6 X 20 CARRIAGE BOLT	2	272614
6	6mm WASHER	2	262617
7	6mm LOCKWASHER	2	010077
8	6mm NUT	2	005465
9	REAR GUIDE	1	292762
10	CHUTE BRACKET	1	421151
11	KNIFE SPRING BRACKET WELDMENT	1	420884
12	SHIM	A/R	278599
13			
14	CHUTE ARCH	REF	420XXX
15	SEALER FRAME ASSY	REF	420701
16	STRAP SUPPORT	1	421141

PLEASE NOTE:

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⚠ WARNING

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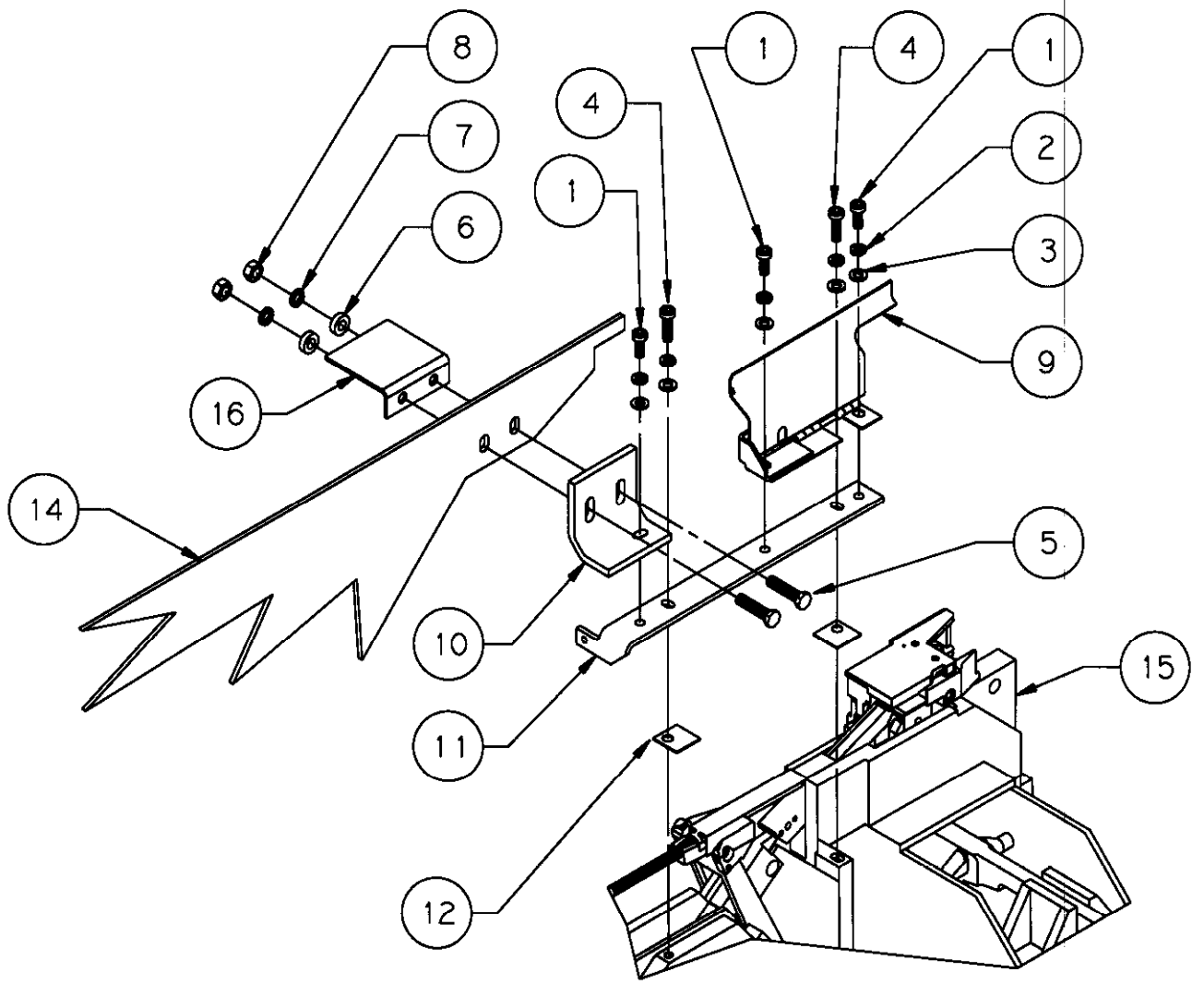

GUIDE PLATE ASSEMBLIES

STRAP SERIES BILL OF MATERIAL			100 421211	200 299961	600 299962	700 299963	600HT 299468	700HT 299928
KEY	DESCRIPTION	QTY	PART NUMBERS					
1	INNER GUIDE	1	421296	293988	293990	293992	280771	293997
2	8X16mm DOWEL PIN	2	420703					
3	OUTER GUIDE	1	421297	293987	293989	293991	280774	293995
4	M4 X 12 SHCS	4	165317					
5	4mm LOCKWASHER	4	185700					
6	EXIT GUIDE	1	293993					
7	THUMB SCREW	2	292468					
8	M5 X 6 X - SHSS	1	292450 (12 LG)		271612 (16 LG)			
9	TENSION ROLLER	1	420498	420350	420349	420348	420349	420348
10	M6 X 25 SHCS	2	281108					
11	6mm LOCKWASHER	4	010077					
12	DRIVE FRAME ASSY	REF	272072					
13	TAKE-UP GUARD	1	299956					
14	STRAIGHT FITTING	2	421584					
15	M6 X 30 SHCS	2	162374					
16	M6 EXT LOCKWASHER	2	431757					

PLEASE NOTE:

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⚠ WARNING

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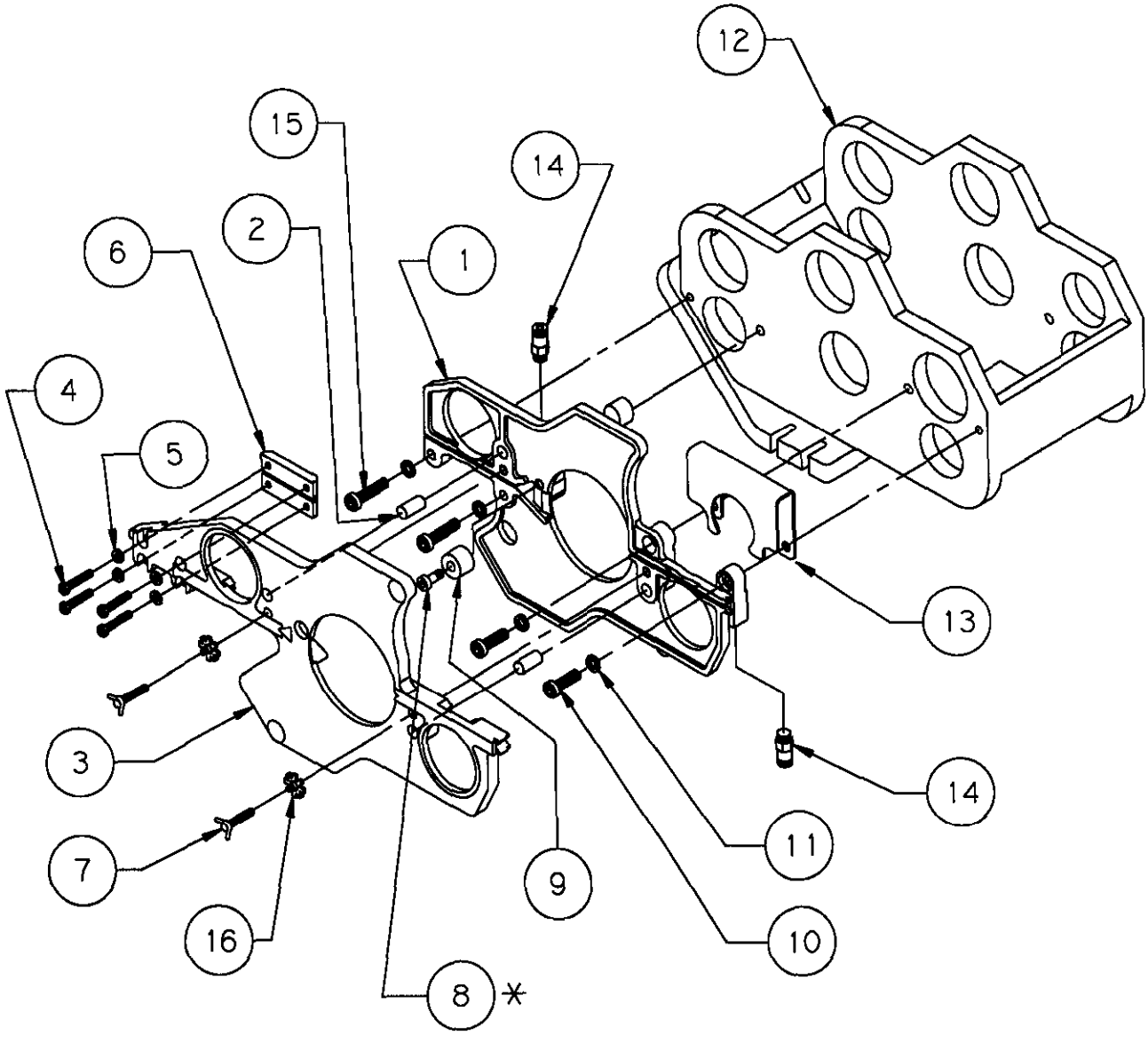

NOTE: PRESS KEY 2 DOWEL PIN SO ONLY 3.5mm ±0.5 OF THE DOWEL PINS ARE EXPOSED OUT OF KEY 1 INNER GUIDE PLATE.

*SECURE SCREW THREAD ONLY WITH LOCTITE NO.242

STRAP 200, 600 AND 700 CLUTCH ASSEMBLY

KEY	DESCRIPTION	QTY	PT. NO.
1	ROLLER CHAIN, NO.35, 64 PITCH	REF	292804
2	LOCK WASHER, 1/4	3	002187
3	LOCK NUT, M8	1	181257
4	CLUTCH ANCHOR PLATE	1	292553
5	SEALER BASE ASSEMBLY	1	272066
6	CHAIN, CAM	1	292803
7	ROLL PIN	2	014810
8	INDEX CLUTCH	1	420705
9	SPROCKET CLUTCH	1	264383
10	SOCKET HEAD CAP SCREW, 1/4-20	3	009098
11	CLUTCH SPACER	1	264308
12	SPRING CLUTCH SPROCKET	1	264325
13	CLUTCH ANCHOR PIN	1	292431
14	WIRE HARNESS	1	421869

PLEASE NOTE:

- *Head views are oriented in the service position.*
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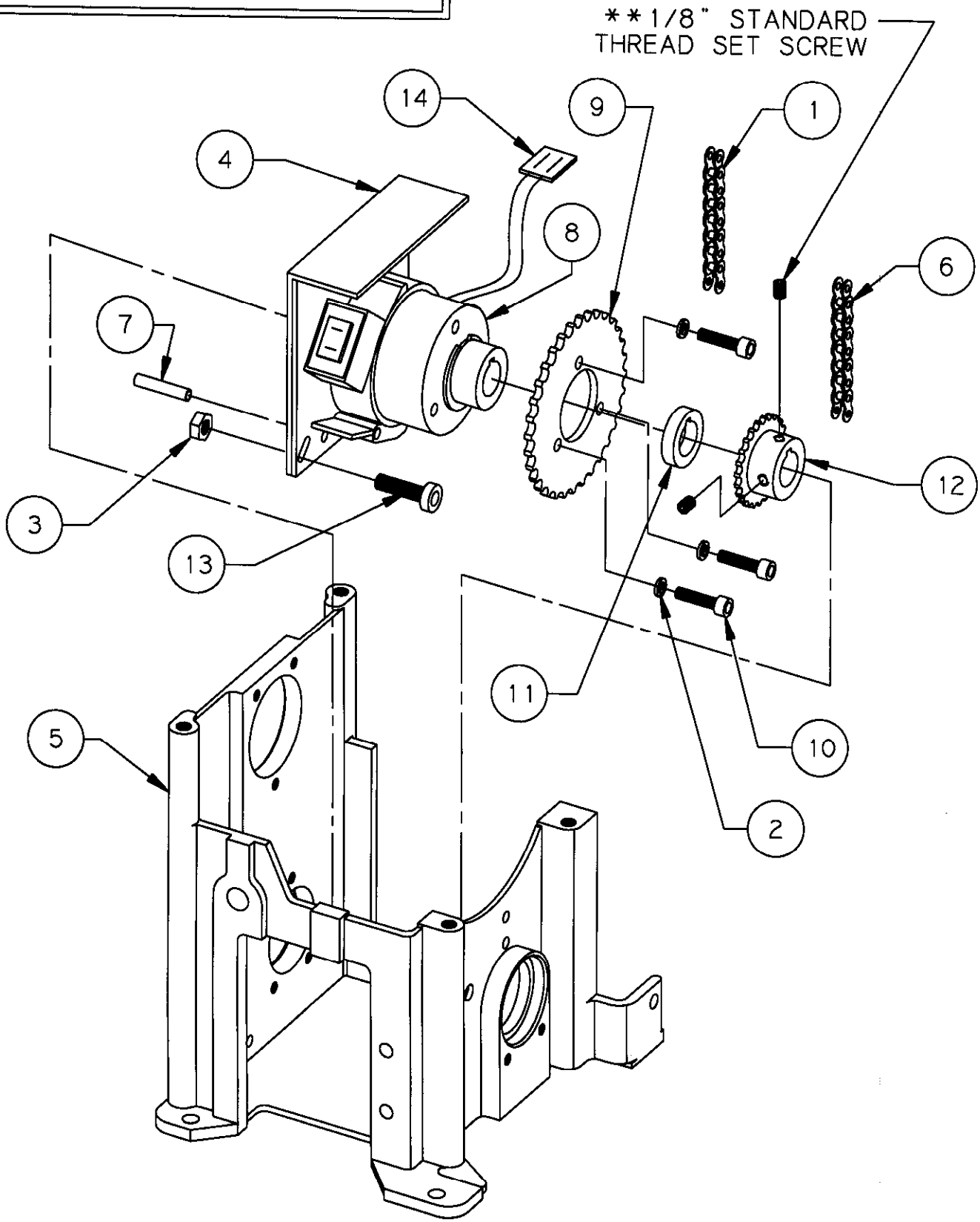
WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.

**SECURE WITH LOCTITE NO.242



STRAP 200, 600 AND 700
CAM ASSEMBLY

KEY	DESCRIPTION	QTY	PT. NO.
1	BALL BEARING, GEN.NO.6203-2RSNRS	2	264536
2	RETAINING RING, NO.5160-66S	2	171549
3	M6 X 16 S.H.C.S.	5	165438
4	6mm E-RING	2	162396
5	6mm LOCKWASHER	5	010077
6	PIN	1	264327
7	PLATEN ARM PIN	1	264326
8	10mm E-RING	2	171809
9	8mm E-RING	2	162372
10	8mm LOCKWASHER	2	162381
11	BALL BEARING, 25mm-47mm-12mm	2	264537
12	CONTROL TARGET	1	264392
13	M8 X 16 H.H.C.S.	2	172945
14	SEALER BASE ASSY	REF	272066
15	CAM SET	1	420364
16	CHAIN, CAM	REF	292803
17	SPROCKET, CAM	1	264351
18	LOOP GRIP ARM	2	264385
19	BALL BEARING, FAFNIR KP5	1	264307
20	PIN LOOP GRIP	1	264328
21	PULL ROD PIN	1	264573
22	REV 7 MOTOR TENSION PLATE	1	264368
23	SPRING SHAFT	1	264369
24	PULL ROD LOOP	1	264388
25	SPRING, COMP., 26mm-127mm	1	264449
26	13mm WASHER	1	180684
27	12mm NUT	2	173537
28	CLUTCH SHAFT	1	264384
29	KEY, 3/16 SQ. X 5 1/2 LG.	1	272857
30	GATE CAM	1	420302

PLEASE NOTE:

- *Head views are oriented in the service position.*
- *100 Series strap not available on Side-Seal machines.*

⚠ WARNING

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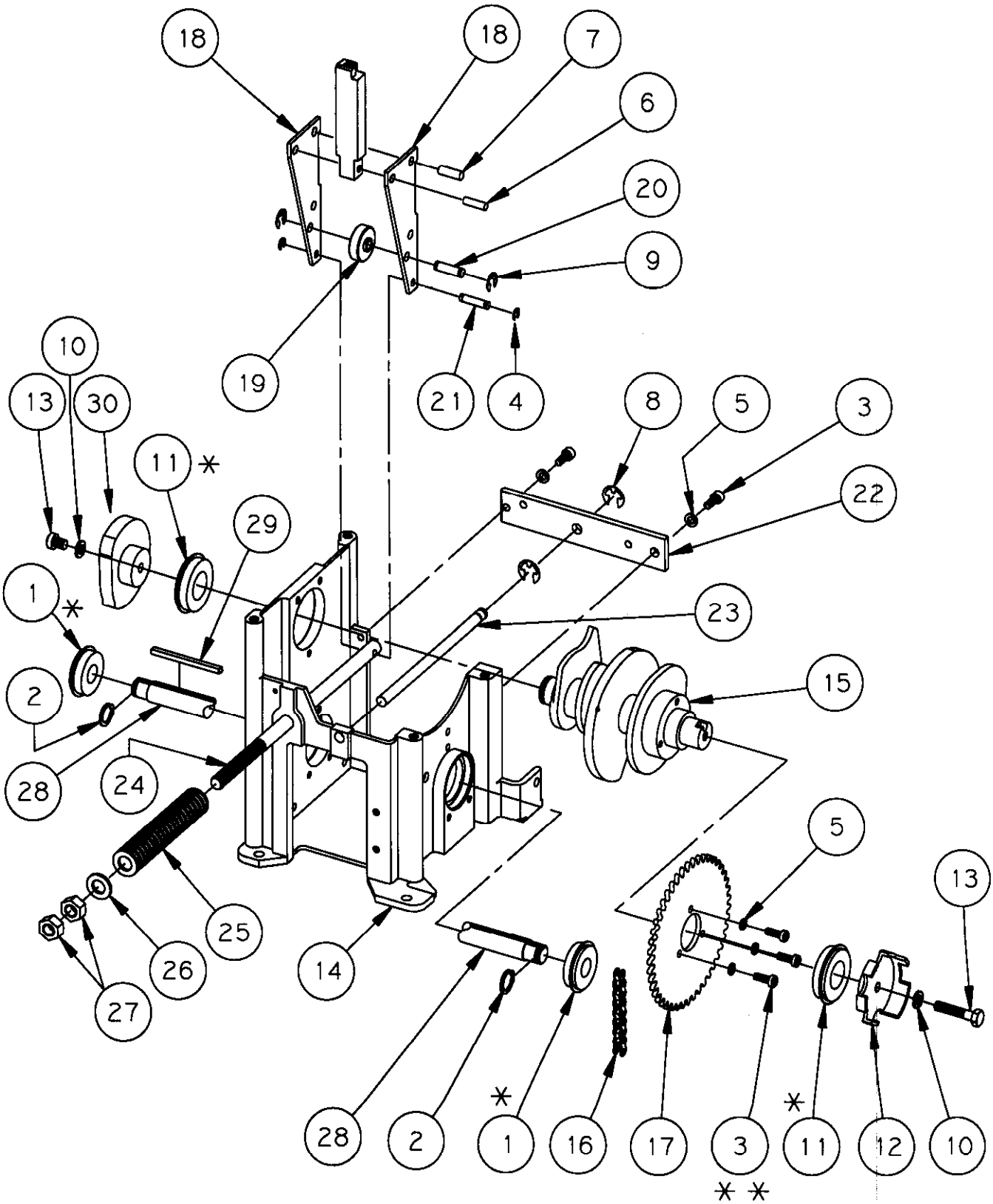
*SECURE WITH LOCTITE NO.601
**SECURE WITH LOCTITE NO.242



STRAP GUIDE & EXHAUST FAN ASSY

421833-6

KEY	DESCRIPTION	QTY	PT. NO.
1	M5 X 16 SHCS	1	011214
2	GROOVE PIN	1	299251
3	Ø4 x 16 ROLL PIN	1	250310
4	8mm FLATWASHER	2	251266
5			
6	SEALER FRAME ASSY	1	420701
7	8mm LOCKWASHER	4	162381
8	STRAP GUIDE COVER	1	299275
9	INSERT STRAP	1	264396
10	Ø3 X 14 ROLL PIN	3	264443
11	INSERT STRAP GUIDE	1	420008
12	SPRING PIN	1	278545
13	ENTRY GUIDE MOUNT	1	421142
14	BALL BEARING	1	420675
15	BEARING SHAFT	1	264331
16	DRIVE PIN	1	281661
17	M8 X 60 HHCS	4	164965
18	FAN	1	420759
19			
20			
21			
22	SPRING	2	268872
23	M4 X 12 SHCS	4	165317
24	4mm LOCKWASHER	4	185700
25	4mm HEX NUT	4	164966
26	FAN BRACKET (SURETYER)	REF	420751
26	FAN BRACKET (SIDESEAL)	REF	433602

PLEASE NOTE:

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- *100 Series strap not available on Side-Seal machines.*

⚠ WARNING

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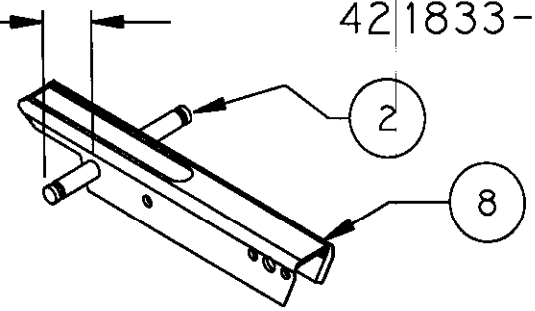
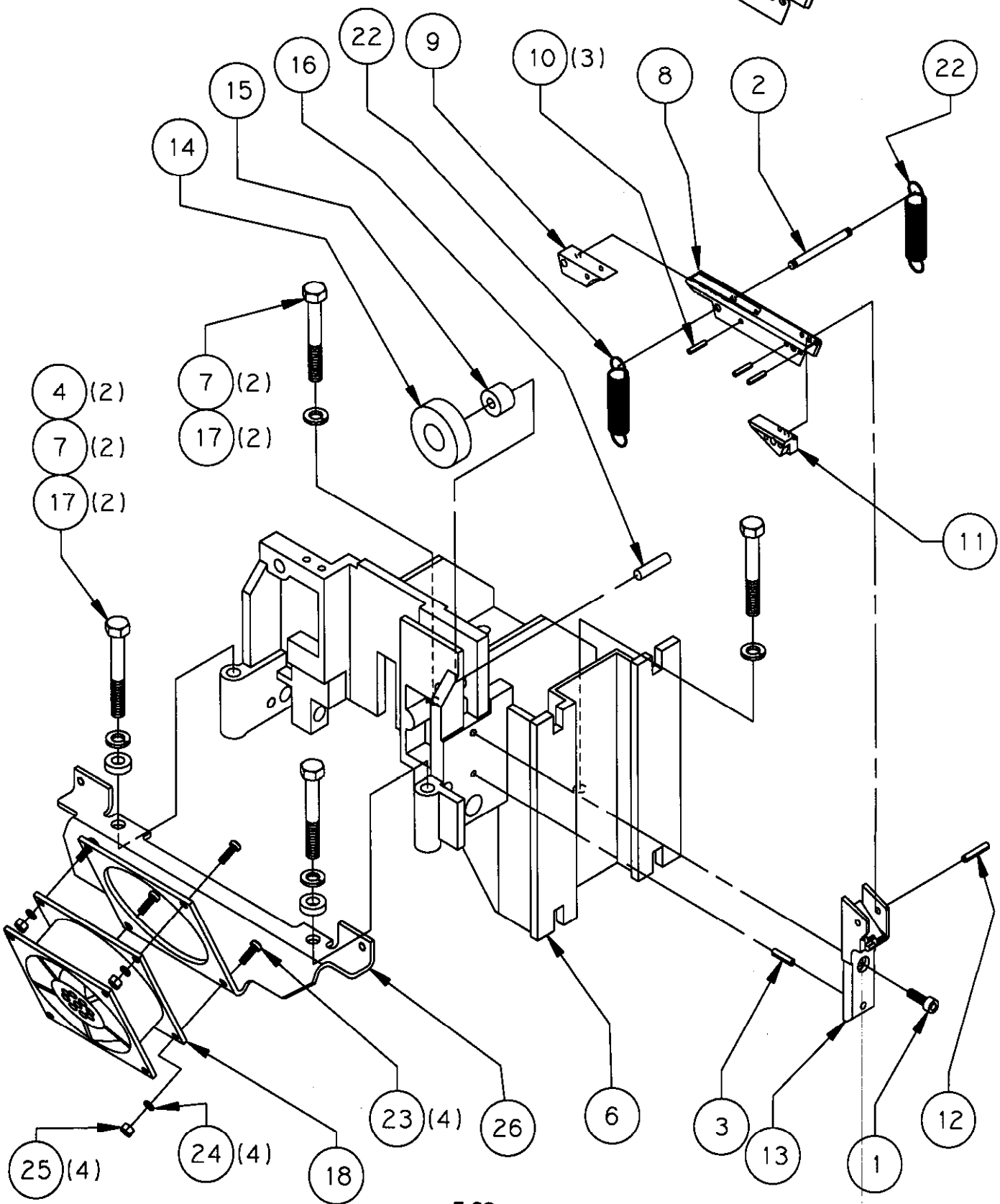
NOTE 1: INSTALL PIN (KEY 2) INTO STRAP GUIDE COVER (KEY 8) TO AN EXPOSED LENGTH OF 16.4mm AS SHOWN





HOT KNIFE ASSY

421834-1

KEY	DESCRIPTION	QTY	PT. NO.
1	M5 X 12 SHCS	1	010028
2	5mm FLATWASHER	1	171571
3	BEARING	1	264310
4	SEALER FRAME ASSY	REF	420701
5	KNIFE ASSY	1	299243
6	KNIFE YOKE SHAFT	1	293729
7	KNIFE SPRING	1	264345
8	PLOW BLOCK	1	299240
9	Ø5 X 25 SHSS	1	299241
10	KNIFE YOKE ASSY	1	299238
11	5mm LOCKNUT	1	266059
12	M5 X 25 SBHCS	1	252167
13	M6 X 12 SBHCS	1	165366
14	Ø3 X 10 ROLL PIN	2	299248
15	M4 X 8 SHCS	1	162383
16	4mm FLATWASHER	1	171570

PLEASE NOTE:

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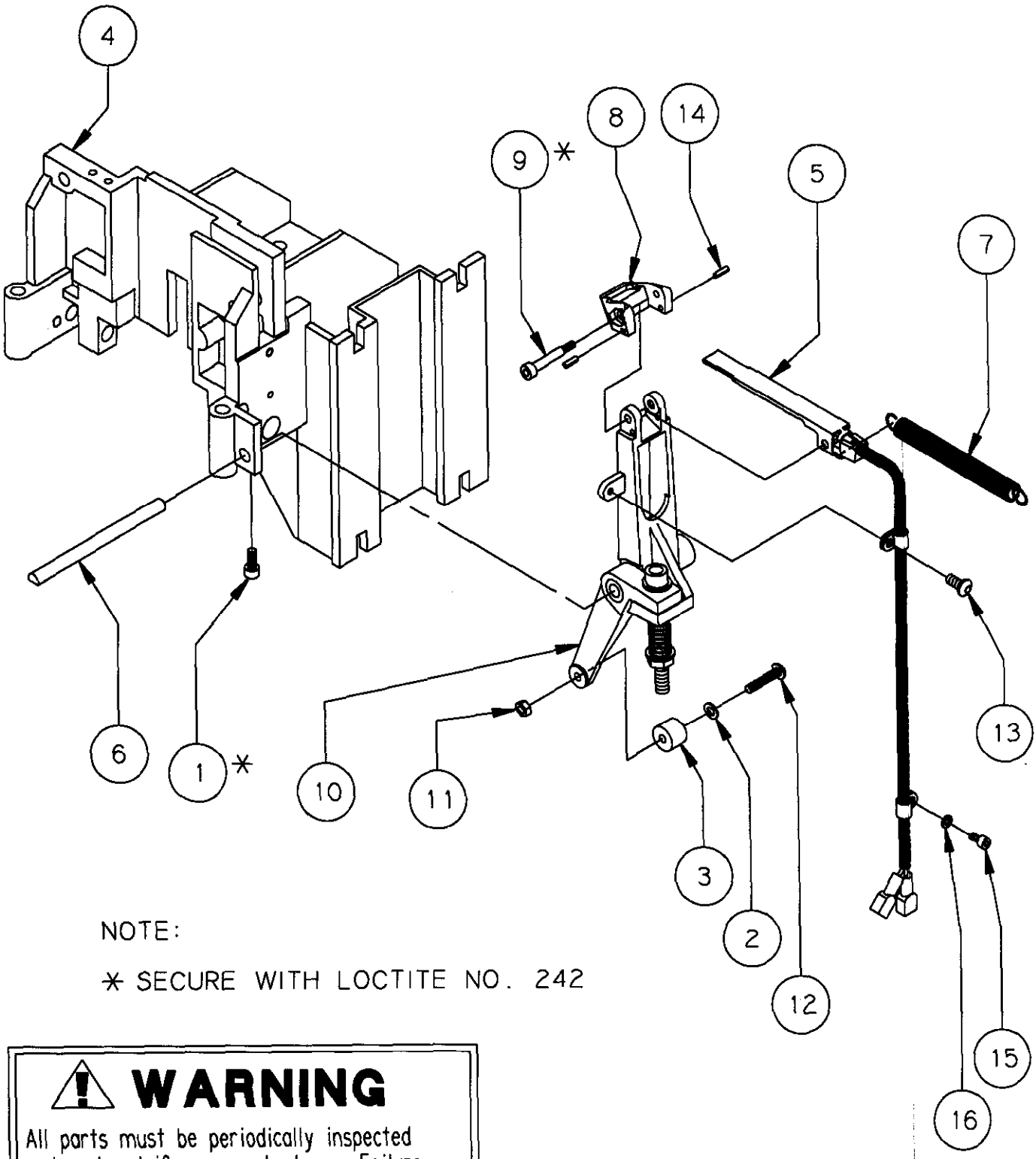

NOTE:

* SECURE WITH LOCTITE NO. 242

⚠ WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.

TRACK ROLLER LEVER ASSY

421835-1

KEY	DESCRIPTION	QTY	PT. NO.
1	8mm FLATWASHER	5	251266
2	8mm HEX NUT	5	164953
3	PILOT BOLT	2	292661
4	8mm LOCK NUT	1	181257
5	PROXIMITY SWITCH	2	292943
6	GUIDE TRACK ROLL LEVER	1	299210
7	Ø4 X 16 ROLL PIN	1	250310
8	M8 X 30 SHCS	2	010061
9	SEALER FRAME ASSY	REF	420701
10	LEVER TRACK ROLLER	1	299882
11	PIN STRAP ROLLER	1	292585
12	SPRING, PLATEN	2	264445
13	TRACK ROLLER	1	293611
14	YOKE PIN	1	293698
15	PLATEN ARM YOKE	1	264390
16	SHELF SHIM	A/R	264346
17	SHELF BRACE	1	264367
18	8mm LOCKWASHER	6	162381
19	SPRING SEAT	2	264332
20	SPRING, COMP	1	264448
21	4mm FLATWASHER	2	171570
22	M4 X 12 SHCS	2	165317
23			
24			
25			
26	SENSOR BRACKET	1	293079
27	4mm LOCKWASHER	2	185700
28			
29	COMPRESSION SPRING	1	265933
30	SPACER	1	421156
31	HITCH PIN	1	293747
32	SPRING HOLDER	1	299249
33	M5 X 12 SHCS	2	010028
34	5mm LOCKWASHER	2	010076
35	PILOT BOLT	2	299429
36	PILOT BRACKET	2	299432
37	M5 X 30 HHCS	2	278153
38	5mm HEX NUT	2	169440

⚠ WARNING

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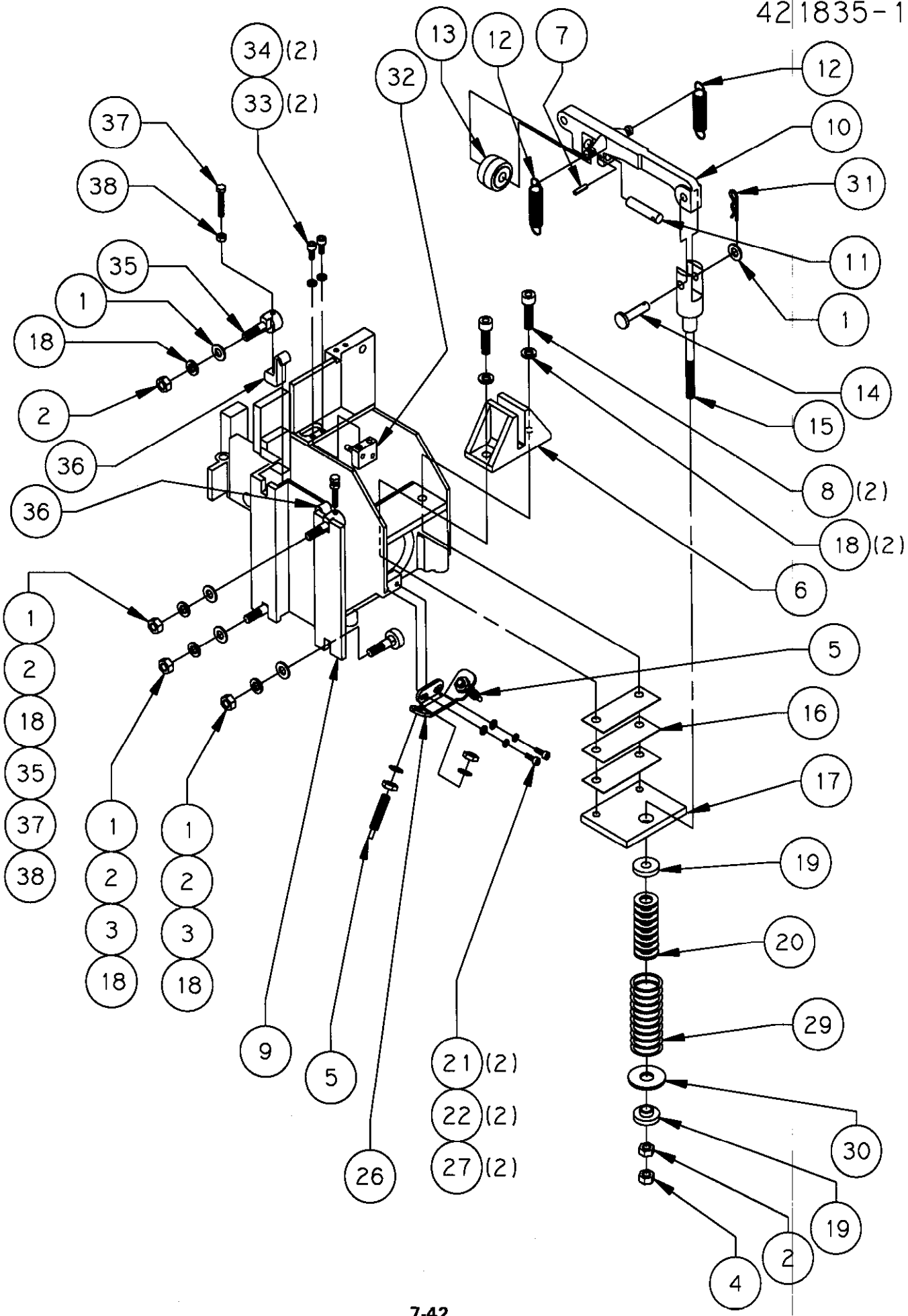
34 (2)
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21 (2)
22 (2)
27 (2)

ANVIL FRAME ASSEMBLY

STRAP SERIES BILL OF MATERIAL		100 421841		200 421842		600 421843		700 421844	
KEY	DESCRIPTION	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.
1	SPRING, LE-058D-6MW	2	268872						
2	M6 X 16 S.H.C.S.	3	165438						
3	5mm LOCKNUT	1	181255						
4	ANVIL BASE	1	278632						
5	M5 X 22 B.H.C.S.	1	264580						
6	ROLLER BEARING	2	264310						
7	SPRING ANVIL,	2	264444						
8	GROOVE PIN, G 3/16	2	264452						
9	6mm LOCKWASHER	3	010077						
10	COVER PLATE MODIF.	1	264432						
11	LOOP GRIP	1	420580			1	420581		
12	PLATEN CUTTER	1	420941	1	420574	1	420575	1	420576
13	PLATEN LINK	1	274948	1	420577	1	420578	1	420579
14	PLATEN ARM PIN	1	264326						
15	GROOVE PIN	1	299251						
16	CUTTER BLADE	1	278257						
17	CUTTER LINK	1	299078						
18	4mm X 16 ROLL PIN	2	250310						
19	5mm X 22 ROLL PIN	1	005458						
20	ANVIL SHAFT ASSY	1	420880						
21	SHIM (.001")	A/R	299298						
22	SEALER FRAME MODIF	REF	420701						
23	4mm LOCKWASHER	2	185700						
24	M6 X 10 SHCS	3	281015						
25	SHIM (.004")	A/R	268893						
26	STRIPPER	1	274804						
27	M4 X 8 SHCS	1	162383						
28	PLATEN PIN	1	274868						
29	ANVIL ASSY	1	420936	1	420562	1	420565	1	420568
30	M4 X 16 SHCS	2	256747						
31	CENTERING GUIDE	1	274947	1	420583	1	420584	1	420585
32	SHIM (.005")	A/R	264344						
33	SHIM (.002")	A/R	268871						
34	M6 X 12 SHCS	2	010032						
35	M4 X 12 SHCS	1	165317						

⚠ WARNING

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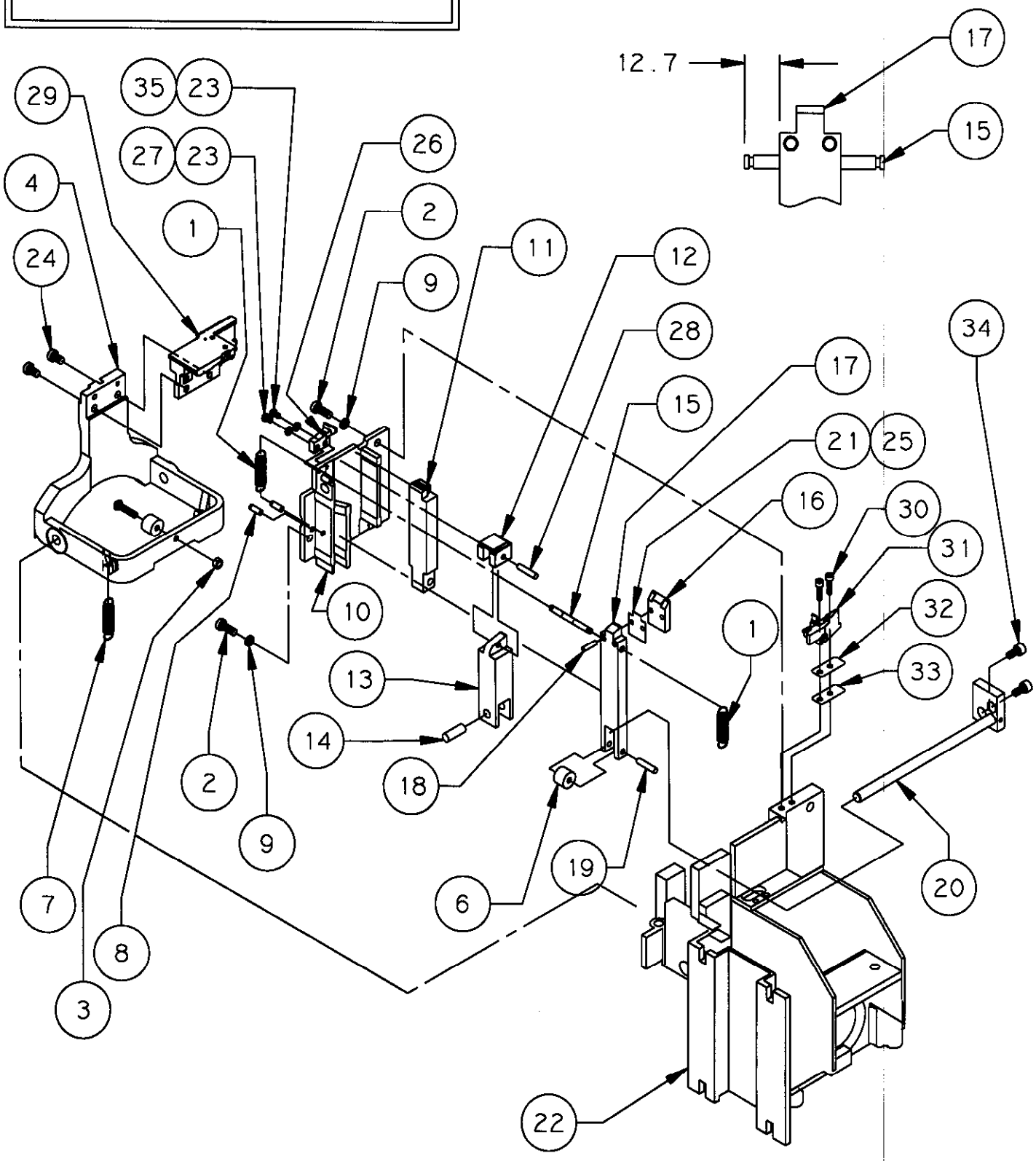
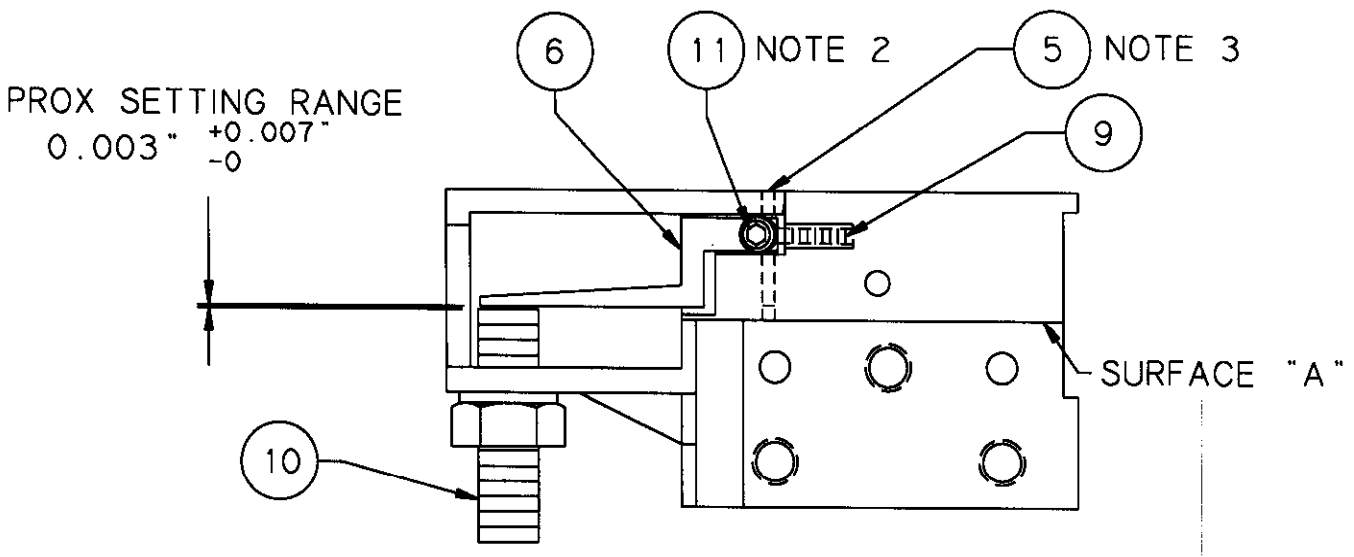
NOTE: LUBRICATE KEY 94, 95, 97, 99, 103



ANVIL HEAD ASSEMBLIES

STRAP SERIES BILL OF MATERIAL			100 420936	200 420562	600 420565	700 420568
KEY	DESCRIPTION	QTY	PART NUMBERS			
1	ANVIL PINNED	1	420935	420561	420564	280762
2	SEPARATOR	1	420940	420587	420588	280759
3	SEPARATOR PIN	1	274802			280754
4	M4 X 5 SSS	1	293902			
5	1LS LEVER PIN	1	433480			
6	1LS LEVER	1	420934			
7	SPRING (6.35 LG)	1	293901			
8	SPRING (12.7 LG)	1	293900			
9	SPRING	1	274942			
10	PROX ASSY	1	292943			
11	4-40 X 1/4 SHCS	1	259987			



PLEASE NOTE:

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- *100 Series strap not available on Side-Seal machines.*

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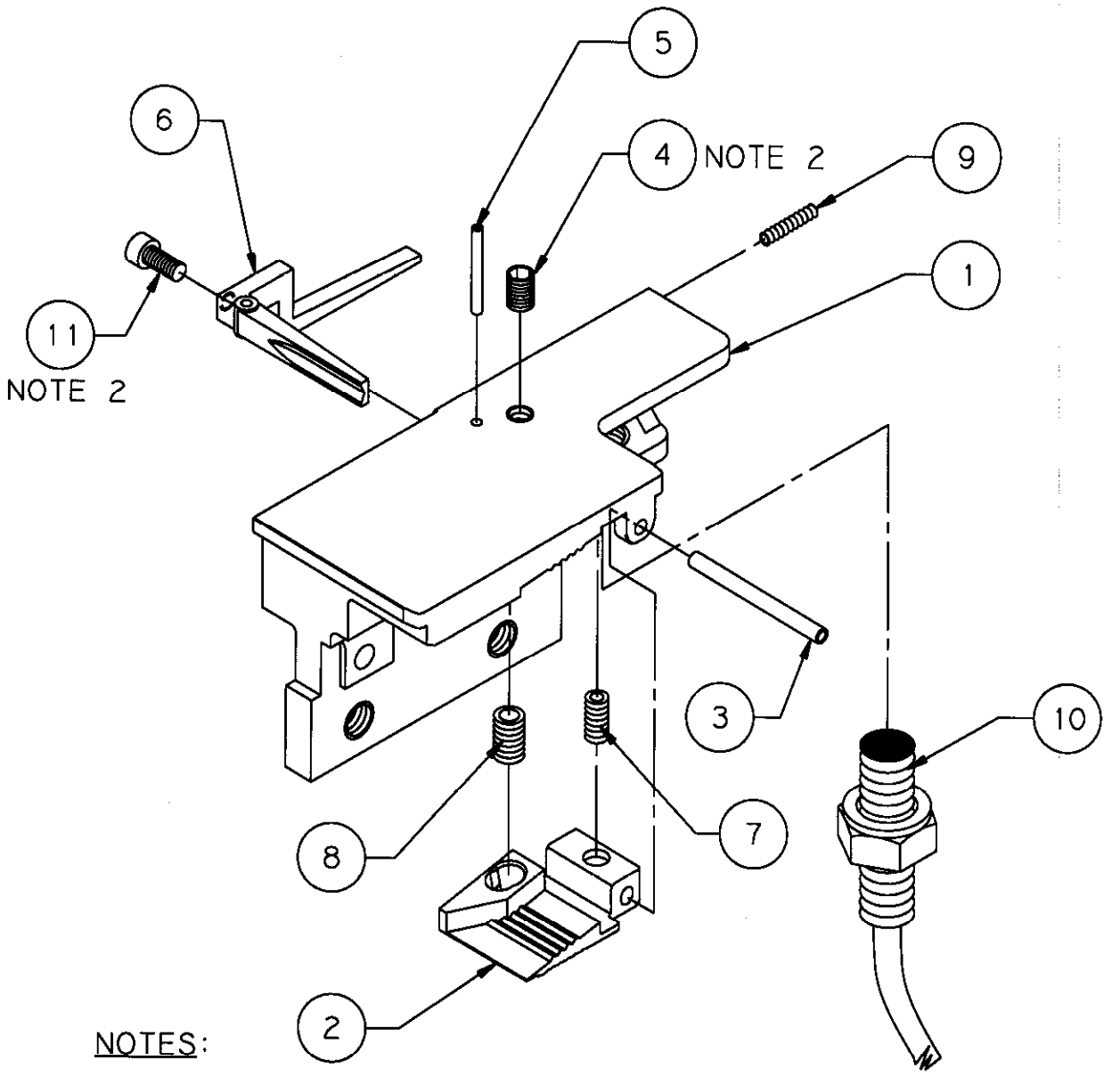

NOTES:

1) KEY 6, 10 SET CLEARANCE AS SHOWN WITH KEY 6 IN LOWEST POSITION.

2) KEY 4, 11 SECURE WITH NO.242 BLUE LOCTITE. KEY 11 REQUIRES USE OF 3/32" HEX WRENCH.

3) KEY 5 (PIN) MUST PIVOT FREELY IN ANVIL AND MUST NOT EXTEND BELOW SURFACE "A".

TENSION WINDER ASSEMBLIES

STRAP SERIES BILL OF MATERIAL			100 421851	200 421852	600/700 421853	600/700 HT 421854
KEY	DESCRIPTION	QTY	PART NUMBERS			
1	5 X 8mm KEY	1	264337			
2	BEARING	4	264536			
3	RETAINING RING	2	171549			
4	DRIVE FRAME	REF	272072			
5	WINDER COVER	1	420002	293376		
6	M5 X 12 SHCS	2	010028			
7	5mm LOCKWASHER	2	187415			
8	RETAINING RING	1	264434			
9	4 X 16 ROLL PIN	1	250310			
10	3/16 X 4" KEY	1	264335			
11	NO.35 CHAIN	1	292806	292805		
12	SPACER	3	264302			
13	GEARSTOP WELD	1	299427	299428	264353	
14	CLUTCH ASSY	1	421255			
15	CLUTCH SHAFT	1	420194	299433	264358	
16	WINDER	1	420027	420943	264362	
17	GEAR	1	272376	421299	264352	
18	SPACER	1	293375			
19	GEAR STOP	1	272373	N/A		
20	CLUTCH PLATE	1	293948			
21	5 X 10 KEY	1	293004			
22	DRUM SPRING	1	420195	299434	N/A	
23	RETURN SPRING	1	299322	421292		
24	4 X 50 ROLL PIN	1	259984			
25	PROX ASSY	1	292943			
26	8mm FLATWASHER	2	N/A			251266
27	IDLER PIVOT	REF				292611
28	RETAINING RING	1				014791
29	M8 LOCKNUT	1				181257
30	M8 X 75 SHCS	1				165434
31	COMP. SPRING	1				013582
32	DETENT ROLLER	1				264319
33	DETENT ARM	1				264363
34	DETENT PIN	1				293509
35	DOUBLE RING COTTER	1				421797
36	SPACER	1				421796
37	CL GEAR SPACER	1	N/A	272082	N/A	

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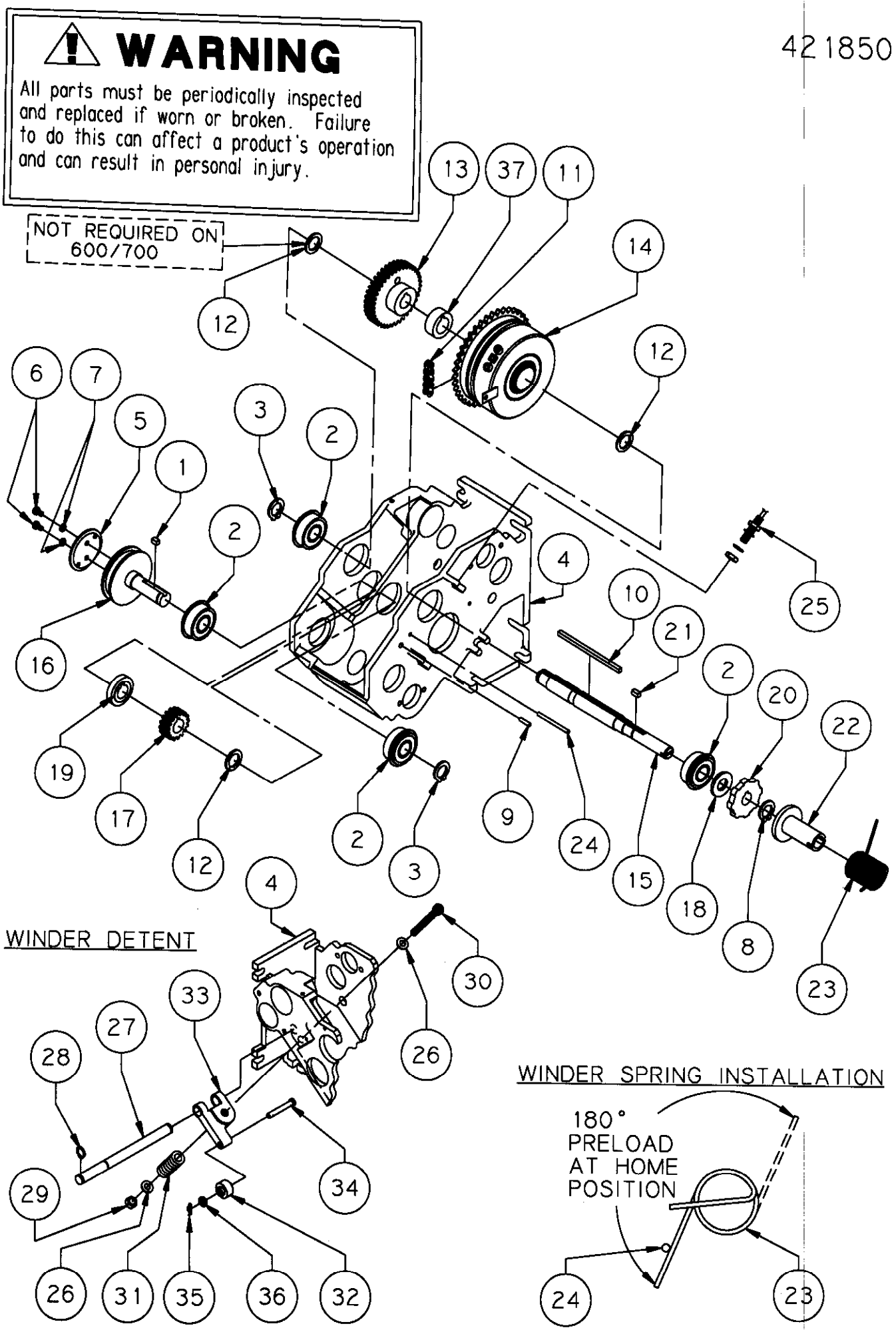
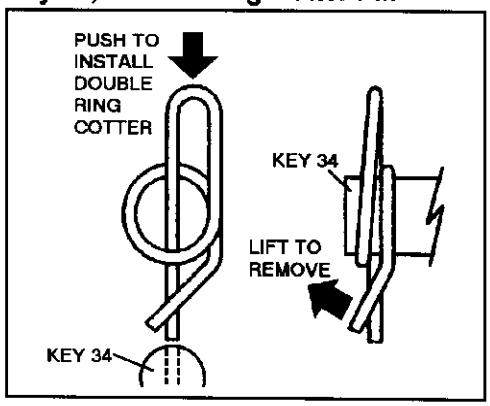


TENSION WINDER ASSEMBLY INFORMATION

Key 35, Double Ring Cotter Pin



PLEASE NOTE:

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SECTION 8

The following options are available to the SureTyer Semi-Automatic machines in a kit form. Options are shown on the following pages:

RECOMMENDED SPARE PARTS, SURETYER SEMI-AUTO, SMALL FRAME

SINGLE PHASE MACHINES (115V)

PART #	QTY	DESCRIPTION
264310	1	BEARING
264311	1	POLY-V-BELT 360J6
264312	1	POLY-V-BELT 430J6
264345	2	KNIFE SPRING
264346	3	SHIM .019 IN.
264444	1	EXTENSION SPRING
264445	1	EXTENSION SPRING
264535	1	BEARING
268893	2	SHIM .004 IN.
269121	1	OUTPUT MODULE
278257	1	CUTTER BLADE
293012	1	FUSE 10A (6FU)
433295	1	FUSE 5A (8, 9 10 FU)
293014	1	FUSE 2A (7FU)
299135	2	15 AMP FUSE (1,2 FU) (115V)
299137	2	FUSE 4A (4,5 FU) (115V)
299243	1	KNIFE ASSEMBLY
420277	3	TRACK SPRING
420551	1	LED RED
420693	1	BELT, DISPENSER BRAKE
421269	1	POLY-V-BELT 410J6
433151	REF	POLY-V-BELT 379J6 (H.S. ONLY)

THREE PHASE MACHINES

PART #	QTY	DESCRIPTION
264310	1	BEARING
264311	1	POLY-V-BELT 360J6
264312	1	POLY-V-BELT 430J6
264345	2	KNIFE SPRING
264346	3	SHIM .019 IN.
264444	1	EXTENSION SPRING
264445	1	EXTENSION SPRING
264535	1	BEARING
268893	2	SHIM .004 IN.
269121	1	OUTPUT MODULE
278257	1	CUTTER BLADE
292477	2	FUSE 3A (4,5 FU)
293012	1	FUSE 10A (6FU)
433295	1	FUSE 5A (8, 9 10 FU)
293014	1	FUSE 2A (7FU)
299243	1	KNIFE ASSEMBLY
420277	3	TRACK SPRING
420551	1	LED RED
420693	1	BELT, DISPENSER BRAKE
421269	1	POLY-V-BELT 410J6
433151	REF	POLY-V-BELT 379J6 (H.S. ONLY)

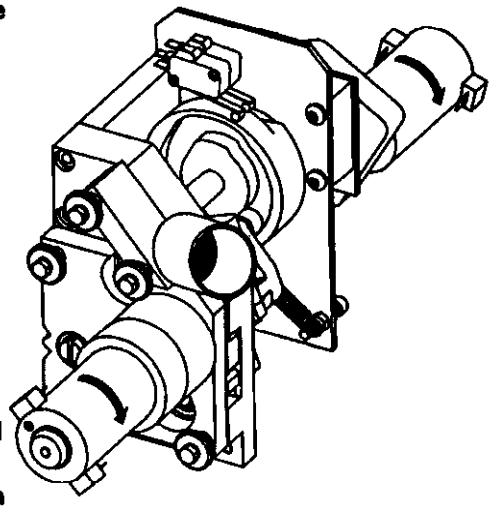
RECOMMENDED SPARE PARTS, SURETYER SEMI-AUTO, LARGE FRAME

PART #	QTY	DESCRIPTION
264310	1	BEARING
264311	1	POLY-V-BELT 360J6
264312	1	POLY-V-BELT 430J6
264345	2	KNIFE SPRING
264346	3	SHIM .019 IN.
264444	1	EXTENSION SPRING
264445	1	EXTENSION SPRING
264535	1	BEARING
268893	2	SHIM .004 IN.
269121	1	OUTPUT MODULE
278257	1	CUTTER BLADE
292477	2	FUSE 3A (4,5 FU)
293012	1	FUSE 10A (6FU)
433295	1	FUSE 5A (8, 9 10 FU)
293014	1	FUSE 2A (7FU)
299243	1	KNIFE ASSEMBLY
420277	3	TRACK SPRING
420551	1	LED RED
420693	1	BELT, DISPENSER BRAKE
421270	1	POLY-V-BELT 710J6

AUTOMATIC CUT-OFF AND RE-FEED DEVICE

PRINCIPLES OF OPERATION

A.C.R. DEVICE



During feed, the lead end of the strap must travel through the strapping head and machine chute and reach the 1LS proximity switch within a controlled time. If the strap does not follow this sequence after completing a successful strapping cycle, the machine logic determines a feeding problem has occurred and the Automatic Cut-off and Re-feed Device engages. The operating steps of the Automatic Cut-off and Re-feed mechanism are:

1. During feed, strap fails to reach proximity switch 1LS in allotted time. Feeding stops and the strapping head indexes to the take-up position.

2. The A.C.R. cam motor energizes cutting the strap off and redirecting the ejection path. The A.C.R. grips the lead end of the remaining strap. The A.C.R. cycle switch then de-activates the cam motor.

3. The strapping head's take-up wheels energize (to remove the cut-off strap from the machine) then de-energize.

4. The head then indexes through Cut-Off to Feed cutting off any strap not removed during the first take-up.

5. The head's take-up wheels energize again (to remove any remaining strap from the head) then de-energize. During this Take-Up the proximity switch senses for a stall of the take-up drive wheels. This is done to be sure that all the strapping is properly ejected from the head. If the proximity switch senses a stall condition, error code 08 generates.

6. The A.C.R. cam motor energizes to engage the take-up pinch roller. When the interval switch activates, the A.C.R. cam motor is de-energized. The A.C.R. drive motor energizes to eject the tail end of the strap from the device.

7. The A.C.R. cam motor energizes to return the cutter and torsion spring gripper to original positions. This action de-activates the interval switch, opens the take-up pinch roller and engages the feed pinch roller.

8. When the interval switch re-activates, the A.C.R. cam motor de-energizes. The A.C.R. drive motor energizes to feed new strap into head. If the accumulator box is empty during the A.C.R. re-feed, error code 19 is generated.

9. The A.C.R. cam motor energizes to de-activate the interval switch causing the A.C.R. drive motor to de-energize. The strapping head's feed wheels energize to fill the chute track. The feed pinch roller opens and the cycle switch de-activates which in turn de-energizes the A.C.R. cam motor.

10 The A.C.R. mechanism should now be in it's original start position and the machine should be ready for its next normal cycle. If the A.C.R. fails to be in the proper position, error code 21 is generated.

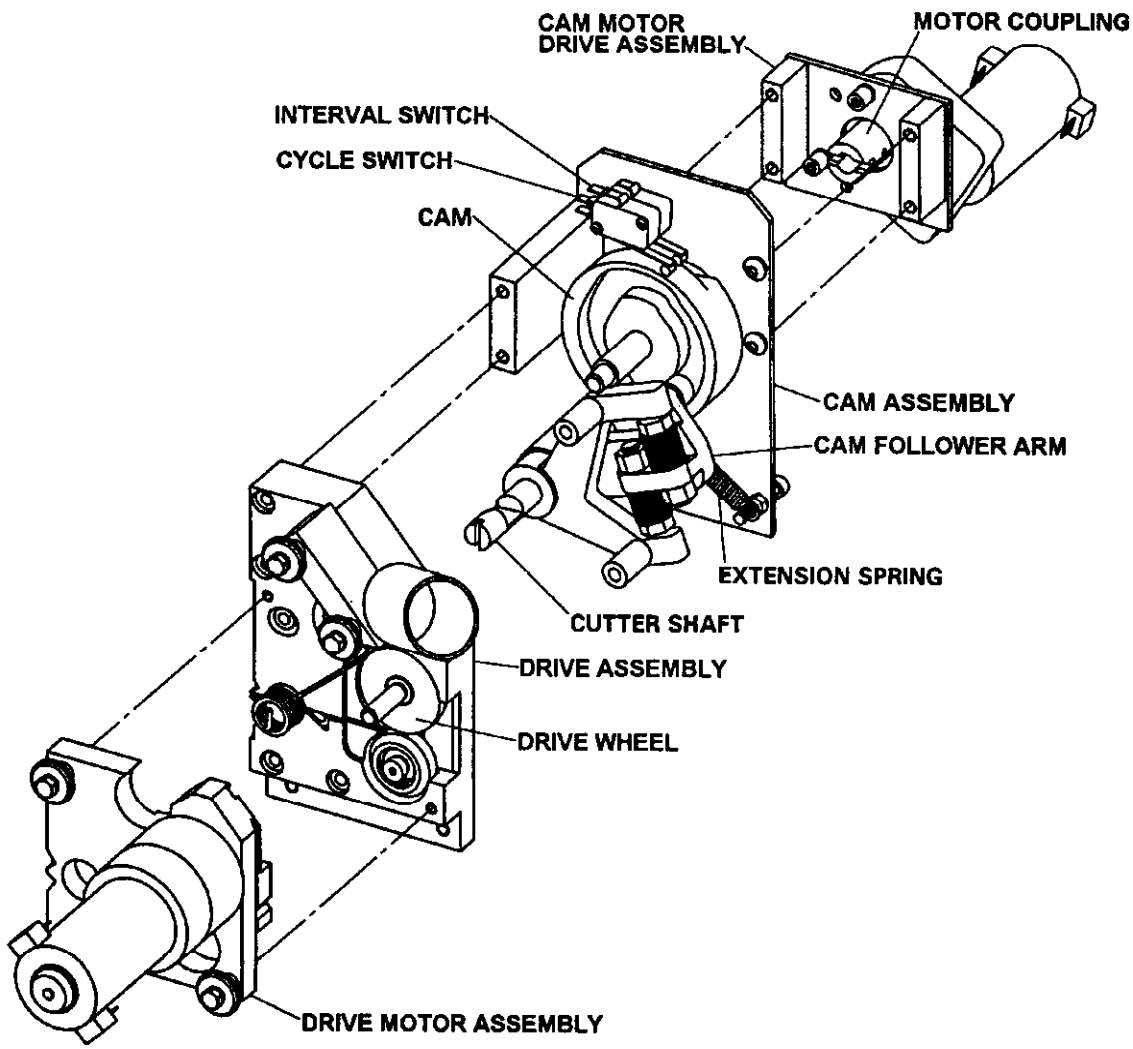
CLEARING THE A.C.R. DEVICE

If a feed failure occurs , the A.C.R. device will clear and reload strap into the head. When a second strap feed failure occurs, one additional A.C.R. attempt is tried. If this second attempt is not successful, an error code 02 is generated.

After a second A.C.R. attempt fails to work the A.C.R. should be manually cleaned out. Begin to clean out the A.C.R. by turning off the machine power. All the strap should be removed from the machine. Remove the four thumbscrews from the front side of the A.C.R. device. The drive motor assembly and discharge tube can now be removed, allowing access to both infeed and exit strap paths. Any strapping, particles, or debris should be cleared from the A.C.R. device using a stiff brush or compressed air. NOTE: Before replacing discharge tube and drive motor assembly, make sure torsion gripper is in the correct operating position as shown.

PART REMOVAL, REPLACEMENT & ADJUSTMENT PROCEDURES

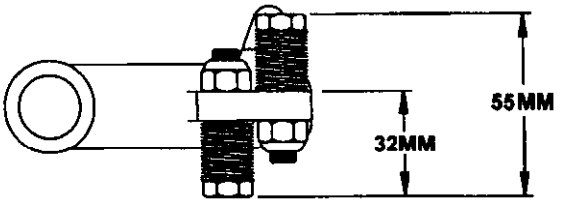
The open design of the A.C.R. allows the unit to be fully disassembled without any specific instructions or special tools. Reassembly of the A.C.R. does require some specific procedures & guidelines to be followed. Use the following information appropriately for reassembling the A.C.R. device.



AUTOMATIC CUT-OFF AND RE-FEED DEVICE, Continued

NOTE: The guidelines below describe the assembly of a A.C.R. unit which is completely disassembled.

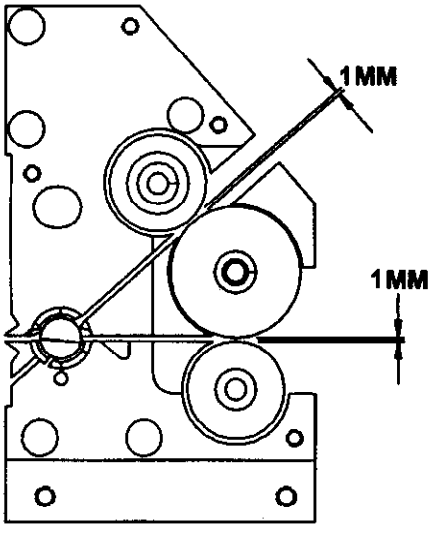
1. The pinch wheel follower arm screws should be initially adjusted to lengths of 32mm and 55mm prior to assembly of the pinch wheel follower.



2. Assemble the unit's basic parts without the drive motor assembly, cam motor or cutter follower arm extension spring attached.
   NOTE: Orient the cutter shaft, with the slot positioned as shown on the previous page when the rear plate is installed.

3. Rotate the cam to the home (start) position. This is the position which starts when the cycle switch is de-activated and ends when the cam contacts the cutter follower arm cam roller.

4. With the cam in this starting position, the feed and take-up pinch rollers should be fully opened. Measure the distance between both rollers. Proper clearance is 1mm+/- 0.1mm. as shown. The roller clearance can be adjusted by changing the pinch wheel follower spring length, previously set at 55mm.

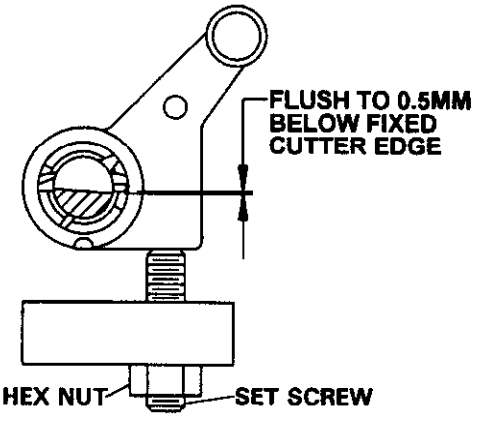


5. Rotate the cam approximately 90° to gain access to the mounting plate spacer screws before installation of the cam motor.

6. The cam motor coupling can be oriented after it is assembled to the cam motor. Insert a flat-blade screwdriver into the coupling slot and rotate as required.

7. After completing the assembly of the A.C.R. rotate the unit to the start position by turning the cam roller by inserting a large flat-blade screwdriver into the cam roller slot.

8. Inspect the A.C.R. to make sure that the cutter edge is located flush to 0.5mm below the stationary cutter (strap path). Adjust the cutter position by loosening the M8 hex nut and turning the cutter's follower arm set screw as shown.



9. This completes the assembly procedure. The A.C.R. unit can now be installed back into the strapping machine.

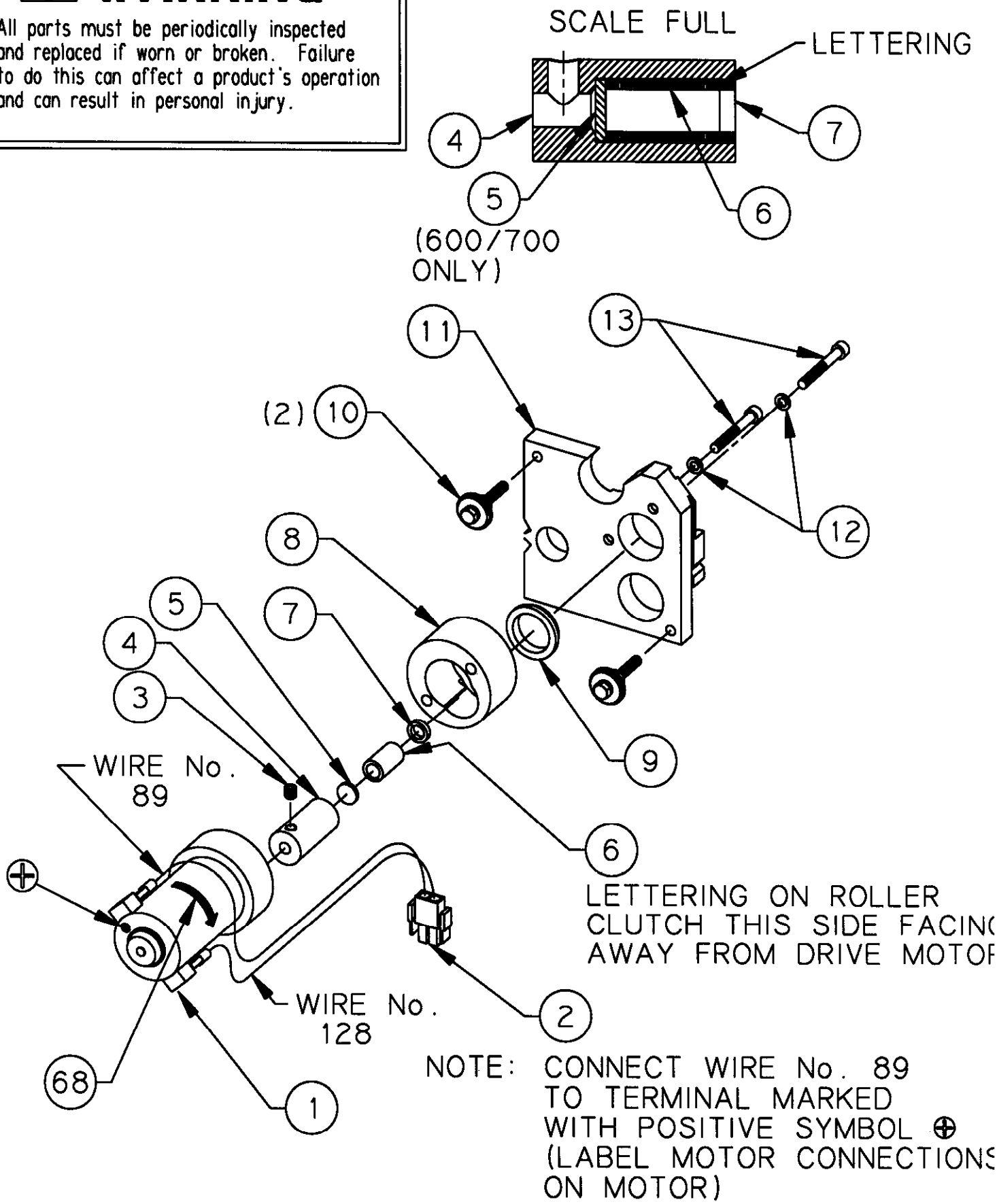
AUTOMATIC CUT-OFF AND REFEED DEVICE 431772-5

ACR 600/700 431700. APPL. ACR 431773 ACR 200 431770
ACR 100 431760

KEY	DESCRIPTION	QTY	PT. NO.	KEY	DESCRIPTION	QTY	PT. NO.
1	DRIVE MOTOR	1	431703	35	M6 x 12 SBHCS	14	165366
2	DRIVE MOTOR HARNESS	1	431751	36	HEAD BRACKET(200/600/700)	1	431726
3	M6 x 6 SSS	1	293310		HEAD BRACKET (100)	1	431771
4	CLUTCH COUPLING (600/700)	1	431728	37	PINCH WHEEL YOKE MACH.	1	431709
	CLUTCH COUPLING (100/200)	1	431761	38	FLANGE BEARING	3	431739
5	EXTRACTION DISC (600/700)	1	431733	39	CAM SHAFT SPACER	1	431717
6	ROLLER CLUTCH	1	431741	40	#10-32 HEX NUT	2	004237
7	BUSHING	1	431718	41	PINCH WHEEL FOLLOWER ARM	1	431710
8	MOTOR PEDESTAL	1	431721	42	M8 HEX LOCKNUT	2	433068
9	PILOT BUSHING	1	431734	43	SPRING BOLT	2	431748
10	DRIVE MOUNTING SCREW	2	431754	44	COMPRESSION SPRING	2	431737
11	COVER PLATE (600/700)	1	431719	45	CUTTER FOLLOWER ARM	1	431704
	COVER PLATE (100)	1	431768	46	CAM FOLLOWER	2	431735
	COVER PLATE (200)	1	431765	47	3mm - 20 ROLL PIN	4	431756
12	#10 LOCKWASHER	7	004238	48	GROOVE PIN 3/16 x 1/2	1	264452
13	#10-32 x 1-1/2 SHCS	2	013566	49	CYCLE L.S. HARNESS	1	431753
14	M6 x 25 SHCS	5	281108	50	INTERVAL L.S. HARNESS	1	431752
15	6mm LOCKWASHER HC	9	010077	51	CAM	1	431707
16	DRIVE WHEEL (600/7000	1	431732	52	CAMSHAFT	1	431711
	DRIVE WHEEL (100/200)	1	431762	53	CUTTER SHAFT (600/700)	1	431706
17	M2.5 x 8 FHSS	3	431746		CUTTER SHAFT (100/200)	1	431767
18	BALL BEARING	1	421210	54	M5 HEX NUT	2	169440
19	Ø10 RET. RING EXT.	1	431747	55	M5 x 30 SHCS	1	433050
20	6mm FLATWASHER	1	280850	56	EXTENSION SPRING	1	431744
21	TUBE MOUNTING SCREW	2	431755	57	M2.5 x 30 SPHS	2	431745
22	DISCHARGE TUBE	1	431713	58	LIMIT SWITCH	2	431742
23	Ø6 x 12 SHSS	2	292450	59	REAR PLATE	1	431714
25	Ø19 RET. RING INT.	2	274937	60	M2.5 HEX NUT	2	431749
26	BALL BEARING	2	274924	61	MOTOR MTG PLATE SPACER	2	431725
27	PINCH WHEEL (600/7000	2	431716	62	#10-32 x 3/8 SHCS	3	004224
	PINCH WHEEL (100/200)	2	431763	63	MOTOR MOUNTING PLATE	1	431722
28	TORSION SPRING	1	431723	64	CAM MOTOR COUPLING	1	431712
29	BLOCK (600/700)	1	431708	65	CAM MOTOR HARNESS	1	431750
	BLOCK (100/200)	1	431769	66	CAM MOTOR	1	431702
30	M8 HEX NUT	1	164953	67	6mm SERRATED LOCKWASHER	12	431757
31	M8 x 30 SHSS	1	431740	68	ROTATION SIGN	2	187584
32	SPACER BLOCK	2	431720	69	GUIDE (600/700)	1	433361
33	FIXED CUTTER (600/700)	1	431705		GUIDE (100/200)	1	431766
	FIXED CUTTER (100/200)	1	431764	70	M3 x 12 SHCS	2	259935
34	4mm - 20 ROLL PIN	1	433108	71	M5 LOCKNUT	1	266059

⚠ WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.



DRIVE MOTOR DETAIL

⚠ WARNING

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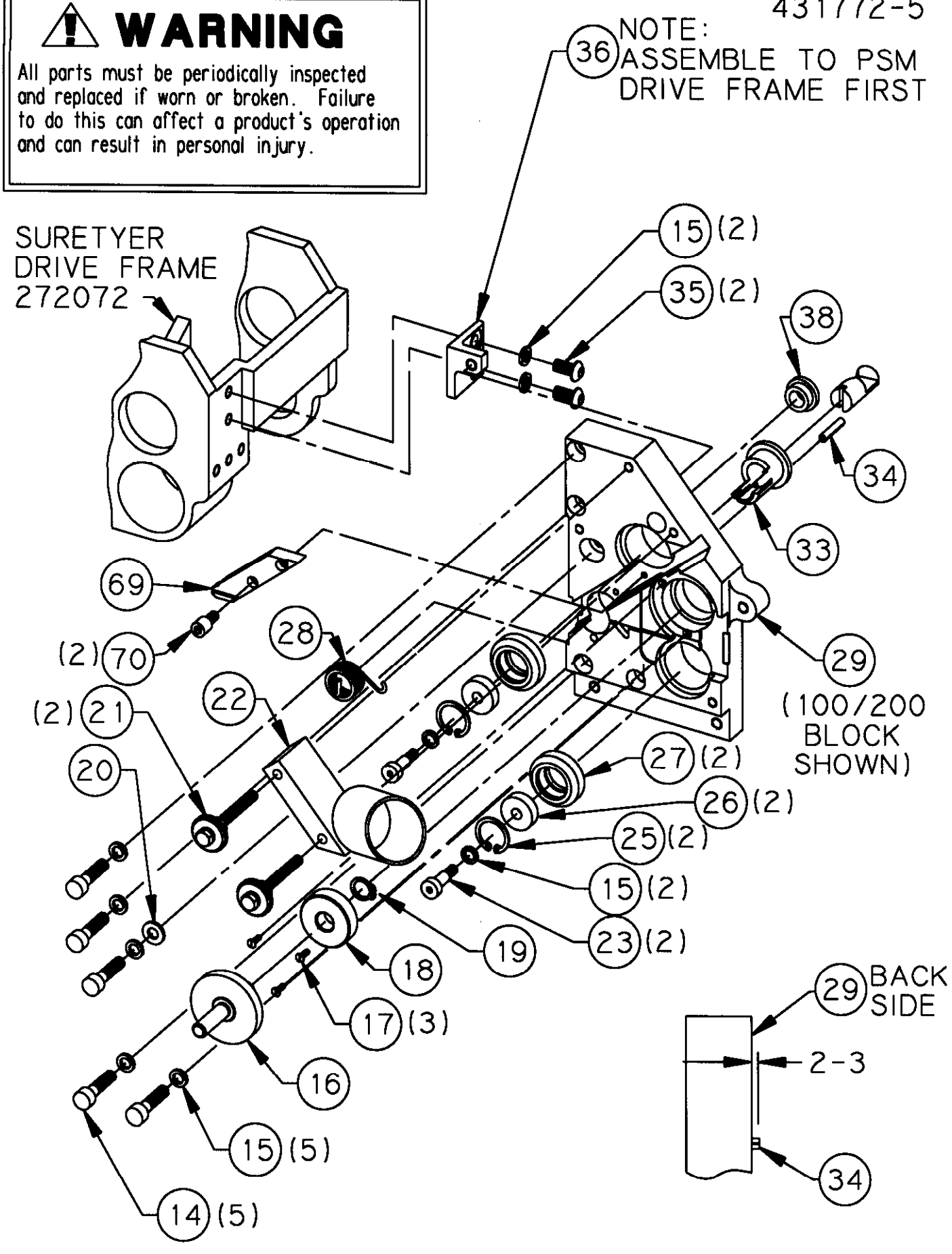

DRIVE DETAIL

⚠ WARNING

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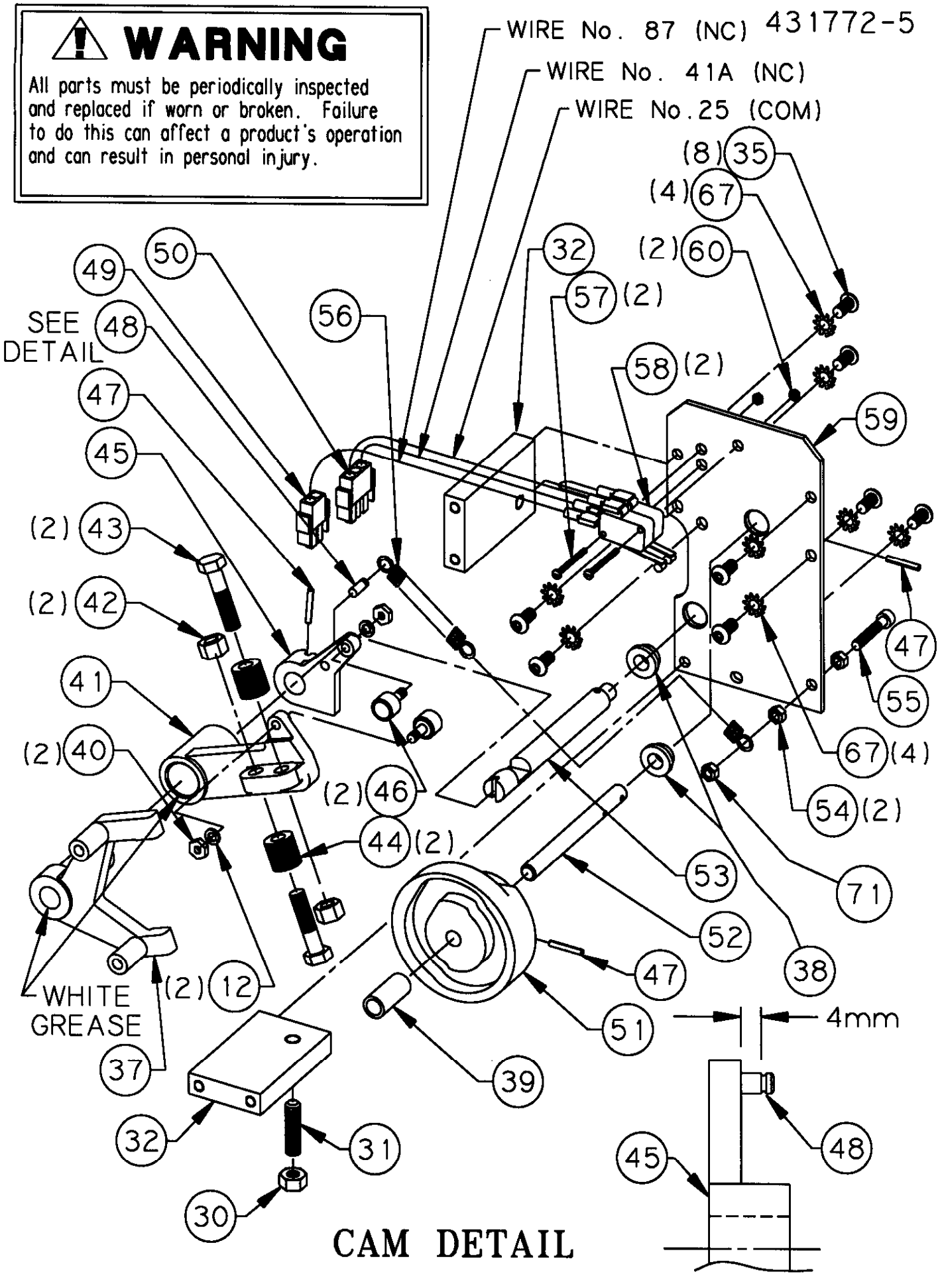
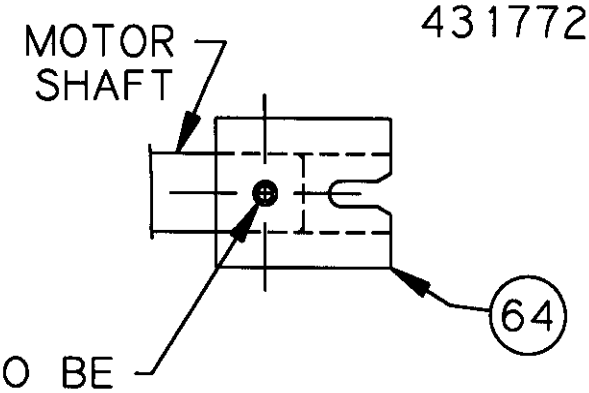


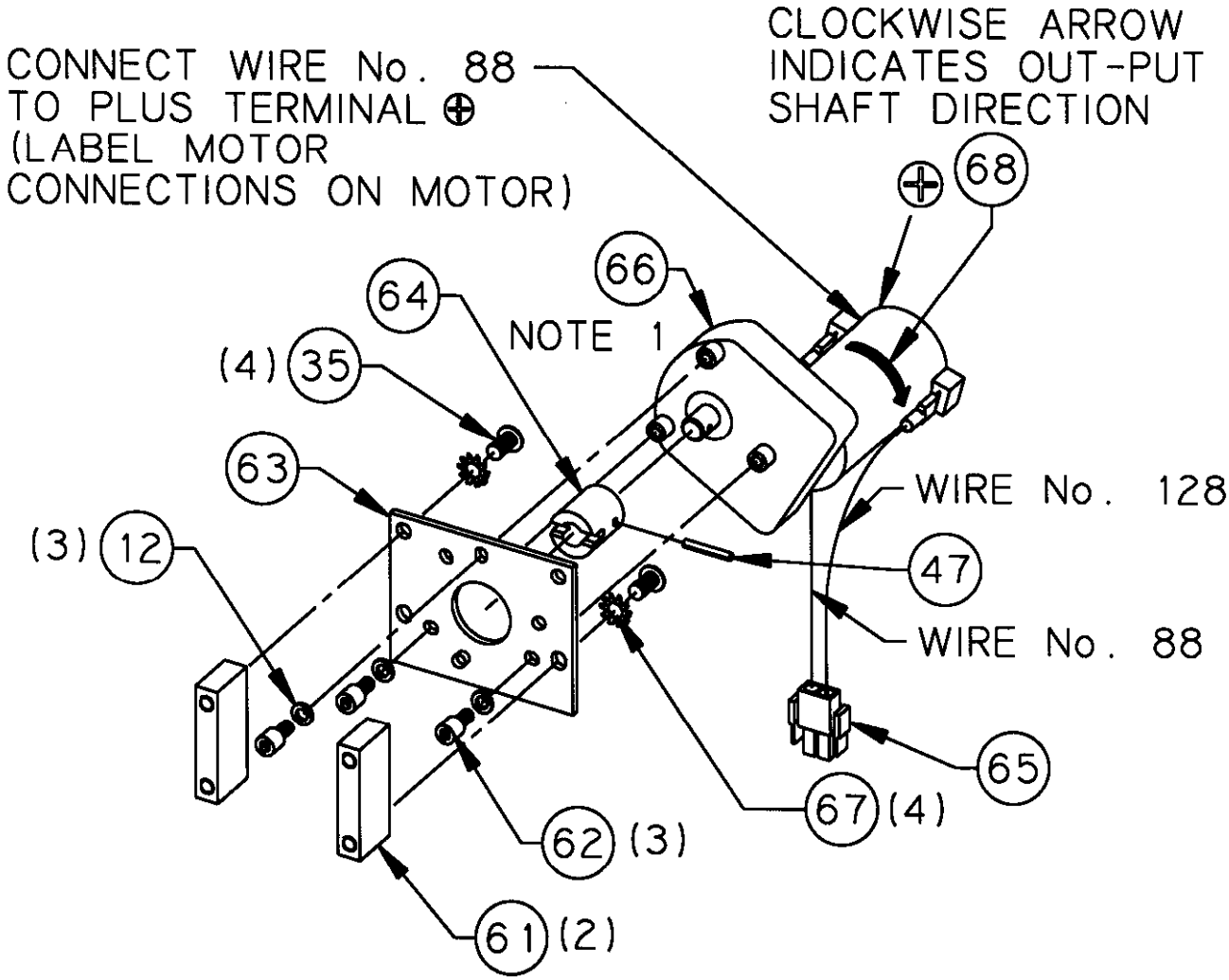
CAM DETAIL

⚠ WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.

431772-5





NOTE:

1. KEY 66 - MAYBE ROTATED TO ACCOMODATE VARIOUS APPLICATION.
2. KEY 62 - SECURE WITH 242 BLUE LOCTITE.

CAM MOTOR DETAIL

SINGLE COMPRESSION, PNEUMATIC ADJUSTMENTS

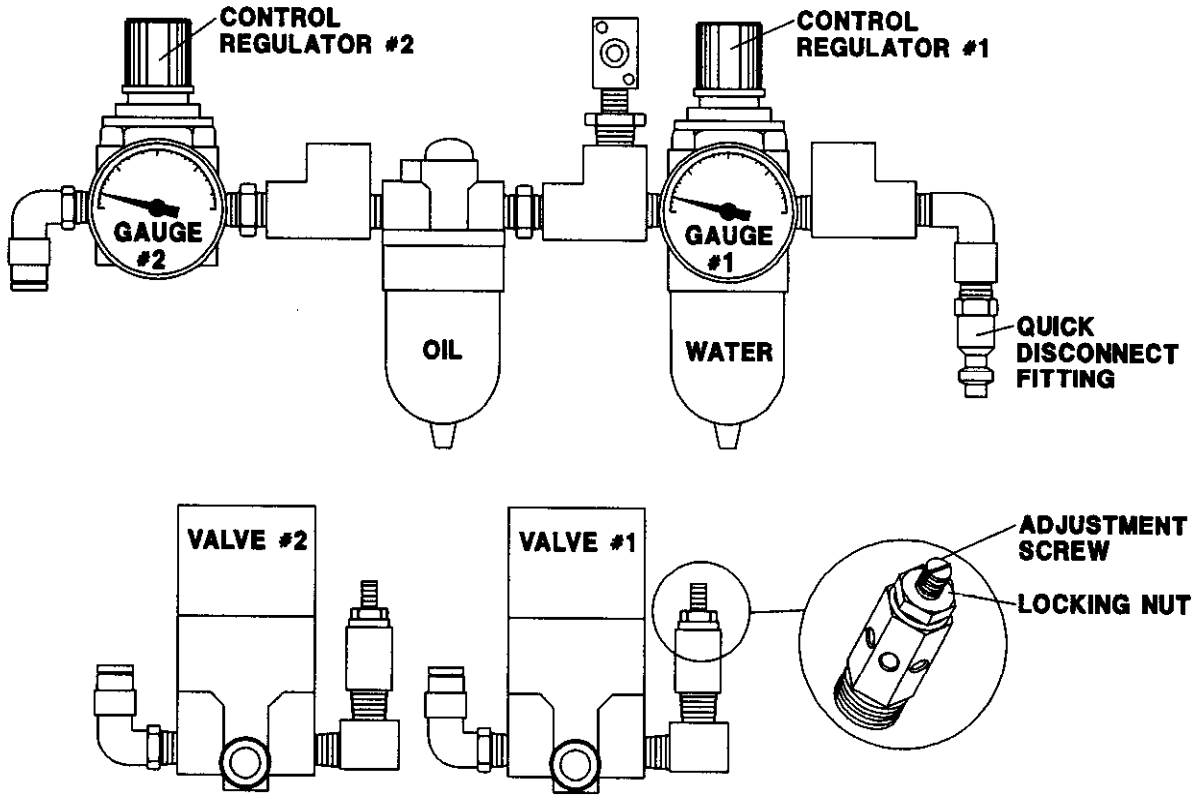
COMPRESSION FORCE

Open the main regulator valve (#1) by turning it counterclockwise until the pressure gauge reads 60 psi. Then, open regulator valve (#2) until the pressure gauge reads 40 psi. Note that regulator #1 must be a minimum of 10 psi greater than the setting of regulator #2. Adjust regulator #1 to obtain the desired compression force.

Activate manual override on top of valve #1 to bring compression bar down on test package. Adjust Regulator #1 to obtain desired compression.

COMPRESSION BAR SPEED

The rate of movement of the compression bar can be controlled by adjusting the speed control mufflers on the control valves. To reduce the bar "slam", turn the adjusting screw in on the first (down) control valve. Upward speed of the compression bar can be increased by turning out the flow control on the second control valve. When all valves have been adjusted to provide the desired motion, lock them in place. The previously described components can be seen in the following view.



NOTE: CHECK OIL & WATER LEVELS ONCE PER WEEK.

ELECTRICAL

Adjust the up/down potentiometers, P8 and P9, to match the motion of the compression bar with the rate of production.

P8, COMPRESSION BAR DOWN CONTROL
Compression bar down 0.25 to 3.0 seconds. This timer delays the strapping cycle to allow the compression bar to contact the package. A clockwise movement of P8 increases the time duration.

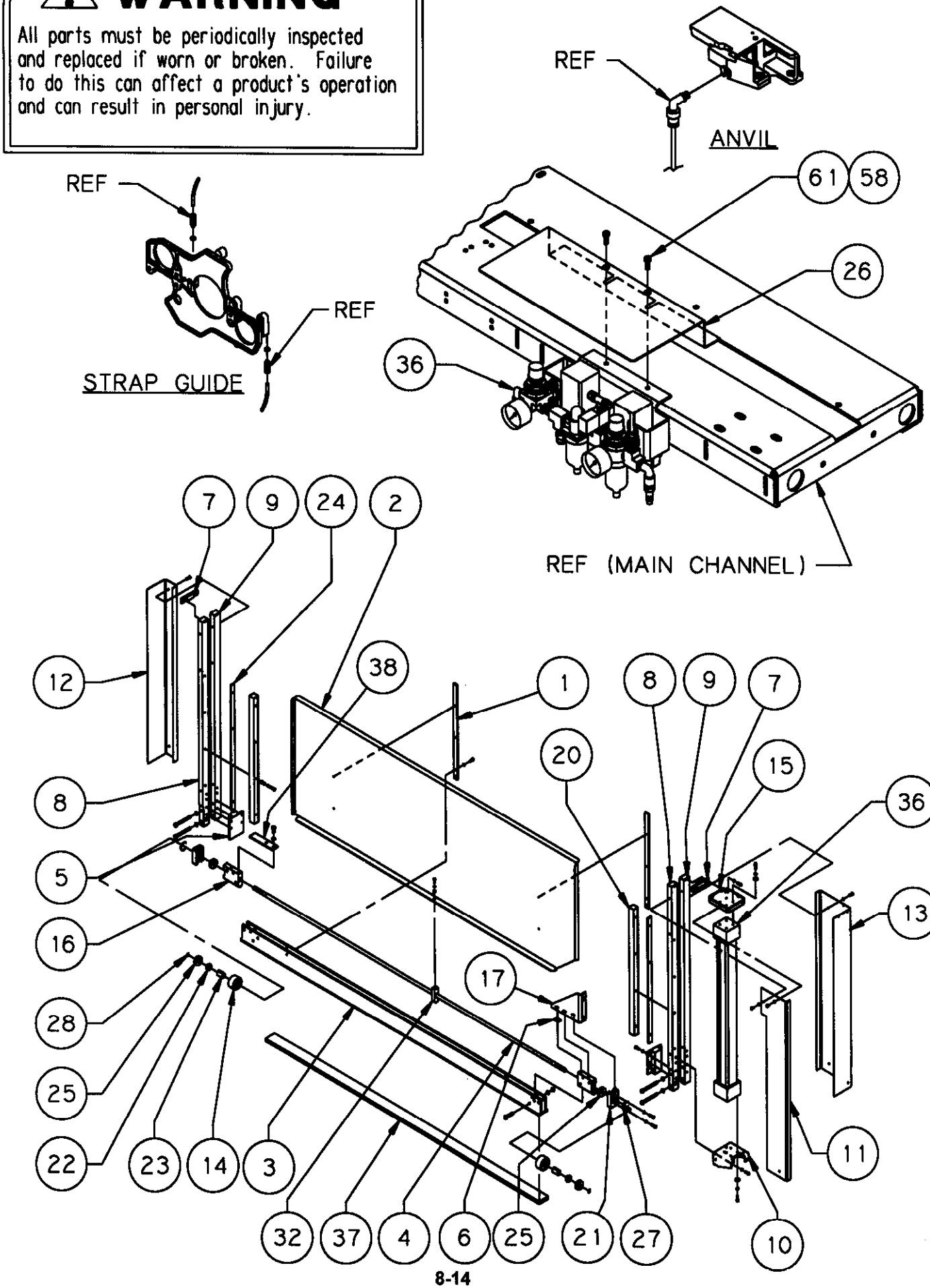
P9, COMPRESSION BAR UP CONTROL
Compression bar up 0.25 to 3.0 seconds. This timer controls how high the compression bar rises from the package before it stops. A clockwise movement of P9 increases the time duration.

SINGLE COMPRESSION ASSEMBLIES

CHUTE SIZE BILL OF MATERIAL		17,28 X 20 421042		33 X 36 421043		48 X 24 421044		60 X 20 421045	
KEY	DESCRIPTION	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.
1	GUARD SUPPORT	2	292443	N/A		2	292443		
2	COMPESSION GUARD	1	292442	N/A		2	292441		
3	COMPRESSION BAR	1	420718			1	420993		
4	GEAR SHAFT	1	420994			1	420995		
5	GUIDE SUPPORT	2	421863						
6	SHIM	1	265949 (CUT TO SUIT)						
7	GUIDE BRACE	2	420726						
8	FRONT GUIDE	2	420554	REF	420557	2	420727	2	420554
9	REAR GUIDE	2	421864	2	421865	2	421866	2	421864
10	CYLINDER BRACKET	1	420549						
11	REAR CYLINDER CVR.	1	259989	N/A		1	420735	1	420719
12	RACK COVER	1	420725	1	420724	1	420734	1	420725
13	FRONT CYLINDER CVR	1	420720	1	420723	1	420736	1	420720
14	GEAR	2	281992						
15	TOP CYLINDER BKT	1	420722						
16	INSERT	2	281986						
17	CYLINDER BRACKET	1	281985						
18									
20	GEAR RACK	2	281982	2	271908	2	293135	2	281982
21	BEARING COVER	2	281981						
22	GEAR SPACER	4	293312						
23	BUSHING	2	281978						
24	RACK SHIM	2	281977	2	271913	2	281977	2	281977
25	BEARING	4	281946						
26	FLR COVER	N/A				421810			
27	INTERNAL RET RING	2	009175						
28	RETAINING RING	2	264433						
29	INFO SIGN	1	(REF SIGN KITS)	286386		(NOT SHOWN)			
30									
31									
32	SHAFT GUIDE	N/A				1	292508		
33	COMPRESSION KEY	2	293162						
34									
35									
36	PNEUMATIC ASSY	1	421206	1	421207	1	421205	1	421206
37	CLAMP PAD	1	278003	1	272597	1	265983		
38	GEAR GUARD	N/A		1	293801	N/A			

⚠ WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.



SINGLE COMPRESSION ASSEMBLIES

CHUTE SIZE BILL OF MATERIAL		17,28 X 20 421042		33 X 36 421043		48 X 24 421044		60 X 20 421045	
KEY	DESCRIPTION	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.
51									
52									
53									
54	M8 X 20 HHCS	4	252261						
55	M8 NUT	6	164953						
56	M8 LOCKWASHER	14	162381						
57	M8 FLATWASHER	4	251266						
58	M6 LOCKWASHER	46	010077						
59	M6 FLATWASHER	10	262617						
60									
61	M6 X 16 SHCS	34	165438						
62	M6 X 40 SHCS	8	162406						
63									
64	M6 X 20 SHCS	8	010037						
65	M5 X 12 FL HD SHCS	4	272418						
66	M8 X 40 HHCS	6	164957						
67									
68	M8 X 80 HHCS	4	299008						
69									
70	1/4-20 X 3/4 SHCS	10	009041						
71	1/4 LOCKWASHER	10	002187						
72	1/4 FLATWASHER	8	008428						
73	M6 X 25 SHCS	4	281108						
74									
75									

⚠ WARNING

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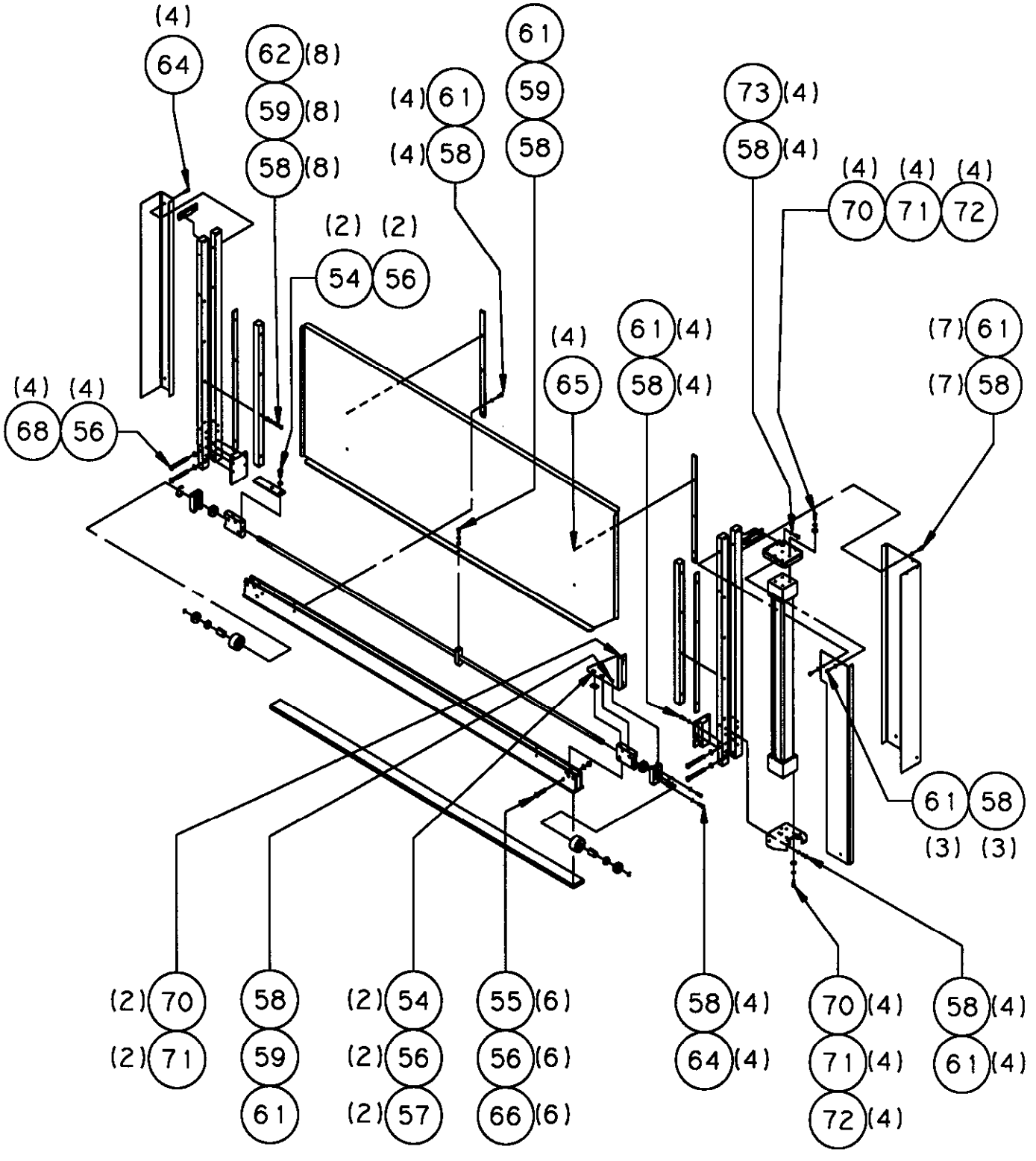
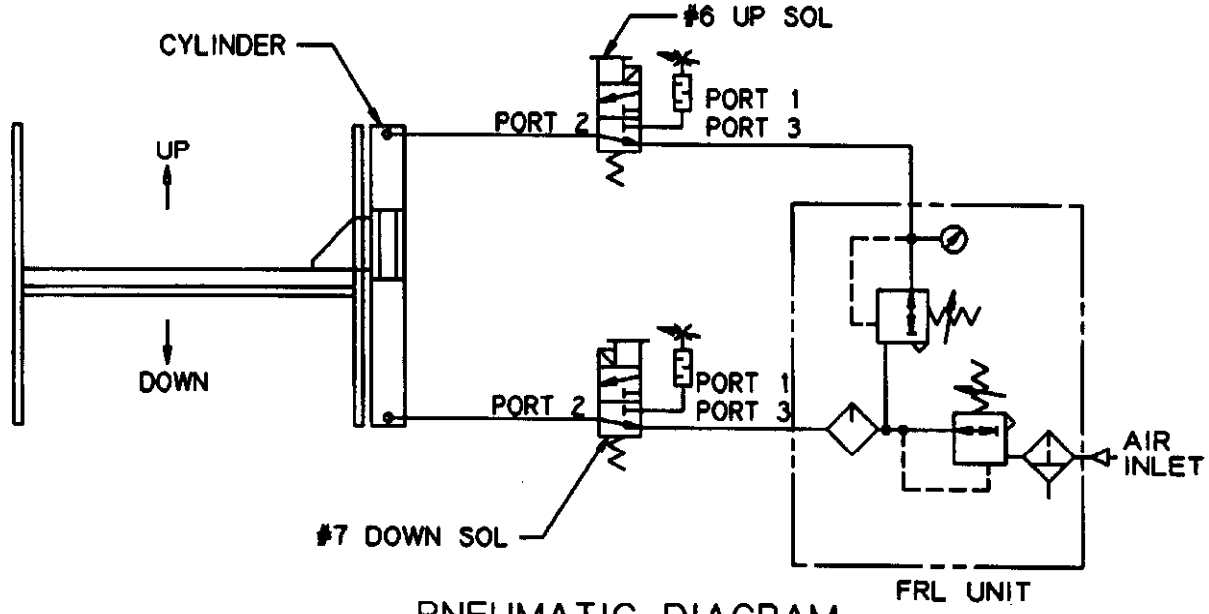


SINGLE COMPRESSION PNEUMATIC ASSEMBLY

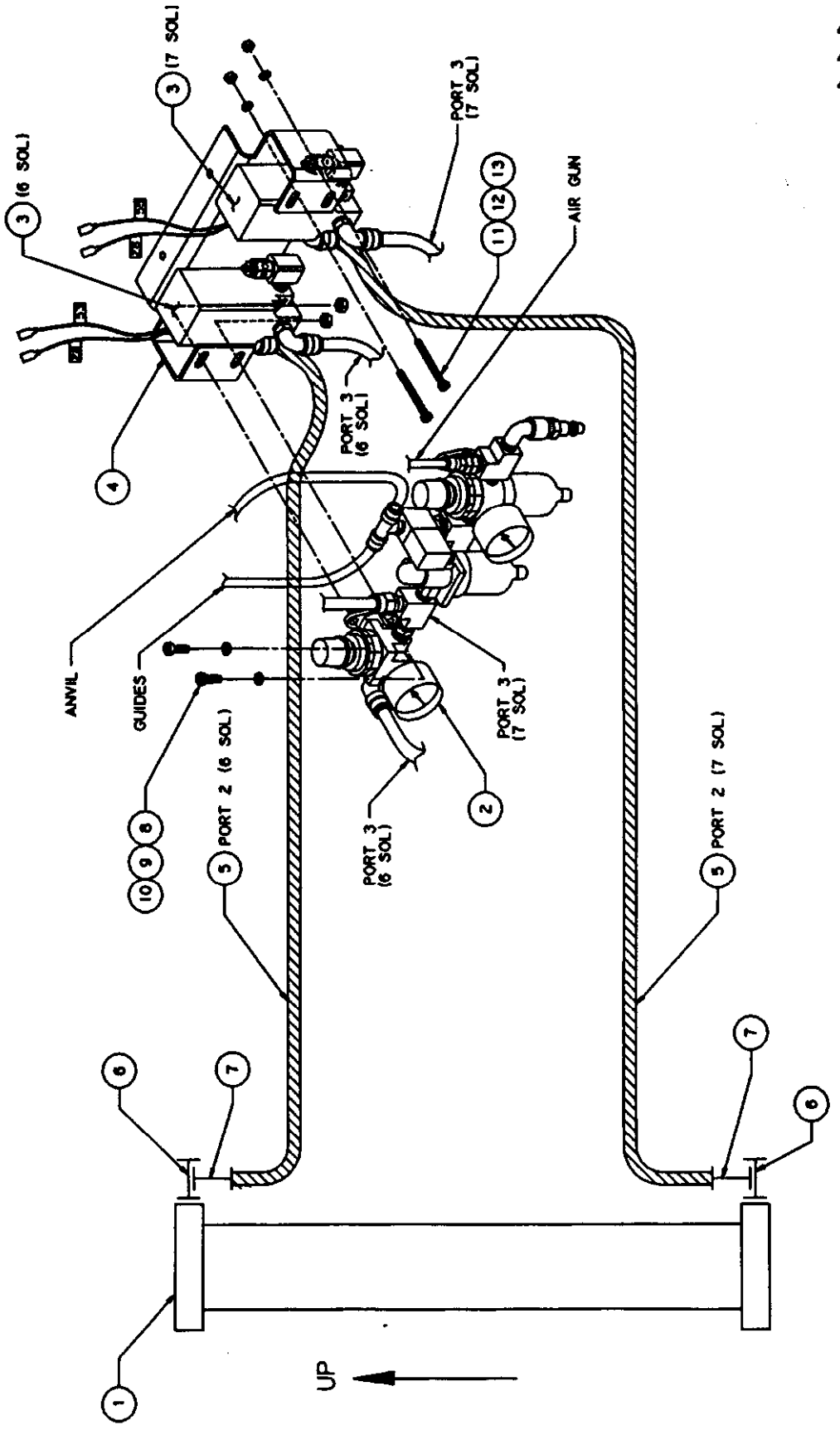
421205-4
421206-4
421207-4

KEY #	QTY	PART #	DESCRIPTION
1	1	420728	CYLINDER 24"
		420729	CYLINDER 20"
		420730	CYLINDER 36"
2	1	421202	FLR ASSY
3	2	421203	VALVE ASSY
4	1	420997	FLR MOUNT
5	14'	265994	PLASTIC TUBING
6	2	421629	STUD MANIFOLD W/BANJO
7	2	421630	BANJO
8	4	165438	M6 X 16 SHCS
9	4	010077	M6 LOCKWASHER-HC
10	4	005465	M6 HEX NUT
11	4	010072	M5 X 50 SHCS
12	4	010076	M5 LOCKWASHER-ZINC
13	4	169440	M5 HEX NUT-ZINC



PNEUMATIC DIAGRAM

421205-4
421206-4
421207-4



SINGLE COMPRESSION FILTER-LUBRICATOR-REGULATOR ASSEMBLY

KEY	DESCRIPTION	QTY	PT. NO.
1	1/4" MALE PLUG OBAC	1	421577
2	1/4 STRT ELB CAMOZZI	1	177619
3	1/4" STREET TEE PARKER	3	421578
4	1/4" FILT/REG WILKERSON	1	421579
5	1/4" TO 1/8" REDUCER	1	177641
6	1/8" HEX NIP. CAMOZZI	1	293761
7	1/8" VAL. MAC	1	299766
8	1/8" TO 1/8" TEE CAMOZZI	1	421580
9	AIR GUN OBAC AK 13	1	280798
10	FLEX COIL POLYURETH. HOSE	1	421582
11	POLYETHYLENE TUBING	20FT	299769
12	"Y" FITTING CAMOZZI	1	421583
13	STRAIGHT CAMOZZI (NOTE 1)	REF	421584
14	SWIVEL ELBOW W/GASKET	1	299770
15	1/8" MTG. BRKT WILKERSON	2	421585
16	GUAGE WILKERSON	2	421591
17	2 PIN PLUG	1	420422
18	PIN CONTACT	2	292942
19			
20	1/4" REGULATOR WILKERSON	1	421586
21	1/4" LUBRICATOR WILKERSON	1	421587
22	1/4" HEX NIPPLE CAMOZZI	2	421588
23	1/4" NPT TO 3/8" TUBE	1	278522
24	1/4" NPT TO 3/8" TUBE	1	278525

NOTE:
1) KEY 13 SUPPLIED WITH HEAD

⚠ WARNING

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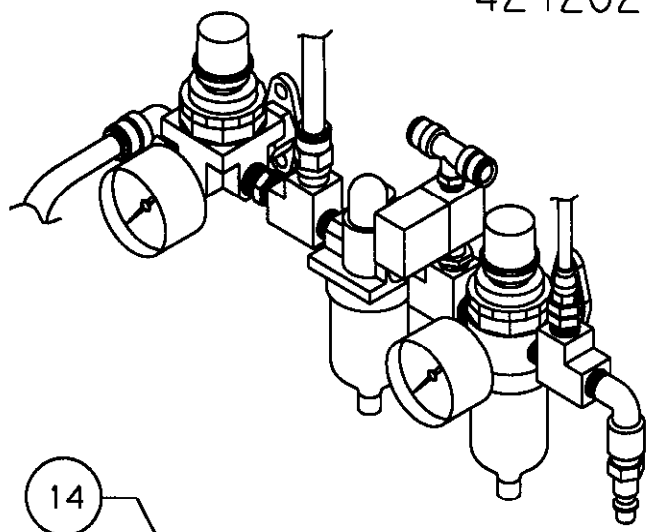
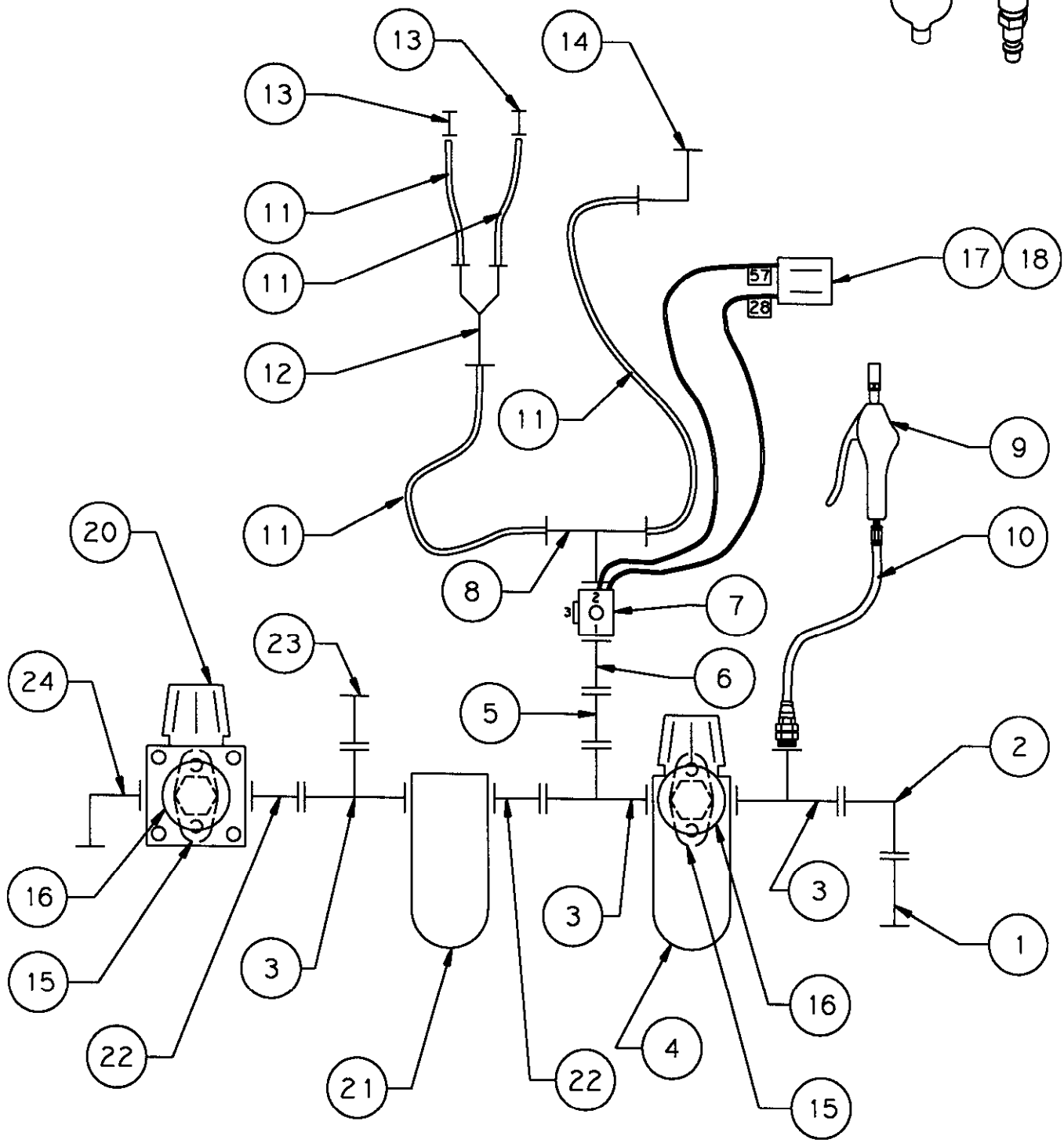
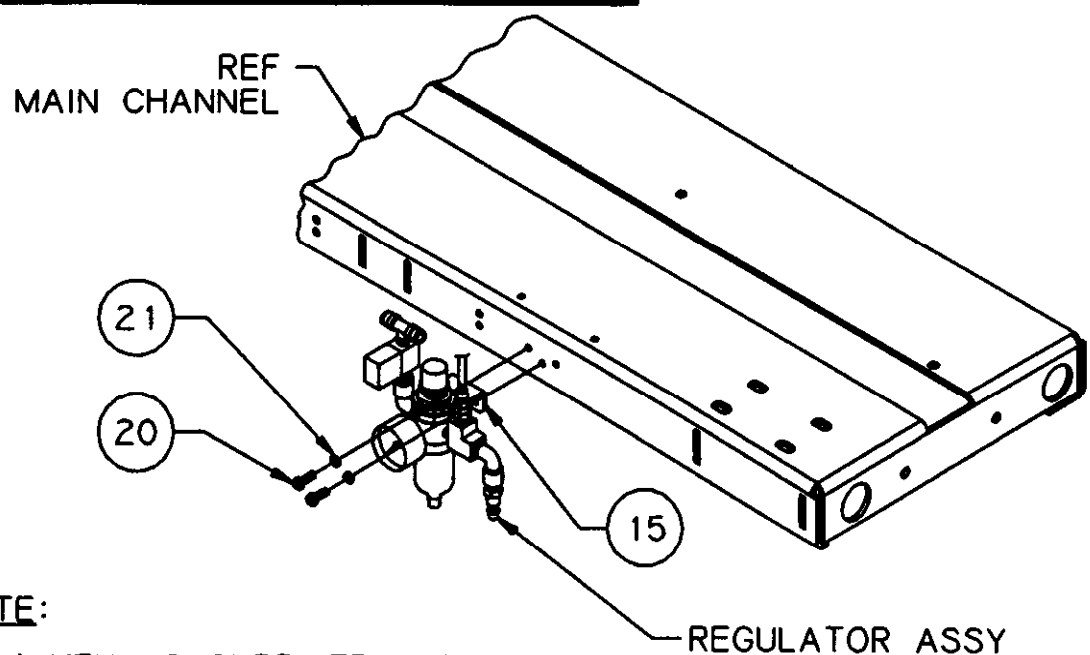




AIR KIT OPTION
WITHOUT COMPRESSION

KEY	DESCRIPTION	QTY	PT. NO.
1	1/4" MALE PLUG OBAC	1	421577
2	1/4" STREET ELBOW CAM.	2	177619
3	1/4" STREET TEE PARKER	1	421578
4	1/4" FILTER/REG WILKERSON	1	421579
5	1/4" TO 1/8" REDUCER CAM	1	177641
6	1/8" HEX NIPPLE CAMOZZI	1	293761
7	1/8" VALVE MAC	1	299766
8	1/8" TO 1/8" TEE CAMOZZI	1	421580
9	AIR GUN OBAC AK13	1	280798
10	FLEX COIL POLYURETH. HOSE	1	421582
11	POLYETHYLENE TUBING.	20FT	299769
12	"Y" FITTING CAMOZZI	1	421583
13	STRAIGHT CAMOZZI NOTE 1	REF	421584
14	SWIVEL ELBOW W/GASKET	1	299770
15	MTG. BRKT WILKERSON	1	421855
16	GUAGE WILKERSON	1	421591
17	2 PIN PLUG	1	420422
18	PIN CONTACT	2	292942
19			
20	M6 X 16 SHCS NOTE 2	REF	165438
21	6MM LOCKWASHER NOTE 2	REF	010077
22	1/4 PLUG	1	293766



NOTE:

1) KEY 13 SUPPLIED WITH HEAD

2) KEY 20, 21 SUPPLIED AT ASSY

⚠ WARNING

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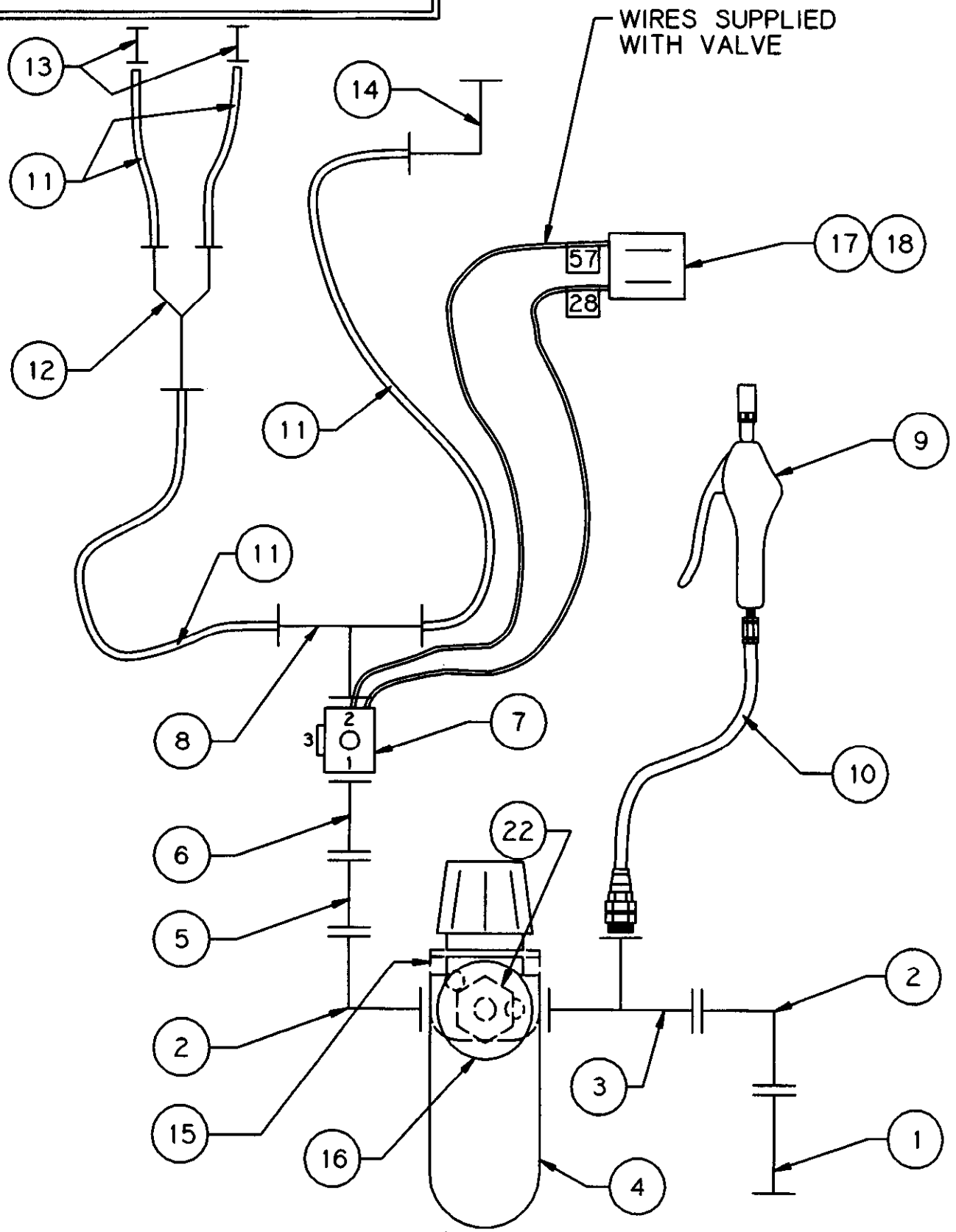


SMALL FRAME ROLLER TABLE TOPS

421515-5

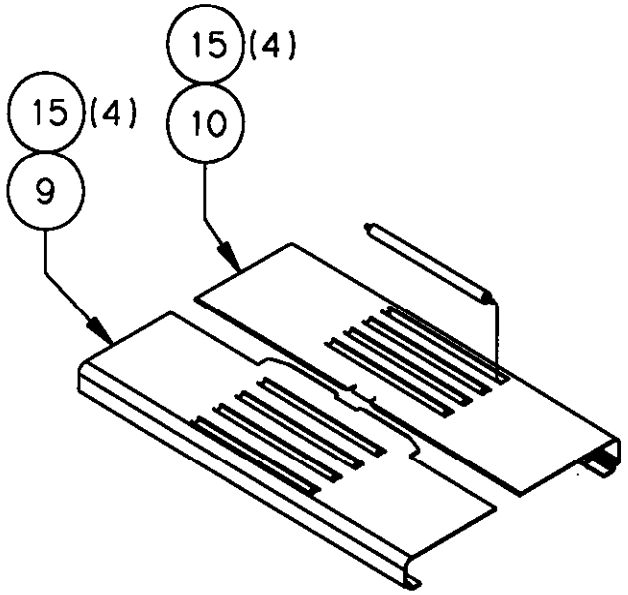
CHUTE SIZE		17 X 20		28 X 20		33 X 36	
BILL OF MATERIAL		421518-1		421522-1		421526-1	
BILL OF MATERIAL S/COMP		421519-1		421523-1		421527-1	
KEY	DESCRIPTION	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.
9	ENTRY	1	280780	1	280782	1	280784
		-1	421350	-1	421363	-1	421367
10	EXIT	1	280781			1	280785
		-1	421351			-1	421368
10	EXIT S/COMP			1	280783		
				-1	421352		
15	ROLLER 14"			8	280797		

LARGE FRAME ROLLER TABLE TOPS

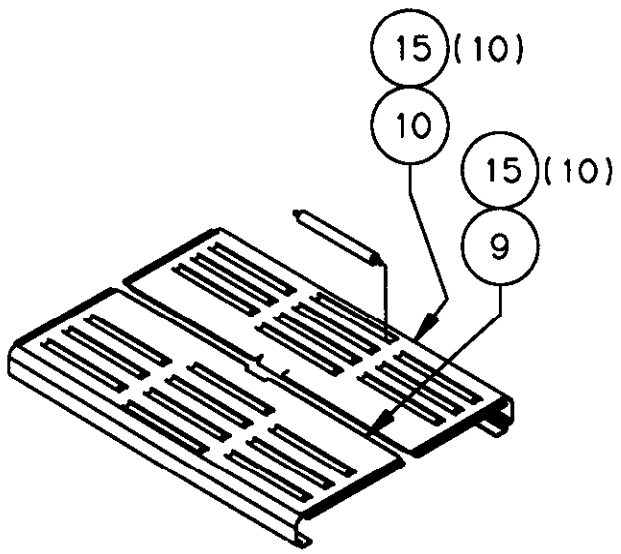
CHUTE SIZE		48 x 24		48 x 48		60 x 20	
BILL OF MATERIAL				421530-1			
BILL OF MATERIAL S/COMP				421530-1			
KEY	DESCRIPTION	QTY	PT. NO.	QTY	PT. NO.	QTY	PT. NO.
9	CENTER ENTRY			1	280786		
				-1	421376		
10	CENTER EXIT			1	280787		
				-1	421380		
15	ROLLER 9"			20	280796		

NOTE:
NEGITIVE QTY'S ARE REFERENCE FOR STOCK DISPOSITION ONLY.

ALL PARTS ARE APPLICABLE WITH OR WITHOUT SINGLE COMPRESSION UNLESS OTHERWISE SPECIFIED.



SMALL FRAME



LARGE FRAME

⚠ WARNING

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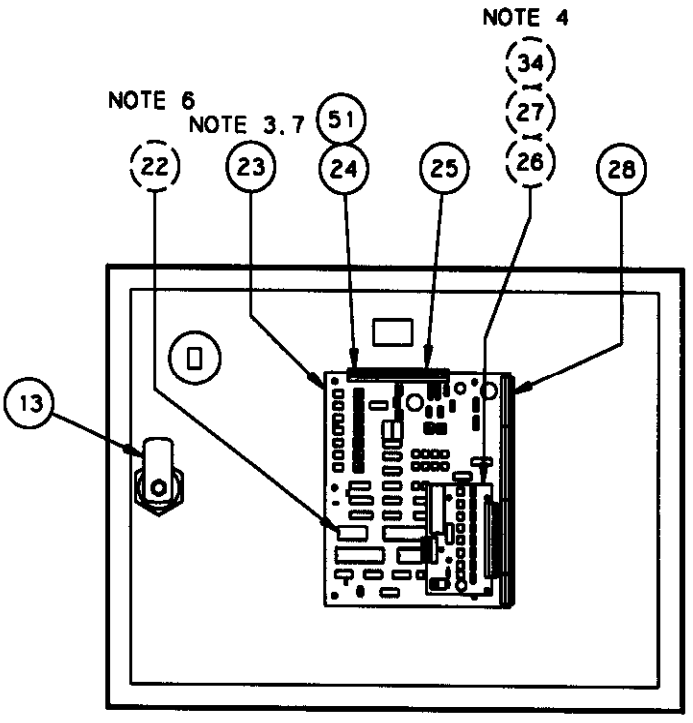
OPTIONAL ROLLER TABLE TOPS

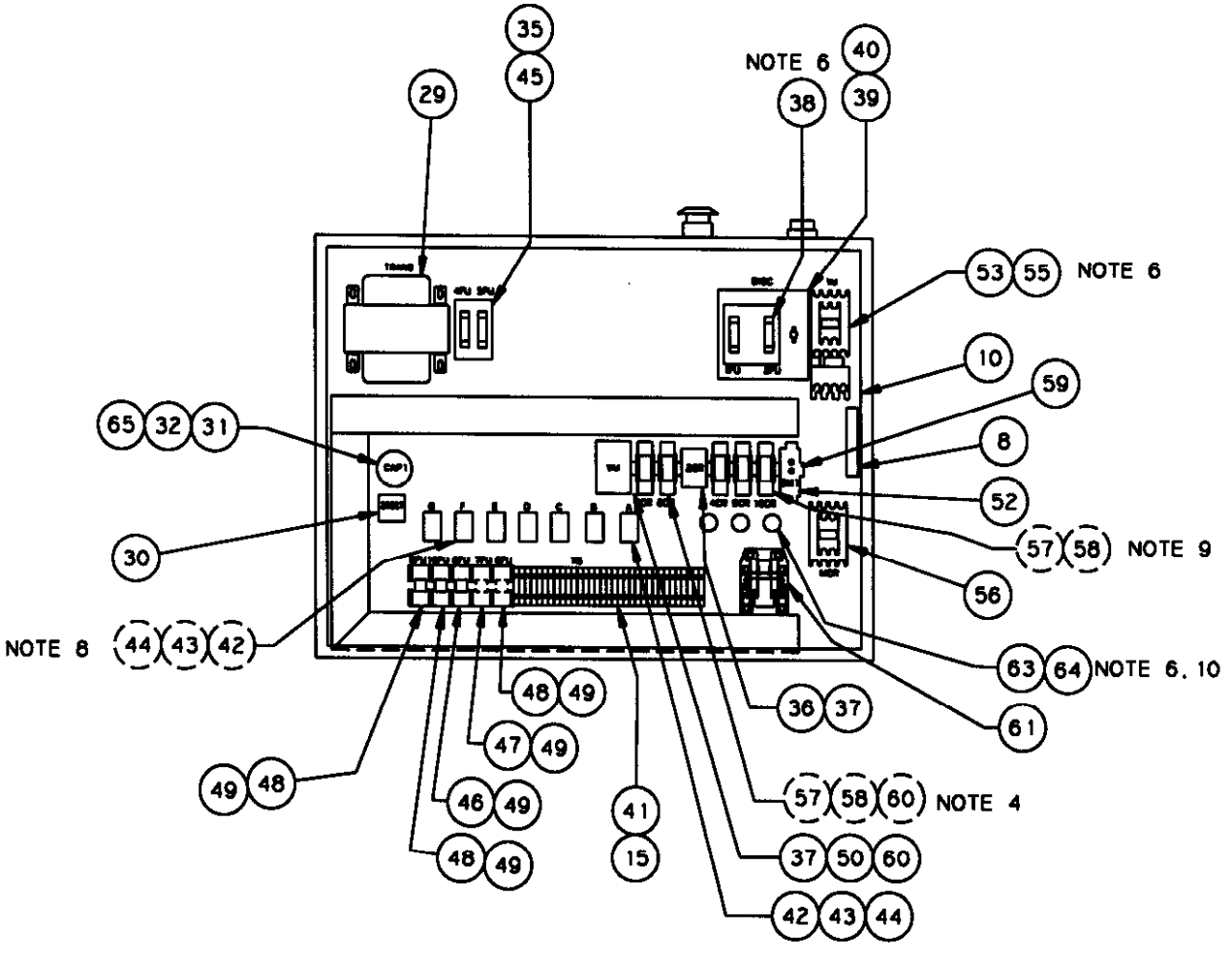
CONTROL PANEL ASSEMBLY
115V 60HZ 1 PHASE
SEMI-AUTOMATIC

420700-19

KEY	QTY	PART NO	DESCRIPTION
1	1	420386	ENCLOSURE
2	1	278021	BEZEL AND FILTER
3	1	293340	DISCONNECT HANDLE (RED/YEL)
6	1	293338	COUNTER (7 DIGET NON-RESETTABLE)
7	2	293787	M3 X 12 SFHCS
8	1	293923	GROUND BUSS BAR
9	1	420387	COVER
10	1	420388	MTG PLATE
11	1	010028	M5 X 12 SHCS
12	1	010076	5MM LOCKWASHER
13	1	420385	LATCH
14	1	293351	PUSH BUTTON (1 N.O.) CYCLE BLACK
15	A/R	280928	DIN RAIL
16	1	293352	LEGEND PLATE (MANUAL CYCLE)
17	1	169440	M5 HEX NUT
18	1	431798	TRANSFORMER
19	1	420550	ILL. P.B. SWITCH (RED 3 POS)
20	1	292819	LEGEND PLATE (STOP START)
21	REF	420551	LED-RED
22	REF	293960	PROM CHIP CHART-(SELECT FROM CHART)
23	1	293543	P.C. BOARD ASSEM.
24	2	293363	TERMINAL BLOCK (5 POS)
25	3	293361	TERMINAL BLOCK (15 POS)
26	REF	292899	EXPANDER BOARD ASSEM.
27	REF	278826	RIBBON CABLE ASSEM.
28	1	293362	TERMINAL BLOCK (10 POS)
29	1	264808	TRANSFORMER (115/230V 60HZ)
30	1	292824	BRIDGE RECTIFIER (40A 800V)
31	1	420052	CAPACITOR (10,000 UF 50V)
32	1	292818	CAPACITOR BRACKET
33	A/R	420138	TORQUE SEAL
34	REF	269100	STANDOFF-PCB
35	1	293607	FUSE BLOCK (HIGH VOLTAGE)
36	1	292835	RELAY 2CR 'AB'
37	2	421870	RAIL SOCKET
38	2	299135	FUSE 15A BUSSMAN LPJ15 (115V)
39	1	299134	FUSED DISCONNECT SWITCH
40	1	293356	DISCONNECT CONNECTING ROD
41	A/R	292831	TERMINAL BLOCK (CHANNEL MTG.)
42	7	293364	CONNECTOR-CAP (15 POS)
43	A/R	293365	CONTACT-SOCKET
44	7	293366	KEYING PLUG
45	2	299137	FUSE 4A (4FU 5FU) (115V)
46	1	293012	FUSE 10A (6FU)
47	1	293014	FUSE 2A (7FU)
48	3	433295	FUSE 3.2A (8FU, 9FU, 10FU)
49	5	292829	FUSE TERMINAL BLOCK
50	1	431795	VOLTAGE SENSING RELAY ASSY
51	2	420456	100K 1/4W RESISTOR
52	1	269121	OUTPUT MODULE
53	1	299133	AC CONTACTOR (24 VAC 60HZ COIL)
54	1		
55	1	299131	OVERLOAD RELAY (115V)
56	1	293602	RELAY (60 HZ. COIL)
57	REF	272486	RELAY 4CR, 7CR, 8CR
58	REF	272487	SOCKET
59	1	292837	DIN RAIL
60	REF	431806	RESISTOR 43 OHMS 1/2 W
61	1	431796	RELAY
62	1	431799	CABLE ASSY
63	1	264896	CABLE ASSY (115V)
64	1	281630	PLUG (115V)
65	1	420807	1.2K 2W RESISTOR
66	2	262765	3MM EXT LOCKWASHER
67	2	174364	M3 HEX NUT
68	3	420055	RECTIFIER
69	2	010037	M6 X 20 SHCS
70	2	262617	6MM FLATWASHER
71	2	010077	6MM LOCKWASHER
72	2	005465	6MM HEXNUT
73	REF	420535	FRAME WELDMENT



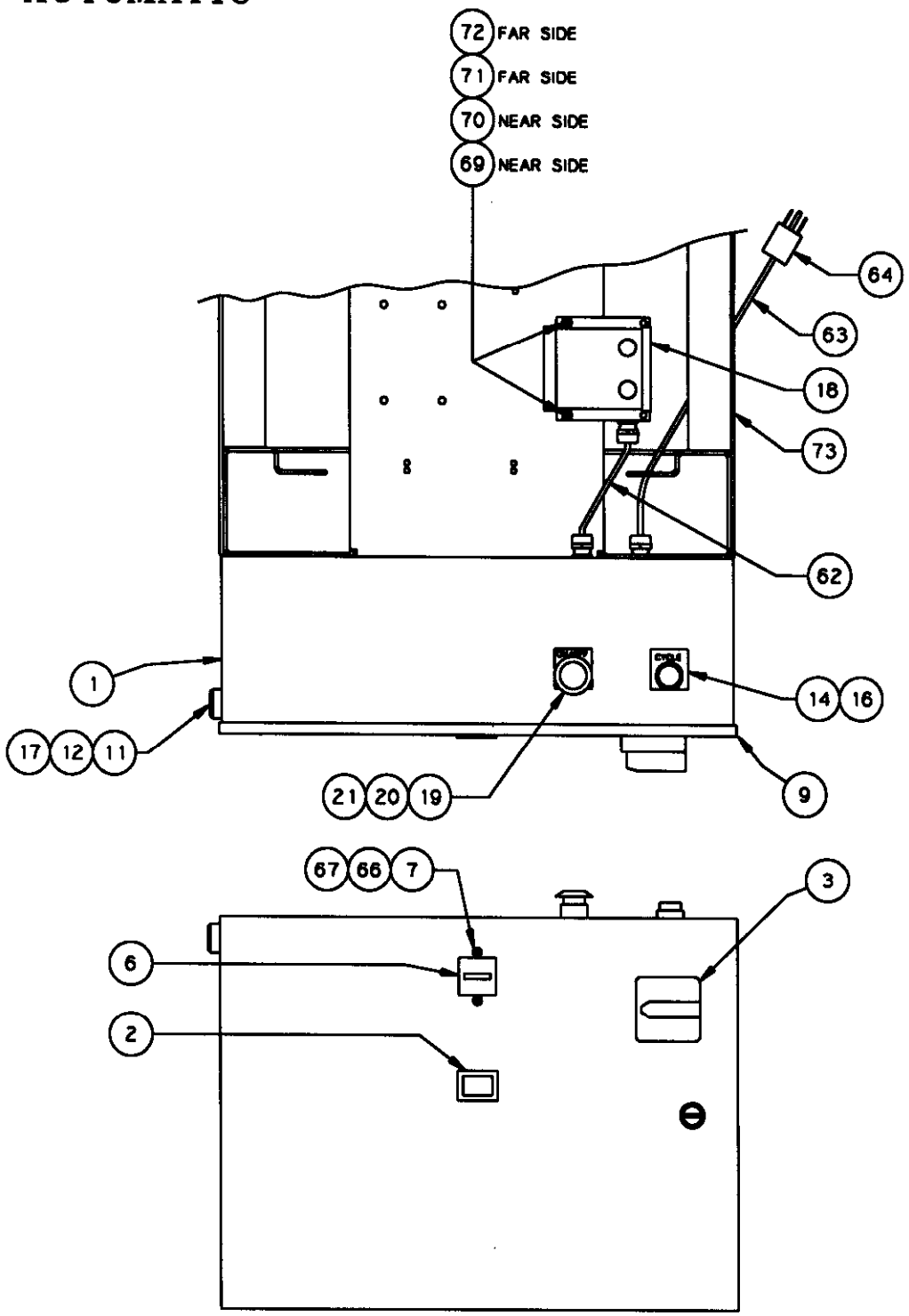
VIEW INSIDE COVER



FRONT VIEW COVER REMOVED

CONTROL PANEL ASSEMBLY
115V 60HZ 1 PHASE
SEMI-AUTOMATIC

420700-19



NOTES

[1] CONTROL PANEL ASSEMBLY WIRED PER SCHEMATIC 420648.

[2] LED (KEY 21) SUPPLIED AS PART OF ILLUMINATED SWITCH (KEY 19).

[3] KEY 23, 33
TAKE-UP POT. P6 (REF KEY 23-PC BOARD) FIXED SETTING ON SPB-FACTORY ADJUSTED FULLY CLOCKWISE AND SECURED WITH KEY 33 (TORQUE SEAL).

[4] KEY 15, 26, 27, 34, 57, 58, 60 AUTO CUT-OFF PARTS REQUIRED. SEE BOM./MATRIX 421550.

[5] KEY 58, 59
ERROR RELAY OPTION ADDITIONAL QTY. REQUIRED SEE BOM 293922.

[6] KEY 22, 38, 63, 64
SUPPLIED BY SIGNODE

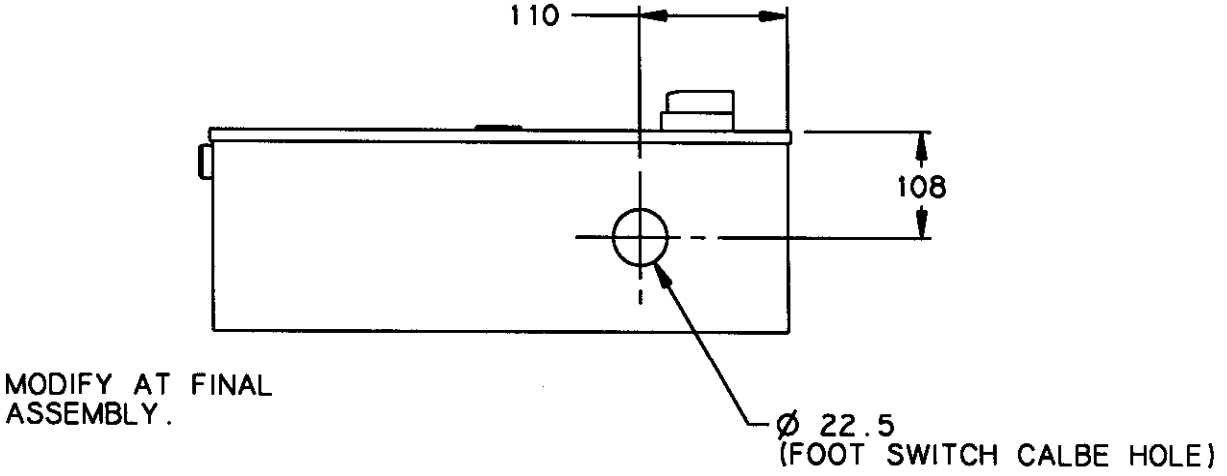
[7] FEED POT. P7 (REF KEY 23-PC BOARD) FIXED SETTING ON SPB-FACTORY ADJUSTED FULLY CLOCKWISE AND SECURED WITH KEY 33 (TORQUE SEAL).

[8] KEY 42, 43, 44
ANVIL/GUIDE AIR OPTION ADDITIONAL QTY. REQUIRED SEE BOM 421249.

[9] KEY 23, 26, 27, 57, 58
OPERATORLESS INTERLOCKS ADDITIONAL QTY REQUIRED SEE BOM 280750.

[10] KEY 63, 64
230V POWER CABLE SUPPLIED BY CUSTOMER

[12] KEY 50, THE VOLTAGE SENSING RELAY (VSR) IS FACTORY SET TO SWITCH TO THE BUCK BOOST TRANSFORMER IF LINE VOLTAGE DROPS BELOW 106 VAC. THE VSR WILL NOT SWITCH IF THE VOLTAGE DROP HAS A DURATION OF LESS THAN 5 SECONDS. THE VSR WILL SWITCH OFF THE BUCK BOOST TRANSFORMER IF THE VOLTAGE EXCEEDS 106 VAC FOR A DURATION OF GREATER THAN 5 SECONDS.



BOTTOM VIEW

SURETYER SEMI-AUTOMATIC MACHINES

STRAP SIZE	SUPER HIGH TENSION WINDER	ACR DEVICE	PART NUMBER (CHIP VER.)	NOTE
100	NA	*	280663 (SPB40XJ)	
200/600/700	NO	NO	259903 (SPB96XJ)	1
	NO	YES	280670 (SPB60XJ)	5
600/700	YES	NO	259902 (SPB71XJ)	2
	YES	YES	433276 (SPB58XJ)	4

SURETYER SEMI-AUTOMATIC MACHINES WITH OPERATORLESS INTERLOCK

STRAP SIZE **	SUPER HIGH TENSION WINDER	ACR DEVICE	PART NUMBER (CHIP VER.)	NOTE
200/600/700	NO	NO	259536 (SPB47XJ)	
	NO	YES	280671 (SPB61XJ)	
600/700	YES	NO	259537 (SPB72XJ)	3
	YES	YES	433277 (SPB62XJ)	

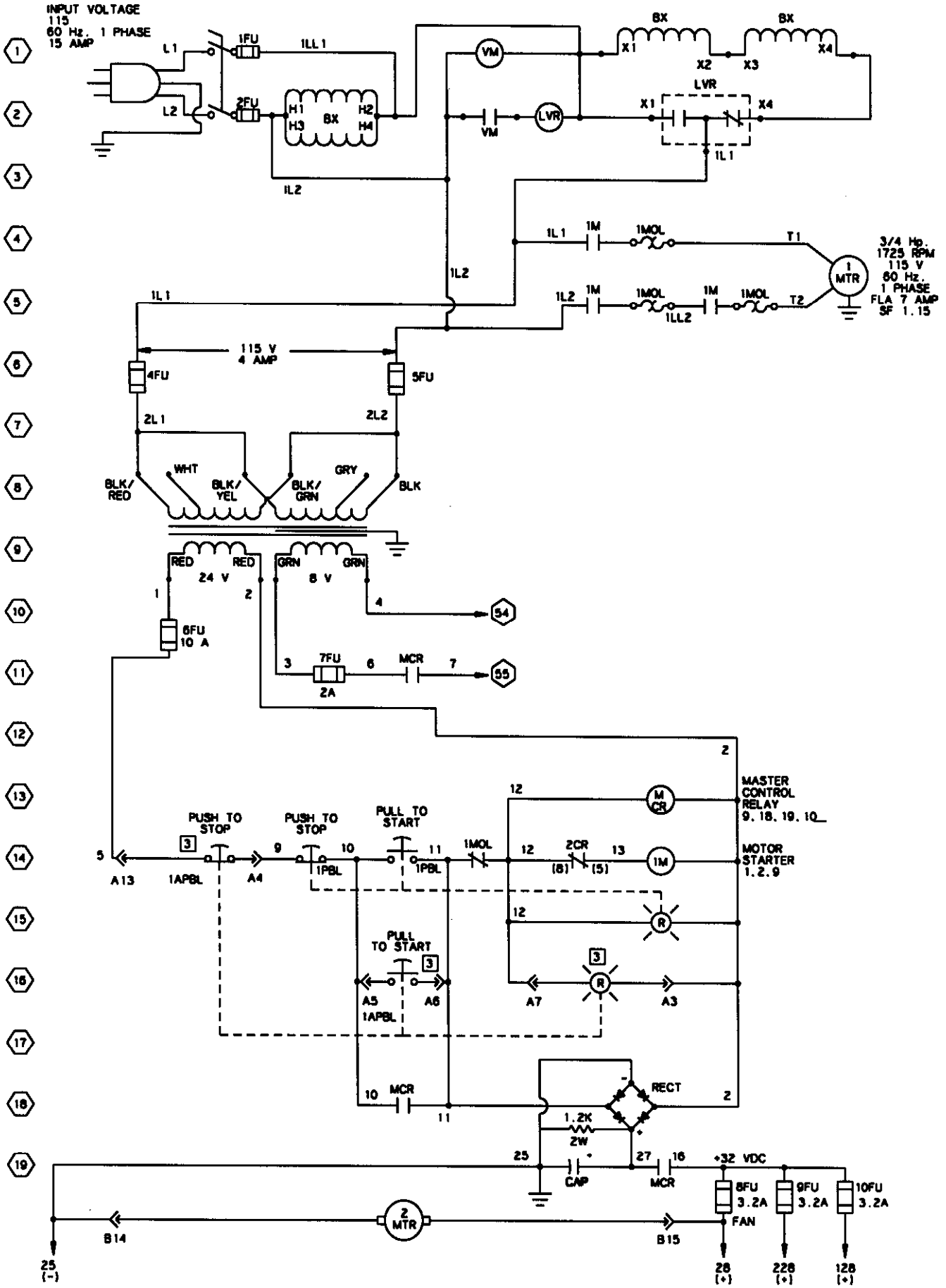
* With or without ACR option.
** 100 Series strap not available on operatorless interlock semi-auto SureTyer.

NOTES:

1. Use chip Part No. 280673 (Ver. SPB67XJ) for machines using high speed strapping option.
2. Use chip Part No. 433278 (Ver. SPB73XJ) for machines using high speed strapping option.
3. Use chip Part No. 433289 (Ver. SPB88XJ) for machines using high speed strapping option.
4. Use chip Part No. 433292 (Ver. SPB91XJ) for machines using high speed strapping option.
5. Use chip Part No. 433293 (Ver. SPB94XJ) for machines using high speed strapping option.

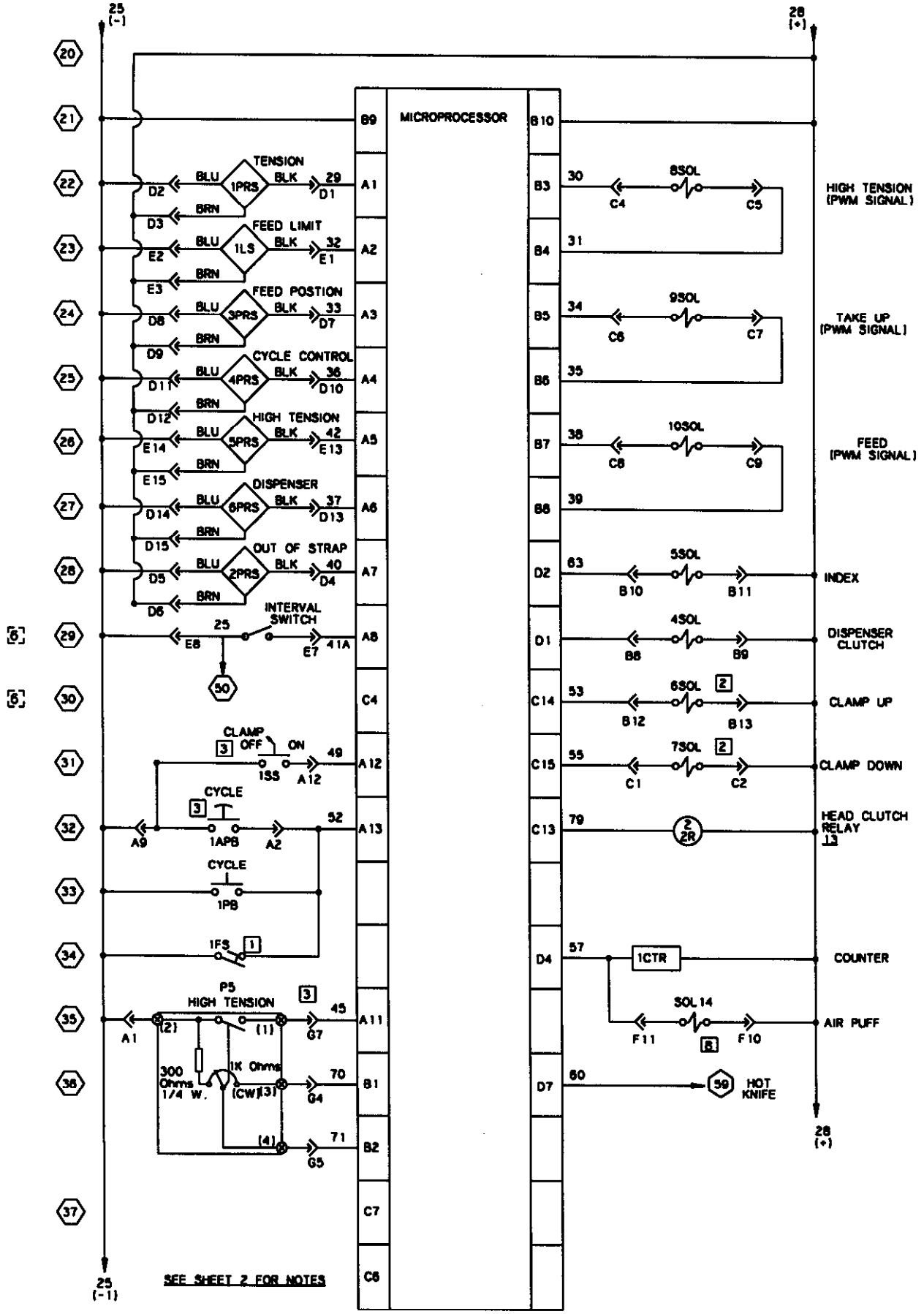
SURETYER 115 SEMI-AUTO ELECTRICAL SCHEMATIC

420648-12

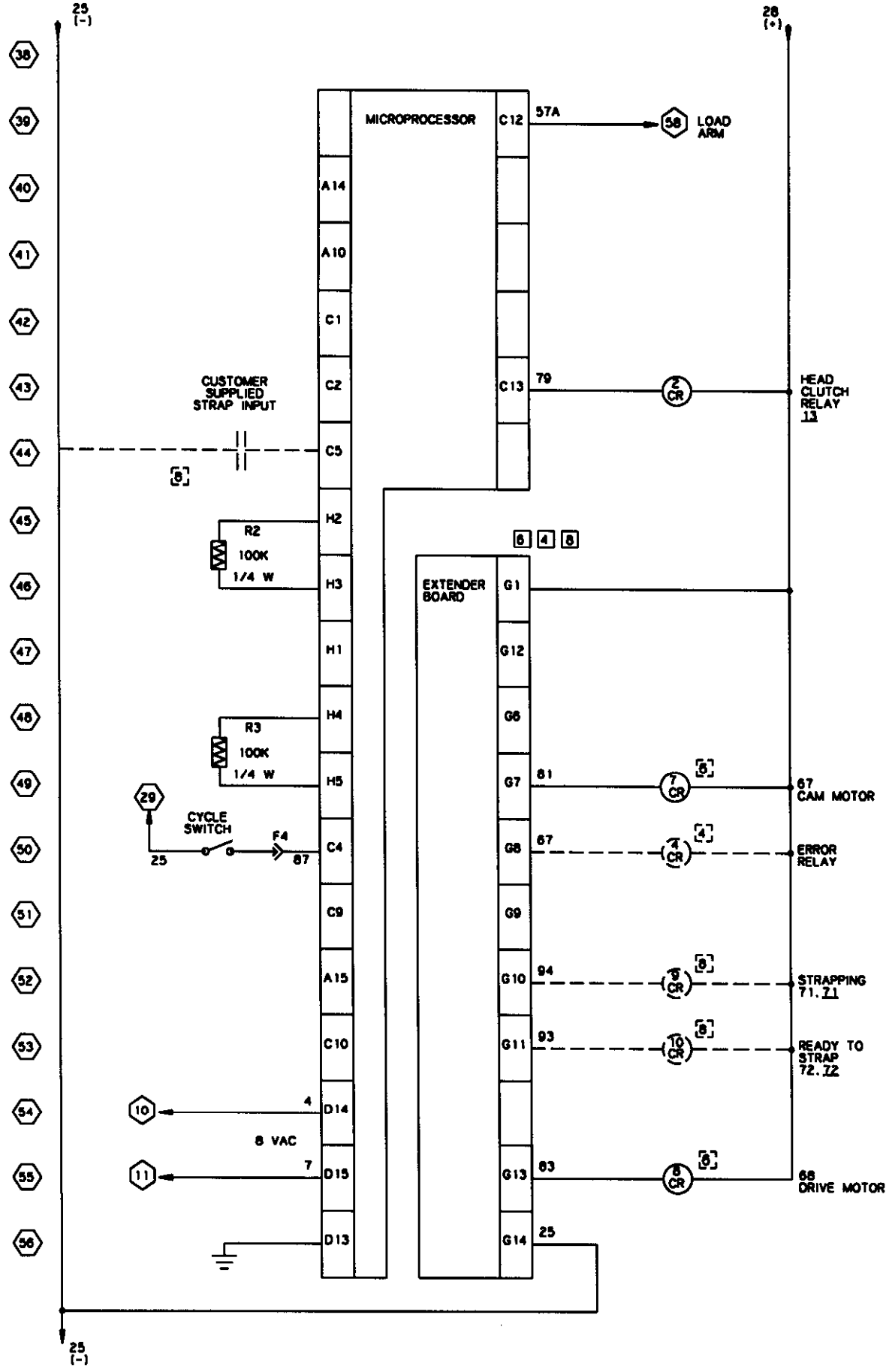


SURETYER 115 SEMI-AUTO ELECTRICAL SCHEMATIC

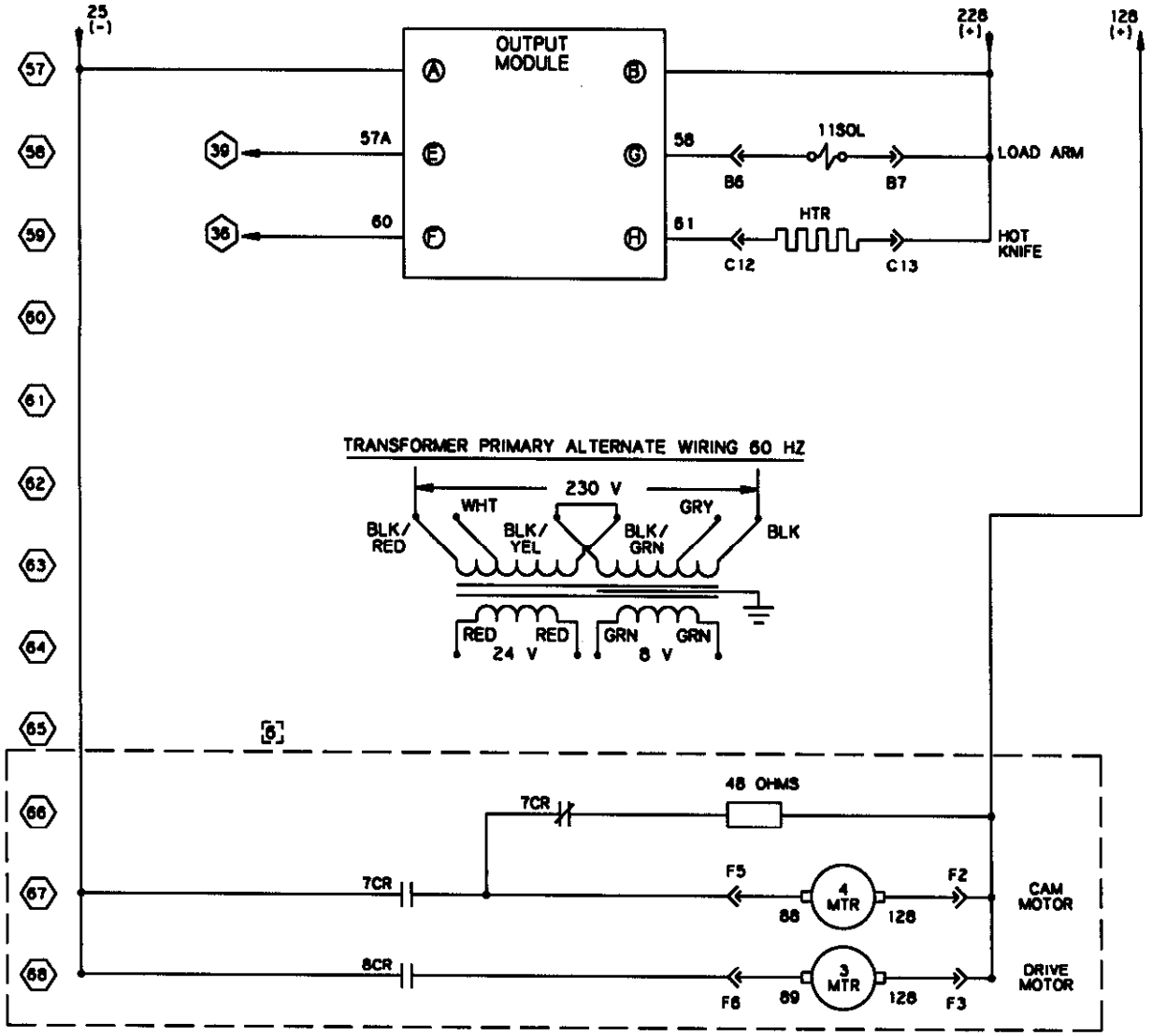
420648-1



SURETYER 115 SEMI-AUTO ELECTRICAL SCHEMATIC 420648-12



SURETYER 115 SEMI-AUTO ELECTRICAL SCHEMATIC 420648-12



NOTES

[1] USED ONLY ON FOOTSWITCH OPTION (34)

[2] USED ONLY ON CLAMP OPTION (30) (31)

[3] MAIN CONTROLS (34) (31) (32) (13) (16)

[4] USED ONLY WITH ERROR RELAY OPTION (4CR) (50)

[6] USED ON AUTO CUT-OFF OPTION. TO DISABLE ACR, UNPLUG INTERVAL AND CYCLE SWITCH WIRE HARNESS. (29) (30) (47) (49) (55) (66) (68) (69)

[7] OPTIONAL (35)

[8] USED ONLY ON OPERATORLESS INTERLOCK OPTION (6) (44) (52) (53) (71) (72)
9CR IS ENERGIZED WHILE MACHINE IS STRAPPING (NOT DURING FEED)
10CR IS ENERGIZED WHEN MACHINE IS READY TO STRAP (AFTER FEED COMPLETE)
CUSTOMER SUPPLIED INPUT CONTACT IS CLOSED TO APPLY A STRAP.
MACHINE WILL ONLY RESPOND WHEN 10CR IS ENERGIZED.
CONTACT MUST BE CLOSED FOR 100 MILLISECONDS OR UNTIL 9CR ENERGIZES.

LAST WIRE NO. USED - 228