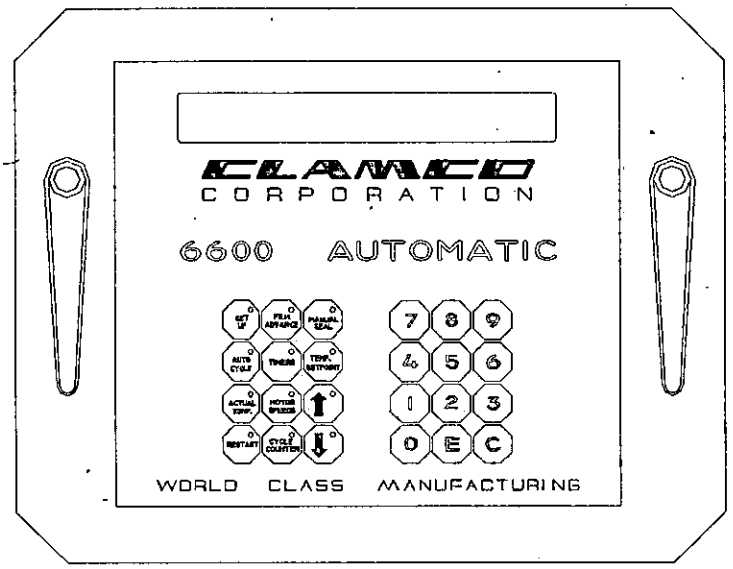
Ref. Number: 002

Clamco Corp.

6600 Automatic L-Sealer

Operators and Parts Manual



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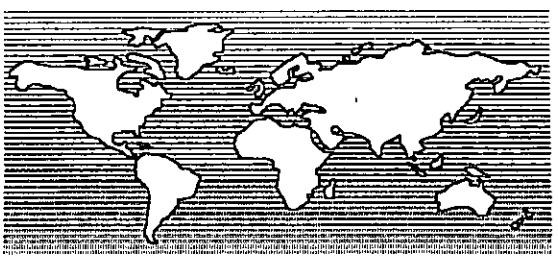

12900 Plaza Drive
Cleveland, Ohio 44130

Ref. Number: 002

6600 Automatic L-Sealer
Operators and Parts Manual

Manual Registration Form

The following information is required to allow for accurate tracking of the machinery in order for Clamco Corporation to keep the Distributors and Customers informed of modifications to both the machine and the manual. Any information regarding updates to the manual and/or improvements to the machine will be forwarded.

Complete this form and return to Clamco Corp in the provided return envelope.

Name: _____
Distributors Name: _____
Distributors Address: _____
City/State/Zip: _____
Phone Number: _____
Fax Number: _____

Name: _____
Customer Name: _____
Customer Address: _____
City/State/Zip: _____
Phone Number: _____
Fax Number: _____

Machine Model Number: _____ **Machine Serial Number:** _____

Date Purchased: _____

Coments: _____

3.0

MACHINE SPECIFICATIONS

MODEL NUMBER: 660X (Last Digit depends on options)

SEALING SYSTEM: Hot Knife

PACKAGE SIZE CAPABILITIES:

	Length	Width	Height
Minimum	3 1/2"	2 1/2"	1/4"
Maximum	21"	17"	6"

SPEED: Will vary with length of package
Maximum up to 35 pkg./min.

ELECTRICAL SUPPLY: 120 Volt, 20 Amp

AIR SUPPLY: 1 CFM @ ~~100 PSI~~ 80

OVERALL DIMENSIONS: 69" Long x 42"Wide x 60" High

STANDARD FEATURES:

Belt to belt conveying for smooth product transfer
Automatic film advance for continuos wrapping
Individual seal bar temperature control
Adjustable film feed for proper bag sizing
Seal time control
Adjustable inverting head
Manual film feed and seal head actuation
Adjustable infeed conveyor
Horizontal and vertical package sensors
Automatic scrap reel
Pin perforators, adjustable
Conveyor speed control capabilities
Film advance speed control capabilities
PLC controlled machine logic
Digital display operator interface
Solid state electrical controls
Easy access machine cover
Clean, esthetic machine design
Full 1 year warranty on parts

AVAILABLE OPTIONS:

Second, upper film cradle
Closing discharge conveyor (narrow pkgs.)
Pneumatic hole punch
PVC sealing system
220 VAC Electrical Supply

1.0

INTRODUCTION

The Clamco 6600 Series L-Sealer is a fully automatic machine which allows for automatic transfer of a package into an envelope of film that is then advanced into a seal area. The machine automatically seals the package utilizing an auto actuated seal head. The package is then discharged to the next stage in the packaging process; typically a shrink tunnel.

Clamco Corp. assures each new piece of equipment is thoroughly inspected for quality in both performance and craftsmanship. The machine is intended for industrial use by qualified personnel. The machine must be installed and operated in accordance with all applicable electrical and safety standards. All instructions and guidelines laid out in this manual must be read and understood by the operator prior to use of the machinery.

2.0

UNCRATING

Remove the L-Sealer from the shipping crate and inspect for any possible damage due to shipping. If any damage is noted contact shipping carrier immediately. Do nothing further to the machine until the carrier's agent has made an inspection of the damage. If there is no damage present, move the unit to its permanent location and proceed with "installation and setup".

3.0

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AVAILABLE OPTIONS:

Second, upper film cradle
Closing discharge conveyor (narrow pkgs.)
Pneumatic hole punch
PVC sealing system
220 VAC Electrical Supply

4.0

SPECIFIC MACHINE INFORMATION

MACHINE MODEL NUMBER: _____

MACHINE SERIAL NUMBER: _____

ASSEMBLY COMPLETION DATE: _____

INSPECTION COMPLETION DATE: _____

OPTIONAL EQUIPMENT LISTING:

Sealing System:

Hot knife system for polyolefin films (Standard) [____]

Hot knife system for PVC films (Optional) [____]

Closing Conveyor (Optional) [____]

Pneumatic Hole Punch System (Optional) [____]

Upper Film Cradle System (Optional) [____]

Supply Voltage

110/120 VAC [____]

220/240 VAC [____]

5.0

LIMITED WARRANTY POLICY

If any part of your new Clamco equipment fails within one year because of manufacture defect, Clamco will furnish the required replacement part without charge, F.O.B. factory upon receiving the defective part. Related service, labor and diagnostic calls are not included.

This warranty does not cover damage by accident, misuse, abuse, installation in abnormal conditions of moisture, dirt or corrosive matter, misapplication, or improper installation, and does not cover expendable items such as teflon covers, sealing elements, pilot lights, etc. This warranty extends to the Purchaser only for a period of one year from date of purchase.

This warranty constitutes the exclusive remedy of any purchaser of Clamco equipment and is in lieu of all other warranties expressed or implied, including without limitation any implied warranty of merchantability or fitness and Clamco shall have no obligations or liability. In no event shall Clamco be liable for special or consequential damages.

Clamco will not be responsible for repairs by anyone other than Clamco and this warranty is void if any modification or alteration is made to the equipment by anyone other than Clamco. Installation and operation of the equipment to comply with all applicable electrical and safety standards is the sole responsibility of the Purchaser.

6.0

GENERAL WARNINGS

6.1 GENERAL:

Although the design and manufacturing processes included necessary precautions in an effort to make the machine safe to operate, certain risks are involved with the operation of automatic industrial equipment. This machine should not be operated by personnel unfamiliar with the safety precautions and potential hazards. Clamco urges that all personnel associated with the operation of this machinery be thoroughly trained on the operations of this machine.

Clamco urges that the machinery be used in accordance with all warnings and precautionary notes. Particular attention should be given to all such warnings. The potential hazards to a person may include (but are not limited to): burns, pinch points, and electrical shock. Clamco Corporation makes every attempt to eliminate and/or minimize such hazards with the use of safety guards, electrical interlocks or other safety features. Under no circumstances should any of these safety features be removed or tampered with while the machine is running.

Damage to the machinery can be caused by; (but not limited to): electrical overload, mechanical overload, incorrect power source, lifting and/or moving the equipment improperly, and misuse of assemblies. Any damage from the above constitutes misuse and/or abuse and will not be covered by the manufacture's warranty.

This manual contains multiple precautionary notes indicated with the word **"CAUTION"**, and/or **"WARNING"**. Such notes are used to describe functions which can cause bodily injury and/or damage to the machine. Notes marked with **"WARNING"** indicates a condition which can cause harm to a person. Notes marked with **"CAUTION"** indicate conditions which can cause damage to the machine.

It is the employer's responsibility to ensure all personnel associated with the operations of this machine be adequately trained in the operations, safety precautions, and potential hazards of this machinery.

6.2 GENERAL WARNINGS:

****

WARNING

Do not operate machinery without all safety guards and covers securely in place.

The mechanical operation of automatic equipment involves many moving parts and pinch points which could cause bodily harm.

****

WARNING

Keep hands away from all moving assemblies.

Warn belts and other parts can become hazardous and should be replaced promptly.

****

WARNING

Do not tamper with electrical wiring unless licensed or trained to do so. Disconnect main power to the machine before attempting any electrical service.

****

****

WARNING

Do not attempt to operate this machinery beyond the mechanical and electrical limits set forth at time of original manufacture.

Such operations may introduce safety hazards that would otherwise not be present in the machinery. Clamco Corporation will not be held responsible for personal injury or machine malfunctions associated with such operations.

****

****

WARNING

Do not attempt to make any modifications to either electrical or mechanical assemblies prior to consulting Clamco Corporation.

Such modifications may introduce safety hazards that would otherwise not be present in the machinery. Clamco Corporation will not be held responsible for personal injury or machine malfunctions associated with such modifications.

****

WARNING

Heat sealing equipment on the seal arm assemblies can get very hot. Keep hands away from heat source while machine is in operation, and use caution if the machine has been recently in use.

****

WARNING

Certain types of plastic film used in heat sealing equipment can produce hazardous fumes due to the degradation of the film at high temperatures. Consult film supplier or manufacture for the specific information on the film to be used.

****

7.0

GENERAL INSTRUCTIONS

7.1 GENERAL:

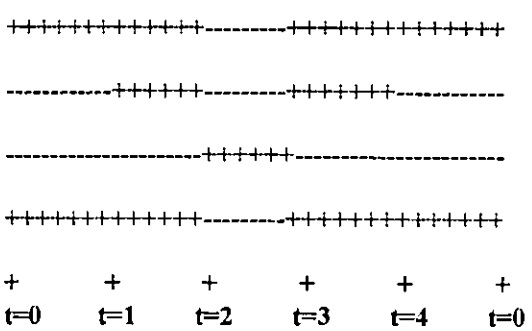
Product is presented to the machine in one of three methods, either manually placed on the infeed conveyor. fed to the machine via a gravity conveyor or a powered conveyor. Once the product is on the infeed conveyor, it advances into the inverting head area where it is enveloped in a plastic sleeve and advanced into the seal head area via the discharge conveyor. The conveyors stop and the seal action takes place. This consists of an upper and a lower jaw closing together pinching the plastic between a heated knife and a teflon coated backup pad. The plastic is sealed and cut. The seal head then retracts, the conveyors start, feeding the now wrapped product out of the machine. This also starts a new package in the cycle.

Centerfold plastic film is held in a cradle either above or below the infeed conveyor. The web of plastic is powered through a film splitter and a perforator pin wheel. The plastic is conveyed over a dancer bar, which activates the unwind motor, across an idler roller, through the upper and lower inverting head into the seal area. The film advance assembly powers the film through this process. Once the seal is made the product is carried off encased in film while the scrap tail is automatically wound onto a scrap reel.

An optional discharge conveyor closes the gap between the infeed and discharge to allow for smoother transfer of product. The gap is re-opened for the sealing cycle. The infeed and discharge conveyors are at the same elevation to allow for smooth product transfer.

A photoelectric eye is used to detect the product and control the cycle of the machine. There are three timers utilized by the machine program. A dwell timer is used to control the seal time of the cycle. A trail timer is used to control the amount of film at the trail end of the product as it enters the seal area. A lead timer is used to advance film in front of the package to allow for a smooth transfer into the seal area, and provide the proper amount of film in front of the package.

7.2 SEQUENCE OF EVENTS: (SIMPLIFIED)



t=0: Cycle starts
t=1 Trail timer starts timing
t=2 Trail timer times out; Dwell timer starts
t=3 Dwell timer times out; Lead timer starts
t=4 Lead timer times out; cycle ends; new cycle begins

7.3 GENERAL MACHINE CHANGEOVER:

Changeover of the machine to incorporate various products is a simple procedure. The machine should be cleaned out of the existing plastic in use. Place the desired roll of plastic in the film cradle. Thread the film through the machine as illustrated in the film threading diagram. Thread the film through the upper and lower inverting plates and into the film advance belts. Perform a few manual seals and manual film advances to advance enough tail through the machine to tie off on the scrap take-up wheel. This completes the loading of the new film.

Place the product on the infeed conveyor and adjust the upper inverting plate 1/2-3/4 in above the product. Adjust the infeed conveyor front-to-back to get the proper width of the product. Adjust the elevator height to allow for the seal to be centered as best as possible on the package. The seam of the plastic should be midway up the height of the product. Ensure the product will fit under the top jaw as it conveys in to the seal area.

Adjust the Dwell timer, Lead timer, and Trail timer to appropriate settings for the film to be used. The proper settings will vary with application and film properties. Adjust the Temperature settings for the end and side seal. Again these values will vary with the application and film properties.

Perform a few manual seals to be sure the temperatures and dwell time are such that the machine will seal and cut the film. Place the machine in Auto Mode and run a few products through. There may require some fine tuning of the mechanical adjustments to create a proper bag size and of the timers to get the optimal seal characteristics.

Note: For more detailed information on changeover procedures see Section 10.0 **"CHANGEOVER FOR VARIOUS PACKAGE SIZES"**

8.0

MACHINE COMPONENTS

8.1 MAIN FRAME ASSEMBLY: (Ref. Dwg. 78-2083)

The main frame assembly of this machine consists of the main machine weldment. This weldment is constructed of cold drawn structural tubing. The wall thickness is 1/8" which provides a solid, durable foundation for the machine. The remaining portion of this assembly consists of the discharge conveyor motor, and the elevator bearings, and crank handle.

8.2 INFEED CONVEYOR ASSEMBLY: (Ref. Dwg. 78-2069; 78-2093; 78-2095; 78-2096)

The infeed conveyor assembly is driven by a 1/4hp 90VDC gearmotor. This provides for a variable speed conveyor with a range of 0-100fpm. The infeed and discharge conveyor speeds are electrically coupled and are set using the "MOTOR SPEEDS" button on the operator interface. The conveyor has a rubberized drive roller to ensure positive contact between the belt and the roller. The main power switch, emergency stop button, photoeye selector switch, and optional closing conveyor switch are mounted on the front guard of this assembly. There is an idler roller mounted to the infeed end of this assembly to ensure smooth transfer of product. The assembly also contains the upper and lower inverting plates which invert the film 90 degrees to allow presentation to the package. The upper inverting head utilizes a acme screw thread to manipulate the inverting tray to desired position. The crank handle for this thread is mounted either directly above the thread or brought out to the front of the machine via a 90 degree gearbox. The location depends on whether the upper film cradle option is included with the machine. An optional FDA approved belt is available.

3 LOWER CRADLE ASSEMBLY: (Ref. Dwg. 78-1861)

The lower cradle assembly houses the bulk roll of centerfold film. This device is powered by a 120VAC gearmotor that powers the film through the film splitter and through the pin perforator assembly. This diminishes the tension on the web of film in the seal head area. This motor is equipped with an electric brake which ensures positive stopping. The motor is capable of running forward, reverse, or off with the flip of a switch. The motor is triggered by a weighted dancer bar which activates a mechanical limit switch. The cradle assembly rolls out of the machine on a pair of linear bearings to provide easy access for loading the film. There is a pair of rollers in the rear of the assembly which lifts the film to the upper rear of the infeed conveyor. This allows for total front loading of the machine.

8.4 UPPER CRADLE ASSEMBLY: (OPTIONAL) (Ref. Dwg. 78-1733)

The upper cradle is an optional subassembly which can be installed on the machine either at time of original manufacture or as an add on at a later date. The device is powered by the same 120VAC motor utilized on the lower cradle. Again this motor utilizes a brake to ensure positive stops. This device utilizes the same mechanical limit switch utilized on the lower cradle for activation of the motor. This assembly does not incorporate the forward/reverse switch available on the lower cradle.

8.5 ELEVATOR ASSEMBLY: (Ref. Dwg. 78-2086)

The elevator assembly employs four threaded posts coupled together with a chain drive system to adjust the elevation of the seal jaw assembly. There is a mechanical crank handle used to adjust the elevator.

8.6 SCRAP FILM DRIVE ASSEMBLY: (Ref. Dwg. 78-2072)

The scrap film drive assembly powers the film advance assembly, which powers the film through the inverting heads. This drive assembly also powers the scrap take up assembly. This assembly utilizes a 90VDC gearmotor that allows for variable speed. The speed is varied using the "MOTOR SPEEDS" button on the operator interface. The range of speed corresponds to 0-100fpm on the film advance belts.

8.7 FILM ADVANCE ASSEMBLY: (Ref. Dwg. 78-2084)

The film advance assembly utilizes a set of urethane coated timing belts which power the film through the inverting assembly and into the seal area. The belt is driven by the Scrap Film Drive assembly which provides for variable speed. Speed differentials between this assembly and the conveyor assemblies can be set to enhance and control the size of the film envelope on the package. The infeed end of the timing belts houses a proximity switch used to detect an obstruction, and stop the belts.

8.8 DISCHARGE CONVEYOR ASSEMBLY: (Ref. Dwg. 78-2008)

The discharge conveyor assembly is driven by a 1/4hp 90VDC gearmotor. This provides for a variable speed conveyor with a range of 0-100fpm. The infeed and discharge conveyor speeds are electrically coupled and are set using the "MOTOR SPEEDS" button on the operator interface. The conveyor has a rubberized drive roller to ensure positive contact between the belt and the roller. The discharge conveyor is designed to allow for minor height adjustment to ensure an even elevation with the infeed conveyor, thus allowing smooth transfer of product. This elevation is set at the factory and should not require adjustment unless work has been performed to the assembly. The conveyor belt is tensioned using a idler roller mounted on floating threaded studs. This roller is mounted on the underside of the assembly at the infeed end of the belt. There is a nut on each of the studs which pull the roller down, thus tensioning the belt.

8.9 CLOSING DISCHARGE CONVEYOR ASSEMBLY: (OPTIONAL) (Ref. Dwg. 78-1705)

The closing conveyor assembly is an option which replaces the standard discharge conveyor. The assembly utilizes the existing drive train. The advantage of this assembly is its ability to drive the infeed nose upstream to close the gap between the two conveyors. A pair of dual rod cylinders are mounted internal on this assembly. The plumbing for these cylinders is brought to the rear, top of the conveyor. This allows for easy access to the pneumatic lines. A valve is mounted on the standard valve manifold and wire and plumbed in place. The valve is controlled by the PLC program. There is an ON/OFF switch mounted to the infeed conveyor panel in line with the other switches. The cylinders should be retracted when the valve is de-energized and extended when the valve is energized. If the assembly is turned ON the valve will be energized as long as the solid state reed switch on the rear of the seal jaw cylinder is made.

There exists a proximity switch mounted to the main frame of the machine. This switch is activated by the Elevator frame. The closing conveyor will work as long as this prox switch is made. If the prox switch breaks and the closing conveyor is turned on, there will be an error message in the display reading "ELEV. TOO HIGH". This ensures there will not be interference between the lower jaw and the infeed nose of this assembly.

8.10 SCRAP COLLECTOR ASSEMBLY: (Ref. Dwg. 78-2012; 78-1926 on 66039 and succeeding)

This assembly winds the scrap tail generated by the machine. The assembly is driven by the Scrap Film Drive assembly. There is a tensioning device on the take-up wheel which allows for varying degrees of tension to be generated on the scrap tail. This device will produce a coil of plastic which, once a large enough one is generated can be pulled off the front of the assembly and properly discarded.

8.11 LOWER JAW ASSEMBLY: (Ref. Dwg. 78-2087)

The lower jaw assembly contains the backup pads to the seal knives. These pads consist of a 3/8" piece of silicon rubber taped over w/ 5mil teflon tape. There is a piece of 1"x 5mil tape put down first then a piece of 1/2 x 5mil tape over top, straight down the middle of the seal pad. Care should be taken to ensure there are no ripples in the tape. These will cause ripples and/or holes in the seal. The pads float on compression springs which allow for consistent force against the seal knives. It is important to the integrity of the seal that these springs are kept in good working condition.

8.12 UPPER JAW ASSEMBLY: (Ref. Dwg. 78-2068; 78-2186 on S/N66027 and succeeding)

This assembly contains the heated knives which seal and cut the plastic. Each knife is heated using a single cartridge heater. The feedback device for temperature sensing is a washer type thermocouple sensor. The temperature controller is tuned to provide accurate control, in worst case, within +/- 5 deg F. This is sufficient accuracy for this type of system. There are four proximity switches located on the assembly which are used to detect and obstruction in the jaws. These are set to trigger if the film clamps encounter a 1/4" obstruction in the seal area. This will cause the machine to automatically abandon the seal cycle regardless if the machine is in set up or automatic mode. The knives are specially coated to extend the wear properties and provide a frictionless surface. This provides a smooth clean cut off with minimal buildup of residue. The knives should be cleaned periodically with a soft cloth while hot.

WARNING: HEAT SEALING EQUIPMENT ON THE SEAL ARM ASSEMBLIES CAN GET VERY HOT. KEEP HANDS AWAY FROM HEAT SOURCE WHILE MACHINE IS IN OPERATION, AND USE CAUTION IF THE MACHINE HAS BEEN RECENTLY IN USE.

8.13 ELECTRICAL ENCLOSURE: (Ref. Dwg. 78-2058; 79-215: 78-2183,79-224 on S/N66027 and succeeding)

The electrical enclosure is mounted on the rear of the machine and houses all the electrical components required for the machine operation. The PLC is the heart of the system which contains the program to actually run the machine. Communication with the machine is accomplished via the operator interface mounted on the front of the top hood assembly. The program is stored on a EEProm chip with in the PLC. At time of "boot up" the program is read from this chip to the "ram" memory and accessed. This eliminates possibilities of program loss. The PLC is fuse protected and battery backed to allow for safe and continuos operation. The motor speed controls are isolated, dual voltage dc drive units manufactured using solid state, surface mount technologies. They are set to produce a 0-90VDC output to the motors based on a scaled 0-10VDC output from the PLC. These values correspond to 0-100fpm entered as the speed choice from the operator interface. These devices are fuse protected for safe operation. The temperature control is converted using signal conditioners which convert the mV thermocouple signal into a mA signal which becomes an analog input to the PLC. There is a 24VDC, 2.1AMP power supply used to power all 24VDC devices. All devices used on the machine, PLC, sensors, solenoids, etc. are 24VDC power. The only devices which require 120VAC power are the cartridge heaters, and the film cradle motors. This provides a low power level machine for safe operation. The terminal blocks used are "palm safe" modular blocks, used for ease of wiring and safe operation. The electrical enclosure assembly is mounted on hinges and swings open from the top. This allows for access to the machine without dismounting or unwiring any part of the assembly.

WARNING: DO NOT TAMPER WITH ELECTRICAL WIRING UNLESS LICENSED OR TRAINED TO DO SO. DISCONNECT MAIN POWER TO THE MACHINE BEFORE ATTEMPTING ANY ELECTRICAL SERVICE.

14 PNEUMATIC PACKAGE: (Ref. Dwg. 78-2055)

This assembly consists of all pneumatic components required for the operation of the machine, filter/regulator, valve(s), cylinder and all necessary tubes and fittings. The cylinder is speed controlled at the cylinder ports with the use of flow controls. This provides for variable seal head speed. The machine should operate at 80psi, which is adjusted at the filter/regulator unit located at the rear, discharge corner of the machine. The filter system has an automatic drain system which will "blow off" the water, and oil which has accumulated. The "blow off" port has been plumbed to the rear discharge leg of the machine. The valve manifold is located on the lower discharge crossmember of the frame accessible when the electrical cabinet is hinged open. There are three available ports used depending on the options associated with the particular machine. All fitting are quick release which provides easy assembly and maintenance.

8.15 HOOD COVER ASSEMBLY: (Ref. Dwg. 78-2081; 78-2088 on S/N 66038 and succeeding)

This assembly is the main cover of the machine and is assembled using an aluminum extruded frame with clear lexan guards attached. This assembly pivots on gas struts located at the rear of the assembly, and latches closed on the lower front member This provides ease of access to the machine. The operator interface is mounted to the front of the cover on a 45 degree angle which allows for ease of access and readability. The interface unit can be removed with quick release handles for maintenance while the hood is opened. The hood assembly contains a safety lockout which will halt machine operation if opened. Nothing will run with the hood assembly raised.

WARNING: DO NOT OPERATE MACHINERY WITHOUT ALL SAFETY GUARDS AND COVERS SECURELY IN PLACE.

8.16 OPERATOR INTERFACE ASSEMBLY: (Ref. Dwg. 78-2078)

This is a subassembly of the hood cover. This assembly contains the operator interface of the PLC controls package. All operator interface to the machine is done through this device. There are three (four) switches mounted on the infeed conveyor guard which are used to: turn the machine on/off, switch between horizontal and vertical photoeyes, stop the machine in an emergency, and if the option is on the machine, turn the closing conveyor on/off. All other machine functions are controlled with the operator interface. The interface consists of a numeric keypad with numbers 0-9, an "E" (enter) button, a "C" (clear) button, and 12 function keys. The function keys have a built-in LED light used to indicate button status. The function keys are defined as follows:

NOTE: Buttons start from upper left corner, reads from left to right, top to bottom

8.16.1 SET UP MODE:

This button will place the machine in SET UP MODE. When the machine is first turned on this LED will blink. If this button is chosen the LED will stay on indicating the machine is in SET UP MODE. When pressed the display will read "SET UP MODE". The machine will stay in this mode until it is switched to AUTO MODE.

8.16.2 FILM ADVANCE:

This button is used to manually advance the film when the machine is in set up mode. The film will advance for as long as this button is held down. While this button is held the display will read "FILM ADVANCING". The film advance will only run while this button is depressed. If the machine is in auto mode and this button is depressed the display will read "N/A IN AUTO MODE", and the film advance motor will not run. The LED will only light when the button is depressed.

8.16.3 **MANUAL SEAL:**

This button is used to manually activate the seal cylinder for one seal cycle when the machine is in set up mode. The LED will be lit only while the button is held down. With the button pressed, and the machine in set up mode, the seal jaws will engage and the display will read "MANUAL SEAL" until the cycle completes. At this time the jaws will disengage and the display will read "SEAL "COMPLETE". The button would have to be pressed again to complete another cycle. If the button is released the seal jaws will return to the up position immediately. . If the machine is in auto mode and this button is depressed, the display will read "N/A IN AUTO MODE", and the seal jaws will not engage.

NOTE: The jaw safeties work the same regardless of the mode the machine is in.

8.16.4 **AUTO MODE:**

This button will place the machine in AUTO MODE. When the machine is first turned on this LED will blink. If this button is chosen the LED will stay on indicating the machine is in AUTO MODE. When pressed the display will read "AUTO MODE". The machine will stay in this mode until it is switched to SET UP MODE.

8.16.5 **TIMERS:**

This button is used to change the settings of the various machine timers. There are four timers which can be adjusted, Dwell Time, Lead Time, Trail Time, and Auto Time. Once the button is depressed the LED will light and stay lit until another user entered button is depressed. When the button is depressed one of the timer values will appear on the display, i.e. "DWELL TIME=....." A value may be entered either by using the numeric key pad, and entering a value then and pressing the "E" (enter) key or by using the up and down arrows and then pressing the "E" (enter) key. Once the "E" (enter)key is depressed, the display will change to another timer, i.e. "TRAIL TIME=....." A value can be entered for this timer the same as the previous. This procedure can be done until all the timers have been set. The "E" (enter) key will toggle the display between all the timers and continue until another function has been done. The timer values allowed are: 0.00-2.00s for TRAIL and LEAD time; 0.00-10.00s for DWELL time; and 0-30min for AUTO time.

8.16.6 **TEMP. SETPOINT:**

This button is used to change the settings for the side and end seal temperatures. Once this button is depressed the LED will remain lighted until another user entered button has been depressed. When the button is depressed one of the heater values will display, i.e. "SSEAL TEMP=.....F". A value may be entered as with the timer values. Once the "E" (enter) button is depressed the display will toggle to the other heater value. The "E" (enter) key will toggle the display between the temperatures and continue until another function has been done. The temperature range allowed is 50-500 degrees F.

8.16.7 **ACTUAL TEMP:**

This button is used to display the actual, real time temperatures of the knife blades. The LED will light and remain lighted until another user entered button is depressed. The display will read "SSEAL TMP=.....F" until hit again then it will toggle to the end seal and read "ESEAL TMP=.....F". The display will remain showing either of these two temperatures until another button has been depressed.

8.16.8 **MOTOR SPEEDS:**
This button is used to change the settings for either the conveyor or film advance motor speeds. Once this button is depressed the LED will remain lighted until another user entered button has been depressed. When the button is depressed one of the motor speeds will display, i.e. "CNVYRS=..... FPM". A value may be entered as with the timer values. Once the "E" (enter) button is depressed the display will toggle to the other motor speed. The "E" (enter) key will toggle the display between the motor speeds and continue until another function has been done. The speed range available for the motors is 0-100fpm.

8.16.9 **(UP ARROW):**
This button is used to change the values of user entered parameters in the positive direction. This button will change the numeral in increments of 1 unit when pressed 1 time. If held down the increment will continue to change. The LED will light and remain lighted as long as the button is held down.

8.16.10 **CYCLE RESTART:**
This button is used to start the machine and to restart the machine after a fault has occurred. When the machine is first turned on, the SET UP MODE and AUTO MODE button LED's will be blinking. If the AUTO MODE button is depressed its LED will remain on and the SET UP MODE LED will go dark. At this time the CYCLE RESTART LED will blink. Once depressed the LED will go dark and the display will read "CYCLE START". This will start the machine running. If there is a fault that occurs the machine will shut off and the appropriate message will appear on the display. The LED on the CYCLE RESTART button will light and blink. The machine can be restarted by depressing this button.

8.16.11 **CYCLE COUNTER:**
This button is used to display the cycle counts of the machine. When depressed the LED will light and remain lighted until another user entered button is depressed. The display will read "CYCLE CNT=.....". The counter can be reset to 0 by pressing the enter key while the display reads "CYCLE CNT=.....". The counter will not reset to 0 if the enter key is depressed while the display is in another mode. The counter is capable of counting values from 0-9999.

8.16.12 **(DOWN ARROW):**
This button is used to change the values of user entered parameters in the negative direction. This button will change the numeral in increments of 1 unit when pressed 1 time. If held down the increment will continue to change. The LED will light and remain lighted as long as the button is held down.

8.17 SCRAP GUIDE ASSEMBLY: (Ref. Dwg. 78-2015)
This assembly is a small roller mounted on the front discharge end of the machine to guide the scrap film to the scrap take up wheel.

8.18 ADJUSTMENT ROLLER ASSEMBLY: (Ref. Dwg. 78-2159)
This assembly is used to guide the web of film into the upper and lower inverting plates located on the infeed conveyor. The roller assembly is located on the rear infeed end of the main frame.

8.19 CONDUIT BUNDLE: (No Dwg.)
This bundle consists of the various lengths of conduit and fittings used to run the machine wiring.

8.20 GUARD BUNDLE: (No Dwg.)

This bundle consist of all guards used on the machine.

WARNING: DO NOT OPERATE MACHINERY WITHOUT ALL SAFETY GUARDS AND COVERS SECURELY IN PLACE.

8.21 220 VAC / 50HZ ASSEMBLY: (OPTIONAL) (No Dwg.)

This assembly consists of a transformer and disconnect switch box used if the machine requirements are 220vac.

9.0

INSTALLATION AND SET-UP

9.1 GENERAL:

IMPORTANT: PRIOR TO MACHINE SET UP AND INSTALLATION THE GENERAL WARNINGS SHOULD BE READ AND FULLY UNDERSTOOD BY ALL PERSONNEL ASSOCIATED WITH THIS MACHINERY.

9.2 SET-UP INSTRUCTIONS:

9.2.1 Lower the feet and level the sealer. If machine is to be used in line with a shrink tunnel, align the discharge conveyor with shrink tunnel and insure both conveyors are at the same elevation.

9.2.2 Open electrical enclosure located on the rear of the machine and visually inspect for loose wires.

9.2.3 Connect a clean air supply to the filter/regulator unit located on the rear discharge frame leg. Adjust the filter/regulator to read 80 psi. (Air supply must be minimum 100PSI and capable of delivering minimum 1CFM)

9.2.4 Connect machine to power source, using the plug provided with the machine. Supply line should be 120 Volt, 20 Amp grounded supply.

CAUTION: MACHINE SHOULD BE GROUNDED IN ACCORDANCE WITH LOCAL ELECTRICAL CODES!

9.2.5 Turn on the power by switching the green power switch located on the infeed conveyor cover to the ON position. The switch should illuminate. If the power does not come on, ensure the Emergency Stop button is in the released position by turning it clockwise a 1/4 turn. This should release the switch.

9.2.6 The operator display should illuminate and display the message "6600 AUTOMATIC". If the green power light is illuminated and the display does not light, check the connections on the display unit.

9.2.7 The upper two left hand LED's on the operator interface will blink. Place the machine in Set Up Mode by depressing the Set Up Mode button. The Display should read "SET UP MODE". Check the operation of the film advance motor by depressing the "FILM ADVANCE" button. Also check the operation of the seal head by depressing the "MANUAL SEAL" button. The seal head will release if the button is disengaged. If the button is continuously depressed the seal head will complete one cycle until it is pressed again.

WARNING: TO AVOID PERSONNEL INJURY KEEP HANDS AWAY FROM MOVING BELTS, AND OUT FROM UNDER THE SEAL JAWS.

9.2.8 Test machine safety sensors:

9.2.8A Guard: Release the two cam lock handles at the base of the guard and allow the guard to open.

WARNING: **THE GUARD IS ASSISTED BY TWO GAS STRUTS. THESES STRUTS ARE UNDER PRESSURE WHEN THE GUARD IS CLOSED. WHEN THE HANDLES ARE RELEASED THE GUARD MAY OPEN WITH FORCE. KEEP HOLD OF THE GUARD HANDLE AND GUIDE THE GUARD OPEN TO AVOID A SUDDEN SPRING OPENING OF GUARD.**

Close the guard and lock down the cam lock handles. A message "GUARD OPEN" should appear on the display. Press "CYCLE RESTART" to clear the message. If this does not happen the guard sensor located on the right rear of the aluminum guard frame may need adjusting.

9.2.8B Seal arm: Place a 1/4" obstruction (stack of paper or a magazine) between the end seal jaws.

CAUTION: **THE KNIVES ARE MADE OF COATED ALUMINUM. IF THE JAWS ARE CLOSED ON A MATERIAL WHICH IS HARDER THAN THE ALUMINUM, I.E. STEEL, THERE IS A RISK OF DENTING OR KNICKING THE KNIFE BLADE. THIS WILL RENDER THE BLADE INOPERABLE.**

Depress the manual seal button. Upon hitting the obstruction, the jaws should return to the open position without completing the cycle. The digital display should read "SEAL ARM JAM". Remove the obstruction. Depress the "CYCLE RESTART" button to clear the display. If the jaws close on the obstruction without indicating a jam, the safety override switch, or the head safety prox switches may require adjustment. The safety override switch is located on the seal arm cylinder. This switch is the one closest to the front head of the cylinder. The switch can be adjusted by loosening the band screw, and adjusting the sensor towards the front of the cylinder.

NOTE: **This process may be a trial and error process until the operator becomes familiar with the devices and operations.**

9.2.8C Film Advance: With the machine in "SET-UP" mode, raise the machine hood and place an obstruction i.e. a pencil in the infeed of the film advance belts. Close the hood, press cycle restart to clear the "GUARD OPEN" message and press the "FILM ADVANCE" button. This will advance the pencil into the film advance belts and should trigger an error message on the display to read "FILM ADVANCE JAM". Remove the pencil and press "CYCLE RESTART" to clear the message. If the pencil does not trip the sensor, adjust the sensor actuator, located on the upper film advance pulley shaft, upward until it activates the sensor with the pencil in place.

9.2.8 Test machine safety sensors:

9.2.8A Guard Door: Open the safety door located on the front of the cover assembly by pulling on the handle. A "GUARD DOOR OPEN" message should appear on the display panel. Press "CYCLE RESTART" to clear the message. If this does not happen the sensor located on the door may need adjustment.

9.2.8B Guard: Release the two cam lock handles at the base of the guard and allow the guard to open.

WARNING: **THE GUARD IS ASSISTED BY TWO GAS STRUTS. THESES STRUTS ARE UNDER PRESSURE WHEN THE GUARD IS CLOSED. WHEN THE HANDLES ARE RELEASED THE GUARD MAY OPEN WITH FORCE. KEEP HOLD OF THE GUARD HANDLE AND GUIDE THE GUARD OPEN TO AVOID A SUDDEN SPRING OPENING OF GAURD.**

Close the guard and lock down the cam lock handles. A message "GUARD OPEN" should appear on the display. Press "CYCLE RESTART" to clear the message. If this does not happen the guard sensor located on the right rear of the aluminum guard frame may need adjusting.

9.2.8C Seal arm: Place a 1/4" obstruction (stack of paper or a magazine) between the end seal jaws.

CAUTION: **THE KNIVES ARE MADE OF COATED ALUMINUM. IF THE JAWS ARE CLOSED ON A MATERIAL WHICH IS HARDER THAN THE ALUMINUM, I.E. STEEL, THERE IS A RISK OF DENTING OR KNICKING THE KNIFE BLADE. THIS WILL RENDER THE BLADE INOPERABLE.**

Depress the manual seal button. Upon hitting the obstruction, the jaws should return to the open position without completing the cycle. The digital display should read "SEAL ARM JAM". Remove the obstruction. Depress the "CYCLE RESTART" button to clear the display. If the jaws close on the obstruction without indicating a jam, the safety override switch may need adjustment. The safety override switch is located on the seal arm cylinder. This switch is the one closest to the front head of the cylinder. The switch can be adjusted by loosening the band screw, and adjusting the sensor towards the front of the cylinder.

NOTE: **This process may be a trial and error process until the operator becomes familiar with the devices and operations.**

9.2.8D Film Advance: With the machine in "SET-UP" mode, raise the machine hood and place an obstruction i.e. a pencil in the infeed of the film advance belts. Close the hood, press cycle restart to clear the "GUARD OPEN" message and press the "FILM ADVANCE" button. This will advance the pencil into the film advance belts and should trigger an error message on the display to read "FILM ADVANCE JAM". Remove the pencil and press "CYCLE RESTART" to clear the message. If the pencil does not trip the sensor, adjust the sensor actuator, located on the upper film advance pulley shaft, upward until it activates the sensor with the pencil in place.

9.2.8E **Emergency Stop:** Place the machine in "AUTO MODE". Press the "CYCLE RESTART" button to start the machine. The machine should be running. Press the Emergency stop button located on the infeed conveyor front cover. The machine should stop, and the power light (green) located on the "ON/OFF" switch should go dark. Restart the machine by turning the emergency stop button to the right a 1/4 turn. This action will release the button, and cause the green power light to illuminate. The machine should power on and the operator display should read "6600 AUTOMATIC". The machine can be restarted by placing the machine in "AUTO MODE" and pressing the "CYCLE RESTART" button.

9.2.9 Set the temperatures of the heaters to the appropriate setting for the film being used: **TYPICALLY: 300-320 for PVC films or 350-390 for polyolefin films**. This can be done by depressing the "TEMP. SET POINT" button and entering the value desired. The value can be entered either by using the numerical keypad and punching in the numerical number followed by the enter key, or by using the "up" or "down" arrows followed by the enter key. The display will toggle between "ESEAL =....." and SSEAL =....." with the pressing of the "E" (enter) button on the keypad. The actual temperature of the heaters can be observed by depressing the "ACTUAL TEMP" button. The display will show the actual temperature of the knives. The temperatures of the side seal heater and end seal heater can be observed by toggling the "ACTUAL TEMP." button. The accuracy of the knife temperature controllers is tuned to +/- 5 degrees F with the machine in steady state. This accuracy is sufficient control for this machine.

9.2.10 Set the dwell, trail, and lead timers to accommodate the package to be run. A typical starting point for each may be: Dwell = 1.80s, Trail = 0.08s, Lead = 0.10s. These are general settings, the optimal settings for each package will vary. The timers can be set by depressing the "TIMERS" button. This will cause the display to read "DWELL TIME =.....s". The dwell time can be set at this point by entering a value in from the numerical keypad followed by the "E" (enter) button. This action will cause the display to toggle to the next value, "TRAIL TIME". The enter button can be depressed to toggle through all the machine timers. A timer exists for "AUTO SHUT OFF". This timer can be set between 1 - 30 minutes. This timer turns the conveyor motors off after the set amount of time if the machine has not been cycled. This becomes useful for extending the life of the components (motors, bearings, etc.) should the machine sit idle for lengthy periods of time.

9.2.11 Set the Photo-Eye selector switch to the desired setting for the selected product. This switch is located on the infeed conveyor front cover.

9.2.12 Select the proper film size for the package to be run. A typical size calculation for products less than 3" high is: **HEIGHT(MIN=2") + WIDTH +4" = FILM WIDTH**. This is typical for centerfold film. For products exceeding 2" add approximately 1".

9.2.13 Adjust the infeed conveyor width and the inverting head height to accommodate the package to be wrapped. The infeed conveyor is adjustable front to back using the spring release handle located under the front infeed conveyor deck. The inverting head is adjusted vertically using the turn handle located on the left, front of the infeed conveyor deck.

9.2.14 Place the appropriate width centerfold film on the film cradle and thread according to the threading instructions in Figure 1 (or Figure 2).

NOTE: WHEN THE FILM CRADLE IS RETURNED TO IS HOME POSITION UNDER THE MACHINE A SET OF ROLLERS WILL AUTOMATICALLY ADVANCE OUT AND UPWARD IN THE REAR OF THE MACHINE. THIS IS TO FACILITATE FRONT LOADING CAPABILITIES.

Thread the film through the inverting plates following the instructions below.

1. Pull the film over the infeed conveyor , under the upper inverting plow (triangle) to a point approximately 1 foot past the front of the infeed conveyor.

2. Unfold the film. Grasp the left edge of the lower web of film at the back of the infeed conveyor , and hook it over the right corner of the lower inverting plow (triangle) located at the rear underside of the infeed conveyor approximately 6" from the infeed end of the assy. Move the film toward the seal head along the back edge of the infeed conveyor until the edge reaches the left, rear corner of the infeed conveyor.

3. Open the Hood Cover Assy., grasp the corner of the film just moved in step 2 and move it behind, then under the discharge nose of the infeed conveyor. Once under the infeed conveyor, continue pulling the corner of the film toward the front until it reaches the film advance belts.

4. Lay the top web of film over top the upper inverting plow (triangle), and move the top film web corner to the film advance belts.

5. Straighten the film and remove all folds and wrinkles.

6. Place the two webs of film together at the film advance belts, and with equal tension on each web roll or fold the webs into the infeed end of the film advance belts. Insure that at least 1" of film protrudes out the front edge of the belts (the side closest to yourself).

7. Close the Hood Cover Assy. And, making sure the machine is in SET UP MODE, depress the FILM ADVANCE button sporadically to slowly advance the film into the film advance belts.

8. Open the front access door and grasp the film and guide it to a point just shy of the end of the side seal knife, while pressing the FILM ADVANCE button.

9. Close the access door and complete a manual seal by depressing and holding the MANUAL SEAL button. Reach in from the left end of the machine and remove the scrap bag of film just produced.

10. Repeat this procedure until there exists a long enough scrap tail to feed through the hole in the discharge end cover and tie off to the scrap take-up wheel, located under the front of the machine.

NOTE: THE "FILM ADVANCE" BUTTON WILL STILL FUNCTION WITH THE GUARD DOOR OPEN. THE "MANUAL SEAL" BUTTON WILL NOT FUNCTION.

9.2.15 Ensure all scrap is removed from the seal area of the machine, and that all guard doors are closed.

9.2.16 Place machine in "AUTO MODE" by depressing the "AUTO MODE" button. Start the machine by depressing the "CYCLE RESTART" button.

9.2.17 Cycle the machine by obstructing the beam of the photo eye. Observe the machine to ensure all operations are normal. Observe that the film advance belts should start running when the photoeye beam is blocked with the conveyor belts continuing to run. When the beam is opened the conveyors and the film advance belts should continue running for the duration of the trail timer. When the trail timer times out the conveyors and the film advance belts will stop. The seal jaws should close and remain closed for the duration of the dwell timer. When the dwell timer times out, the jaws will automatically open. The conveyors and the film advance belts should start when the seal arm jaws are fully opened. The film advance belts will run for the duration of the lead timer. When the lead timer times out the film advance belts will stop while the conveyor continues to run.

9.2.18 Test run a few products through the machine to fine tune the dwell, lead, and trail timers in order to achieve as tight a bag around the product as practical. This will aid in the shrink process. The size of the bag is dependent upon the infeed conveyor adjustment, the upper inverting head adjustment, the lead timer and the trail timer.

9.2.19 The Clamco 6600 Automatic L-Sealer is designed to immediately shut down should any faults occur. The operator interface is designed to indicate the reason for the fault and display a message to the operator to aid in the trouble shooting process. The possible faults which can occur are as follows:

"SEAL ARM JAM" -	The machine has encountered an obstruction in the seal area.
"FILM ADVANCE JAM" -	The machine has encountered an obstruction between the film advance belts.
"GUARD OPEN" -	The lexan hood has been opened.
"GUARD DOOR OPEN" -	The lexan door on the front of the cover has been opened. (N/A on S/N 66038 and succeeding)
"AUTO SHUT OFF" -	The machine has been idling for a duration longer than the preset value entered by the operator.

Should any of these faults occur, locate the problem and correct it. The machine can be restarted by depressing the "CYCLE RESTART" button on the operator panel..

When in production, be sure to keep a minimum spacing of 4" between products. Random spacing is acceptable as long as there are no two products spaced closer than 4". The machine is not capable of separating products.

10.0

CHANGEOVER FOR VARIOUS PACKAGE SIZES

10.1 GENERAL:

Product changeover is a relatively simple process on the Clamco 6600 Automatic L-Sealer. The following procedures define the required steps to change the machine over.

10.2 FILM CHANGE OVER:

Break the existing web of film and run the film out of the machine. Remove the existing film roll off the cradle, either upper or lower. Place the, proper size, new roll of film on the cradle. Typical size calculation for products less than 3" high is: **HEIGHT(MIN=2") + WIDTH +4" = FILM WIDTH**. This is typical for centerfold film. For products exceeding 3" add approximately 1". Thread the film through the film cradle as shown in the film threading diagrams. (FIG 1 and Fig 2.) Feed the film over (under, if feeding from the upper cradle) the Adjusting Roller Assy. and into the inverting plate area. Thread the film through the inverting (Ref Section 9.2.14) plates and into the film advance belts.

10.3 WIDTH CHANGE:

The infeed conveyor can be moved in and out of the machine to accommodate for variable package widths. This is accomplished by reaching under the front edge of the infeed conveyor, near the middle, and pulling up the handle to release the gear rack assembly. The handle is spring loaded. With the handle pulled up the infeed conveyor can be moved in or out on a pair of linear bearings. The width capabilities of the Clamco 6600 Automatic L-Sealer are 2 1/2" - 17".

10.4 HEIGHT CHANGE:

The upper inverting plow (triangle) can be manually adjusted to allow for variable height packages. This is done by turning the upper inverting plow crank handle. This handle is located in either of two locations depending on whether the machine is equipped with an upper film cradle assembly. If the machine **does not have** an upper film cradle assembly, the crank handle is located at the rear left end of the infeed conveyor. It is mounted to the top of the adjusting acme threaded screw. If the handle is located in this position, turning the crank clockwise will raise the inverting plow, consequently, turning the crank counterclockwise will lower the plow. If the machine **does have** an upper film cradle the handle is located in the front, left end of the infeed conveyor assembly, mounted below the front guard. If the handle is located in this position, turning the crank clockwise will lower the inverting plow, consequently, turning the crank counterclockwise will raise the plow. The allowable height range for products is 1/4" - 6".

10.5 LENGTH CHANGE:

There are no adjustments required for length changes in the product. The product detect photoeyes pick up and start the seal cycle of the trailing edge off the product, regardless of the product length. The allowable range of product lengths is 3 1/2" - 21".

10.6 ELEVATOR CHANGES:

Ideally the seal bead should be located at or near the center of the package profile (height). This is accomplished by raising and/or lowering the elevator assembly. This assembly will in turn raise or lower the upper and lower jaw assemblies consequently changing the location of the seal in relationship to the conveyor table. Turning the crank handle **clockwise** will **lower** the assembly, conversely turning the crank handle **counter-clockwise** will **raise** the assembly.

10.7 TIMER CHANGES:

The three timers, Dwell Time, Trail Time, and Lead Time, on the machine may have to be adjusted to create the proper film envelope on the product. The Dwell Timer will be dependent on the type of film which is run. This timer will coincide with the temperature setpoints of the knives. The Trail Timer and Lead Timer are dependent on the package size to be run. Typically a large profile (height) package will require a longer Trail Time than a low profile package. These timers are also dependent on the shape of the package to be run. Trial and error and experience will prove to be most effective when setting these timers.

10.8 TEMPERATURE SETTINGS:

The temperature setpoints of the knives may have to be adjusted to compensate for the chosen film to be run. **Typical settings for film are 300-320 for PVC films and 350-390 for Polyolefin films.** Consult your film distributor and/or manufacture for recommended settings. The required temperature settings will also coincide with the Dwell Timer setting.

11.0

SEAL AREA SET-UP

11.1 GENERAL:

The seal area is the most important area of the machine. It is therefore imperative this area is set up properly and kept in good operating condition. There are three areas which are interrelated; The Seal Cylinder/Actuating Shaft, the Lower Seal Jaw, and the Upper Seal Jaw. The Seal Cylinder/Actuating shaft determines the maximum opening of the jaws, the speed of the jaws, and the pressure of the jaws. The Lower Jaw houses the seal pads which contribute to good clean seals. The Upper Jaw contains the heating elements and knives which are the main factor in the sealing process.

11.2 SEAL CYLINDER:

The seal cylinder is a 2" bore, 5" stroke air cylinder designed to operate at 80psi. The cylinder is set to utilize approximately 4" of the allowed stroke to ensures a constant force between the knives and seal pads throughout the sealing cycle. If the piston bottoms out on the front cap of the cylinder, this will cause the force to be transferred and carried by the cylinder rather than the seal jaws. Connected to each of the cylinder ports are flow control devices which control the air flow "out" of the cylinder. These flow control devices regulate the exhaust of the cylinder providing an accurate speed control for the cylinder. The flow controls consist of a small needle valve design which allows for precision adjustment. The flow controls incorporate a locking jam nut to lock the valve in position once the optimal setting has been achieved. The flow controls also incorporates quick release style fittings for the air lines to ensure rapid assembly and/or maintenance. The flow control mounted on the front (piston rod end) of the cylinder controls the rate at which the cylinder extends, or, rate at which the jaws close. The flow control mounted on the rear of the cylinder (machine mount end) controls the rate at which the cylinder retracts, or, rate at which the jaws open. The cylinder also incorporates a magnetized piston which can be sensed by solid state proximity devices. Two such devices are mounted to the cylinder utilizing band mounts. These sensors can be quickly adjusted by loosening the screw on the sensor and sliding the sensor and band along the length of the cylinder. The sensor mounted at the rear of the cylinder is used to indicate the cylinder is fully retracted; jaws are open. This indicates it is safe for the conveyors to run and feed product into the seal area. The sensor mounted toward the front nose of the cylinder is used to indicate the jaw is closed. This sensor is set to pick up the piston through the full compression of the jaws. (The compression is the time at which the film clamps and knife first meet the seal pad, to the time the springs mounted on the lower jaw are compressed). This is set with the system air pressure at 80psi.. It is imperative the front sensor detects the piston through the full compression cycle. Typically, the compression on the springs will amount to approximately 1/4". The front nose sensor negates the film clamp safety proximity switches mounted on the Upper Jaw assembly. The safety proximity switches mounted on the upper jaw detect if the jaw encounters any obstruction in the seal area. These safeties are set to trigger on obstructions 1/4" or larger. This range of obstruction will cover any part of the human anatomy. This should also cover any product within the recommended range of operation. If the proximity switches mounted on the upper jaw assembly are triggered prior to the sensor on the front nose of the cylinder being energized, the machine will immediately cease the seal cycle and return the jaws to the open position.

11.3 ACTUATING SHAFT:

The actuating shaft for the seal jaws is a solid shaft mounted to the elevator assembly at both ends with flange bearings. The cylinder is attached to the jaw with a "keyed" lever arm. The lever arm rigidly mounts to the shaft which ensures positive engagement of the cylinder actuation. At each end of the shaft a lever arm is mounted on a "Trantorque" which operates the jaws . The lever arm has two hex shafts mounted at each end which are in turn mount to the jaw assemblies, one to the upper jaw, one to the lower jaw. The rotation of the shaft causes this lever to rotate, in turn causing the upper jaw to pivot down and the lower jaw to pivot up. This action produces the compression between the jaws. The "Trantorque" device provides a positive, easily adjustable system for locking these lever arms in place. The angle at which these levers are locked in place determines the maximum opening of the jaws. It is imperative the two levers are set at the same angle of rotation prior to the "Trantorque's being secured. This will ensure an even distribution of force to the seal jaws. The jaws are set at the factory to produce a 6 1/2" opening between the bottom of the knife blade on the upper jaw and the top of the seal pad on the lower jaw, with the cylinder in the fully retracted position. This enables the machine to run a 6" high package.

To set the position of the actuating shaft and lock the trantorque devices in place the following steps should be taken:

1 Remove the film clamps from the seal bar assemblies.

2. Set the threaded rod ends on each of the hex shafts to the lowest position (screwed into the shaft) possible.

3. Ensure the cylinder is connected securely to the lever arm and the lever arm is tightened securely to the actuating shaft

4. Move the cylinder to the fully retracted position, (piston to the rear of the cylinder). This can either be done manually or with air hooked up to the machine. Preferably with air to ensure cylinder remains fully retracted.

5. Insert a 6 1/2" spacer between the top of the lower seal pad and the knife blade

   CAUTION: THE KNIFE BLADES ARE MADE OF COATED ALUMINUM, BE CAREFUL NOT TO KNICK OR DENT THE EDGE OF THE BLADE.

6. Tighten the "Trantorque" devices using a 1 1/2" box end wrench. The devices should be tightened as a pair.

   NOTE: While the trantorques are loose the lever arm will slide axially on the trantorques and the trantorques will slide axially on the shaft. Ideally the location of each will be set such that the hex shafts move perpendicular to the jaw weldments.

7. Remove the air and let the jaws close. Do not compress the jaws. Ensure the upper and lower jaws are square to each other, by observing that the knife blade and seal pad meet uniformly along the entire length of side and end seal. If there is a need for minor adjustment, the threaded rod ends on the hex shafts can be rotated out of the shaft to open up one side of the jaws, consequently squaring the jaws.

8. Replace the film clamps on the seal bar assemblies.

11.4 LOWER SEAL JAW:

The lower seal jaw is mounted to the machine on two shafts at the discharge end, and attached to hex shafts at the infeed end of the assembly. These hex shafts are the same as mentioned in the above section which mount to the lever arms on the actuating shaft. The assembly pivots on the two shafts at the discharge end with the rotation of the actuating shaft. This assembly contains the seal pads mounted to a welded frame. The pads float on compression springs. These springs provide a consistent force along the length of the seal pad when the jaws are closed. It is important the springs are pretensioned only enough to level the pads with the knives. Over tensioning the springs will cause little or no compensating compression between the knives and the pad and may lead to weak or inconsistent seals. The pads are set at the factory using a 1" spacer between the bottom of the pad and the top of the weldment. If after the actuating shaft and trantorques are set in place, the system requires further fine tuning, the appropriate spring should be adjusted to lower the pad, thus eliminating high spots. If there is a spot with a weak seal the spring tensioning bolt can be loosened to raise the specific area of the pad thus providing more compensating compression. The spring tension is adjusted by either loosening or tightening the locknut on the seal pad stud.

11.5 UPPER SEAL JAW:

The upper jaw assembly is mounted in a similar fashion as the lower jaw. This assembly contains the cartridge heaters, temperature sensors, knife blades, film clamps, and jaw safety proximity switches. The set up of the upper jaw is critical to consistent, strong seals. The jaw assembly consists of two seal knife assemblies; a side knife, and an end knife. The configuration of each is identical other than varying length. The knife and heater are sandwiched between two aluminum extrusions and mounted to a piece of plated bar stock. The extrusions are bolted together through the knife, holding the knife in place and clamping the heater secure. The upper edge of the knife should be bottomed out in the extrusion slot to ensure the knife is level. The knife edge should be free of all knicks and/or scratches, and wiped clean of excess plastic. (For best results, the knife blades should be wiped clean while hot.) The knife blade assemblies are mounted to the upper jaw weldment with threaded studs. The assemblies are set in place using a 1" spacer between the top of the bar stock, on the knife assembly, and the bottom side of the weldment. The knife assemblies can be lowered or raised via the threaded rods used to bolt the assemblies to the welded frame. This can be done to further fine tune problems with the seal area. This should be the last adjustment made to ensure good seals, first being the actuating shaft, and second the lower seal pads.

The film clamps are mounted to small mounting blocks which float on shafts mounted through the welded frame into the knife assembly bar stock. These mounting blocks are spring loaded to provide the holding force on the film when the jaws are closed. In four locations there are 90 degree tabs mounted to the film clamps which are used to trigger the jaw safety proximity (prox) switches. To set the spacing of these tabs, close the jaws until the film clamps rest on the seal pads, (do not compress the film clamp springs) insert a 1/8" spacer between the bottom of the tabs and the top of the wire conduit (two standard 1/4" flat washers will do). Secure the tabs in place. When the seal jaws are automatically closed the safety tabs should trigger the safety prox switches. If there are no obstructions the safety prox switches should trigger after the sensor on the front nose of the cylinder energizes. This will negate the jaw safety prox switches and not cause a fault. If however the film clamps encounter an obstruction and any one of the jaw safety prox switches is triggered prior to the sensor on the nose of the cylinder energizing, then the jaws will immediately return to the open position and a fault will occur. The display will read "SEAL ARM JAM". If this does not occur, the sensor on the front nose of the cylinder may need adjustment. It is easier to start adjusting this sensor than to try to adjust the jaw safety tabs. If unsuccessful at eliminating the problems by adjusting only this sensor, the jaw safety trigger tabs may need adjustment.

11.6 MAINTENANCE / REPLACEMENT

11.6.1 SEAL PADS

Refer to section 13.2 "SPARE PARTS LIST" for replacement part numbers.
If the silicon pads need to be replaced, remove the old tape and pull the old pads out. Ensure the welded pad trays are clean of debris; lay the new pads in place. The pads are covered with two strips of teflon tape which provide the seal surface. The first strip down is 1" wide and should cover the seal pad. The second is a 1/2" wide strip and is run the length of the seal pad on centerline with the knife blade. This is the strip which provides the backing to the knife. The teflon strips should be kept clean and free of wrinkles. When replacing the tape replace both pads together. The 1" strip of tape should be placed on both of the pads with the side pad strip cut to butt up against the end pad. **DO NOT OVERLAP THE TWO.** The 1/2" strips should then be placed down, again butt the end of the 1/2" side strip up to the edge of the 1/2" end strip. This will ensure an even surface for the knives to meet and seal the plastic.

11.6.2 KNIFE BLADE(S)

WARNING: Heat sealing equipment on the seal arm assemblies can get very hot. Keep hands away from heat source while machine is in operation, and use caution if the machine has been recently in use.

Refer to section 13.2 "SPARE PARTS LIST" for replacement part numbers.
If the knife blades become knicked or worn to the point where they require replacement, the following describes the replacement procedure.

1. Remove the inner film clamps from the knife assembly requiring replacement.
2. Remove the socket head cap screws (SHCS) from the inside heat bar. These are used to clamp the two bars together and hold the knife in place. There are (5) on the end seal and (6) on the side seal.
3. Loosen the SHCS on the top bar that hold the inner heat bar in place. There are (4) on each assembly. Only the screws holding the inside bar need to be loosened.
4. Drop the knife blade out the bottom of the assembly.
5. Insert the new knife blade ensuring the top of the blade is bottomed out on the notch in the extrusion.
6. Replace the SHCS that hold the knife in place, and re-tighten the screws on the top of the heat bars.
7. Replace the inner film clamp.

11.6.3 CARTRIDGE HEATER(S)

WARNING: Heat sealing equipment on the seal arm assemblies can get very hot. Keep hands away from heat source while machine is in operation, and use caution if the machine has been recently in use.

WARNING: Do not tamper with electrical wiring unless licensed or trained to do so. Disconnect main power to the machine before attempting any electrical service.

Refer to section 13.2 "SPARE PARTS LIST" for replacement part numbers.
If the cartridge heater becomes defective and requires replacement, the following describes the replacement procedure.

11.6.3A SIDE SEAL HEATER:

1. Disconnect the main power from the machine.
2. Remove the wire-way cover from the wire-way located on the upper seal assembly.
3. Remove the wire nuts which connect the heater wires to the lead wires going back to the electrical enclosure. Pull the heater wires out of the wire-way.
4. Loosen the set screw on the outer heater bar (discharge end) which secures the heater in place.
5. Loosen the socket head cap screws (SHCS) from the inside heat bar. These are used to clamp the two bars together and hold the heater in place. There are (6) on the side seal heat bar.
6. Slide the cartridge heater out of the discharge end of the machine.
7. Coat the replacement cartridge heater with heat sink compound and slide into place between the heat bars.
8. Re-tighten the SHCS that holds the heat bars together.
9. Secure the cartridge heater in place by tightening the set screw on the outer heat bar.

   NOTE: Do not over tighten the set screw as damage to the heater may occur.
10. Feed the wires into the wire-way and wire the heater into place.
11. Replace all wire-way covers.
12. Reconnect the main power to the machine

11.6.3B END SEAL HEATER:

1. Disconnect the main power from the machine.
2. Remove the wire-way cover from the wire-way located on the upper seal assembly.
3. Remove the wire nuts which connect the heater wires to the lead wires going back to the electrical enclosure. Pull the heater wires out of the wire-way.
4. Loosen the set screw on the inner heater bar (rear of machine) which secures the heater in place.
5. Remove the inner film clamp from the end knife assembly.
6. Remove the socket head cap screws (SHCS) (5) from the inside heat bar. These are used to clamp the two bars together and hold the heater in place.
7. Remove the SHCS (4) on the top bar that hold the inner heat bar in place. Only the screws holding the inside bar need to be removed.
8. Remove the inner heat bar, and old cartridge heater.
9. Coat the replacement cartridge heater with heat sink compound and place into the inner heat bar just removed.
10. Remount the inner heat bar and new cartridge heater using the (4) SHCS. Insert the knife blade ensuring the top of the blade is bottomed out on the notch in the extrusion and replace the SHCS that hold the knife in place.
11. Secure the heater in place by tightening the set screw on the inner heat bar.

    NOTE: Do not over tighten the set screw as damage to the heater may occur

12. Wire the heater in place and replace the covers on the wire-way.
13. Replace the inner film clamp.
14. Reconnect the main power to the machine

12.0

MACHINE MAINTENANCE

12.1 GENERAL:

The machine should be inspected on a timely basis to ensure all is functioning well and in good working order. There is not much required to keep the machine running trouble free. The most important area, as mentioned before is the seal head. The following are recommendations for preventative maintenance on the machine to keep it performing well over an extended period.

12.2 MAINTENANCE TIPS:

1. With the knives in the operating condition (still hot) take a soft clean cloth and wipe the knives clean of any film residue that has built up on them.

   CAUTION: DO NOT TRY TO CHIP CAKED ON RESIDUE OFF WITH A OBJECT HARDER THAT THE KNIFE SURFACE (I.E. STEEL). THIS WILL SCRATCH THE KNIFE COATING AND RENDER THE KNIFE INOPERABLE.

2. Inspect the teflon tape on the seal pads and replace as required according to the instructions in Section 11.6.1.

3. Inspect the conveyor belts for wear and misalignment. If the belts are not tracking properly adjust the idler rollers to realign the belts. Replace worn belts as needed.

4. Lubricate the inverting head screw and guide shafts with household (3 in 1) oil on a monthly basis to keep the assembly turning freely.

5. Lubricate the infeed conveyor pillow block bearings every 100 hrs of operation using bearing grease. The bearings are located under the covers on the infeed end of the conveyor assembly. They are each equipped with a zert fitting

6. Lubricate the guide rods for the film clamps every 100 hrs with a high temp, anti seize lubricant. This will ensure free movement of the film clamps.

7. Lubricate all chain drives every 160 hrs of operation with a bearing grease or chain lubricant.

8 Check the air filter trap for trapped water. The device is equipped with a automatic blow off unit. If this starts it may slowly blow off for an extended period. This can be "sped" along by pushing the black mounting on the bottom of the device up thus allowing more "blow off" pressure.

9. General cleaning of the machine wiping down the conveyor belts and other flat surfaces to remove dirt buildup. Do not use any type of belt dressing on the conveyor belts.

13.0

TROUBLESHOOTING

13.1 GENERAL:

The following guidelines are intended to ease the solution of potential problems that may be encountered during the every day operations of the machine. The cause/solution statements are generally arranged in order of most probable, easiest solution first on up to more involved, difficult solutions. If all possible solutions have been tried the distributor or factory should be consulted.

SYMPTOM	POSSIBLE CAUSE AND SOLUTION(S)
1. **MACHINE DOES NOT POWER ON**	A. Check 'E' stop button B. No power or incorrect voltage C. Check power supply line D. Check main fuse 1FU(20amp) E. Check condition of main circuit breaker F. Check condition of main power switch
2. **MACHINE POWERS 'ON' BUT PLC DOES NOT**	A. Check fuse 11FU(2.0Amp) between wires 5 and 31 B. Check 2.5amp slo-blo fuse on PLC C. Check condition of 24vdc power supply D. Check condition of electrical wiring
3. **PLC POWERS 'ON' BUT DISPLAY DOES NOT**	A. Check interface cable connections
4. **CONVEYOR MOTORS DO NOT RUN**	A. Check speed setting on interface B. Check current limit pot on motor controller 1MD (adjust if red indicator light is on) (CW more current; CCW less current) C. Check all switches on motor controller 1MD (115VAC input; 90VDC output) (ARM feedback) D. Check fuses on minarik motor controller 1MD (Left one) F. Check output #6 on PLC card A12C F. Check mechanical relay 1CR G. Check output voltage on wires 15 &16 (should be between 0-10vdc)
5. **INFEED CONVEYOR MOTOR RUNS, BUT DISCHARGE DOES NOT**	A. Ensure drive sprockets are secure B. Check fuse 4FU(2.5Amp) (between wires 19 - 17). C. Check motor wiring
6. **INFEED CONVEYOR BELT DOES NOT TRACK PROPERLY**	A. Check tension roller on assembly (belt will track to tighter side) B. Check for worn belt C. Check to ensure belt is on rollers

7.	**DISCHARGE CONVEYOR MOTOR RUNS, BUT INFEED DOES NOT**	C. Ensure drive sprockets are secure B. Check fuse 3FU(2.5Amp), (between wires 18 - 17). C. Check motor wiring
8.	**DISCHARGE CONVEYOR BELT DOES NOT TRACK PROPERLY**	A. Check tension roller on assembly (belt will track to tighter side) B. Check for worn belt C. Check to ensure belt is on rollers
9.	**FILM ADVANCE MOTOR DOES NOT RUN**	A. Check speed setting on interface B. Check current limit pot on motor controller 2MD (adjust if red indicator light is on) (CW more current; CCW less current) C. Check all switches on motor controller (115VAC input; 90VDC output) (ARM feedback) D. Check fuse 6FU(1.25Amp) (between wires 37 -26) E. Check fuse 5FU(5Amp) on motor controller 2MD F. Check mechanical relay 2CR G. Check output #7 on PLC card A12C H. Check output voltage on wires 24 & 25 (should be between 0-10vdc)
10.	**FILM UNWIND MOTOR DOES NOT RUN (LOWER CRADLE)**	A. Check fuse 7FU (1.25 Amp) between wires 6 - 5 B. Check limit switch 1LS C. Check brake 1BRK to make sure it is energizing D. Check motor wiring
11.	**FILM UNWIND MOTOR DOES NOT RUN (UPPER CRADLE)**	A. Check fuse 8FU (1.25 Amp) between wires 9 - 5 B. Check limit switch 2LS C. Check brake 2BRK to make sure it is energizing D. Check motor wiring
12.	**KNIFE HEATERS DO NOT GET HOT**	A. Check fuse 9FU (6.3Amp) between wires 27 - 5 B. Check solid state relays 1SSR, 2SSR C. Check PLC output #4 D. Check heater wiring E. Check heater
13.	**HEATERS DO NOT TURN OFF**	A. Check T/C feedback to ensure side heater is being controlled by side T/C (visa-versa on end seal) B. Check solid state relays 1SSR, 2SSR to make sure they drop off (deenergize) C. Check T/C wiring
14.	**HEATERS ARE NOT IN CONTROL (TEMPERATURES DO NOT STABILIZE)**	A. Check T/C feedback to ensure side heater is being controlled by side T/C (visa-versa on end seal) B. Check T/C lead wires C. (Check parameters in PLC program **Has to be performed by Clamco Technician)

	DISCHARGE CONVEYOR MOTOR RUNS, BUT INFEED DOES NOT	C. Ensure drive sprockets are secure B. Check fuse 3FU(2.5Amp), (between wires 18 - 17). C. Check motor wiring
8.	**DISCHARGE CONVEYOR BELT DOES NOT TRACK PROPERLY**	A. Check tension roller on assembly (belt will track to tighter side) B. Check for worn belt C. Check to ensure belt is on rollers
9.	**FILM ADVANCE MOTOR DOES NOT RUN**	A. Check speed setting on interface B. Check current limit pot on motor controller 2MD (adjust if red indicator light is on) (CW more current; CCW less current) C. Check all switches on motor controller (115VAC input; 90VDC output) (ARM feedback) D. Check fuse 6FU(1.25Amp) (between wires 37 -26) E. Check fuse 5FU(5Amp) on motor controller 2MD F. Check mechanical relay 2CR G. Check output #7 on PLC card A12C H. Check output voltage on wires 24 & 25 (should be between 0-10vdc)
10.	**FILM UNWIND MOTOR DOES NOT RUN (LOWER CRADLE)**	A. Check fuse 7FU (1.25 Amp) between wires 6 - 5 B. Check limit switch 1LS C. Check brake 1BRK to make sure it is energizing D. Check motor wiring
11.	**FILM UNWIND MOTOR DOES NOT RUN (UPPER CRADLE)**	A. Check fuse 8FU (1.25 Amp) between wires 9 - 5 B. Check limit switch 2LS C. Check brake 2BRK to make sure it is energizing D. Check motor wiring
12.	**KNIFE HEATERS DO NOT GET HOT**	A. Check fuse 9FU (6.3Amp) between wires 27 - 5 B. Check solid state relays 1SSR, 2SSR C. Check PLC output #4 D. Check heater wiring E. Check heater
13.	**HEATERS DO NOT TURN OFF**	A. Check RTD feedback to ensure side heater is being controlled by side RTD (visa-versa on end seal) B. Check solid state relays 1SSR, 2SSR to make sure they drop off (deenergize) C. Check RTD wiring
14.	**HEATERS ARE NOT IN CONTROL (TEMPERATURES DO NOT STABILIZE)**	A. Check RTD feedback to ensure side heater is being controlled by side RTD (visa-versa on end seal) B. Check RTD lead wires C. (Check parameters in PLC program **Has to be performed by Clamco Technician)

15.	**SEAL ARM REMAINS CLOSED**	A. Check plumbing on seal cylinder B. Check flow controls on cylinder ports C. Check solenoid valve to ensure proper operation D. Check output #2 on PLC
16.	**SEAL ARM REMAINS OPEN**	A. Check plumbing on seal cylinder B. Check flow controls on cylinder ports C. Check solenoid valve to ensure proper operation D. Check for mechanical obstructions in seal arm E. Check output #2 on PLC
17.	**SEAL ARM OPERATES IN REVERSE (OPENS WHEN SHOULD CLOSE) (CLOSES WHEN SHOULD OPEN)**	A. Check plumbing on seal cylinder
18.	**SEAL ARM SPEED (OPENING OR CLOSING) TOO SLOW OR TOO FAST**	A. Adjust flow controls on seal cylinder
19.	**MINIMAL OR ZERO PRESSURE BETWEEN SEAL PAD AND KNIFE BLADE**	A. Check pressure on main supply regulator (80psi Optimal) B. Check to ensure seal cylinder does not bottom out on front cylinder head C. Check seal cylinder speed vs. dwell time
20.	**SEAL ARM HESITATES (OPENING OR CLOSING)**	A. Check for consistent supply pressure B. Check for proper operation of solenoid valve C. Check for proper operation of flow controls D. Check for proper operation of seal cylinder
21.	**SEAL ARM ALWAYS INDICATES "SEAL ARM JAM" WHEN CLOSING**	A. Check for obstructions in the seal area B. Check air pressure on main supply regulator C. Check solid state reed switch on front nose of cylinder D. Check jaw safety sensors on upper jaw assembly E. Check wiring of jaw safety sensors F. Check inputs #4, #5, #6, #7 on PLC
22.	**SEAL ARM DOES NOT SENSE OBSTRUCTION**	A. Check solid state reed switch on front nose of cylinder B. Check jaw safety sensors on upper jaw assembly C. Check wiring of jaw safety sensors D. Check inputs #4, #5, #6, #7 on PLC
23.	**SEAL ARM CLOSES THROUGH SOME PORTION OF SEAL CYCLE, THEN INDICATES JAM WITHOUT COMPLETING FULL SEAL CYCLE (MAY STUTTER AND CONTINUE TO OPEN AND CLOSE)**	A. Check solid state reed switch on front nose of cylinder B. (Check parameters in PLC program **Has to be performed by Clamco Technician)
24.	**NO SEAL OR CUTOFF AT ALL**	A. Check air pressure on main supply regulator B. Check temperature of knives C. Check dwell time

25.	SEAL INCONSISTENT OR WEAK	A. Check air pressure on main supply regulator B. Check supply air pressure and volume C. Check knife temperatures D. Check seal cylinder operation E. Check film feed to ensure film is not unduly tensioned
26.	SEAL HAS HOLES OR WRINKLES	A. Check for knicks or burrs on knife blades B. Check for wrinkles or tears in teflon tape on seal pads C. Check for folds or wrinkles in film feed
27.	SEAL NOT CLEAN CUT; PACKAGE WILL NOT EXIT MACHINE	A. Check air pressure on main supply regulator B. Check supply air pressure and volume C. Check knife temperatures D. Check for knicks or burrs on knife blades E. Check for wrinkles or tears in teflon tape on seal pads F. Check for folds or wrinkles in film feed G. Check seal cylinder operation H. Check film feed to ensure film is not unduly tensioned I. Check for gap in corner where side and end knives meet J. Check for product obstructions upon exiting the machine K. Check seal head alignment, ensure upper and lower jaws meet uniformly throughout seal area
28.	SCRAP TAIL BREAKS	A. Ensure tail is min. 2" wide B. Check for obstructions in path of scrap tail C. Check for sharp edges or corners in path of scrap tail D. Check tension on take-up wheel clutch
29.	SCRAP TAIL DOES NOT WIND ON TAKE-UP REEL	A. Check that tail is secured to reel B. Check drive belt for scrap wheel C. Check tension on take-up reel D. Check film advance/scrap take-up reel motor
30.	FILM HAS TEARS IN IT	A. Check pin perforator B. Check for sharp edges on inverting plates
31.	FILM WILL NOT FEED THROUGH MACHINE SMOOTHLY	A. Check operation of dancer bar(s) B. Check for obstructions in film pathway C. Check film feed motor operation

14.0

GENERAL PARTS ORDERING INFORMATION

14.1 GENERAL:

Clamco recognizes certain items as wear items which may fail as a result everyday of wear and tear The exact time frame as to when these components fail or become too worn to provide quality operation is unknown. Any parts or accesories required for a Clamco machine may be obtained through the parts department. This section provides general information about Clamco Corp's parts department as well as a recommended spare parts list for the 6600 series machine. This list is provided as a benefit to the end user to help plan for items which may require replacement. More extensive lists, including every component used on this machine, are supplied in Section 15.0, Assembly Drawings.

14.2 CLAMCO PARTS DEPARTMENT:

CLAMCO CORPORATION
12900 PLAZA DRIVE
CLEVELAND, OHIO 44130
(216)-267-1911
FAX (216)-267-8713

The parts department is open 8:30 - 5:00 EST 5 days a week. When requesting parts for your machine the following information will expedite the process.

1. Model Number
2. Serial Number
3. Part Name and Number
4. Quantity Required
5. Purchase Order Number
6. Ship To Address

Your order can be proccessed much more expeditiously if this information is available prior to calling. Please specify method of shipment desired i.e. Next Day Air, UPS Standard Ground, Federal Express, etc. Every effort will be made to ship the parts as expeditiously as posssible.

14.3 RECOMMENDED SPARE PARTS LIST:

PART DESCRIPTION	PART NUMBER	QTY. USED PER MACHINE
1.25 Amp Fuse	216-91	3
2.0 Amp Fuse	216-92	1
2.5 Amp Slo-Blo Fuse	216-84	3
5.0 Amp Fuse	216-67	3
6.3 Amp Fuse	216-13	2
15 Amp Fuse	216-27	2
20 Amp Fuse	216-85	1
1.5 Amp Fuse	216-20	1
220VAC Units FRN-15	216-79	2
440VAC Units FRN-10	216-80	2
Infeed Conveyor Belt	78-1079	1
Infeed Conveyor Belt (FDA Approved)	78-883	(1)
Discharge Conveyor Belt	78-1078	1
Drive Belt, Scrap Reel	818-34	1
Timing Belt, Film Advance	809-10	4
DPDT Mechanical Relay	231-65	2
Relay Socket	231-66	2
SSR (Grayhill)	231-79	2
Magnetic Reed Switch (Hamlin)	215-130	1
Magnetic Switch Magnet (Hamlin)	215-131	1
Pilot Light ON/OFF Switch	219-39	1
Pilot Light Closing Conveyor Switch	219-43	1
Side Seal Pad Rubber	78-968	1
End Seal Pad Rubber	78-1021	1
Side Seal Cartridge Heater	225-52	1
End Seal Cartridge Heater	225-46	1
Side Seal Knife	78-930	1
End Seal Knife	78-1011	1
Heat Sink Compound	800-5	N/A
Teflon Tape (1.0" Wide)	228-11	36"
Teflon Tape (.5" Wide)	228-8	36"
Film Clamp Spring	796-62	4
Thermocouple	206-11	2

14.3 RECOMMENDED SPARE PARTS LIST:

PART DESCRIPTION	PART NUMBER	QTY. USED PER MACHINE
1.25 Amp Fuse	216-91	3
2.0 Amp Fuse	216-92	1
2.5 Amp Slo-Blo Fuse	216-84	1
2.5 Amp Fuse	216-93	2
5.0 Amp Fuse	216-67	1
6.3 Amp Fuse	216-13	2
15 Amp Fuse	216-27	1
20 Amp Fuse	216-85	1
1.5 Amp Fuse	216-20	
Infeed Conveyor Belt	78-1079	1
Infeed Conveyor Belt (FDA Approved)	78-883	(1)
Discharge Conveyor Belt	78-1078	1
Drive Belt, Scrap Reel	818-34	1
Timing Belt, Film Advance	809-10	4
DPDT Mechanical Relay	231-65	2
Relay Socket	231-66	2
SSR (Grayhill)	231-79	2
Magnetic Reed Switch (Hamlin)	215-130	2
Magnetic Switch Magnet (Hamlin)	215-131	2
Pilot Light ON/OFF Switch	219-39	1
Pilot Light Closing Conveyor Switch	219-43	1
Side Seal Pad Rubber	78-968	1
End Seal Pad Rubber	78-1021	1
Side Seal Cartridge Heater	225-52	1
End Seal Cartridge Heater	225-46	1
Side Seal Knife	78-930	1
End Seal Knife	78-1011	1
Heat Sink Compound	800-5	N/A
Teflon Tape (1.0" Wide)	228-11	36"
Teflon Tape (.5" Wide)	228-8	36"
Film Clamp Spring	796-62	4

Appendix A:

MINARIK MOTOR CONTROLLERS

GENERAL:

The conveyor motors and film advance motor on the machine are speed controlled using minarick motor controllers. The conveyor motors are coupled and controlled by one controller; the film advance motor is controlled by a separate controller. The controller for the motors is a 1/4-1hp controller and the controller for the film advance is for motors up to 1/4hp. The controller features include; isolated input and potentiometer circuit, adjustable min and max pots for fine tuning, start-stop input, dual voltage, on-board fusing, and quick disconnect terminal strips. The controllers are tuned at the factory and should not require any further adjustments. The following is the set-up procedure should a board require field replacement.

SET UP/TUNING:

The following steps are used to install and set up a motor controller for use on the 6600 series Automatic L-Sealer. Reference the following page, Fig 2, for the schematic of the drive.

WARNING: Do not tamper with electrical wiring unless licensed or trained to do so. Disconnect main power to the machine before attempting any electrical service.

1. The motor controller is a dual voltage drive, ensure both switches SW501 and SW502 are set to operate on the same voltage, 115VAC for this machine. The output voltage is also a dual voltage, either 90 or 180VDC. The drive will not power a 180VDC motor on 115VAC input, but it can drive a 90VDC motor on 230VAC input. Ensure SW503 is set at 90VDC for this machine.

2. Adjust the feedback switch SW504 to the ARM FB position.

3. Turn the speed adjust pots to the full CCW position, 10 turn pots P501, P502.

4. Adjust the ACCEL and DECEL pots, (P503, P504) to the full CCW position. This corresponds to maximum start speed and maximum stop speed.

5. Turn the machine on and set the CNVYR SPD setting to 0FPM. With a meter, measure the voltage across wires 15 and 16. This should read 0VDC. Now measure the voltage across wires 20 and 17; this should also read 0VDC. If this does not, adjust the min speed pot P502 to compensate.

6. Change the setting for CNVYR SPD to 100FPM. Use the meter to ensure the voltage across wires 15 and 16 is + 10VDC. Measure the voltage across wires 20 and 17 to ensure there is 90VDC output. If there is not, adjust the max pot P501 to compensate.

7. Turn the CNVYR SPD setting to 50FPM. Recheck the output voltage (wires 20 and 17) to ensure the output voltage is 45VDC. This will assure the control is linear. If there is need for further adjustments to linearize the drive; the min or max pots may need further adjustment.

8. Repeat this procedure for the film advance drive unit; only the wire numbers will be different. (REF schematic 79-215 sheet 6)

ADJUSTMENTS:

Once the drive is setup, the only adjustments required may be the ACCEL and/or DECEL pots; P503, P504. These will allow the drive to "ramp" the motor up to speed or down to stop. By turning the pots CW the drive will increase the ramp time. The drives are both initially set to run at max ramp time both on ACCEL and DECEL.

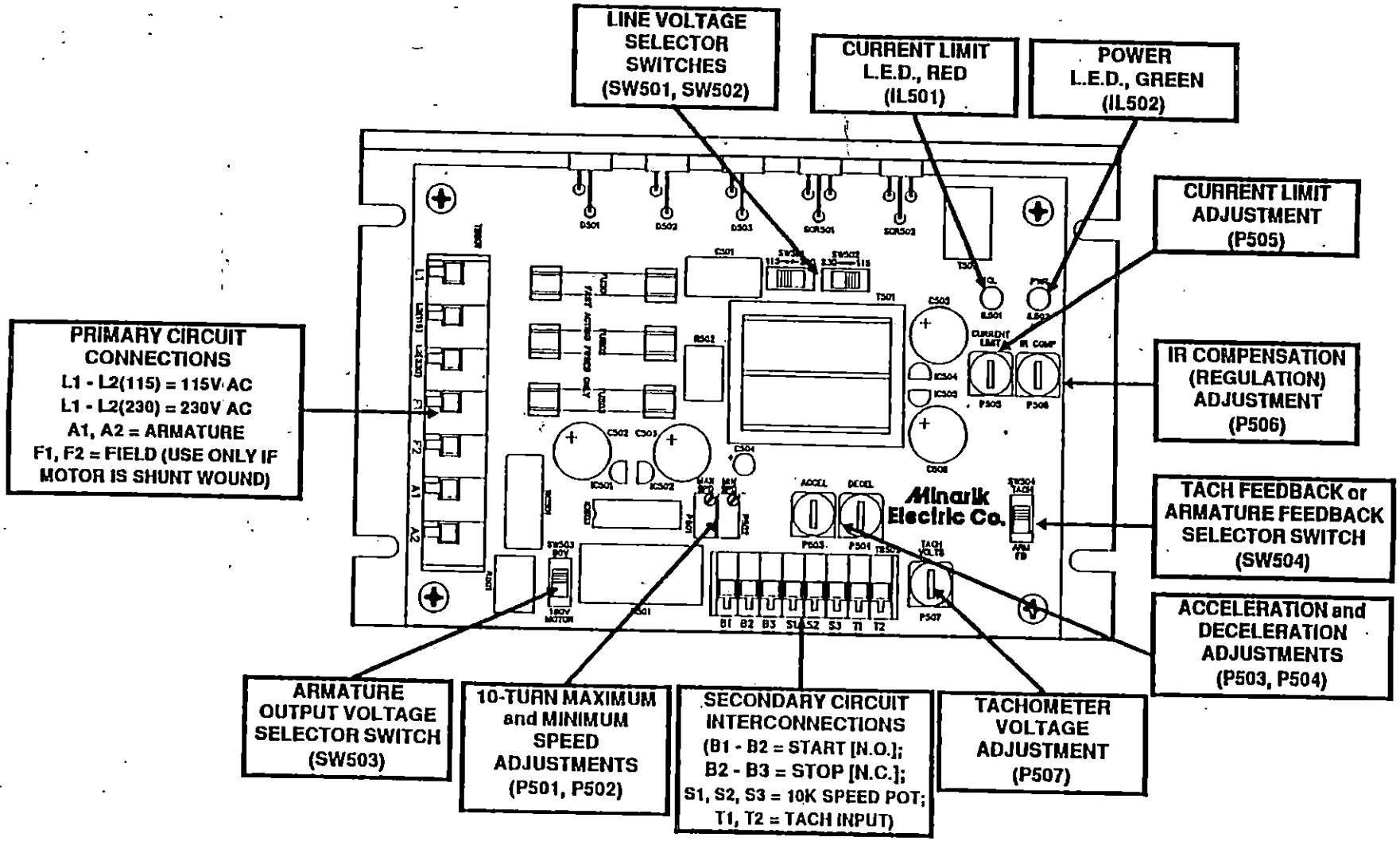


Fig. 2 MM301U ADJUSTMENTS AND CONNECTIONS

Table of Contents

1	Assy., Main Frame	
2	Assy., Infeed Conveyor	
3	Assy., Lower Cradle	
4	Assy., Upper Cradle	
5	Assy., Elevator	
6	Assy., Scrap Film Drive	
7	Assy., Film Advance	
8	Assy., Discharge Conveyor	
9	Assy., Closing Conveyor	
10	Assy., Scrap Collector	
11	Assy., Lower Jaw	
12	Assy., Upper Jaw	
13	Assy., Electrical Enclosure	
14	Pneumatic Package	
15	Assy., Hood Cover	
16	Assy., Operator Interface	
17	Assy., Scrap Guide	
18	Assy., Adjustment Roller	
19	Conduit Bundle	
20	Guard Bundle	
21	Conversion Package; 220Vac / 50 Hz	
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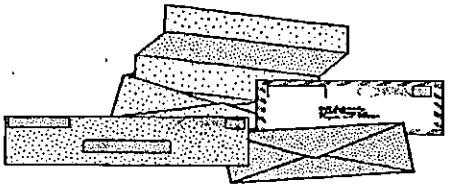


Clamco Corporation

12900 Plaza Drive
Cleveland, OH 44130

InterOffice Memo

To: Kurt Schaefer

From: Kevin Felix

Date: 7/29/96

Subject: Equipment Changes - Model 6600

Effective machine S/N 66080 which shipped approximately 7/26/96, all 6600 machines will include the new latch assembly on them. All production machines from this date on will include the new latches. On machines which have shipped prior to this date, there is a retrofit kit which will allow the customer to change to the new latches if required. I will use my discretion whether the customer will get the new latch retrofit kit under warranty replacement on machines prior to 66080 as this need arises. The kit is made up of 2 latches and the mounting blocks to go with them. The kit P/N is 78-1987. **Each** machine requires **one** kit.

On the print (78-1987) the part 78-1840 is refferenced, which is an existing part on the standard machine. The customer will have to drill and tap this part on his existing machine for the new hole patteren, or purchase another piece with these holes in place.

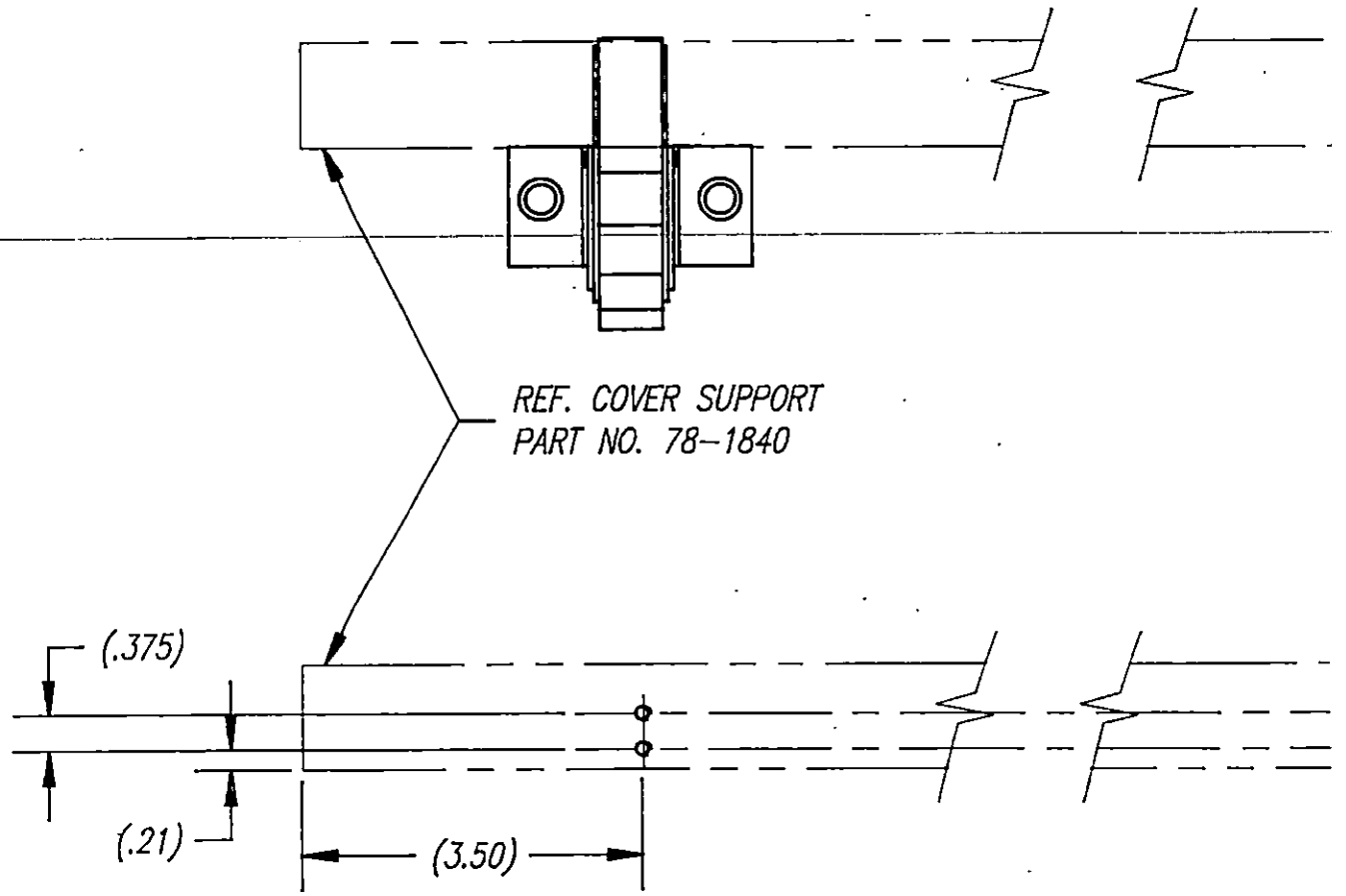
Please distribute this to all your sales people and inform them of the change so they can inform the customers.

If there are any questions please let me know.

Thank You,

Kevin Felix

Engineering/Operations Manager



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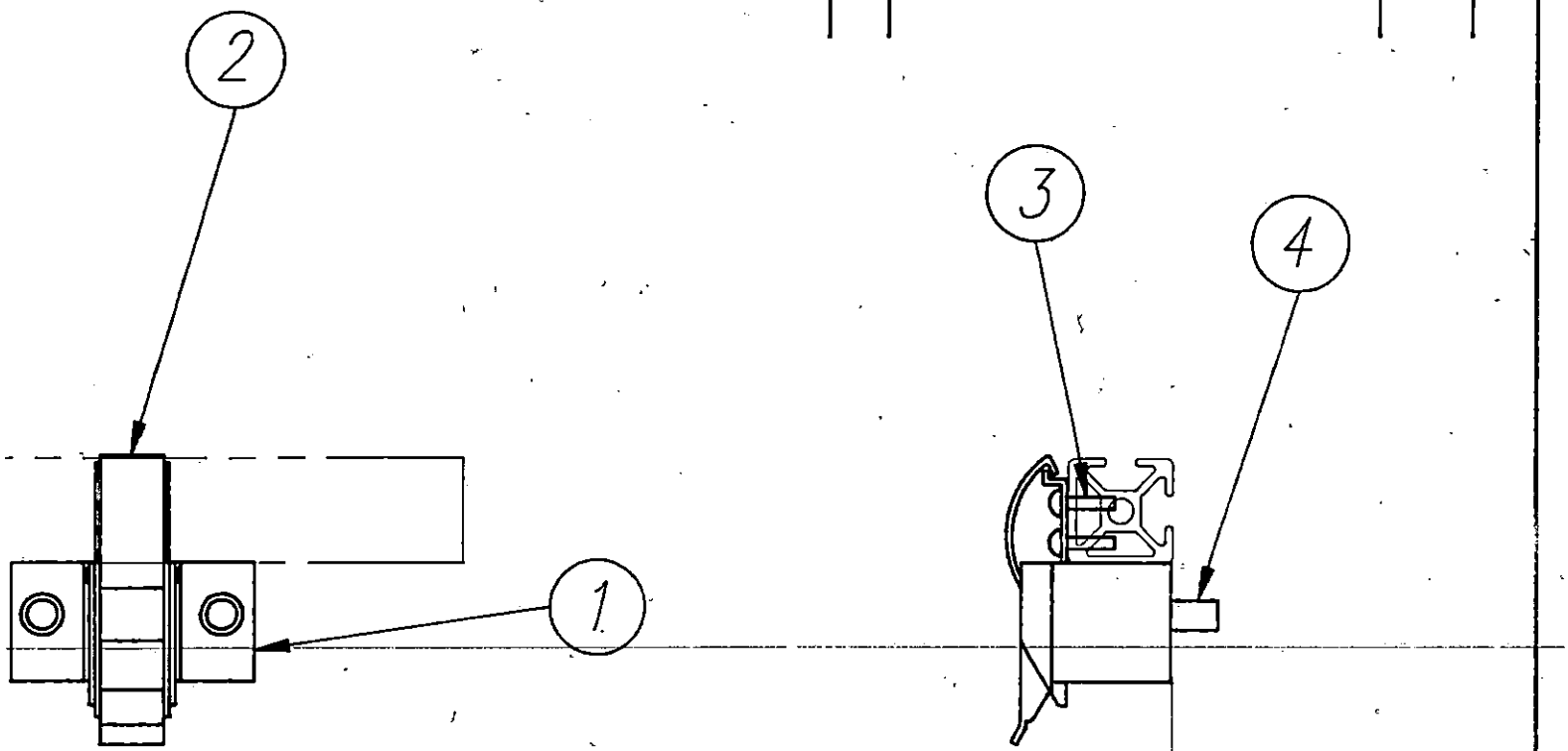
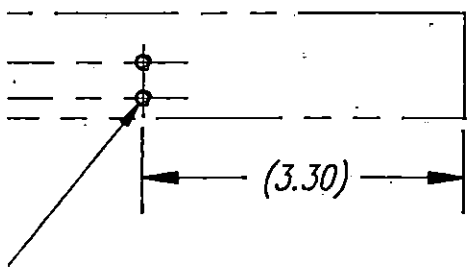
REVISIONS			
SYM	DESCRIPTION	DATE	BY





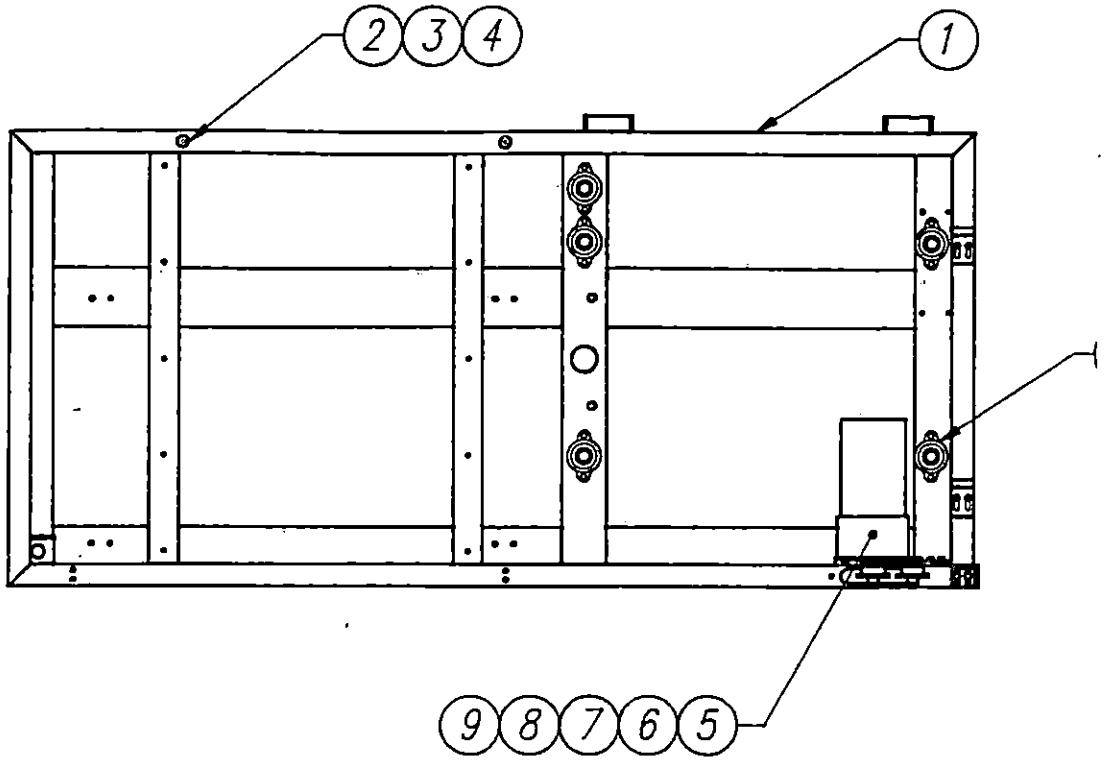
REF. MAIN FRAME
PART NO. 78-2059

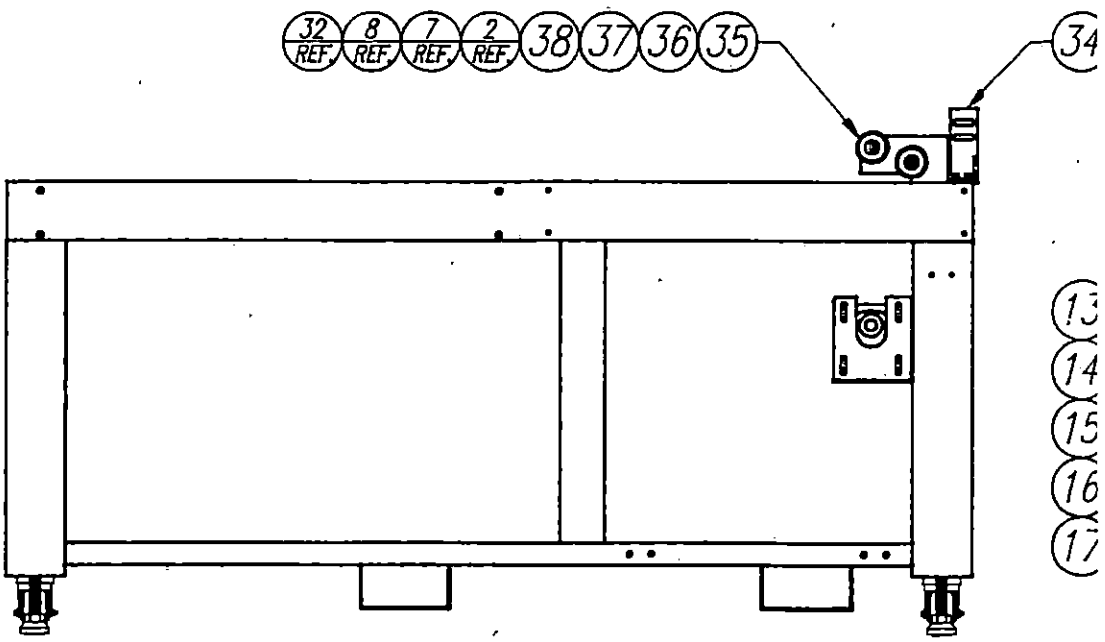
ITEM	DESCRIPTION	PART NO.	QTY
4	5/16-18 X 1.5 SHCS		4
3	8-32 X .50 RHMS		8
2	DRAW LATCH	816-54	2
1	COVER STOP	78-1986	2

MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

CLAMCO CORPORATION

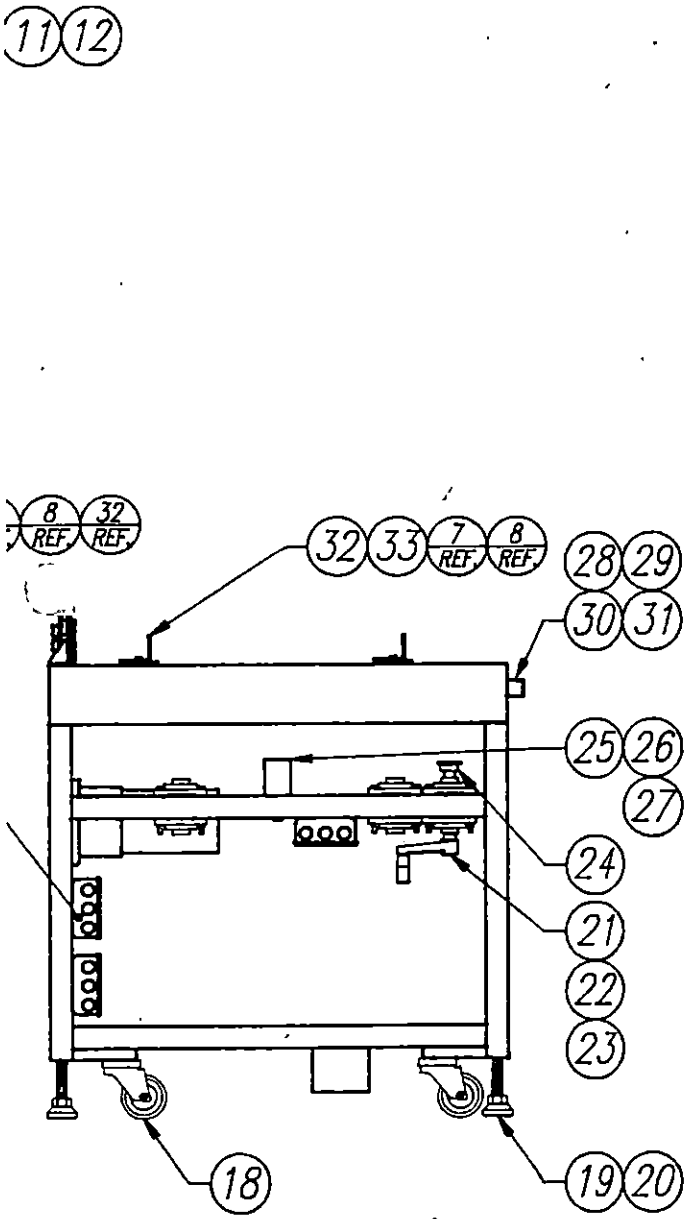
MATERIAL	DR. BY	BAR	ASSY, DRAW LATCH
STOCK SIZE	CK. BY		SIZE B — 78-1987 — REV
PURCHASE PART NO.	APP'R.		
FINISH	DATE	7/96	SCALE 1:2 — SHEET 1 OF 1





580348

REVISIONS			
SYM	DESCRIPTION	DATE	BY
A	ITEM #20 WAS #208-24	6/94	KJF
B	ITEM #24 (790-55A) WAS ADDED	7/94	KJF
C	ITEM #31 (816-33) WAS ADDED	7/94	KJF
D	ITEM #20 (794-26) WAS ADDED	3/95	JS



ITEM	DESCRIPTION	PART NO.	QTY
38	THRUST WASHER	793-107	4
37	COLLAR	789-7	2
36	SPROCKET	78-1086	2
35	WELDM'T, IDLER MTG.	78-1827	1
34	WELDM'T, IDLER DRIVE	78-1242	1
33	1/4-20 X .50 HH BOLT		11
32	MOUNTING BRACKET	78-1096	2
31	DRAW LATCH	816-33	2
30	STANDARD FASTENER SET	816-25	4
29	28MM END CAP	816-26	4
28	HOOD SUPPORT	78-1815	2
27	5/16 FLATWASHER		1
26	5/16-18 X 2.0 HHCS		1
25	SPACER	78-984	1
24	CRANK SHAFT	78-1404	1
23	SPROCKET	790-55A	1
22	1/4-20 X .50 SET SCREW		1
21	HAND WHEEL	78-993	1
20	VIBRATOR PAD	794-26	4
19	LEVELING POST	794-25	4
18	CASTER	794-21	4
17	COVER	214-10	3
16	#10 FLATWASHER		6
15	#10 LOCKWASHER		6
14	#10-24 X .50 PHMS		6
13	ELECTRICAL BOX	217-4	3
12	1/4-20 NYLOCK NUT		10
11	1/4-20 X 3.0 HH BOLT		10
10	FLANGE BEARING	793-66	10
9	SPROCKET	790-84	1
8	1/4 FLATWASHER		12
7	1/4 LOCKWASHER		12
6	1/4-28 X 1.0 HH BOLT		4
5	DC GEARMOTOR	230-72	1
4	3/8 FLATWASHER		4
3	3/8 X 3/4 SH. BOLT	559-16	2
2	BEARING	793-62	2
1	WELDM'T, MAIN FRAME	78-2059	1

MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

CLAMCO CORPORATION

MATERIAL

STOCK SIZE

PURCHASE PART NO.

FINISH

DR. BY KJF

CK. BY

APPR.

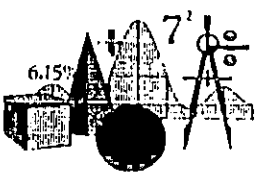
DATE 1/28/94

MAIN FRAME ASSEMBLY

SIZE B | 78-2083 | REV D

SCALE 1:13 | SHEET 1 OF 1

CLAMCO
CORPORATION



ECN FORM

Submitted By: Bryan Robertson **Date Submitted:** 8-2-96

Approved By: _____ **Date Approved:** _____

Current Part Number: 215-111 **Revision Number** _____

Current Part Description: Photoelectric sensor (Omron E3V-7B43S)

New Part Number: 215-237 **Revision Number** _____

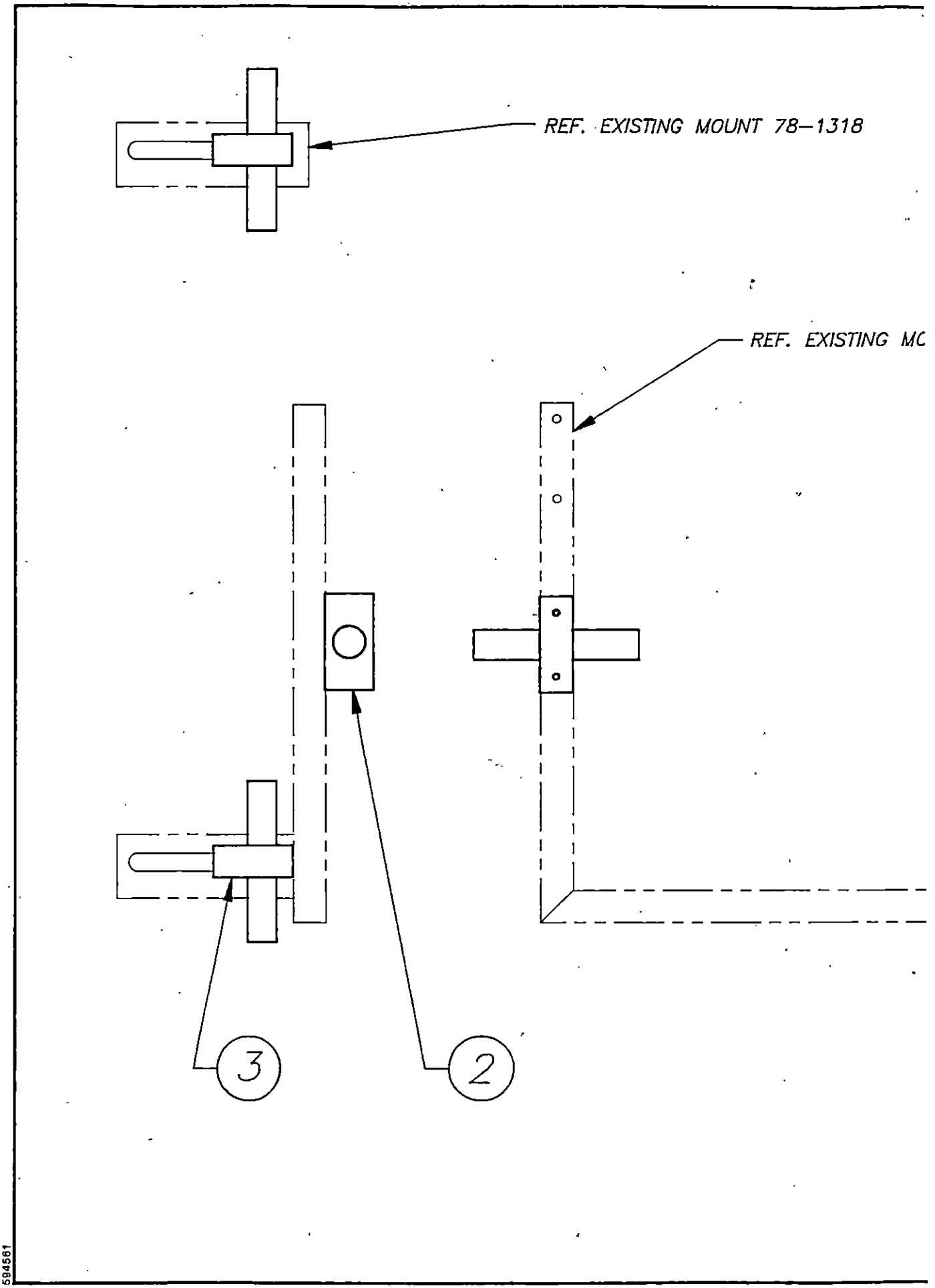
w Part Description: Photoelectric sensor (Banner S126E and S12S P6R)

Reason For Change: availability, price

Vendor Name: Adcon

Vendor Part Number 35409 and 35411

Sales
PURCHASING
ASSY. PLANT MANAGER
MANUFACTURING PLANT MANAGER



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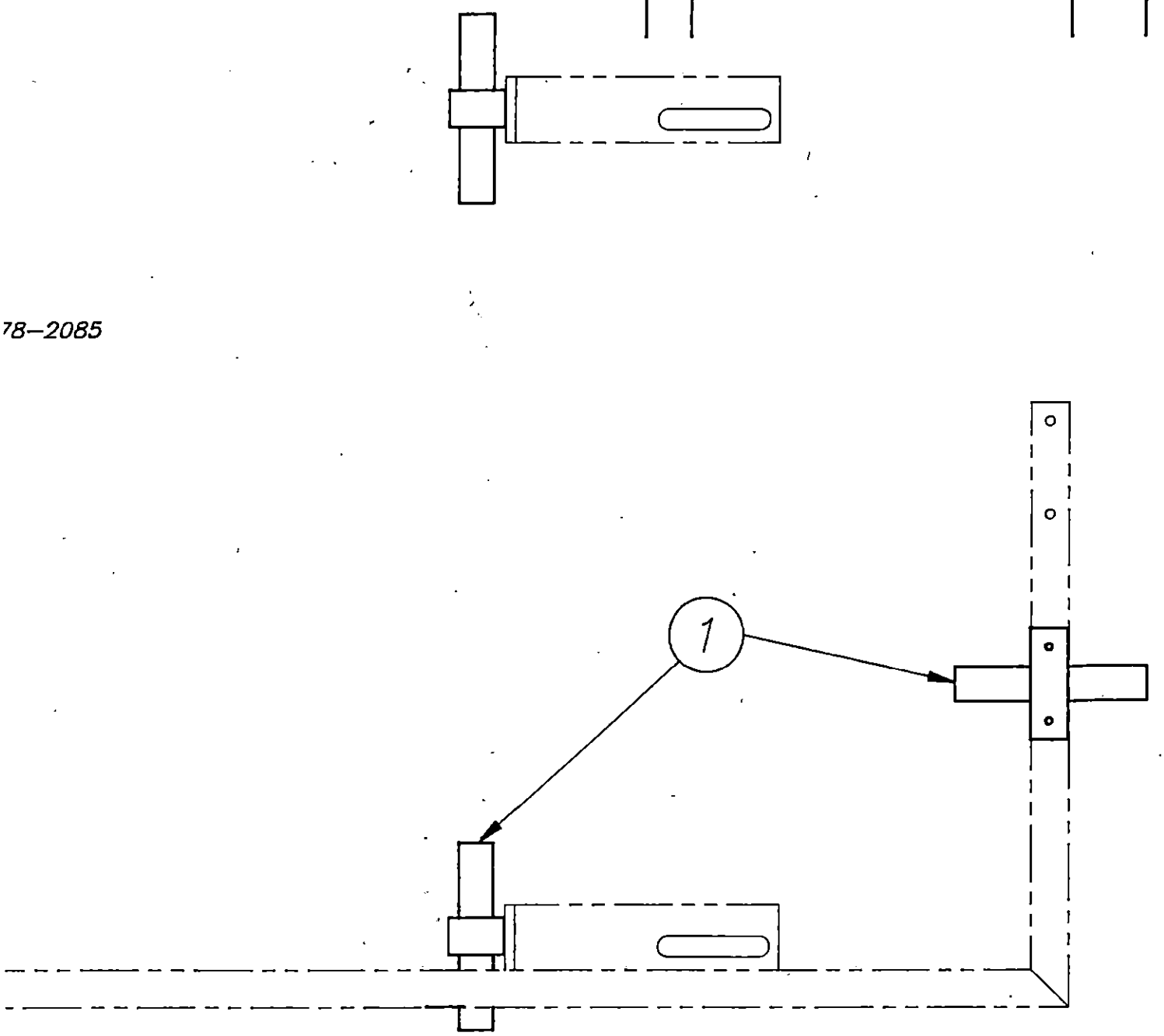
REVISIONS			
SYM	DESCRIPTION	DATE	BY

78–2085



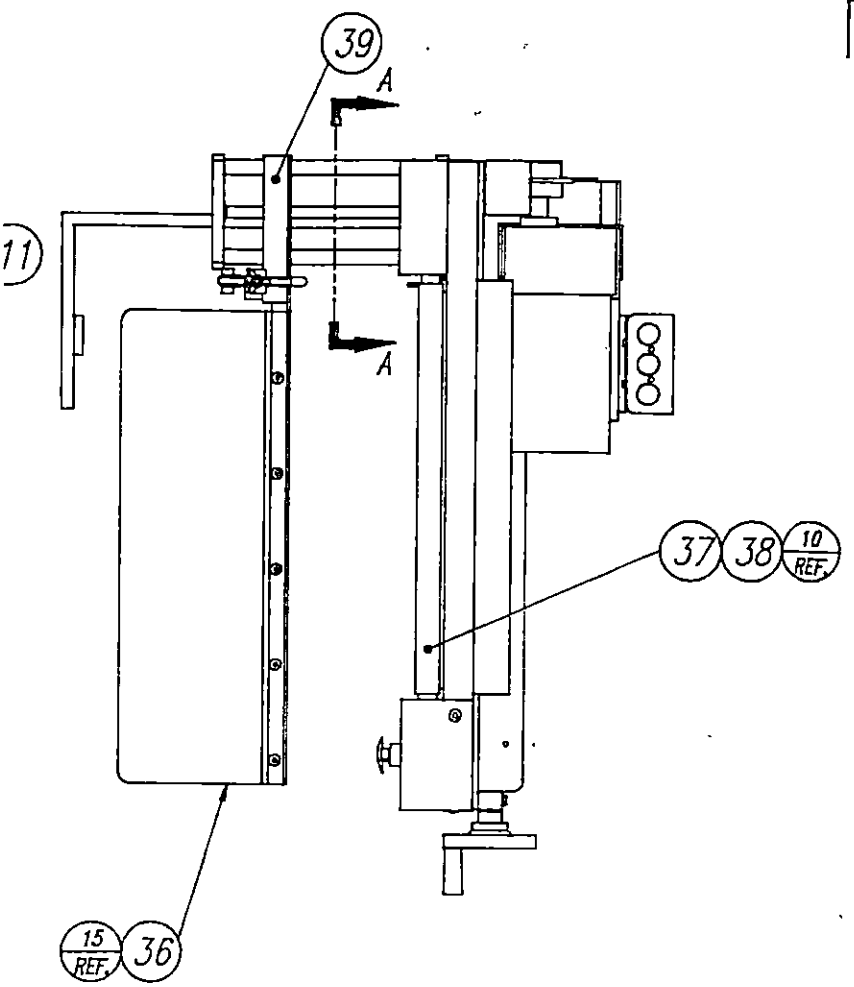
ITEM	DESCRIPTION	PART NO.	QTY
3	HORIZ. EYE MOUNT BLOCK	78–2108	2
2	VERT. EYE MOUNT BLOCK	78–2107	2
1	PHOTOEYE	215–237	2

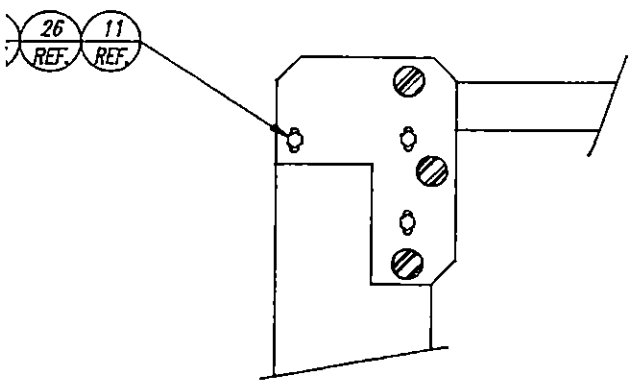
MACHINE TOLERANCES:	FABRICATION TOLERANCES:	
.XXX ±.005	.XXX ±.015	
.XX ±.015	.XX ±.030	
.X ±.030	.X ±.060	

CLAMCO CORPORATION

MATERIAL	DR. BY	BAR	PHOTEYE REPL. KIT
STOCK SIZE	CK. BY		SIZE B — 78–2109 — REV
PURCHASE PART NO.	APPR.		
FINISH	DATE	8/96	SCALE 1:2 — SHEET 1 OF 1

REVISIONS			
SYM	DESCRIPTION	DATE	BY
A	CORRECTED PRINT ADDED 78-1044	8/94	KJF





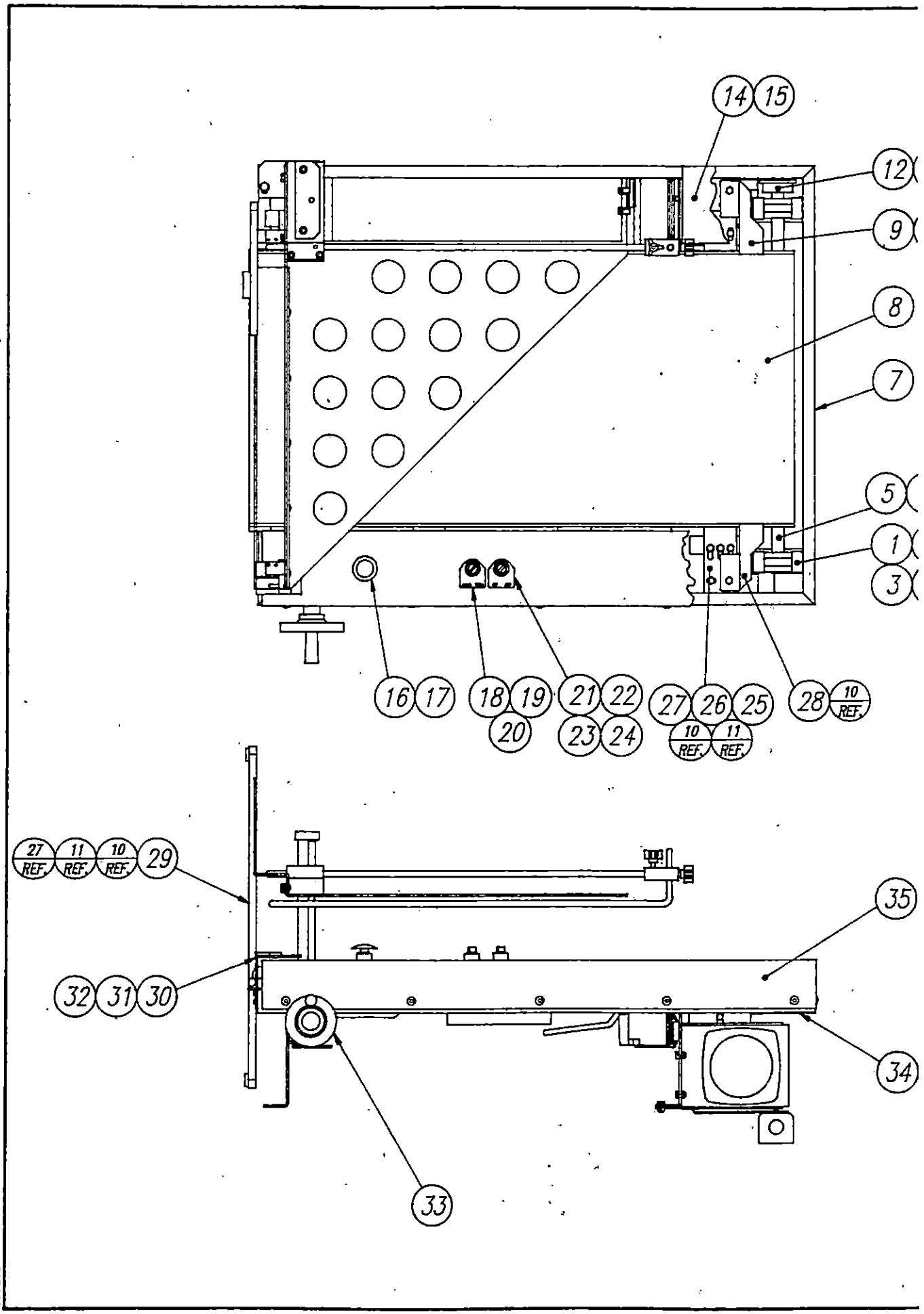
PARTIAL VIEW A-A
SCALE 2:1

ITEM	DESCRIPTION	PART NO.	QTY
39	ASS'Y, INVERTING PLATE	78-2073	1
38	ADAPTER	72-106A	2
37	ROLLER	78-1407	1
36	GUARD	78-1768	1
35	GUARD	78-1767	1
34	GUARD	78-1356	1
33	ASS'Y, INVERTING PLATE HANDLE	78-2077	1
32	PHOTO EYE	215-111	1
31	BLOCK HORZ. EYE MT.	78-614	2
30	MT. HORZ. EYE	78-1318	1
29	ASS'Y, VERTICAL EYE	78-2085	1
28	GUARD	78-1432	1
27	1/4 FLAT WASHER		8
26	1/4-20 x 1 1/4 HH		6
25	ASS'Y, INFEED CONVEYOR BED FRAME	78-2045	1
24	FILAMENT LAMP	219-39	1
23	CONTACT BLOCK	215-119	1
22	SELECTOR SWITCH	215-118	1
21	DECAL LABEL	78-921	1
20	CONTACT BLOCK	215-117	1
19	SELECTOR SWITCH	215-116	1
18	DECAL LABEL	78-922	1
17	CONTACT BLOCK	215-115	1
16	PUSH BUTTON	215-114	1
15	#10-24 x 3/8 BHCS		17
14	GUARD	78-1231	1
13	1/4-20 x 3/4 SET SCREW		2
12	SPROCKET	790-53	1
11	1/4 LOCK WASHER		8
10	1/4-20 x 3/4 HH		8
9	GUARD	78-1431	1
8	BELT	78-883	1
7	ASS'Y, INFEED CONVEYOR FRAME	78-2070	1
6	INFEED DRIVE ROLLER	78-1044	1
5	SHAFT	78-1256	1
4	3/8 FLAT WASHER		4
3	3/8 LOCK WASHER		4
2	3/8-16 x 3/4 SHCS		4
1	BEARING	793-65	2

MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

CLAMCO CORPORATION

MATERIAL	DR. BY	GJB	ASS'Y, INFEED CONVEYOR
STOCK SIZE	CK. BY		
PURCHASE PART NO.	APPR.		SIZE B — 78-2069 — REV A
FINISH	DATE	6/28/94	SCALE 1:8 — SHEET 1 OF 1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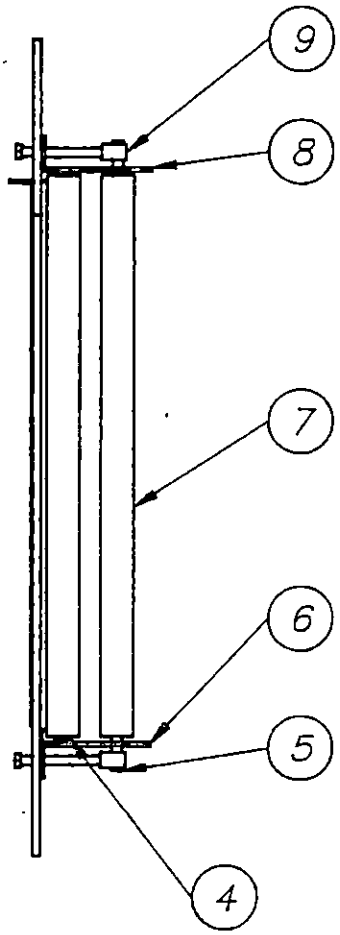
REVISIONS			
SYM	DESCRIPTION	DATE	BY

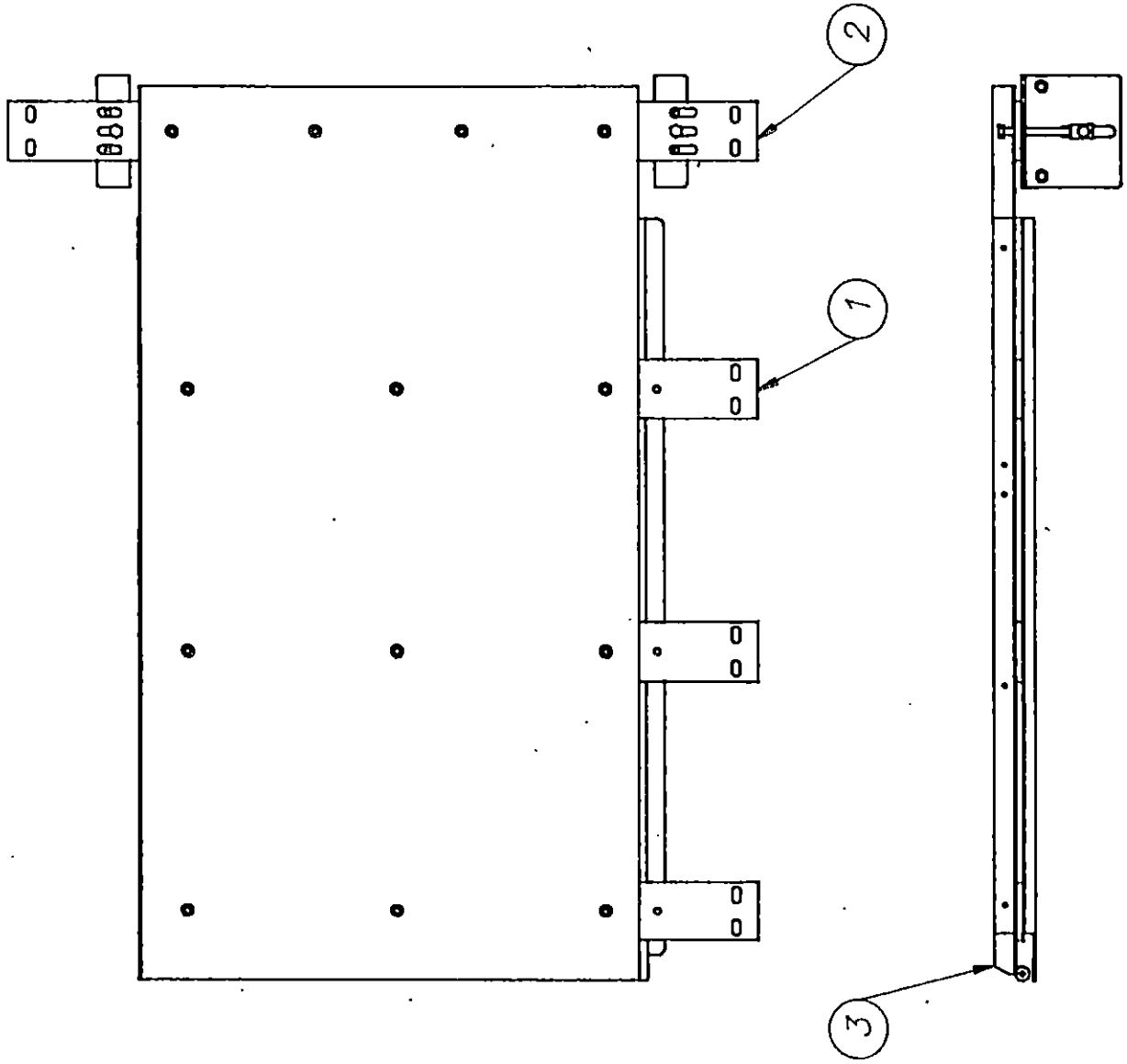


ITEM	DESCRIPTION	PART NO.	QTY
9	BLOCK	78-629	2
8	MOUNT	78-1383	1
7	ASS'Y, TAKE UP ROLLER	78-1046	3
6	MOUNT	78-426	1
5	SHAFT	78-1048	1
4	SHAFT	78-1049	2
3	WELDM'T, INFEED SHAFT	78-1668	1
2	MOUNT	78-1042	1
1	MOUNT	78-1043	3

MACHINE TOLERANCES:	FABRICATION TOLERANCES:
.XXX ±.005	.XXX ±.015
.XX ±.015	.XX ±.030
.X ±.030	.X ±.060

CLAMCO CORPORATION

MATERIAL	DR. BY	GJB	ASS'Y, INFEED CONV. BED
STOCK SIZE	CK. BY		
PURCHASE PART NO.	APP'R.		SIZE B — 78-2045 — REV
FINISH	DATE	6/21/93	SCALE 1:6 — SHEET 1 OF 1



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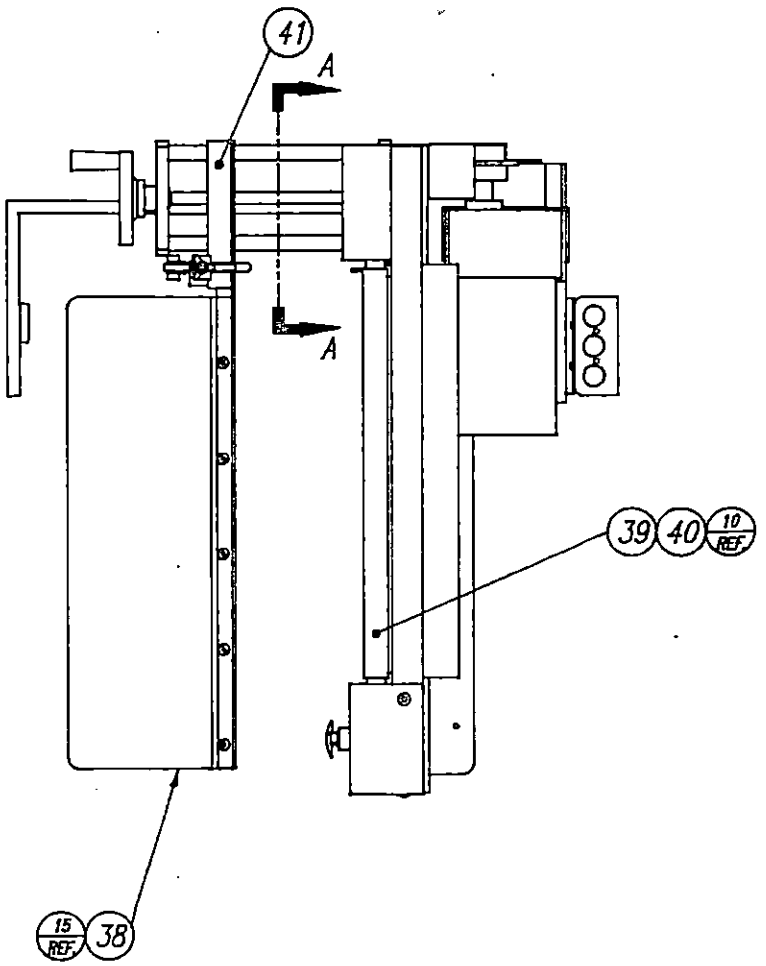
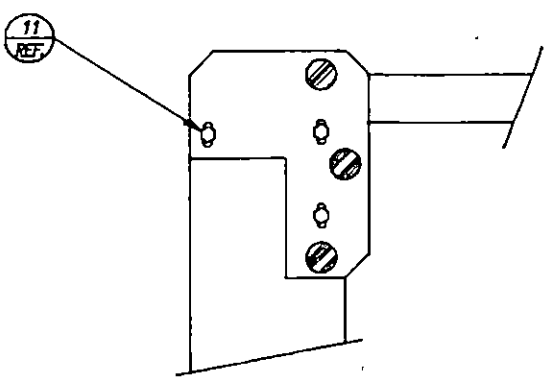
REVISIONS			
SYM	DESCRIPTION	DATE	BY
A	PRINT CORRECTED ADDED 78-1044	8/94	KJF





PARTIAL VIEW A-A
SCALE 2:1

ITEM	DESCRIPTION	PART NO.	QTY
41	ASS'Y, INVERTING PLATE	78-2097	1
40	ADAPTER	72-106A	2
39	ROLLER	78-1407	1
38	GUARD	78-1768	1
37	GUARD	78-1789	1
36	GUARD	78-1356	1
35	PHOTO EYE	215-111	1
34	BLOCK HORZ. EYE MT.	78-614	2
33	MT. HORZ. EYE	78-1318	1
32	ASS'Y, VERTICAL EYE	78-2085	1
31	GUARD	78-1432	1
30	1/4 FLAT WASHER		8
29	1/4-20 x 1 1/4 HH		6
28	ASS'Y, INFEED CONVEYOR BED FRAME	78-2045	1
27	SELECTOR SWITCH	215-147	1
26	LIGHT	219-43	1
25	LABEL	78-967	1
24	FILAMENT LAMP	219-39	1
23	CONTACT BLOCK	215-119	2
22	SELECTOR SWITCH	215-118	1
21	DECAL LABEL	78-921	1
20	CONTACT BLOCK	215-117	1
19	SELECTOR SWITCH	215-116	1
18	DECAL LABEL	78-922	1
17	CONTACT BLOCK	215-115	1
16	PUSH BUTTON	215-114	1
15	#10-24 x 3/8 BHCS		17
14	GUARD	78-1231	1
13	1/4-20 x 3/4 SET SCREW		2
12	SPROCKET	790-53	1
11	1/4 LOCK WASHER		8
10	1/4-20 x 3/4 HH		8
9	GUARD	78-1431	1
8	BELT	78-883	1
7	ASS'Y, INFEED CONVEYOR FRAME	78-2070	1
6	INFEED DRIVE ROLLER	78-1044	1
5	SHAFT	78-1256	1
4	3/8 FLAT WASHER		4
3	3/8 LOCK WASHER		4
2	3/8-16 x 3/4 SHCS		4
1	BEARING	793-65	2

MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

CLAMCO CORPORATION

MATERIAL	DR. BY	GJB	ASS'Y, INFEED CONVEYOR
STOCK SIZE	CK. BY		SIZE B / 78-2096 / REV A
PURCHASE PART NO.	APPR.		
FINISH	DATE	6/28/94	SCALE 1:8 / SHEET 1 OF 1

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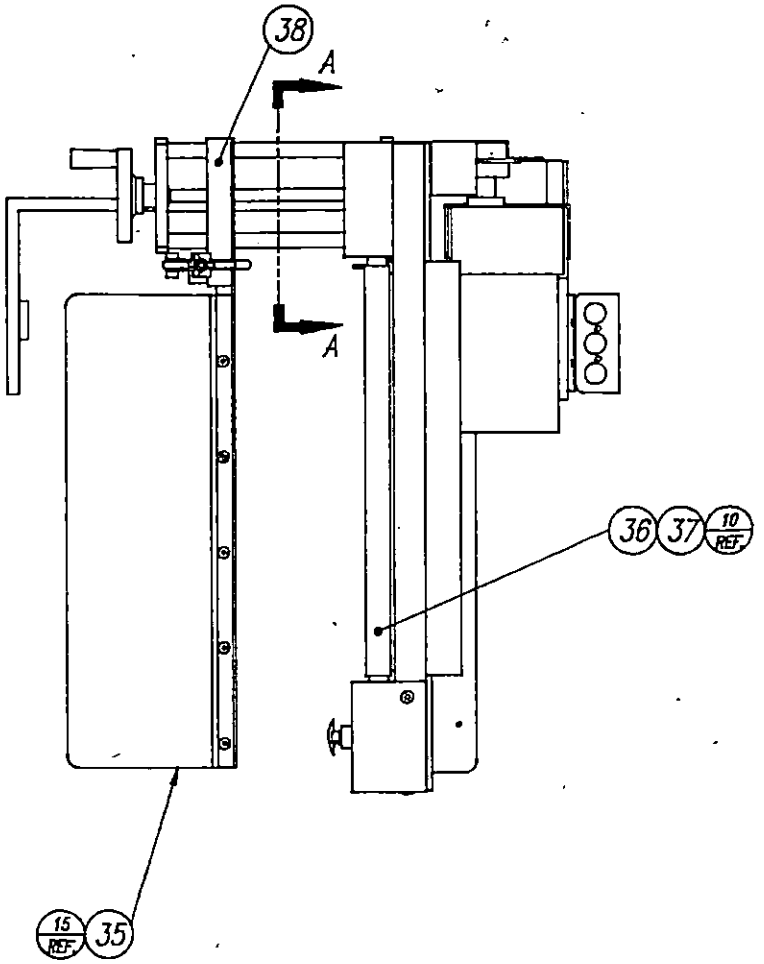
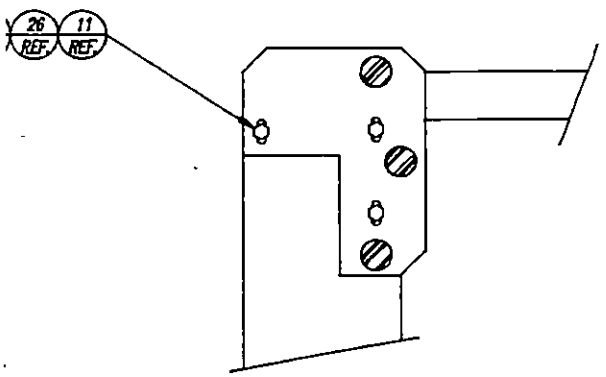
REVISIONS			
SYM	DESCRIPTION	DATE	BY
A	PRINT CORRECTED 78-1044 ADDED	8/94	KJF





PARTIAL VIEW A-A
SCALE 2:1

ITEM	DESCRIPTION	PART NO.	QTY
38	ASS'Y, INVERTING PLATE	78-2097	1
37	ADAPTER	72-106A	2
36	ROLLER	78-1407	1
35	GUARD	78-1768	1
34	GUARD	78-1767	1
33	GUARD	78-1356	1
32	PHOTO EYE	215-111	1
31	BLOCK HORZ. EYE MT.	78-614	2
30	MT. HORZ. EYE	78-1318	1
29	ASS'Y, VERTICAL EYE	78-2085	1
28	GUARD	78-1432	1
27	1/4 FLAT WASHER		8
26	1/4-20 x 1 1/4 HH		6
25	ASS'Y, INFEED CONVEYOR BED FRAME	78-2045	1
24	FILAMENT LAMP	219-39	1
23	CONTACT BLOCK	215-119	1
22	SELECTOR SWITCH	215-118	1
21	DECAL LABEL	78-921	1
20	CONTACT BLOCK	215-117	1
19	SELECTOR SWITCH	215-116	1
18	DECAL LABEL	78-922	1
17	CONTACT BLOCK	215-115	1
16	PUSH BUTTON	215-114	1
15	#10-24 x 3/8 BHCS		17
14	GUARD	78-1231	1
13	1/4-20 x 3/4 SET SCREW		2
12	SPROCKET	790-53	1
11	1/4 LOCK WASHER		8
10	1/4-20 x 3/4 HH		8
9	GUARD	78-1431	1
8	BELT	78-883	1
7	ASS'Y, INFEED CONVEYOR FRAME	78-2070	1
6	INFEED DRIVE ROLLER	78-1044	1
5	SHAFT	78-1256	1
4	3/8 FLAT WASHER		4
3	3/8 LOCK WASHER		4
2	3/8-16 x 3/4 SHCS		4
1	BEARING	793-65	2

MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

CLAMCO CORPORATION

MATERIAL	DR. BY	GJB	ASS'Y, INFEED CONVEYOR
STOCK SIZE	CK. BY		SIZE B — 78-2095 — REV A
PURCHASE PART NO.	APPR.		
FINISH	DATE	6/28/94	SCALE 1:8 — SHEET 1 OF 1

577218

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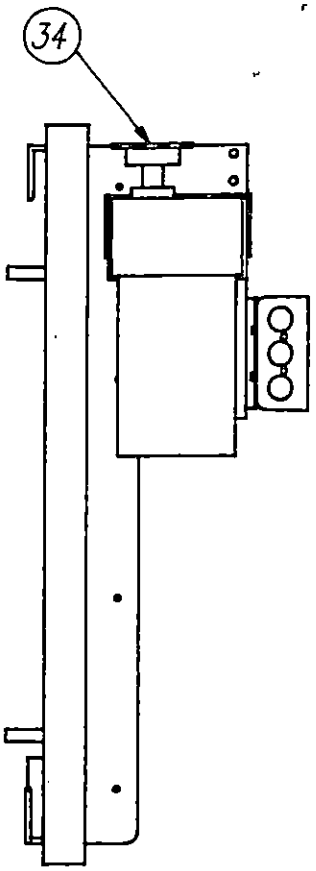
REVISIONS			
SYM	DESCRIPTION	DATE	BY
A	RE–DRAWN	6/24/94	GJB



ITEM	DESCRIPTION	PART NO.	QTY
34	SPROCKET		1
33	1/4–28 x 1/2 H.H.		4
32	MOTOR	230–72	1
31	WELDM'T, BRACKET	78–945	1
30	1/4 FLAT WASHER		10
29	1/4 LOCK WASHER		6
28	1/4–20 x 1/2 H.H.		6
27	1/4–20 NUT		6
26	RELOCATING PLATE	78–1507	1
25	WELDM'T, RACK	78–1082	1
24	SPRING	796–66	1
23	LOCK ARM	78–1611	1
22	PIVOT ARM	78–1610	1
21	MOUNTING ANGLE	78–1083	1
20	SLIDE BRG.	845–6	2
19	#10 FLAT WASHER		6
18	OUTLET BOX	78–1387	2
17	10–24 x 3/4 BHCS		28
16	#10–24 x 1/2 H.H.		2
15	CONDUIT BOX	245–10	1
14	#8–32 x 3/4 BHCS		4
13	BELT GUIDE	78–861	2
12	5/16 LOCK WASHER		5
11	5/16–16 NUT		5
10	5/16–16 x 5/8 H.H.		5
9	MOUNT	78–1038	1
8	#10 LOCK WASHER		31
7	#10–24 NUT		31
6	#10–24 x 3/4 FHMS		5
5	INVERTING PLATE	78–1037	1
4	#6–32 NUT		1
3	#6–32–BHCS		1
2	SPRING BRACKET	821–8	1
1	WELDM'T, INFEED CONVEYOR FRAME	78–1080	1

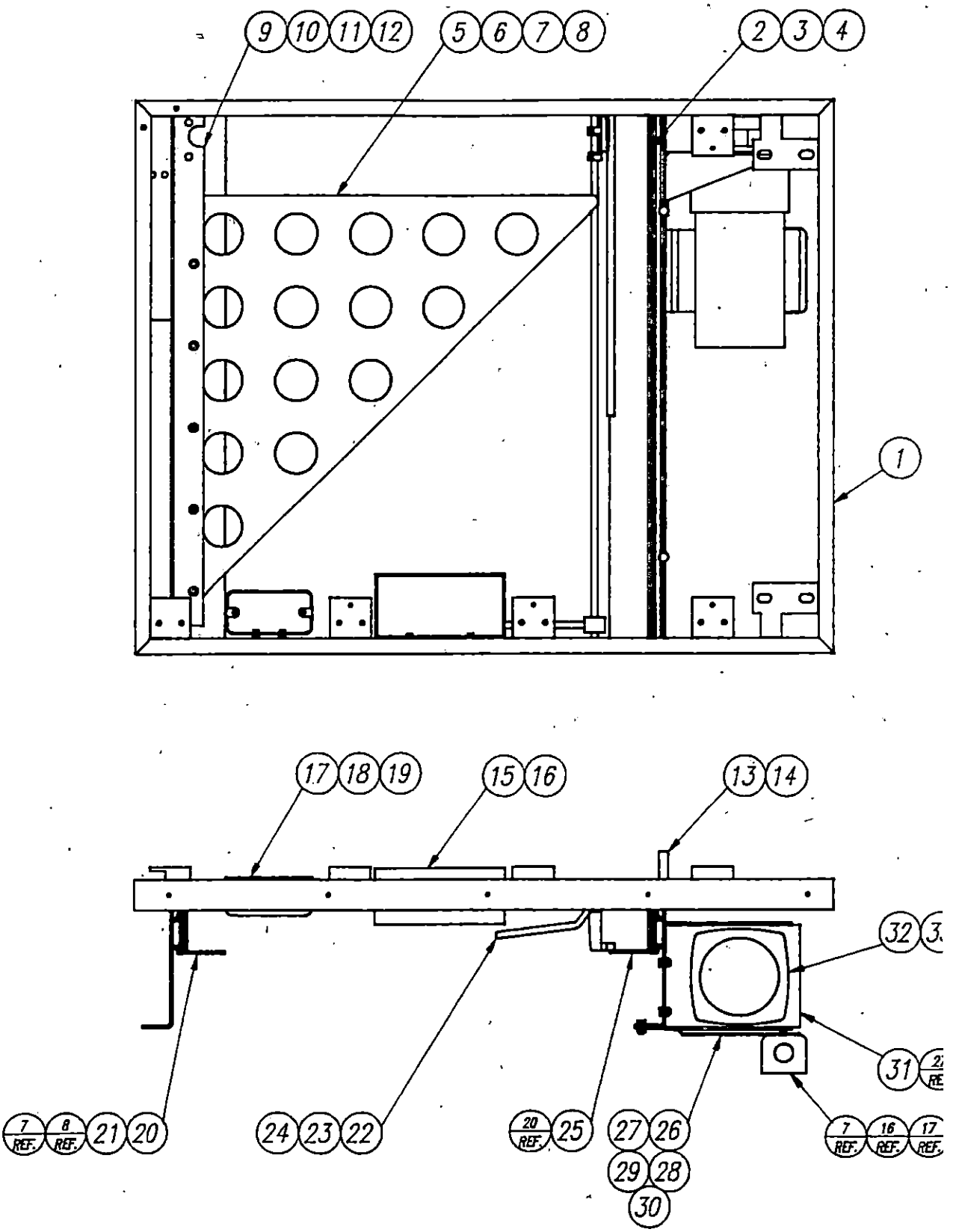
30 REF.

29 REF.

MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

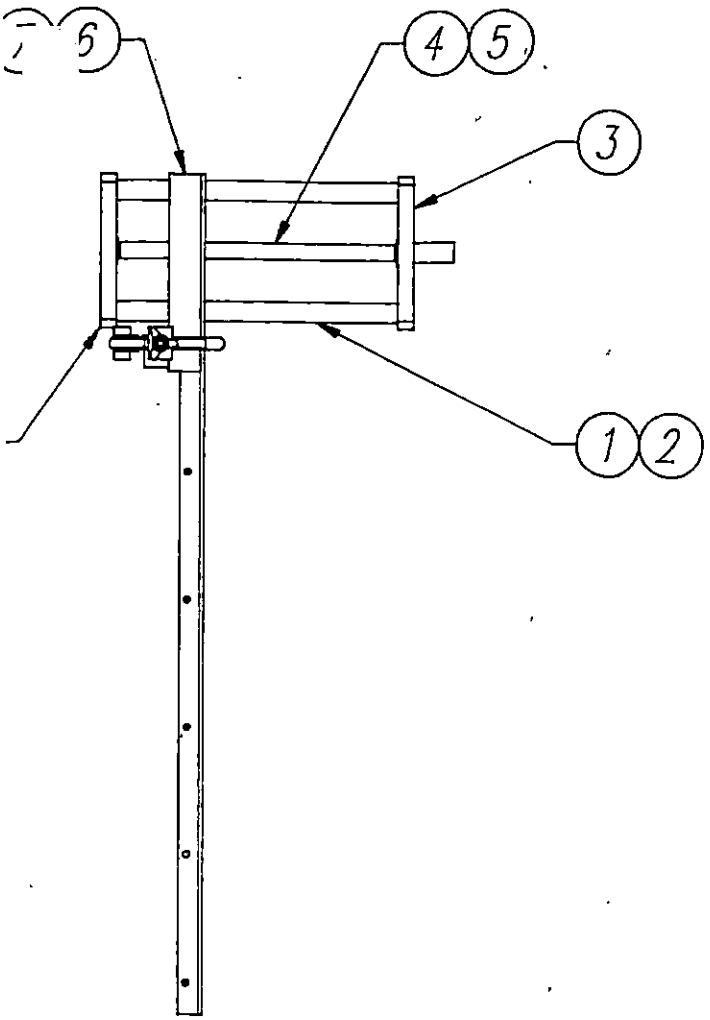
CLAMCO CORPORATION

MATERIAL	DR. BY	GJB	ASS'Y, INFEED CONVEYOR FRAME
STOCK SIZE	CK. BY		SIZE B — 78–2070 — REV A
PURCHASE PART NO.	APP'D.		
FINISH	DATE	6/24/94	SCALE 1:7 — SHEET 1 OF 1


9 10 11 12
5 6 7 8
2 3 4
1
17 18 19
15 16
13 14
32
31
7 REF. 8 REF. 21 20
24 23 22
20 REF. 25
27 26
29 28
30
7 REF. 16 REF. 17 REF.

5757785

REVISIONS			
SYM	DESCRIPTION	DATE	BY



ITEM	DESCRIPTION	PART NO.	QTY
19	FILM SUPPORT MTG BLOCK	78-1327	1
18	KNOB	808-19	2
17	FILM SUPPORT ROD	78-1515	1
16	COUPLING	78-1619	1
15	FILM SUPPORT ROD	78-1329	1
14	1/4-20 X 1/4 SET SCREW		1
13	SUPPORT BLOCK	78-1616	1
12	1/4 LOCK WASHER		5
11	1/4 FLAT WASHER		5
10	1/4-20 X 1/2 HHCS		5
9	UPPER INVERTING PLATE	78-1516	1
8	TOP BLOCK	78-972	1
7	BUSHING	793-91	2
6	SLIDE BLOCK	78-1607	1
5	THRUST BEARING	793-80	2
4	ACME THREAD	78-1609	1
3	MOUNTING BLOCK	78-973	1
2	1/4-20 X 3/4 SHCS		6
1	GUIDE ROD	78-975	2

19

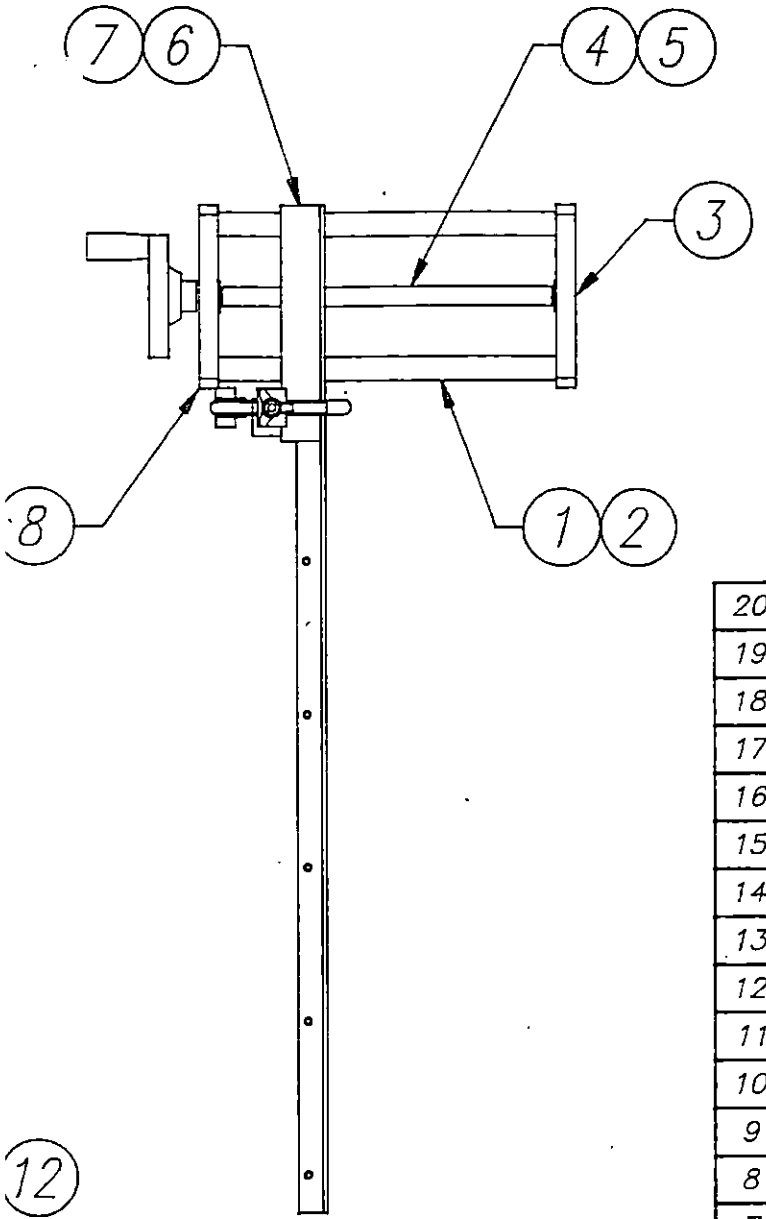
18

MACHINE TOLERANCES:	FABRICATION TOLERANCES:
.XXX ±.005	.XXX ±.015
.XX ±.015	.XX ±.030
.X ±.030	.X ±.060

CLAMCO CORPORATION

MATERIAL	DR. BY	GJB	ASSY., UPPER INVERTING PLATE
STOCK SIZE	CK. BY		
PURCHASE PART NO.	APPR.		SIZE B — 78-2073 — REV
FINISH	DATE	5/6/94	SCALE 1 : 6 — SHEET 1 OF 1

5757S



REVISIONS			
SYM	DESCRIPTION	DATE	BY
A	78–946 WAS 78–1615	7/94	KJF

ITEM	DESCRIPTION	PART NO.	QTY
20	FILM SUPPORT MTG BLOCK	78–1327	1
19	KNOB	808–19	2
18	FILM SUPPORT ROD	78–1515	1
17	FILM SUPPORT ROD	78–1329	1
16	1/4–20 X 1/4 SET SCREW		1
15	SUPPORT BLOCK	78–1616	1
14	#10–32 X 1/4 SET SCREW		2
13	HANDLE	78–946	1
12	1/4 LOCK WASHER		5
11	1/4 FLAT WASHER		5
10	1/4–20 X 1/2 HHCS		5
9	UPPER INVERTING PLATE	78–1516	1
8	TOP BLOCK	78–972	1
7	BUSHING	793–91	2
6	SLIDE BLOCK	78–1607	1
5	THRUST BEARING	793–80	2
4	ACME THREAD	78–1609	1
3	MOUNTING BLOCK	78–973	1
2	1/4–20 X 3/4 SHCS		6
1	GUIDE ROD	78–975	2

MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

CLAMCO CORPORATION

MATERIAL		DR. BY	KJF
STOCK SIZE		CK. BY	
PURCHASE PART NO.		APPR.	
FINISH		DATE	5/6/94

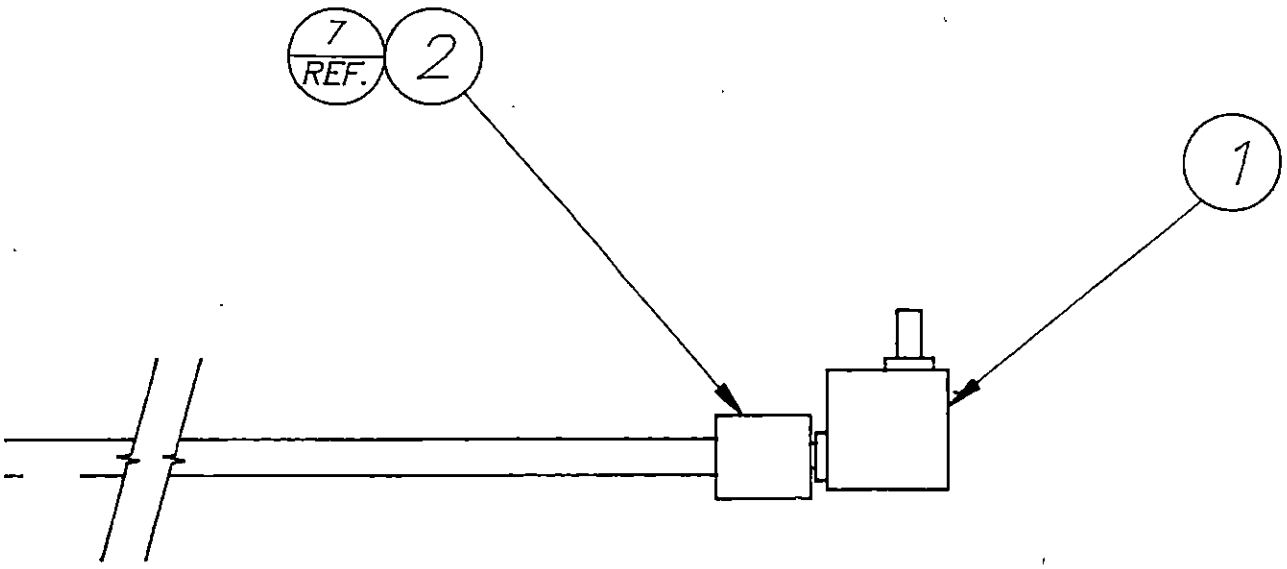
ASSY, UPPER INVERTING PLATE

SIZE B | 78–2097 | REV A

SCALE 1 : 5 | SHEET 1 OF 1

575795

REVISIONS			
SYM	DESCRIPTION	DATE	BY

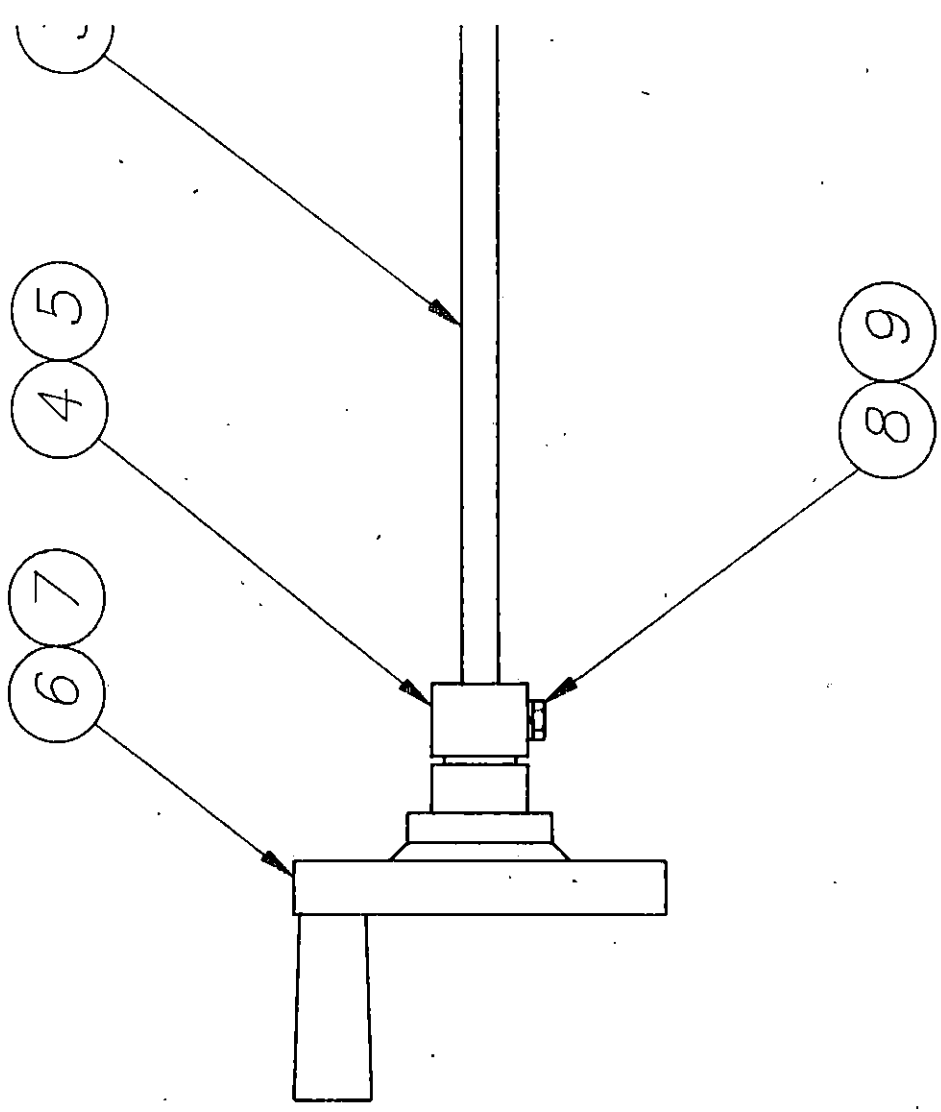


ITEM	DESCRIPTION	PART NO.	QTY
9	#10 LOCK WASHER		1
8	#10-32 x 1 1/4 H.H.		1
7	#10-32 x 1/4 SET SCREW		2
6	HAND KNOB	78-1615	1
5	BUSHING BLOCK	78-1620	1
4	BUSHING	793-92	1
3	SHAFT	78-1618	1
2	COUPLING	78-1613	1
1	RIGHT ANGLE DRIVE	792-10	1

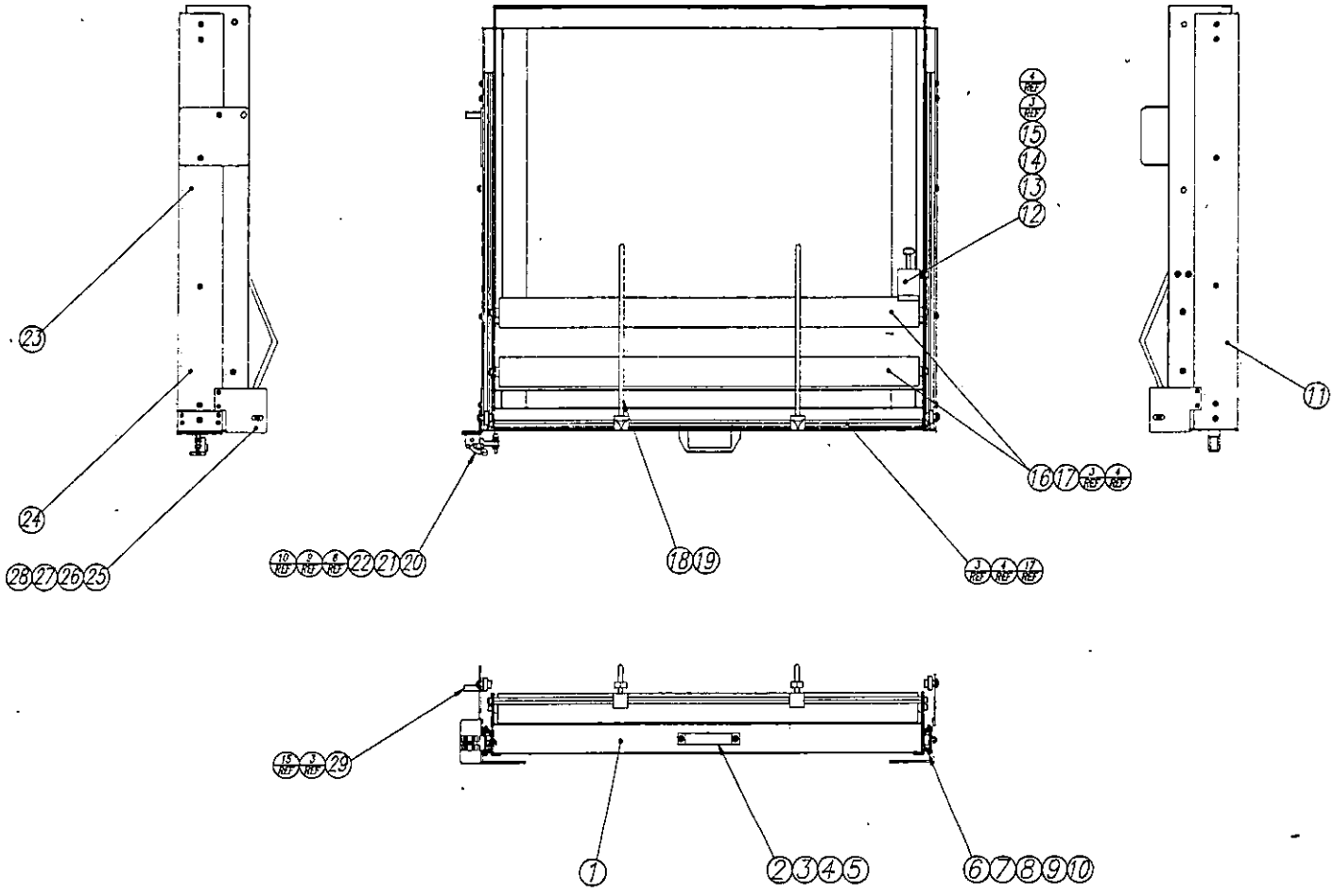
MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

CLAMCO CORPORATION

MATERIAL	DR. BY	GJB	ASS'Y, INVERTING PLATE HANDLE
STOCK SIZE	CK. BY		SIZE B — 78-2077 — REV
PURCHASE PART NO.	APPR.		
FINISH	DATE	9/23/93	SCALE 1 : 2 — SHEET 1 OF 1



575785



REVISIONS			
SYM	DESCRIPTION	DATE	BY
A	UPDATED DRAWING	8/94	FE

ITEM	DESCRIPTION	PART NO.	QTY
29	.386 X 1.00 STANDOFF	780-13	1
28	5/16-18 LOCK NUT		2
27	.38 X .50 SHOULDER BOLT		2
26	BEARING	793-62	2
25	SLIDE PLATE	78-1908	2
24	SLIDE MOUNT, LH	78-1905	1
23	SWING ARM PLATE	78-1906	1
22	CLAMP MOUNT	78-853	1
21	SPACER	78-1392	1
20	CLAMP	212-23	1
19	KNOB	808-19	2
18	WLDMT, FILM ROLL STOP	78-755	2
17	SHAFT	78-1136	3
16	ROLLER	78-1301	2
15	WASHER		12
14	SPEED NUT		1
13	ROLLER BRAKE	77-1078	1
12	BRAKE HOUSING	77-1079	1
11	SLIDE MOUNT, RH	78-1907	1
10	LOCK WASHER		28
9	#8-32 HEX NUT		28
8	#8-32 X .50 PHMS		12
7	#8-32 X .38 PHMS		16
6	SLIDE BEARING	845-11	2
5	LOCK WASHER		2
4	1/4-20 HEX NUT		10
3	1/4-20 X .50 BHCS		11
2	HANDLE	808-23	1
1	WLDMT, CRADLE FRAME	78-1847	1

MACHINE TOLERANCES: .XXX ±.005, .XX ±.015, .X ±.030

FABRICATION TOLERANCES: .XXX ±.015, .XX ±.030, .X ±.060

CLAMCO CORPORATION

MATERIAL	DR. BY	FE
STOCK SIZE	CK. BY	
PURCHASE PART NO.	APPR.	
FINISH	DATE	2/94

ASSY., LOWER FRAME

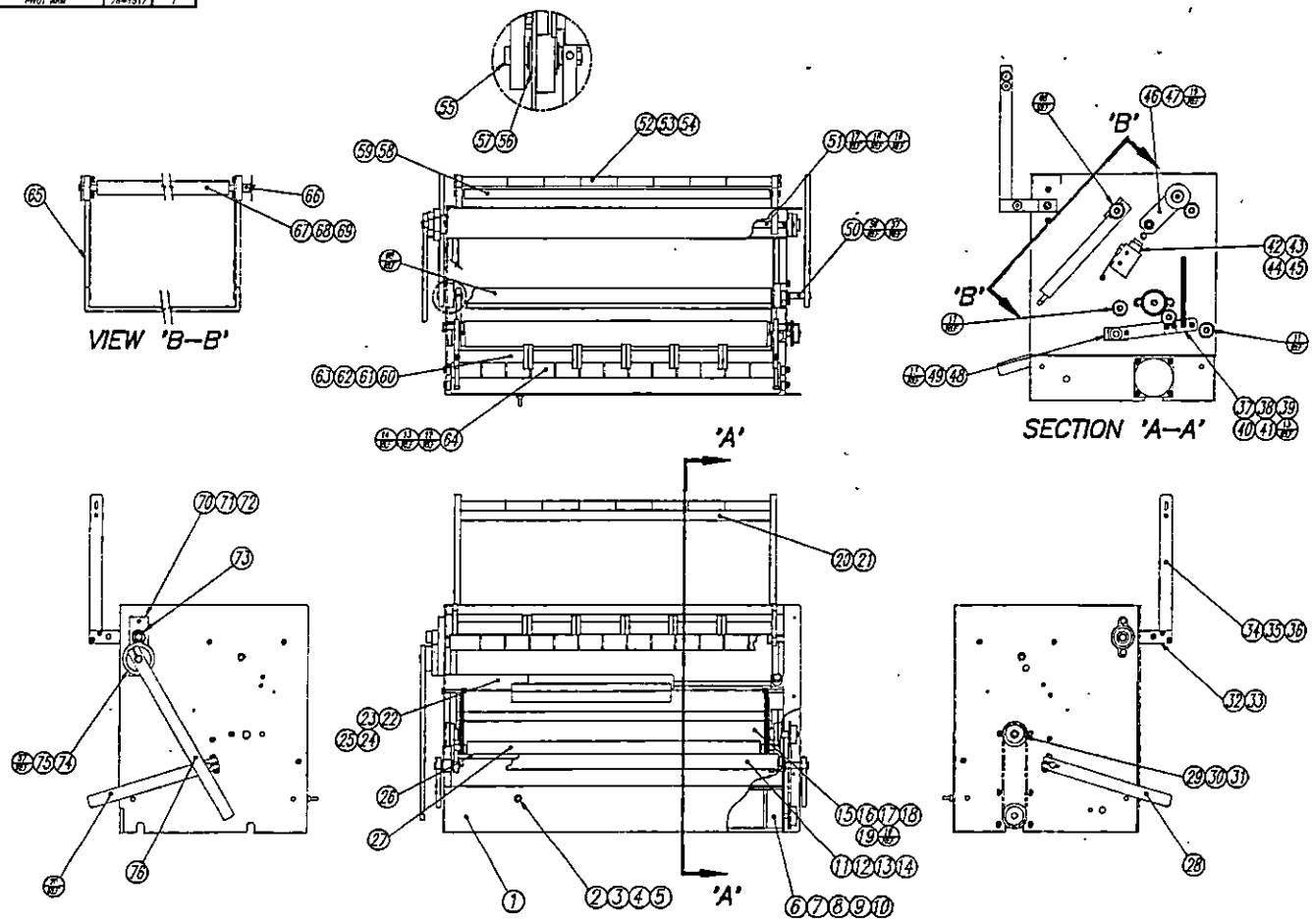
SIZE B | 78-1860 | REV A

SCALE 1 : 8 | SHEET 1 OF 1

S17216

REVISIONS			
SYM	DESCRIPTION	DATE	BY
A	UPDATED DRAWING	8/94	FE

71	BEARING	783-85	2
72	5/16-18 X .75 SHCS		2
73	GEAR	790-75	1
74	SHAFT	78-1319	1
75	GEAR	790-79	1
76	PIVOT ARM	78-1317	1

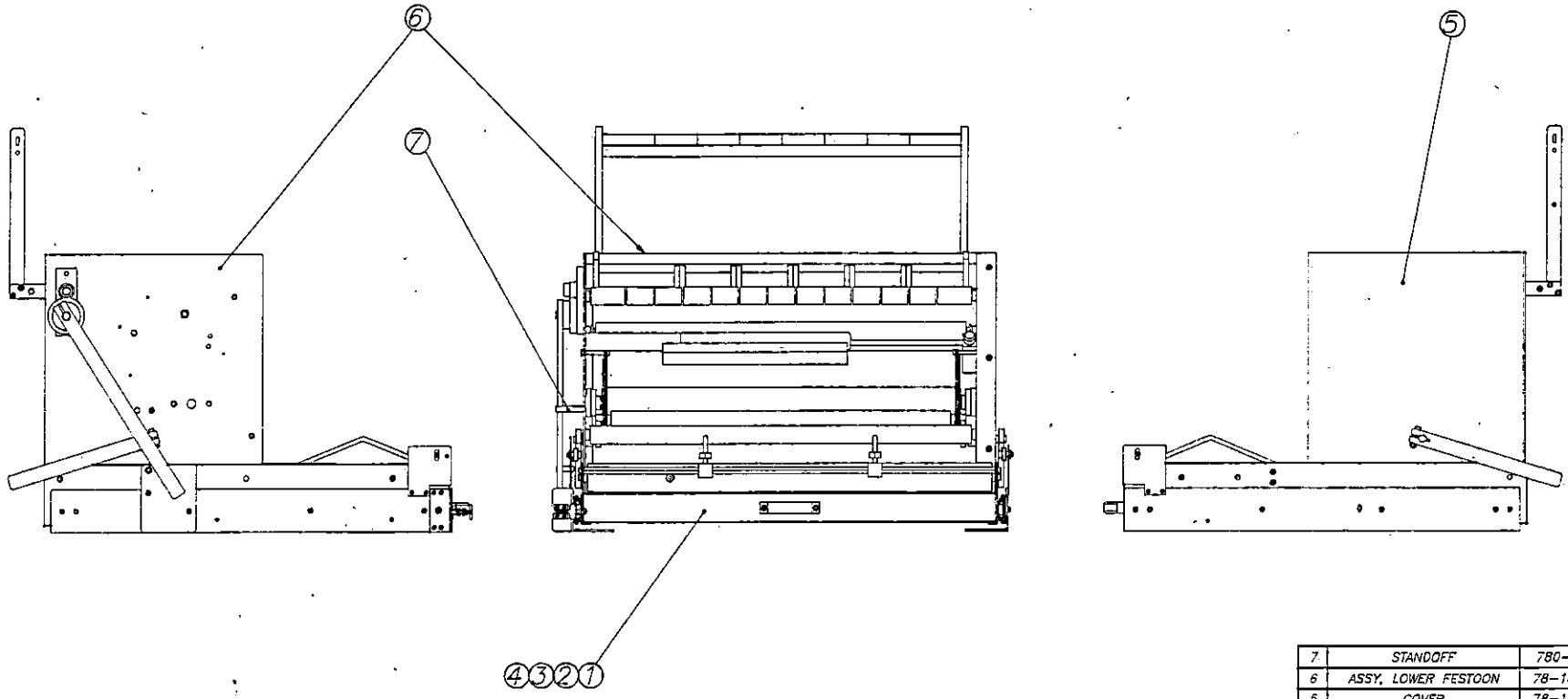


70	BEARING HOUSING	78-1825	1
69	BUSHING	783-41	2
68	SHAFT	78-887	1
67	ASSY, ROLLER	78-1858	1
66	BUSHING	783-27	2
65	MOUNT, DANCER BAR	78-1990	1
64	ASSY, PERF ROLLER	78-1898	1
63	RECIPROCAL COLLAR	818-8	2
62	ASSY, PERF RING	78-1928	2
61	SHAFT	78-1882	1
60	ASSY, SUPPORT ROLLER	78-1863	1
59	1/4-20 X .75 SHCS		2
58	ROLLER	78-1131	1
57	RETAINING RING	820-16	2
56	THRUST BEARING	783-46	2
55	PIVOT SHAFT, LH	78-1909	1
54	SHAFT	78-1133	1
53	O-RING	818-13	2
52	ASSY, ROLLER	78-1129	1
51	SHAFT	78-1570	1
50	PIVOT SHAFT, RH	78-1810	1
49	BEARING	783-118	2
48	BEARING BLOCK	78-1903	1
47	.50 X 1.00 SHOULDER BOLT		2
46	PUMP BAR LEVER	78-1902	1
45	#8-32 HEX NUT		2
44	#8-32 X 1.38 PHMS		2
43	SWITCH	815-88	1
42	HOUSING	815-44	1
41	#10-24 X .50 SHCS		4
40	1/4 X .50 SHOULDER BOLT		6
39	SPRING	796-78	7
38	SIDE PLATE	78-1837	2
37	PIVOT ARM	78-1838	1
36	1/4-20 X .50 SET SCREW		12
35	SPRING PLUNGER	799-104	2
34	MOUNT, SWING ARM	78-1110	2
33	#10-24 X .75 SHCS		4
32	PIVOT MOUNT	78-1111	2
31	MASTER LINK	804-8	1
30	CHAIN	78-1868	1
29	SPROCKET	790-56	1
28	LEVER ARM	78-1904	2
27	SPACER ROD	78-1891	2
26	ASSY, ROLLER	78-1865	2
25	BRUSH MOUNT	78-1811	1
24	BRUSH	78-1912	1
23	FILM SPLITTER	78-1277	1
22	SUPPORT, FILM SPLITTER	78-1278	1
21	SHAFT	78-1134	1
20	ASSY, PINCH ROLLER	78-1130	1
19	1/4-20 HEX NUT		6
18	1/4-20 CARRIAGE BOLT		6
17	BEARING	783-86	3
16	DRIVE SHAFT	78-1853	1
15	ASSY, DRIVE ROLLER	78-1859	1
14	LOCK WASHER		12
13	1/4-20 X .50 SHCS		10
12	ADAPTER	78-1848	10
11	ASSY, ROLLER	78-1847	3
10	LOCK WASHER		2
9	#10-24 HEX NUT		4
8	#10-24 X 2.00 SHCS		4
7	SPROCKET	790-78	1
6	GEARMOTOR	330-35	1
5	COVER	814-7	1
4	CAPACITOR	734-17	1
3	OUTLET BOX	817-12	1
2	A/B SWITCH	815-79	1
1	WLDMT, FESTOON FRAME	78-1830	1
KEY	NOMENCLATURE	PART NO.	QTY

MACHINE TOLERANCES: .XXX ±.005, .XX ±.015, .X ±.030	FABRICATION TOLERANCES: .XXX ±.015, .XX ±.030, .X ±.060	THIS DRAWING IS THE PROPERTY OF CLANCO CORP. IT SHALL NOT BE COPIED OR ITS CONTENTS REVEALED WITHOUT THE WRITTEN CONSENT OF CLANCO CORP.	CLANCO CORPORATION
MATERIAL	DR. BY	FE	ASSY., LOWER FESTOON
STOCK SIZE	CK. BY		
PURCHASE PART NO.	APPR.		SIZE B — 78-1859 — REV A
FINISH	DATE	2/94	SCALE 1:10 — SHEET 1 OF 1

537218

REVISIONS			
SYM	DESCRIPTION	DATE	BY
A	UPDATED FOR COMPONENT DESIGN CHANGES	8/94	FE



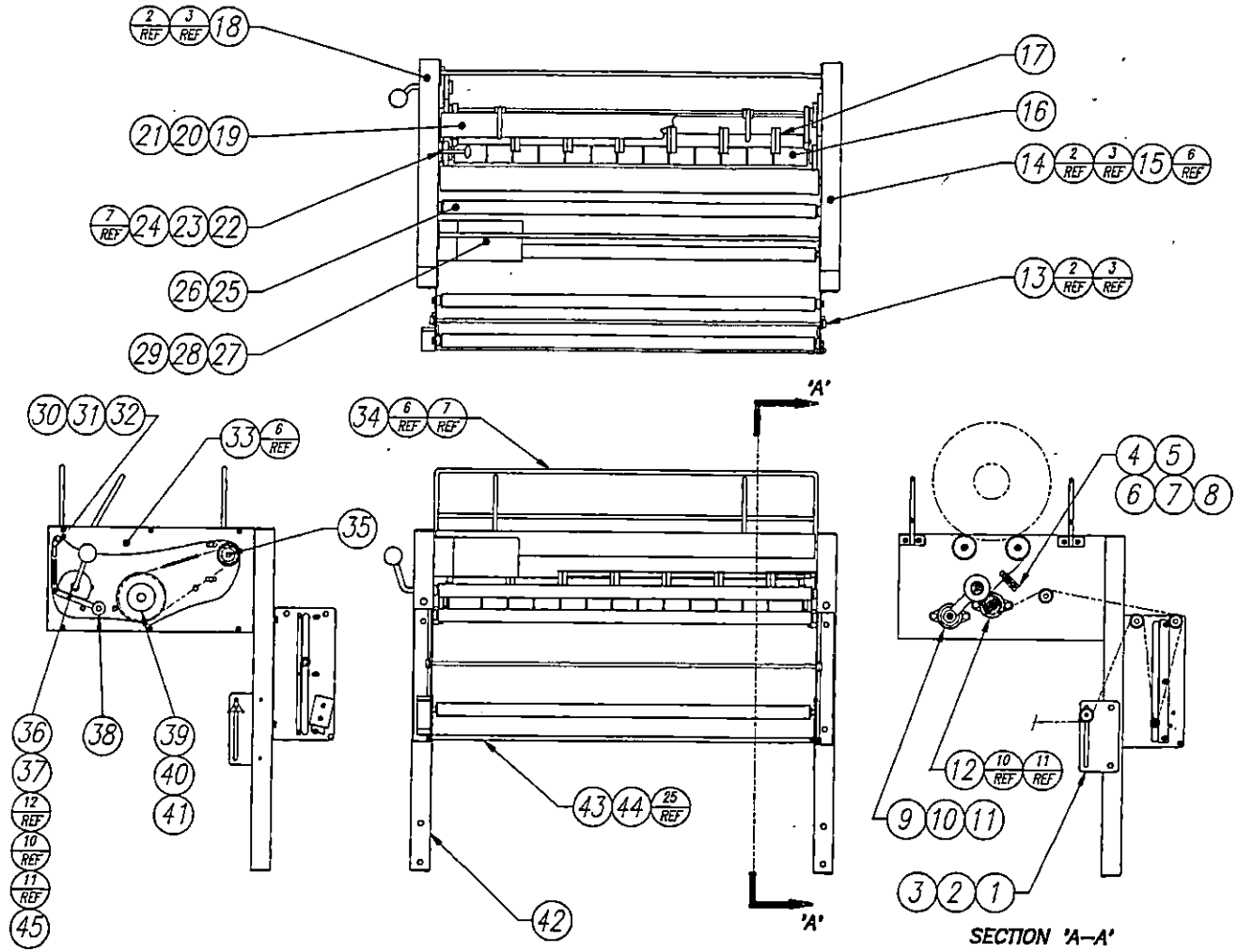
ITEM	DESCRIPTION	PART NO.	QTY
7	STANDOFF	780-14	1
6	ASSY, LOWER FESTOON	78-1859	1
5	COVER	78-1870	1
4	LOCK WASHER		4
3	1/4-20 HEX NUT		4
2	1/4-20 X .50 SHCS		4
1	ASSY, LOWER FRAME	78-1860	1

MACHINE TOLERANCES:	FABRICATION TOLERANCES:
.XXX ±.005	.XXX ±.015
.XX ±.015	.XX ±.030
.X ±.030	.X ±.060

CLAMCO CORPORATION

MATERIAL	DR. BY	FE	ASSY., LOWER FILM CRADLE
STOCK SIZE	CK. BY		
PURCHASE PART NO.	APPR.		SIZE B — 78-1861 — REV A
FINISH	DATE	2/94	SCALE 1 : 8 — SHEET 1 OF 1

577216



SECTION 'A–A'

REVISIONS			
SYM	DESCRIPTION	DATE	BY

ITEM	DESCRIPTION	PART NO.	QTY.
45	NAMEPLATE, FILM FEED	78-645	1
44	HAND KNOB	808-19	2
43	SHAFT	78-1732	1
42	WELDMENT, SUPPORT	78-1728	2
41	MASTER LINK	804-12	1
40	CHAIN	78-1400	1
39	SPROCKET	790-54	1
38	TAKE-UP MOUNT	78-592	1
37	KNOB	808-25	1
36	WELDMENT, CAM	78-590	1
35	SPROCKET	790-23	1
34	GUARD, FILM	78-1319	2
33	COVER, RH	78-1725	1
32	SPRING	796-68	1
31	STUD	78-605	1
30	TAKE-UP PIN	78-604	1
29	CAPACITOR	234-16	1
28	#10-24 X 2.00 PHMS		4
27	GEARMOTOR	230-38	1
26	ADAPTER BUSHING	72-106A	2
25	ASSY. ROLLER	78-1295	2
24	THUMB SCREW, #10-24		1
23	BRAKE PAD	78-701	2
22	BRAKE BRACKET	78-1505	1
21	5/16-18 X .50 HHCS		4
20	SHAFT	78-1299	2
19	ASSY. ROLLER	77-617	2
18	BOX, FILM CRADLE	78-1724	1
17	ASSY. FILM PIVOT ARM	78-888	1
16	ASSY., FILM FEED ROLLER	78-892	1
15	COVER, LH	78-1722	1
14	BOX, FILM CRADLE	78-1723	1
13	ASSY. FESTOON PLATES	78-1731	1
12	BEARING	793-67	3
11	1/4-20 HEX NUT		10
10	1/4-20 CARRIAGE BOLT		10
9	BEARING	793-68	2
8	#10 ACORN NUT		2
7	#10-24 NUTSERT		10
6	#10-24 X .50 BHCS		22
5	FILM SPLITTER	78-1781	1
4	FILM SPLITTER MOUNT	78-1780	1
3	1/4-20 NUTSERT		14
2	1/4-20 X .63 HHCS		16
1	PLATE	78-722	2

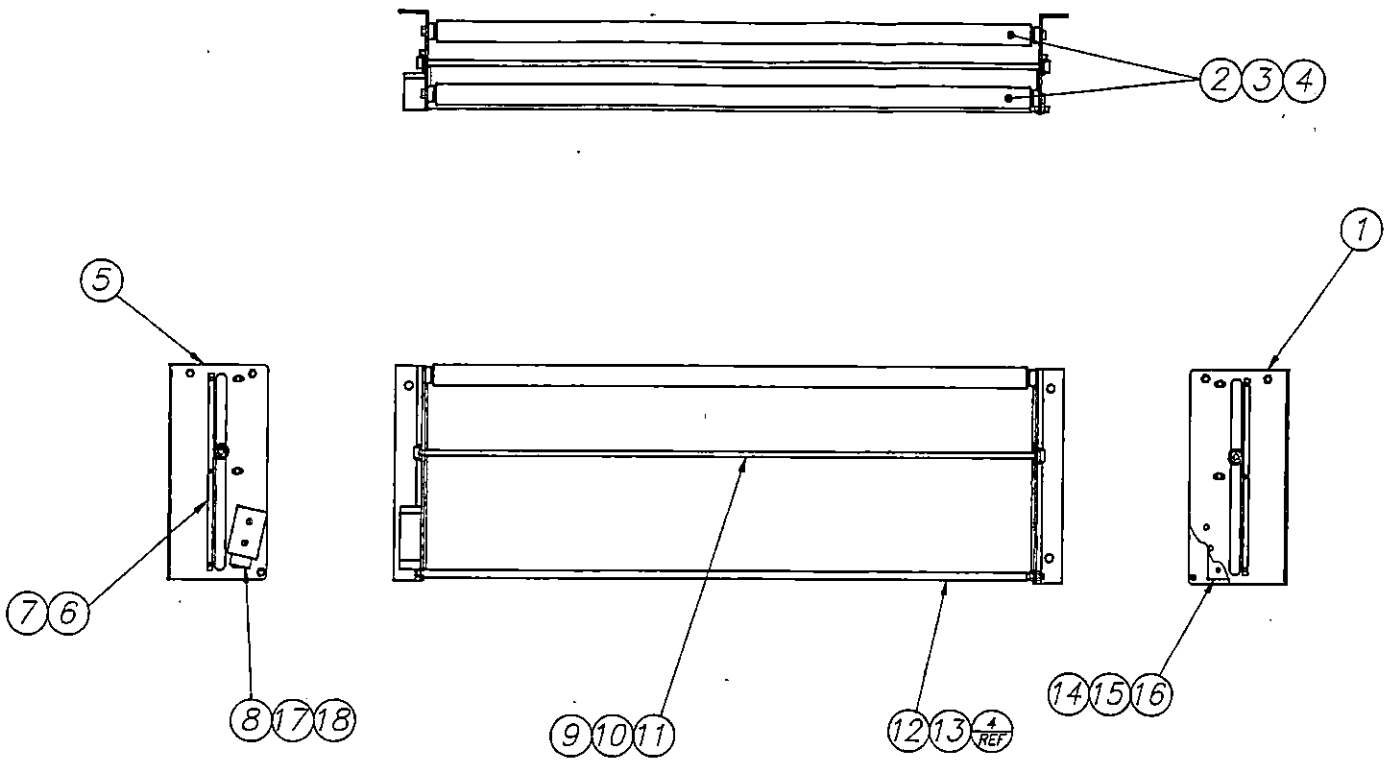
MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

CLAMCO CORPORATION

MATERIAL	DR. BY	FE	ASSY., OVERHEAD FILM DISPENSER
STOCK SIZE	CK. BY		
PURCHASE PART NO.	APPR.	KJF	SIZE B — 78-1733 — REV
FINISH	DATE	7/93	SCALE 1 : 9 — SHEET 1 OF 1

573616

REVISIONS			
SYM	DESCRIPTION	DATE	BY



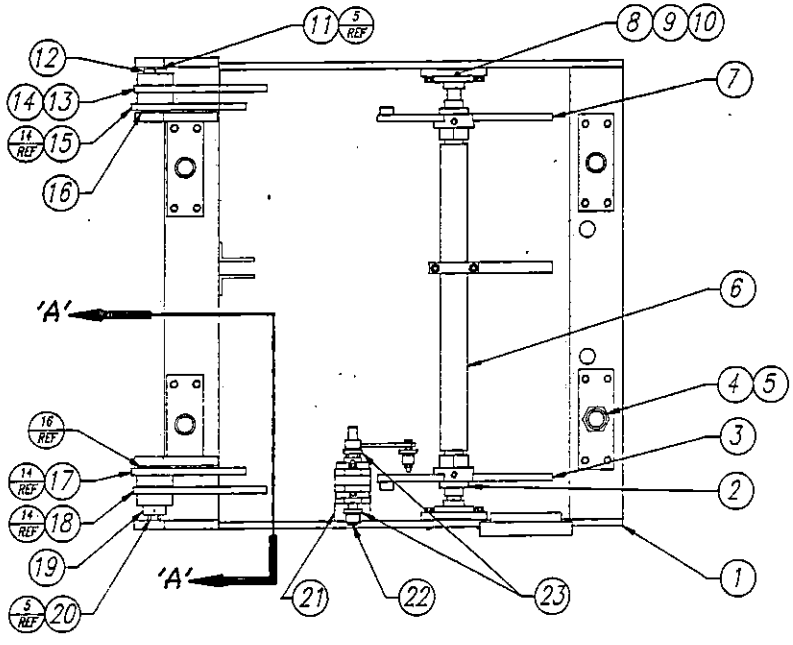
ITEM	DESCRIPTION	PART NO.	QTY
19	CORD – 18–2 SJO 300V	210–10	1
18	3/8" ROMEX CONNECTOR	207–5	2
17	MICROSWITCH	215–66	1
16	#10–24 HEX NUT		6
15	#10–24 X .25 PHMS		6
14	WEARSTRIP	78–710	2
13	1/4–20 HEX NUT		2
12	ADJUSTABLE SPACER ROD	78–1720	1
11	FLANGE BUSHING	793–82	2
10	SPUR GEAR	790–49	2
9	DANCER BAR	78–1721	1
8	ENCLOSURE, MICROSWITCH	215–44	1
7	#4–40 X .50 PHMS		6
6	GEAR RACK	78–709	2
5	BRACKET, RH	78–1735	1
4	1/4–20 X .50 HHCS		5
3	ADAPTER	72–106A	4
2	ASSY, FILM ROLLER	78–1295	2
1	BRACKET, LH	78–1734	1

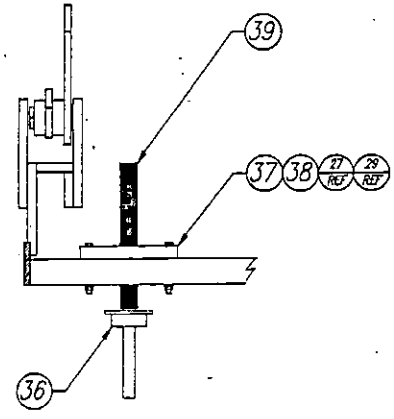
MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

CLAMCO CORPORATION

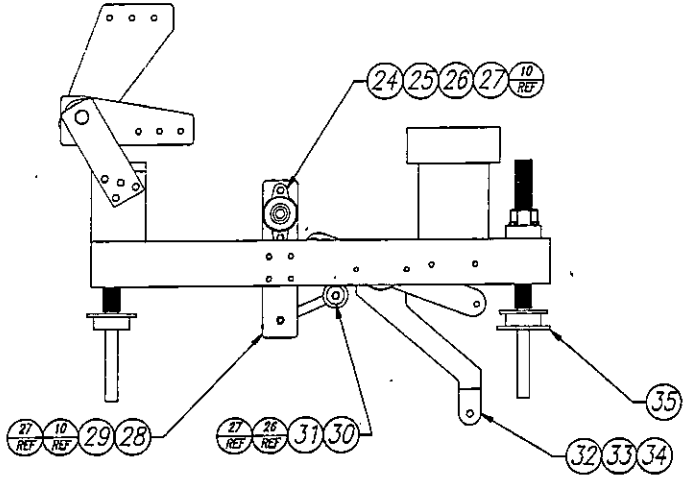
MATERIAL	DR. BY	FE	ASSY., FESTOON PLATES
STOCK SIZE	CK. BY		SIZE B — 78–1731 — REV
PURCHASE PART NO.	APPR.		
FINISH	DATE	7/93	SCALE 1 : 6 — SHEET 1 OF 1

573616





SECTION 'A-A'



REVISIONS

SYM	DESCRIPTION	DATE
A	B.O.M. CHANGE	12/21/93
B	CHANGED ITEM 35	7/13/94
C	790-13 (1) REMOVED 790-70 (1) ADDED	10/13/94

ITEM	DESCRIPTION	PART NO.	QTY
39	SCREW SHAFT	78-1056	4
38	1/4-20 NYLOCK NUT		16
37	BLOCK	78-1051	4
36	SPROCKET	790-54A	3
35	SPROCKET SET	78-2158	1
34	3/8-16 X 2.0 SHCS		2
33	LINKAGE JAW YOKE	78-1630	1
32	JAW LINKAGE ARM	78-1075	1
31	SPROCKET	78-1086	1
30	TENSIONER	804-21	1
29	1/4-20 X 2.75 HH BOLT		20
28	IDLER BRACKET	78-1155	1
27	1/4 FLATWASHER		23
26	1/4-20 NUT		5
25	1/4-20 X 1.75 HH BOLT		3
24	BEARING	793-68	2
23	SPROCKET	790-70	2
22	IDLER SHAFT	78-1154	1
21	SPACER	78-1161	2
20	BEARING SHAFT	78-1055	1
19	SHAFT COLLAR	789-6	1
18	LH LOWER PIVOT ARM	78-1062	1
17	LH UPPER PIVOT ARM	78-508	1
16	THRUST WASHER	793-75	4
15	RH UPPER PIVOT ARM	78-507	1
14	BEARING	793-63	8
13	RH LOWER PIVOT ARM	78-1061	1
12	SHAFT COLLAR	78-1059	1
11	BEARING SHAFT	78-1054	1
10	1/4-20 LOCKWASHER		10
9	1/4-20 X 1.0 HH BOLT		4
8	BEARING	793-66	2
7	RH JAW PIVOT ARM	78-2089	1
6	SHAFT, PIVOT ARM	78-2090	1
5	1/4-20 SET SCREW		6
4	LOCKNUT	78-1374	1
3	LH JAW PIVOT ARM	78-2088	1
2	TRANTORQUE	788-15	2
1	WLDMN'T ELEVATOR FRAME	78-1782	1

MACHINE TOLERANCES: .XXX ±.005, .XX ±.015, .X ±.030

FABRICATION TOLERANCES: .XXX ±.015, .XX ±.030, .X ±.060

CLAMCO CORPORATION

MATERIAL

STOCK SIZE

PURCHASE PART NO.

FINISH

DR. BY KJF

CK. BY

APPR.

DATE 9/93

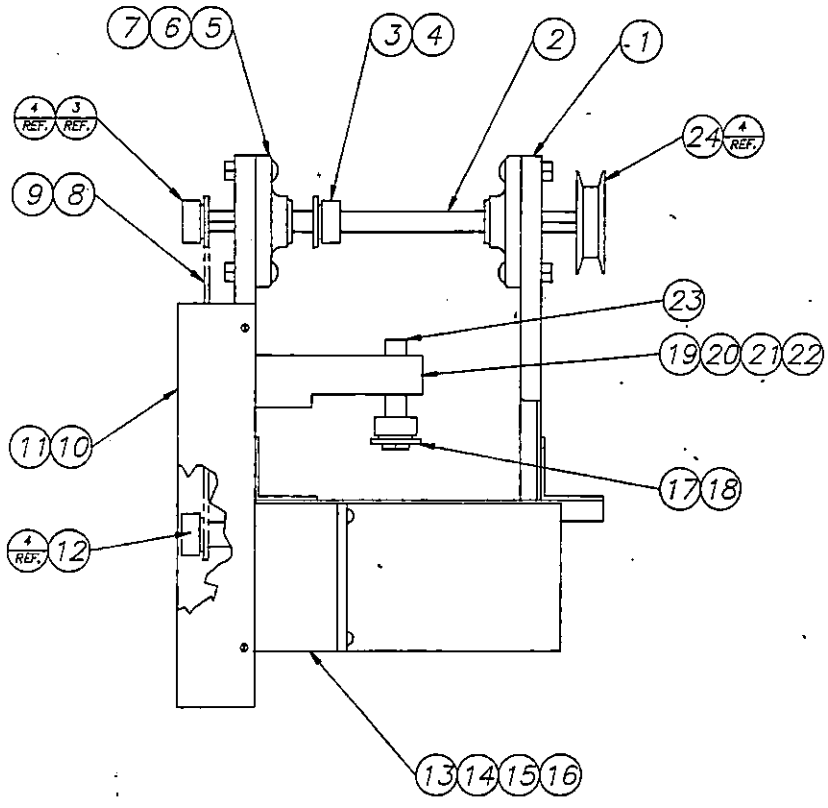
ELEVATOR ASS'Y,

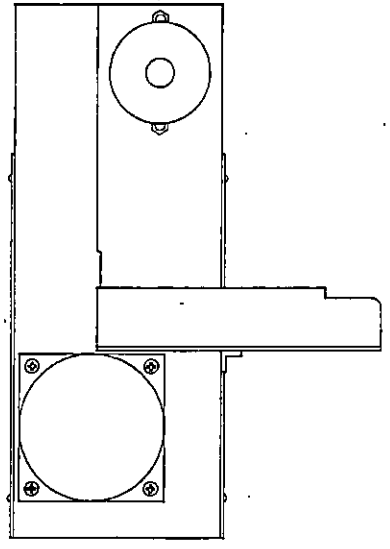
SIZE B | 78-2086 | REV C

SCALE 1:7 | SHEET 1 OF 1

577218

REVISIONS			
SYM	DESCRIPTION	DATE	BY
A	B.O.M. CHANGE	12/30/93	GJB





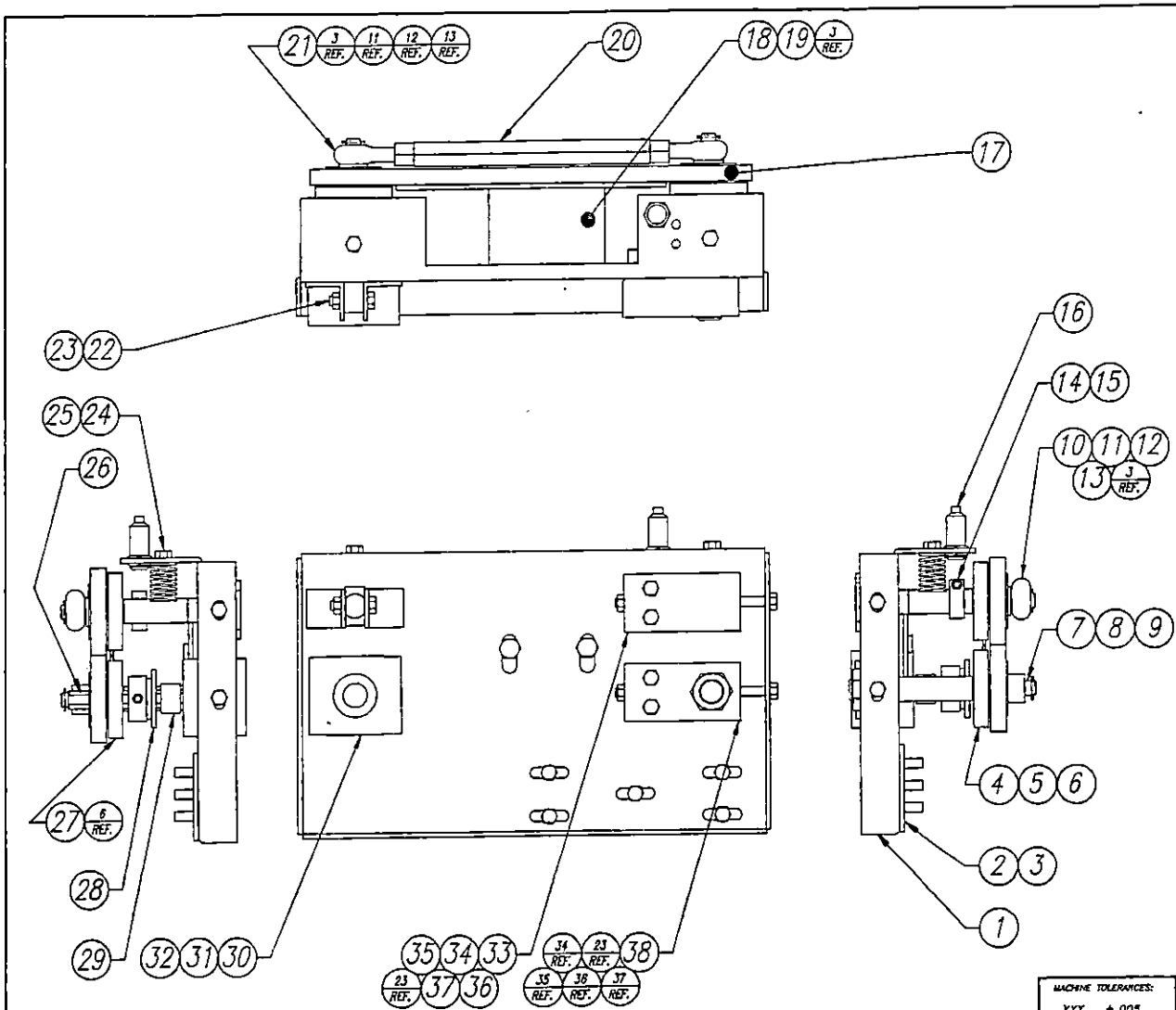
ITEM	DESCRIPTION	PART NO.	QTY.
24	SHEAVE	843-14	1
23	BOLT	513-3	1
22	1/4 LOCK WASHER		2
21	1/4 FLAT WASHER		2
20	1/4 - 20 x 3/4 HHMS		2
19	STAND-OFF IDLER	78-1201	1
18	BEARING	793-62	1
17	SPROCKET	78-1202	1
16	#10 FLAT WASHER		4
15	#10 LOCK WASHER		4
14	#10 - 32 x 1/2 THMS		4
13	GEAR MOTOR	230-73	1
12	SPROCKET	790-13	1
11	#6 - 32 x 1/2 PHMS		4
10	GUARD	78-1251	1
9	LINK	804-12	1
8	CHAIN	78-1398	1
7	1/4 - 20 LOCK NUTS		4
6	1/4 - 20 x 3/4 THMS		4
5	BEARING	793-68	1
4	1/4 - 20 x 1/4 SET SCREW		4
3	SPROCKET	790-70	2
2	SHAFT	78-1162	1
1	WELDMT, MTR. MT.	78-1766	1

MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

CLAMCO CORPORATION

MATERIAL	DR. BY	KJF	ASSY., SCRAP & FILM DRIVE
STOCK SIZE	CK. BY		SIZE B — 78-2072 — REV A
PURCHASE PART NO.	APPR.		SCALE 1 : 3 — SHEET 1 OF 1
FINISH	DATE	4/19/93	

575765



NOTE:
ASSEMBLY TO BE INCORPORATED ON MACHINE S/N 66027 AND ALL SUCCEEDING MACHINES.

REVISIONS			
SYM	DESCRIPTION	DATE	BY
A	215-159 (WAS) 215-110	12/94	JS
B	78-2184 (WAS) 78-1239	2/95	JS

ITEM	DESCRIPTION	PART NO.	QTY
38	BLOCK LOWER FRONT	78-1150	1
37	1/4 LOCK WASHER		4
36	1/4-20 HEX NUT		4
35	1/4-20 X 1.50 HHCS		4
34	1/4-20 X 4.00 HHCS		2
33	BLOCK, UPPER FRONT	78-1149	1
32	1/4-20 X 1.00 SHCS		4
31	BEARING	793-89	2
30	SHAFT MOUNT	78-1164	1
29	SPACER	78-1478	1
28	SPROCKET	790-14	1
27	TIMING PULLEY	78-1171	1
26	SHAFT, BELT DRIVE	78-1168	1
25	1/4-20 X 1.25 HHCS		2
24	SPRING	796-64	2
23	1/4-20 LOCK NUT		2
22	1/4-20 X 1.00 HHCS		1
21	ROD END RH	793-60	1
20	SPACER	78-1357	1
19	FILM WRAP GUIDE	78-1474	2
18	BRACKET, FILM GUIDE	78-1931	1
17	BELT	809-10	2
A 16	PROX. SWITCH	215-159	1
15	#8-32 X 1.00 SHCS		1
B 14	STRIKER	78-2184	1
13	SPACER	78-1393	2
12	SHAFT, UPPER TIMING BELT	78-1148	2
11	RETAINING RING	828-3	2
10	ROD END, LH	793-61	1
9	5/8-18 HEX NUT		1
8	COLLAR	789-7	1
7	SHAFT, LOWER TIMING BELT	78-1147	1
6	PAD	818-38	4
5	BEARING	793-62	6
4	TIMING PULLEY	78-1151	3
3	1/4-20 X 0.75 HHCS		11
2	SPACER	78-1394	1
1	WLDMT, CHAIN MTG. PLATE	78-1933	1

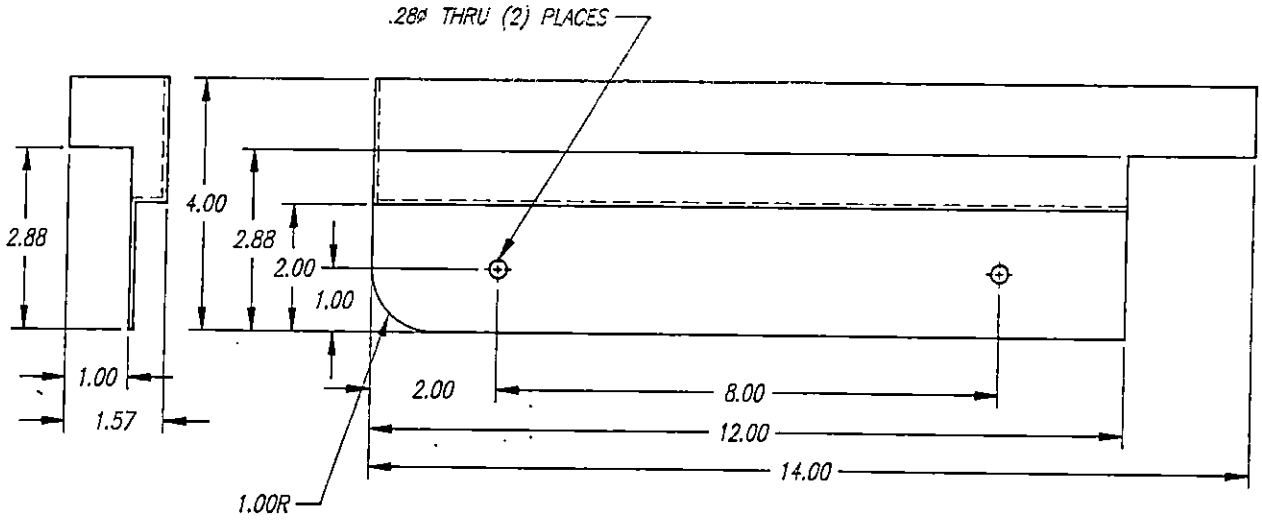
MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

CLAMCO CORPORATION

MATERIAL	DR. BY	JS	ASSY., FILM ADVANCE
STOCK SIZE	CK. BY		
PURCHASE PART NO.	APPR.		SIZE B — 78-2084 — REV B
FINISH	DATE	12/28/94	SCALE 1:3 — SHEET 1 OF 1

5803AB

REVISIONS			
SYM	DESCRIPTION	DATE	BY

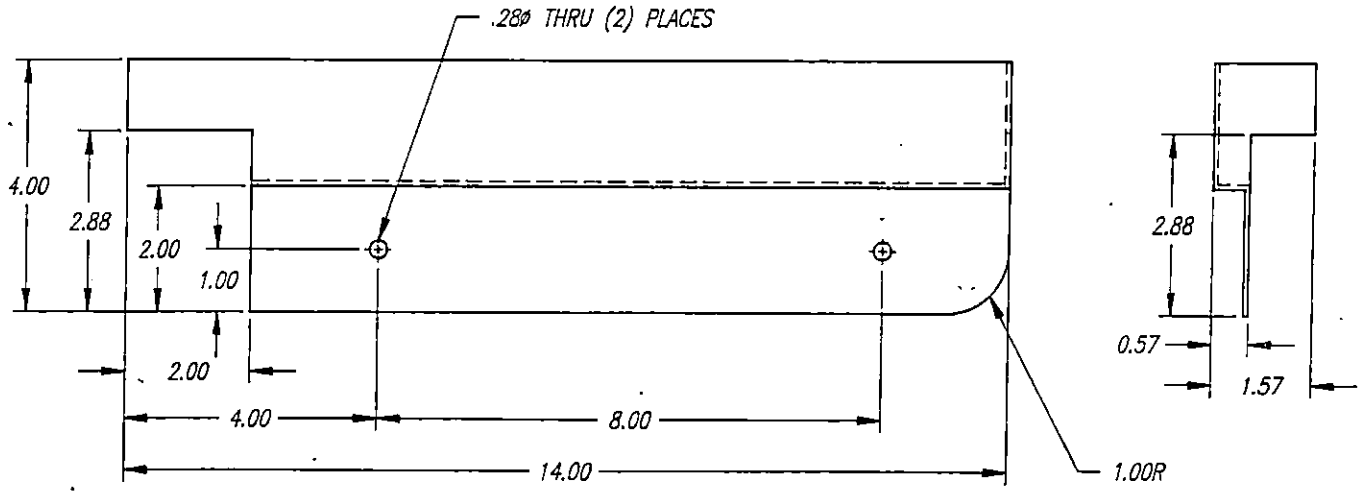


MACHINE TOLERANCES:	FABRICATION TOLERANCES:	THIS DRAWING IS THE PROPERTY OF CLAMCO CORP. IT SHALL NOT BE COPIED OR ITS CONTENTS REVEALED WITHOUT THE WRITTEN CONSENT OF CLAMCO CORP.	CLAMCO CORPORATION
.XXX ±.005 .XX ±.015 .X ±.030	.XXX ±.015 .XX ±.030 .X ±.060		

MATERIAL: CRS 14 GA. (.0747)	DR. BY: JS	CHAIN GUARD – RH	
STOCK SIZE:	CK. BY:	SIZE: B	81-772 REV
PURCHASE PART NO.	APPR.		
FINISH: PAINT DARK GRAY	DATE: 5/10/95	SCALE: 1:2	SHEET 1 OF 1

592833

REVISIONS			
SYM	DESCRIPTION	DATE	BY



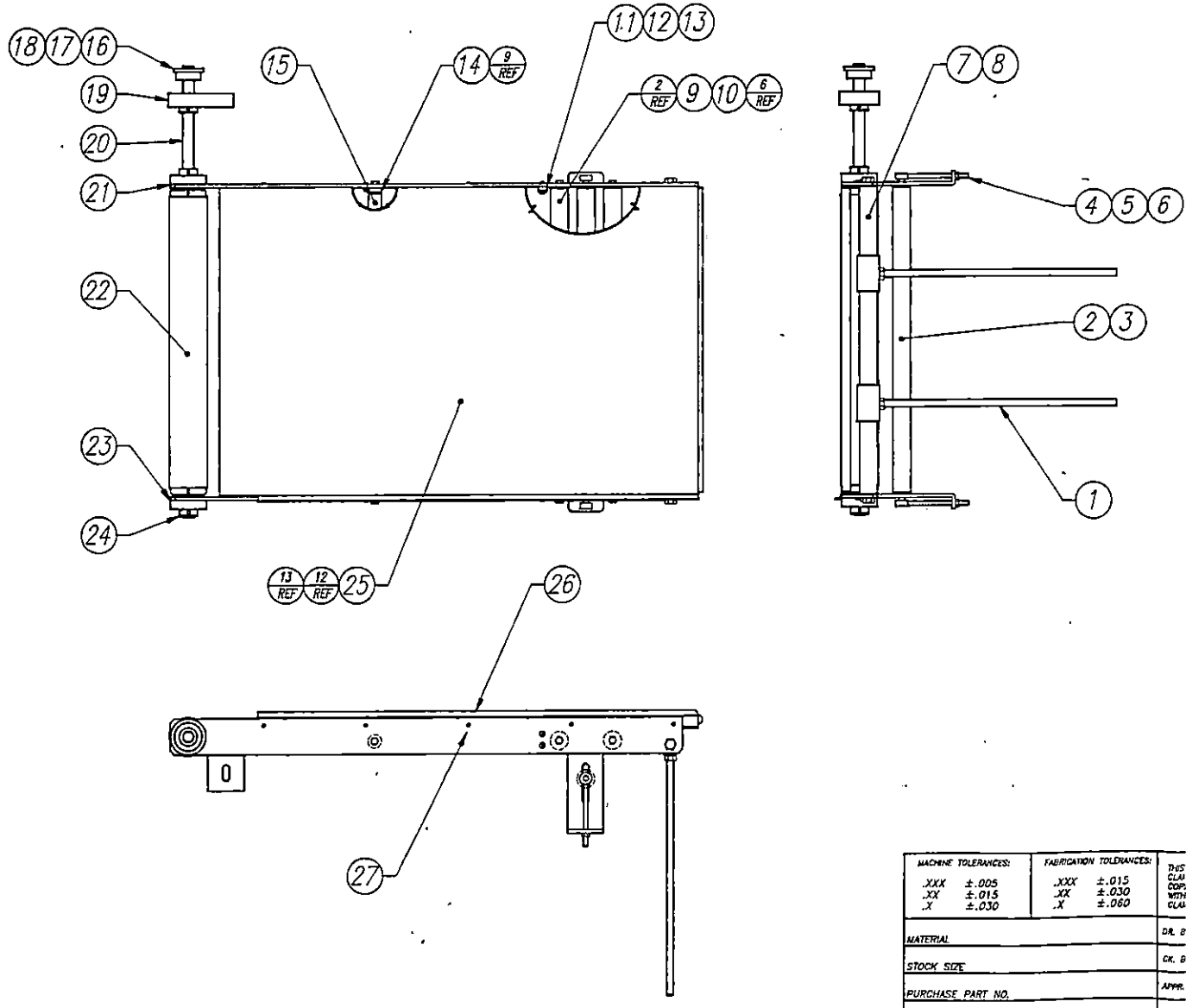
MACHINE TOLERANCES:	FABRICATION TOLERANCES:	
.XXX ±.005	.XXX ±.015	THIS DRAWING IS THE PROPERTY OF CLAMCO CORP. IT SHALL NOT BE COPIED OR ITS CONTENTS REVEALED WITHOUT THE WRITTEN CONSENT OF CLAMCO CORP.
.XX ±.015	.XX ±.030	
.X ±.030	.X ±.060	

CLAMCO CORPORATION

MATERIAL: CRS	DR. BY: JS	CHAIN GUARD – LH	
STOCK SIZE: 14 GA. (.0747)	CK. BY:	SIZE: B	81–773 REV:
PURCHASE PART NO.	APPR.		
FINISH: PAINT DARK GRAY	DATE: 5/10/95	SCALE: 1:2	SHEET 1 OF 1

032833

REVISIONS			
SYM	DESCRIPTION	DATE	



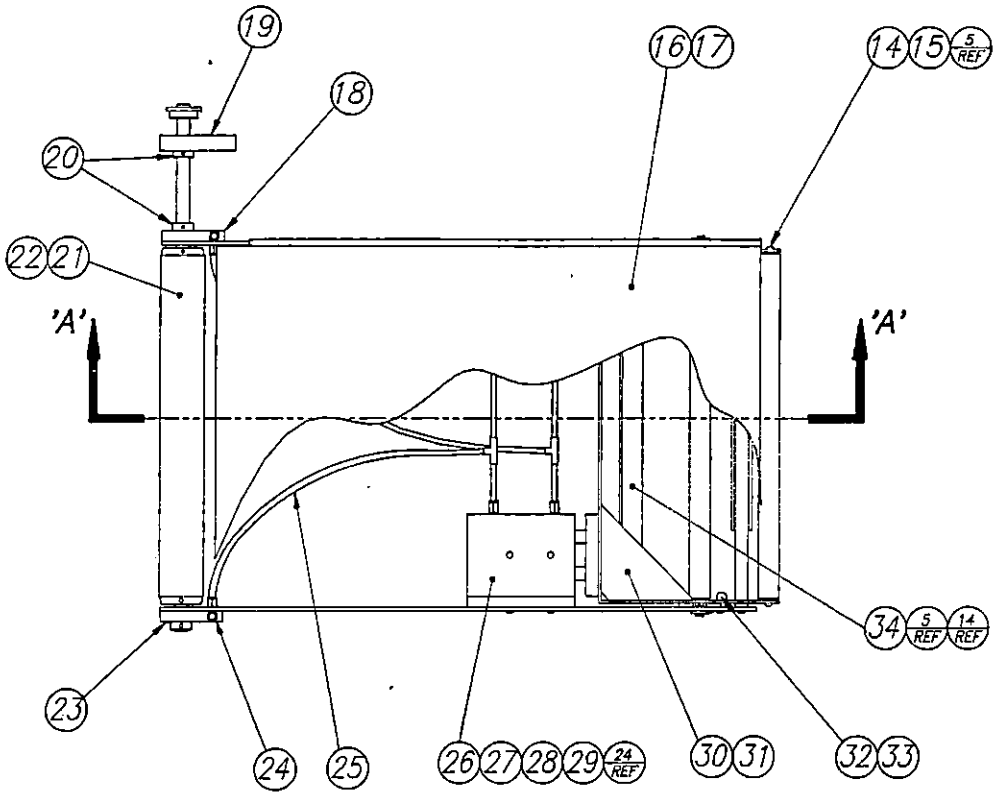
ITEM	DESCRIPTION	PART NO.	QTY
27	BELT	78-1078	1
26	SIDE GUIDE	78-1031	1
25	WLDMT, DECK PLATE	78-1033	1
24	BEARING	793-14	3
23	SIDE RAIL, LH	78-1472	1
22	ASSY, DRIVE ROLLER	78-1027	1
21	SIDE RAIL, RH	78-1471	1
20	DRIVE SHAFT	78-1473	1
19	BEARING MOUNT	78-1470	1
18	MASTER LINK (NOT SHOWN)	804-12	1
17	DRIVE CHAIN (NOT SHOWN)	78-1397	1
16	SPROCKET	790-53	1
15	ASSY, ROLLER	78-1409	1
14	ADAPTER	72-106A	2
13	#10 LOCKWASHER		14
12	#10-24 X .375 PHMS		14
11	GUIDE	78-860	2
10	1/4-20 X .75 HH BOLT		6
9	SHAFT	78-1023	1
8	3/8-16 X 1.0 HH BOLT		2
7	MOUNT	78-1026	1
6	1/4-20 FLATWASHER		6
5	1/4-20 ALUM LOCKNUT		2
4	WLDMT, BELT TRACKING STUD	78-584	2
3	SHAFT	78-1022	2
2	ASSY, DISCH CONV IDLER	78-1025	3
1	WLDMT, DISCH CONVEYOR MOUNT	78-1192	2

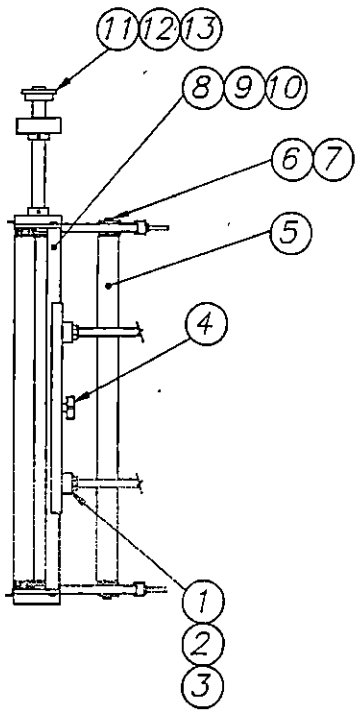
MACHINE TOLERANCES:	FABRICATION TOLERANCES:
.XXX ±.005	.XXX ±.015
.XX ±.015	.XX ±.030
.X ±.030	.X ±.060

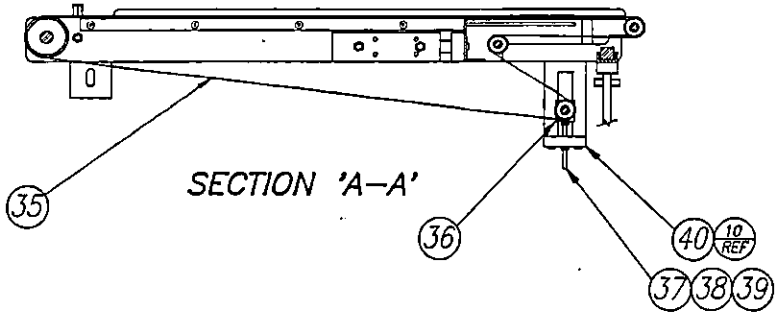
CLAMCO CORPORATION

MATERIAL	DR. BY	KJF	ASSY., DISCHARGE CONVEYOR
STOCK SIZE	CK. BY		SIZE B — 78-2008 — REV
PURCHASE PART NO.	APPR.		SCALE 1 : 6 — SHEET 1 OF 1
FINISH	DATE	10/14/93	

5115795







SECTION 'A–A'

REVISIONS			
SYM	DESCRIPTION	DATE	BY
A	REDESIGNED	7/93	FE
B	ASSEMBLY PRINT UPDATED	5/94	KJF
C	CNVYR ROLLERS REDESIGNED	8/94	KJF
D	785–90 WAS 785–70	9/94	KJF

ITEM	DESCRIPTION	PART NO.	QTY
40	TENSION BLOCK END CAP	78–1777	2
39	1/4 NYLON WASHER		2
38	1/4–20 HEX NUT		4
37	1/4–20 ROD	78–979	.79'
36	TENSION SLIDE	78–1776	2
35	CONVEYOR BELT	78–1764	1
34	SPRING PLUNGER	796–101	2
33	BELT GUIDE	78–1761	2
32	#4–40 X .31 BHCS		4
31	M6 X 16MM BHCS		4
30	WELDM'T, INFEED BRKT.	78–1779	1
29	M5 X 25MM BHCS		8
28	TEE CONNECTOR	785–74	2
27	SPACER	78–1762	2
26	DUAL ROD CYLINDER	825–99	2
25	1/4 POLYURETHANE TUBING	825–68	6'
24	MALE CONNECTOR	785–90	8
23	FRAME SUPPORT, LH	78–1709	1
22	DRIVE SHAFT	78–1473	1
21	ASSY, DRIVE ROLLER	78–1027	1
20	BEARING	793–14	3
19	BEARING MOUNT	78–1470	1
18	FRAME SUPPORT, RH	78–1702	1
17	#10–24 X .31 BHCS		8
16	WLDMT, SHUNT TABLE	78–1697	1
15	1/4–20 X 1.00 BHCS		4
14	SHAFT	78–2166	2
13	MASTER LINK	804–12	1
12	CHAIN	78–1397	1
11	SPROCKET	790–53	1
10	#10 LOCKWASHER		6
9	#10–24 X .75 BHCS		6
8	INFEED SPACER	78–1756	1
7	RETAINING RING	828–11	2
6	SHAFT	78–2167	1
5	CONVEYOR ROLLER	78–2168	3
4	1/4–20 KNOB	808–19	1
3	3/8–16 HEX NUT		2
2	3/8–16 ROD	78–978	1.25'
1	WLDMT, CHANNEL	78–1757	1

MACHINE TOLERANCES: .XXX ±.005, .XX ±.015, .X ±.030

FABRICATION TOLERANCES: .XXX ±.015, .XX ±.030, .X ±.060

CLAMCO CORPORATION

MATERIAL

STOCK SIZE

PURCHASE PART NO.

FINISH

DR. BY FE

CK. BY KJF

APPR.

DATE 4/93

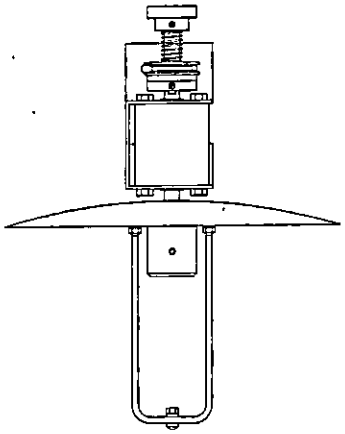
ASSY., CLOSING CNVYR

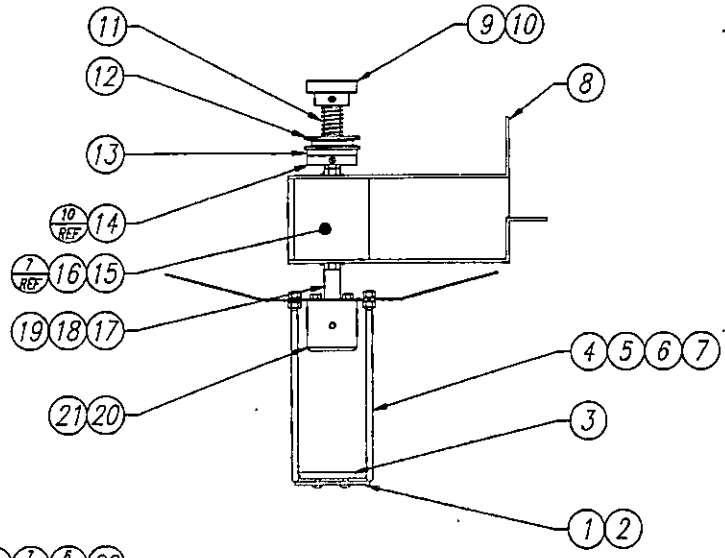
SIZE B | 78–1705 | REV D

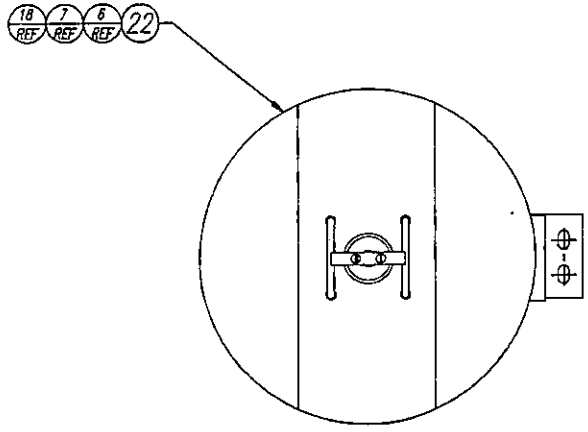
SCALE 1 : 6 | SHEET 1 OF 1

577216

REVISIONS			
SYM	DESCRIPTION	DATE	BY





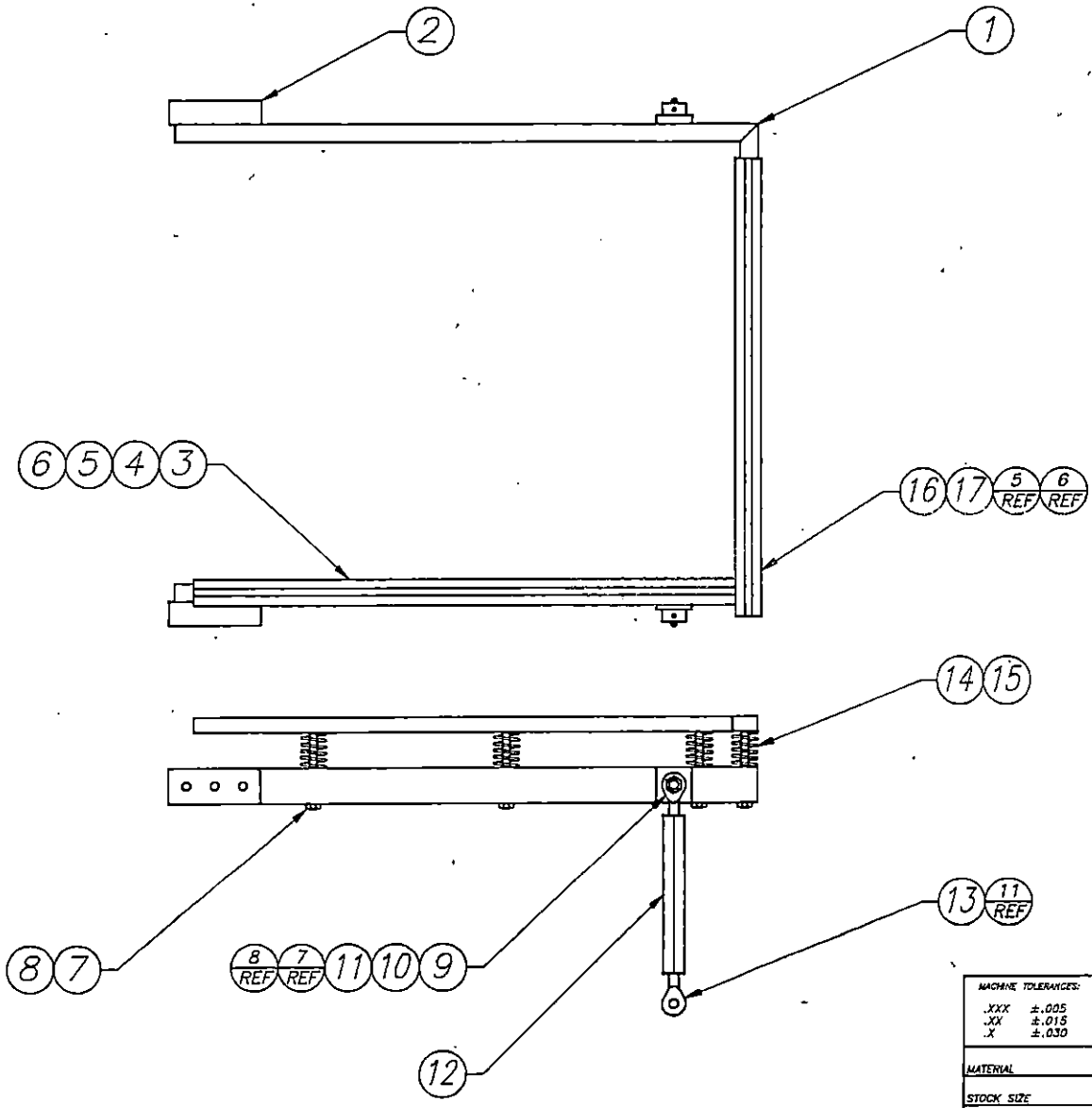


ITEM	DESCRIPTION	PART NO.	QTY
22	INNER WHEEL	78-449	1
21	1/4-20 X 1/2 SET SCREW		2
20	HUB	78-538	1
19	E-RING	828-13	2
18	THRUST WASHER	793-121	2
17	SHAFT	78-1924	1
16	1/4-20 X 1/2 HHCS		7
15	ASSY, BEARING BLOCK	78-1925	1
14	COLLAR	78-481	1
13	SLIP DISC	824-15	1
12	PULLEY	843-1	1
11	SPRING	796-65	1
10	#10-32 X 3/8 SET SCREW		4
9	HAND KNOB	78-479	1
8	MOUNT, SCRAP WIND	78-1922	1
7	1/4 LOCK WASHER		11
6	1/4 FLAT WASHER		11
5	1/4-20 HEX NUT		4
4	ROD, SCRAP WIND	78-463	2
3	INNER CLAMP	78-1367	1
2	#10-32 X 1/2 PHMS		2
1	OUTER CLAMP	78-1368	1

MACHINE TOLERANCES:	FABRICATION TOLERANCES:		CLAMCO CORPORATION
.XXX ±.005 .XX ±.015 .X ±.030	.XXX ±.015 .XX ±.030 .X ±.060		

MATERIAL	CR. BY	JS	ASSY, SCRAP TAKE-UP
STOCK SIZE	CK. BY		
PURCHASE PART NO.	APPR.		SIZE B — 78-1926 — REV
FINISH	DATE	12/15/94	SCALE 1:3 — SHEET 1 OF 1

516795



REVISIONS			
SYM	DESCRIPTION	DATE	BY
A	SEAL PAD WELDM'T, WAS ONE PIECE ITEM 4 WAS 78-1020	1/14/94	GJB
B	UPDATED TO REFLECT ITEM #1 REV D	9/25/94	KJF

ITEM	DESCRIPTION	PART NO.	QTY
17	RUBBER	78-1021	1
16	WELDM'T, END SEAL PAD	78-1898	1
15	ALL THREAD	78-2160	6
14	SPRING	796-63	6
13	ROD END L.H.	793-61	2
12	LINKAGE	78-1144	2
11	3/8-18 JAMNUT		4
10	SHOULDER SCREW	559-15	2
9	ROD END R.H.	793-60	2
8	3/8 FLATWASHER		8
7	3/8-18 NYLOCK NUT		8
6	.50" WIDE TEFL. TAPE		AS NEEDED
5	1" WIDE TEFL. TAPE		AS NEEDED
4	RUBBER	78-988	1
3	WELDM'T, SIDE SEAL PAD	78-1894	1
2	SPACER	78-1063	2
1	WELDM'T, SEAL PAD MT.	78-1007	1

MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

CLAMCO CORPORATION

MATERIAL	
STOCK SIZE	
PURCHASE PART NO.	
FINISH	
DR. BY	KJF
CH. BY	
APPR.	
DATE	10/1/93

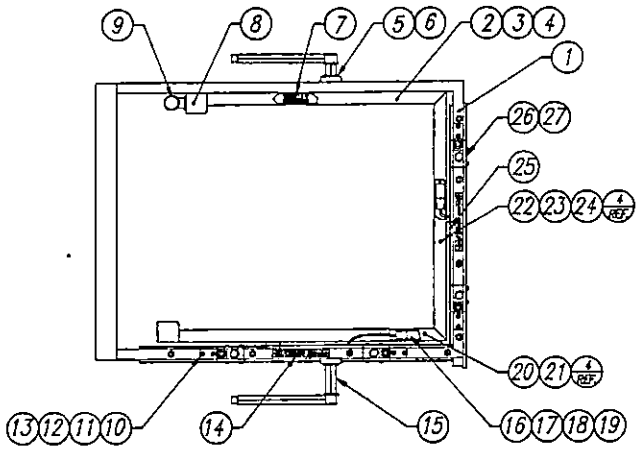
ASSY., LOWER JAW

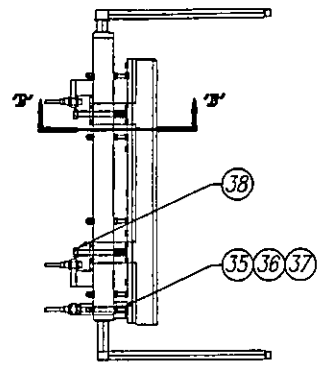
SIZE B | 78-2087 | REV B

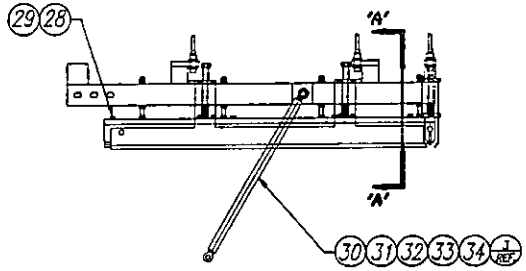
SCALE 1 : 5 | SHEET 1 OF 1

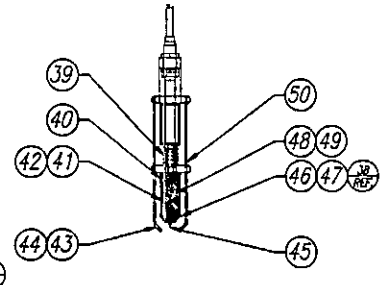
577218

REVISIONS			
SYM	DESCRIPTION	DATE	BY

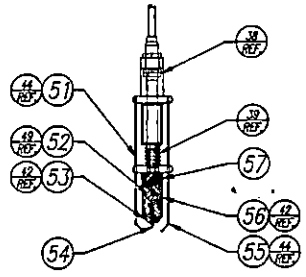








SECTION 'A-A'
2X



SECTION 'B-B'
2X

57	BAR	78-1015	1
56	HEAT BAR, OUTER END	78-1771	1
55	FILM CLAMP, OUTER END	78-1018X	1
54	KNIFE, SEAL END	78-1011	1
53	HEAT BAR, INNER END	78-1012	1
52	HEAT ELEMENT	225-48	1
51	FILM CLAMP, INNER END	78-1018X	1
50	FILM CLAMP, INNER SIDE	78-932	1
49	HEAT SINK COMPOUND	800-5	AS REQ'D
48	HEAT ELEMENT	225-57	1
47	#10-24 X .50 SHCS		11
46	HEAT BAR, INNER SIDE	78-928	1
45	KNIFE, SIDE SEAL	78-930	1
44	#8-32 X .50 PHMS		16
43	FILM CLAMP, OUTER SIDE	78-933	1
42	HELICOIL INSERT	758-9	16
41	HEAT BAR, OUTER SIDE	78-929	1
40	BAR	78-931	1
39	SPRING	796-62	4
38	BOLT	78-1375	4
37	1/4-20 ACORN NUT		8
36	1/4-20 ALUM LOCK NUT		24
35	SCREW, JAW ELEVATOR	78-812	8
34	3/8-16 JAM NUT		2
33	THRUST WASHER	793-58	2
32	ROD END	793-61	2
31	ROD END	793-60	2
30	LINKAGE	78-980	2
29	SPRING WASHER	796-72	18
28	#10-24 X .75 SHCS		18
27	SPACER BLOCK	78-2178	4
26	BLOCK, PROXIMITY TARGET	78-2175	4
25	SPACER BLOCK	78-631	3
24	INTERNAL CORNER/ANGLE	211-5	2
23	RACEWAY COVER	78-1380	1
22	RACEWAY	78-1378	1
21	RECEWAY COVER	78-1379	1
20	RACEWAY	78-1376	1
19	#8-32 PHCS		2
18	THERMOCOUPLE WIRE	208-2	24'
17	QUICK DISCONNECT	208-13	2
16	THERMOCOUPLE	208-11	2
15	POST	78-473	1
14	CAUTION PLATE	812-11	2
13	1/4-20 X 1.00 SHCS		8
12	SPACER	78-2174	4
11	SENSOR BLOCK	78-2173	4
10	PROXIMITY SWITCH	215-159	4
9	FITTING ELBOW	789-59	1
8	RACEWAY END FITTING	211-8	2
7	TERMINAL BLOCK	209-98	1
6	1/2 LOCK WASHER		2
5	POST	78-1072	1
4	RACEWAY WIRE CLIP	211-7	8
3	RACEWAY COVER	78-1650	1
2	RACEWAY	78-1377	1
1	WLDMT., SEAL ARM MOUNT	78-1077	1
ITEM	DESCRIPTION	PART NO.	QTY

NOTE:
ASSEMBLY TO BE INCORPORATED ON MACHINE S/N 66027 AND ALL SUCCEEDING MACHINES.

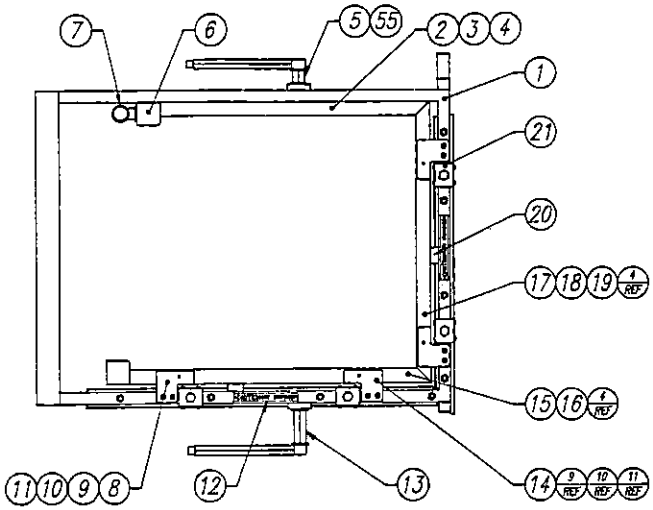
MACHINE TOLERANCES:	FABRICATION TOLERANCES:
.XXX ±.005	.XXX ±.015
.XX ±.015	.XX ±.030
.X ±.030	.X ±.060

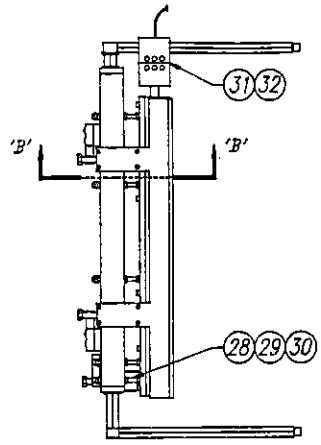
CLAMCO CORPORATION

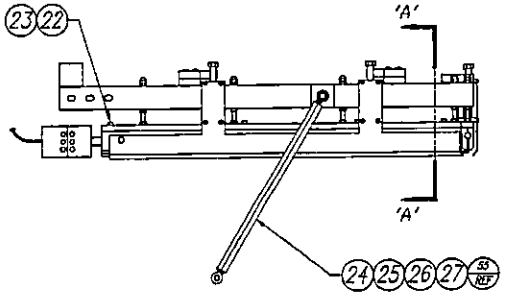
MATERIAL	DR. BY	JS	ASSY., UPPER JAW
STOCK SIZE	CK. BY		
PURCHASE PART NO.	APPR.		SIZE B — 78-2186 — REV
FINISH	DATE	3/6/95	SCALE 1:9 — SHEET 1 OF 1

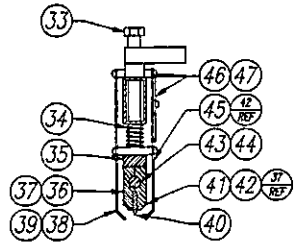
560348

REVISIONS			
SYM	DESCRIPTION	DATE	BY
A	REDESIGNED FOR LONGER SIDE KNIFE	4/94	GJB
B	ITEM 24 WAS 78-1143	5/94	KJF

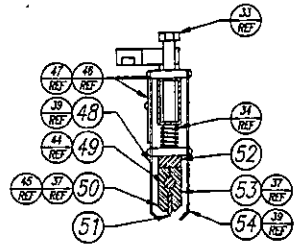








SECTION 'A-A'
2X



SECTION 'B-B'
2X

ITEM	DESCRIPTION	PART NO.	QTY.
55	1/2 LOCK WASHER		2
54	FILM CLAMP, OUTER END	78-1019X	1
53	HEAT BAR, OUTER END	78-1771	1
52	BAR	78-1015	1
51	KNIFE, SEAL END	78-1011	1
50	HEAT BAR, INNER END	78-1012	1
49	HEAT ELEMENT	225-46	1
48	FILM CLAMP, INNER END	78-1018X	1
47	#8-32 X .25 RHMS		8
46	STRIKER	78-1218	4
45	FILM CLAMP, INNER SIDE	78-932	1
44	HEAT SINK COMPOUND	600-3	AS REQ'D
43	HEAT ELEMENT	225-52	1
42	#10-24 X .50 SHCS		11
41	HEAT BAR, INNER SIDE	78-928	1
40	KNIFE, SIDE SEAL	78-930	1
39	#6-32 X .50 PHMS		16
38	FILM CLAMP, OUTER SIDE	78-933	1
37	HELICOIL INSERT	750-9	18
36	HEAT BAR, OUTER SIDE	78-929	1
35	BAR	78-931	1
34	SPRING	796-62	4
33	BOLT	78-1375	4
32	RTD WIRE	206-10	20'
31	RTD PLUG	206-9	2
30	1/4-20 ACORN NUT		8
29	1/4-20 ALUM LOCK NUT		24
28	SCREW, JAW ELEVATOR	78-618	8
27	3/8-16 JAM NUT		2
26	THRUST WASHER	793-56	2
25	ROD END	793-60	4
24	LINKAGE	78-980	2
23	SPRING WASHER	796-72	16
22	#10-24 X .75 SHCS		16
21	BLOCK	78-483	8
20	SPACER BLOCK	78-631	3
19	INTERNAL CORNER/ANGLE	211-5	2
18	RACEWAY COVER	78-1380	1
17	RACEWAY	78-1378	1
16	RACEWAY COVER	78-1379	1
15	RACEWAY	78-1376	1
14	SWITCH MOUNT	78-1916	2
13	POST	78-473	1
12	CAUTION PLATE	812-11	2
11	PROX SENSOR	215-110	1
10	1/4-20 X 1.00 BHCS		8
9	SPACER	78-1892	1
8	SWITCH MOUNT	78-1218	2
7	FITTING ELBOW	763-39	1
6	RACEWAY END FITTING	211-6	2
5	POST	78-1078	1
4	RACEWAY WIRE CLIP	211-7	8
3	RACEWAY COVER	78-1630	1
2	RACEWAY	78-1377	1
1	WIPER SEAL ARM MOUNT	78-1077	1

MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

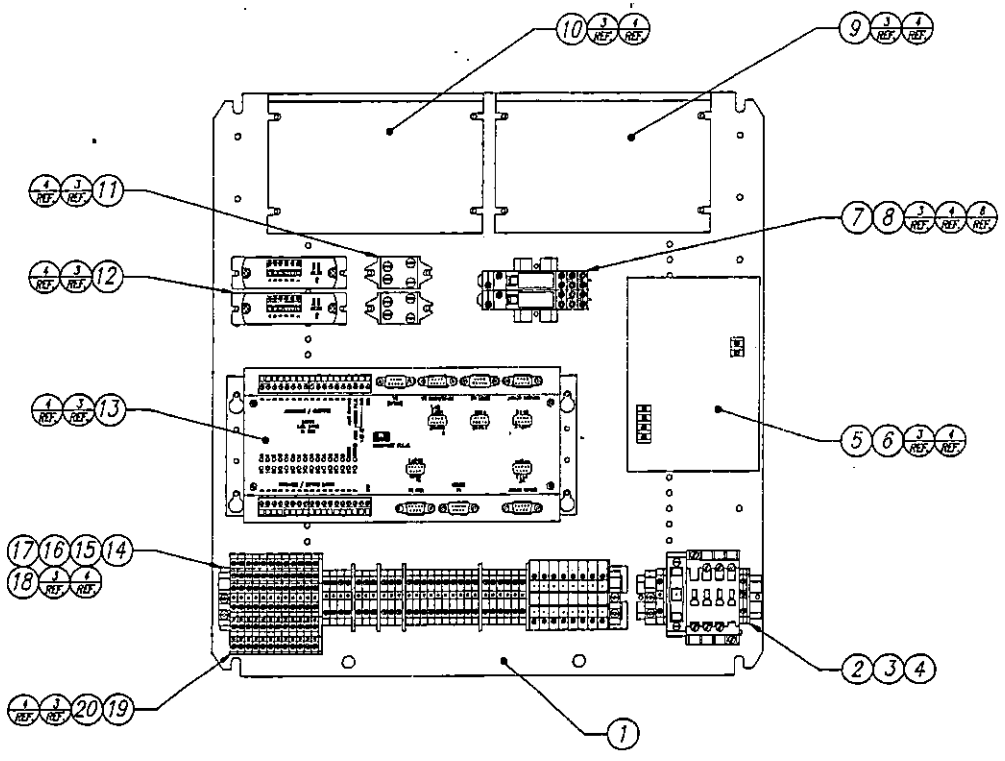
CLAMCO CORPORATION

MATERIAL	DR. BY	KJF	ASSY., UPPER JAW
STOCK SIZE	CK. BY		SIZE B — 78-2068 — REV B
PURCHASE PART NO.	APPR.		
FINISH	DATE	10/4/93	SCALE 1:10 — SHEET 1 OF 1

(NOTE: DRAWING WAS SCALED BY 1:1.25 FOR DISPLAY PURPOSES)

5157785

REVISIONS			
SYM	DESCRIPTION	DATE	BY



ITEM	DESCRIPTION	PART NO.	QTY
28	1/4 TURN FASTENER (NOT SHOWN)	816-42	1
27	RETAINING RING (NOT SHOWN)	816-41	1
26	1/4 TURN LATCH (NOT SHOWN)	816-40	1
25	MOUNTING PLATE (NOT SHOWN)	78-1892	1
24	MOUNTING HINGE (NOT SHOWN)	78-1900	2
23	ENCLOSURE (NOT SHOWN)	245-7	1
22	PRINT POCKET (NOT SHOWN)	245-9	1
21	GLAND PANEL (NOT SHOWN)	78-976	1
20	#8-32 HEX NUT		2
19	ASSY., TERMINAL RAIL	78-2062	1
18	THRUST WASHER	793-115	2
17	PLUNGER	796-107	2
16	HAND KNOB	808-19	2
15	RAIL MOUNT	78-1891	2
14	RAIL MOUNT	78-1890	2
13	PLC PACKAGE	78-2178	1
12	RONAN SIGNAL CONDITIONER	206-12	2
11	SOLID STATE RELAY	231-77	2
10	MINARICK DRIVER MM301U	203-39	1
9	MINARICK DRIVER MM311U	203-38	1
8	RELAY, DPDT	231-65	2
7	RELAY SOCKET	231-66	2
6	DIN RAIL	231-61	7.5"
5	24VDC POWER SUPPLY	200-46	1
4	#8 LOCK WASHER		32
3	#8-32 X .25 THCS		32
2	ASSY., TERMINAL RAIL	78-2098	1
1	BACK PANEL	78-2185	1

NOTE:
ASSEMBLY TO BE INCORPORATED ON MACHINE S/N 66027 AND ALL SUCCEEDING MACHINES.

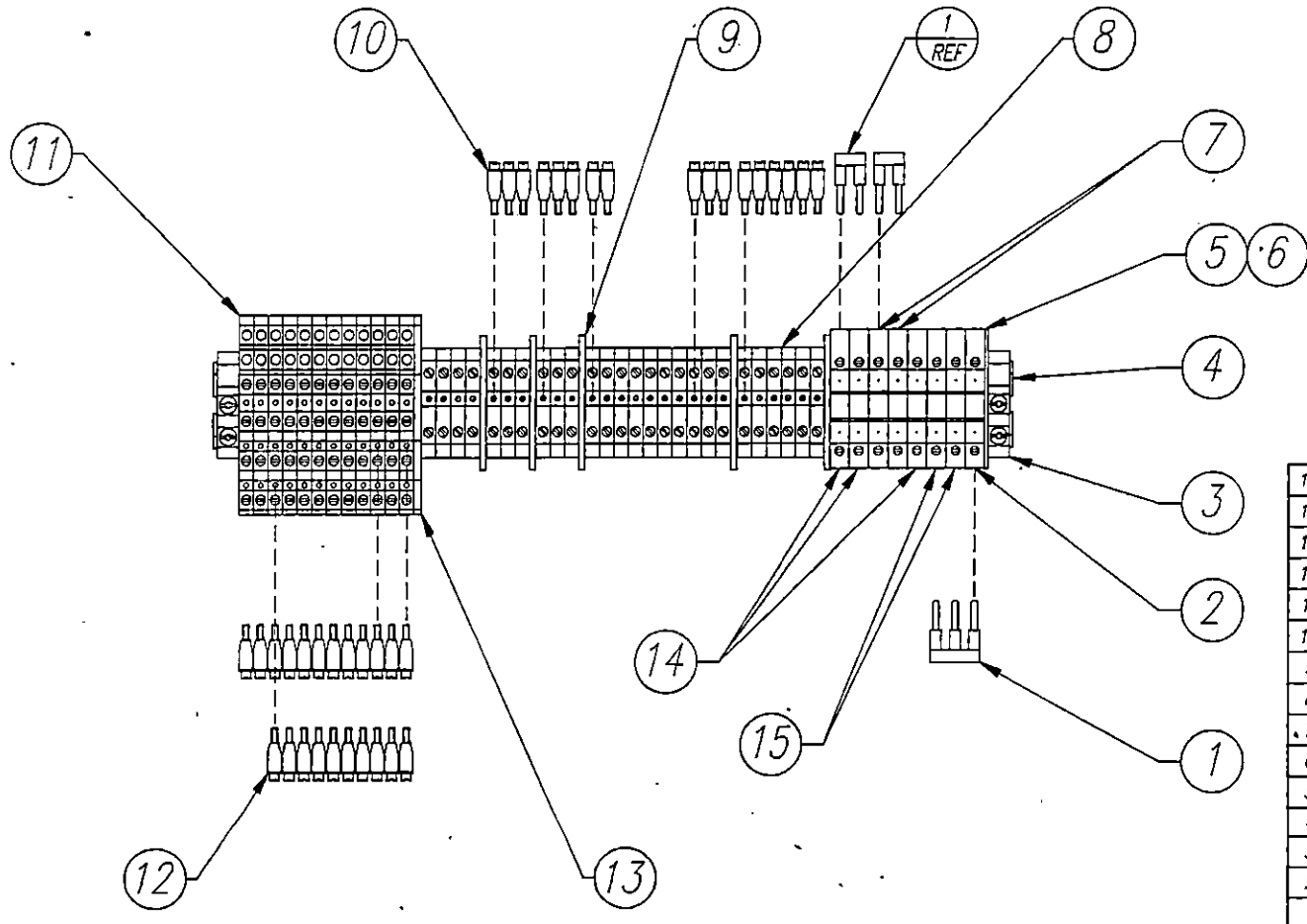
MACHINE TOLERANCES:	FABRICATION TOLERANCES:	
.XXX ±.005	.XXX ±.015	THIS DRAWING IS THE PROPERTY OF CLANCO CORP. IT SHALL NOT BE COPIED OR ITS CONTENTS REVEALED WITHOUT THE WRITTEN CONSENT OF CLANCO CORP.
.XX ±.015	.XX ±.030	
.X ±.030	.X ±.060	

CLANCO CORPORATION

MATERIAL	DR. BY	JS	ASSY, ELEC. ENCLOSURE
STOCK SIZE	CK. BY		
PURCHASE PART NO.	APPR.		SIZE B — 78-2183 — REV
FINISH	DATE	2/15/95	SCALE 1:4 — SHEET 1 OF 1

580348

REVISIONS			
SYM	DESCRIPTION	DATE	BY
A	REDESIGNED	4/29/94	KJF
B	RELOCATED JUMPERS	3/95	JS



ITEM	DESCRIPTION	PART NO.	QTY
15	FUSE 5MM X 20MM 6.3AMP	216-13	2
14	FUSE 5MM X 20MM 1.25AMP	216-91	3
13	END PLATE	208-87	1
12	JUMPER BAR	208-94	3
11	3 LEVEL SENSOR BLOCK	208-81	12
10	JUMPER BAR	208-93	2
9	CIRCUIT SEPERATOR	208-91	5
8	FEED THROUGH BLOCK	208-80	26
7	FUSE 5MM X 20MM 2.5AMP	216-93	2
6	END PLATE	208-88	1
5	FUSE HOLDER	208-78	8
4	DIN RAIL	231-61	1.17'
3	END STOP BLOCK	208-85	2
2	FUSE 5MM X 20MM 2.0AMP	216-92	1
1	COMB JUMPER BAR	208-95	1

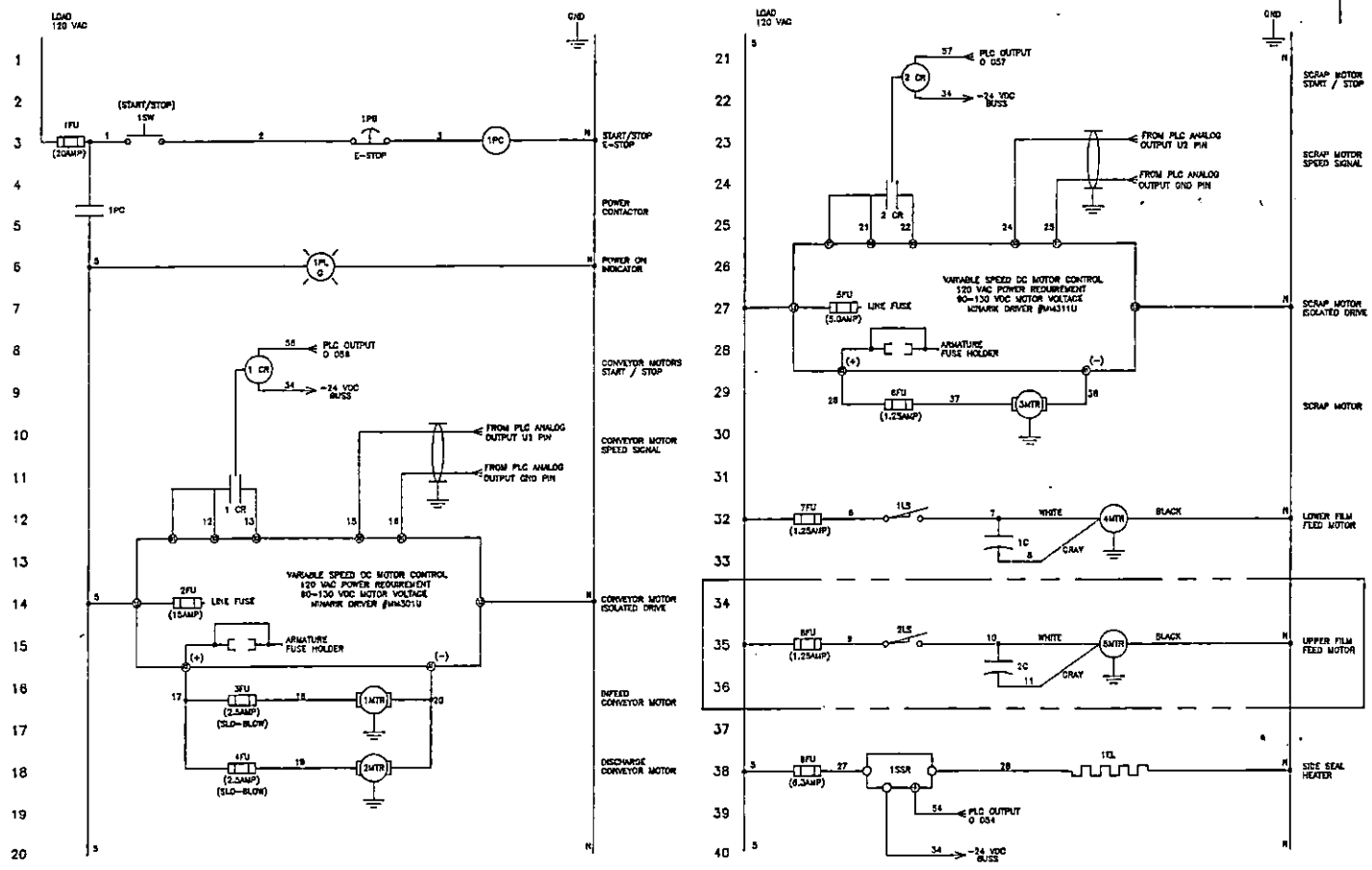
MACHINE TOLERANCES:	FABRICATION TOLERANCES:	
.XXX ±.005	.XXX ±.015	THIS DRAWING IS THE PROPERTY OF CLAMCO CORP. IT SHALL NOT BE COPIED OR ITS CONTENTS REVEALED WITHOUT THE WRITTEN CONSENT OF CLAMCO CORP.
.XX ±.015	.XX ±.030	
.X ±.030	.X ±.060	

CLAMCO CORPORATION

MATERIAL	DR. BY	KJF	ASSY., TERMINAL RAIL
STOCK SIZE	CK. BY		
PURCHASE PART NO.	APPR.		SIZE B — 78-2062 — REV B
FINISH	DATE	4/29/94	SCALE 1 : 2 — SHEET 1 OF 1

S60348

REVISIONS			
SYM	DESCRIPTION	DATE	BY



NOTE: PHANTOM OUTLINE DENOTES MACHINE OPTION.

NOTE:
ASSEMBLY TO BE INCORPORATED ON MACHINE S/N 66027 AND ALL SUCCEEDING MACHINES.

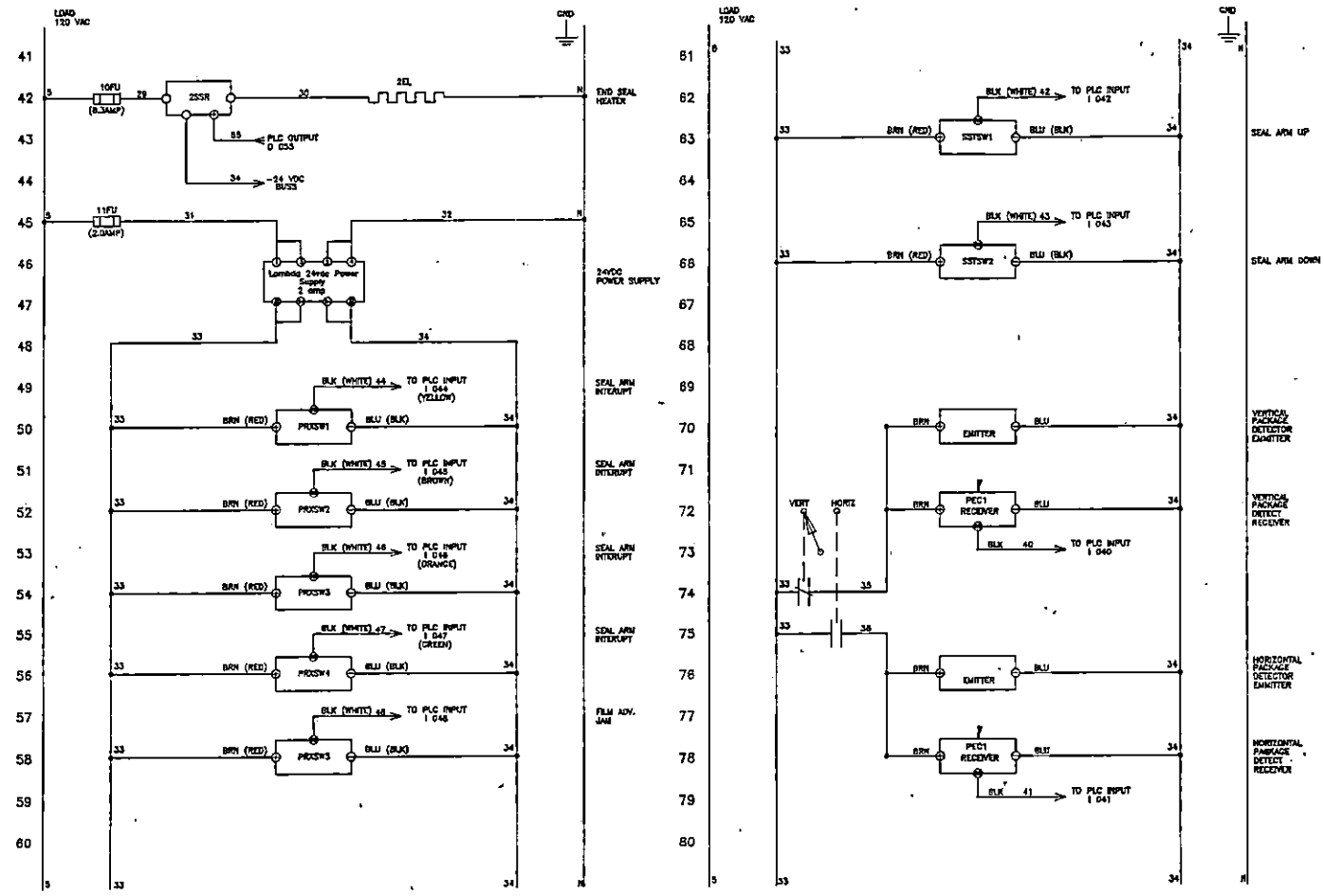
MACHINE TOLERANCES:	FABRICATION TOLERANCES:	
.XXX ±.005	.XXX ±.015	THIS DRAWING IS THE PROPERTY OF CLAMCO CORP. IT SHALL NOT BE COPIED OR ITS CONTENTS REVEALED WITHOUT THE WRITTEN CONSENT OF CLAMCO CORP.
.XX ±.015	.XX ±.030	
.X ±.030	.X ±.060	

CLAMCO CORPORATION

MATERIAL	DR. BY	KJF	ELECTRICAL WIRING DIAGRAM 6600 AUTOMATIC
STOCK SIZE	CK. BY		
PURCHASE PART NO.	APPR.		SIZE B — 79-224 — REV
FINISH	DATE	2/28/95	SHEET 1 OF 6

580348

REVISIONS			
SYM	DESCRIPTION	DATE	BY



NOTE: PHANTOM OUTLINE DENOTES MACHINE OPTION.

NOTE:
SEAL ARM INTERUPTS COME INTO ELECTRICAL BOX ON 6 CONDUCTOR CABLE. COLOR SCHEME AS FOLLOWS:
I044 – YELLOW
I045 – BROWN
I046 – ORANGE
I047 – GREEN
+24VDC – RED
-24VDC – BLACK

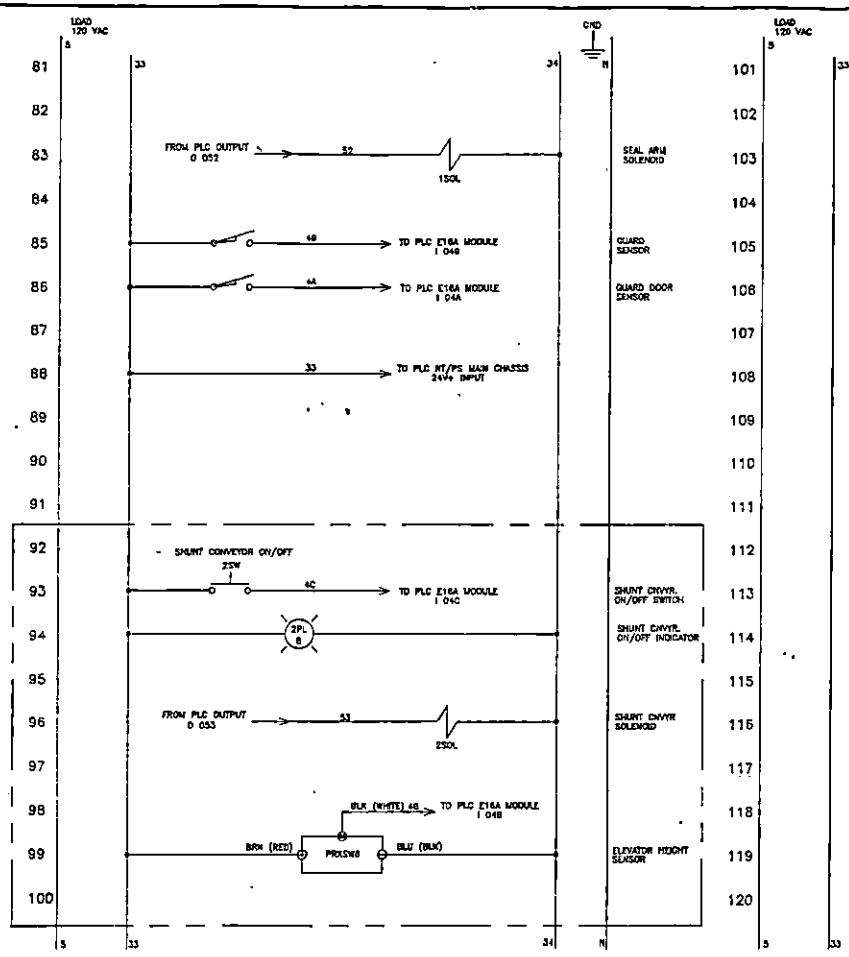
NOTE:
ASSEMBLY TO BE INCORPORATED ON MACHINE S/N 66027 AND ALL SUCCEEDING MACHINES.

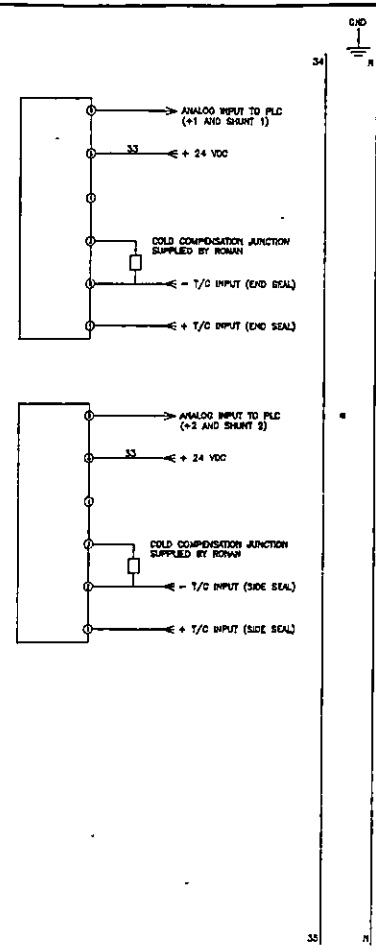
MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

CLAMCO CORPORATION

MATERIAL	DR. BY	KJF	ELECTRICAL WIRING DIAGRAM 6600 AUTOMATIC
STOCK SIZE	CK. BY		
PURCHASE PART NO.	APPR.		SIZE B — 79-224 — REV
FINISH	DATE	2/28/95	SHEET 2 OF 6

560348





NOTE: PHANTOM OUTLINE DENOTES MACHINE OPTION.

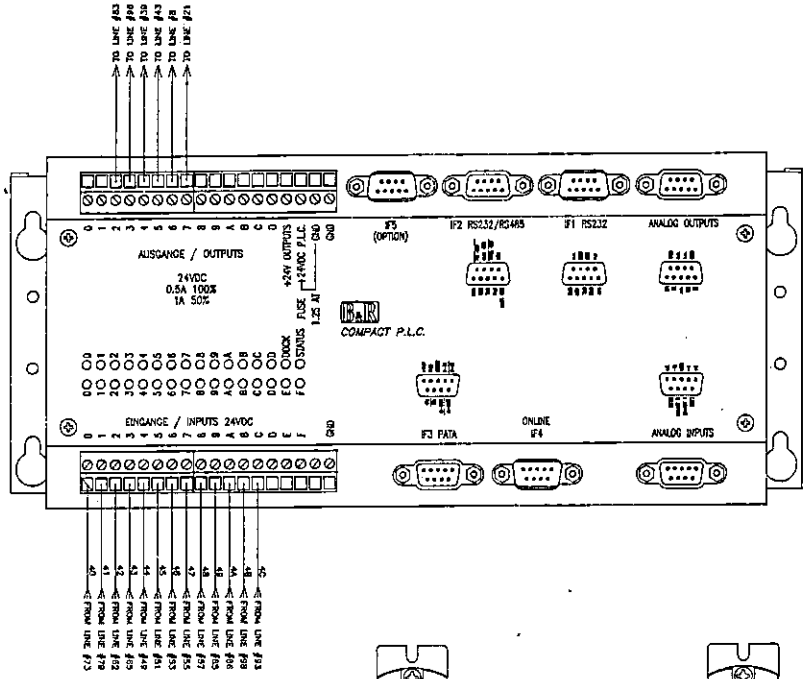
NOTE:
ASSEMBLY TO BE INCORPORATED ON MACHINE S/N 66027 AND ALL SUCCEEDING MACHINES.

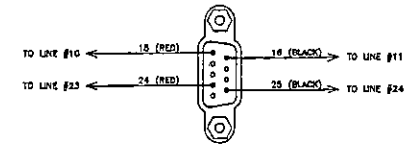
REVISIONS			
SYM	DESCRIPTION	DATE	BY

MACHINE TOLERANCES: .XXX ±.005, .XX ±.015, .X ±.030	FABRICATION TOLERANCES: .XXX ±.015, .XX ±.030, .X ±.060	THIS DRAWING IS THE PROPERTY OF CLAMCO CORP. IT SHALL NOT BE COPIED OR ITS CONTENTS REVEALED WITHOUT THE WRITTEN CONSENT OF CLAMCO CORP.	CLAMCO CORPORATION
MATERIAL	DR. BY	KJF	ELECTRICAL WIRING DIAGRAM 6600 AUTOMATIC
STOCK SIZE	CK. BY		
PURCHASE PART NO.	APPR.		SIZE B — 79-224 — REV
FINISH	DATE	2/28/95	SHEET 3 OF 6

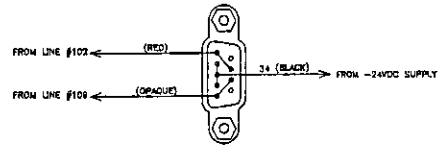
560348

REVISIONS			
SYM	DESCRIPTION	DATE	BY

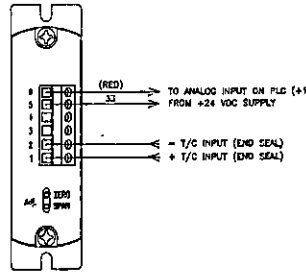




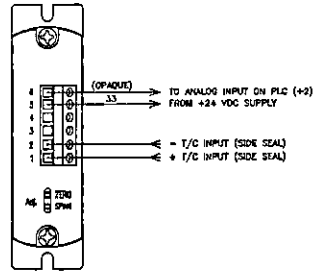
ANALOG OUTPUTS
(2 SHIELDED 2 CONDUCTOR CABLE)
(VIEW FROM SOLDER CONNECTION SIDE)



ANALOG INPUTS
(SHIELDED 3 CONDUCTOR CABLE)
(JUMPER CONNECTIONS AS SHOWN ON INPUT PINS)
(VIEW FROM SOLDER CONNECTION SIDE)



SIGNAL CONDITIONER #1
(END SEAL)



SIGNAL CONDITIONER #2
(SIDE SEAL)

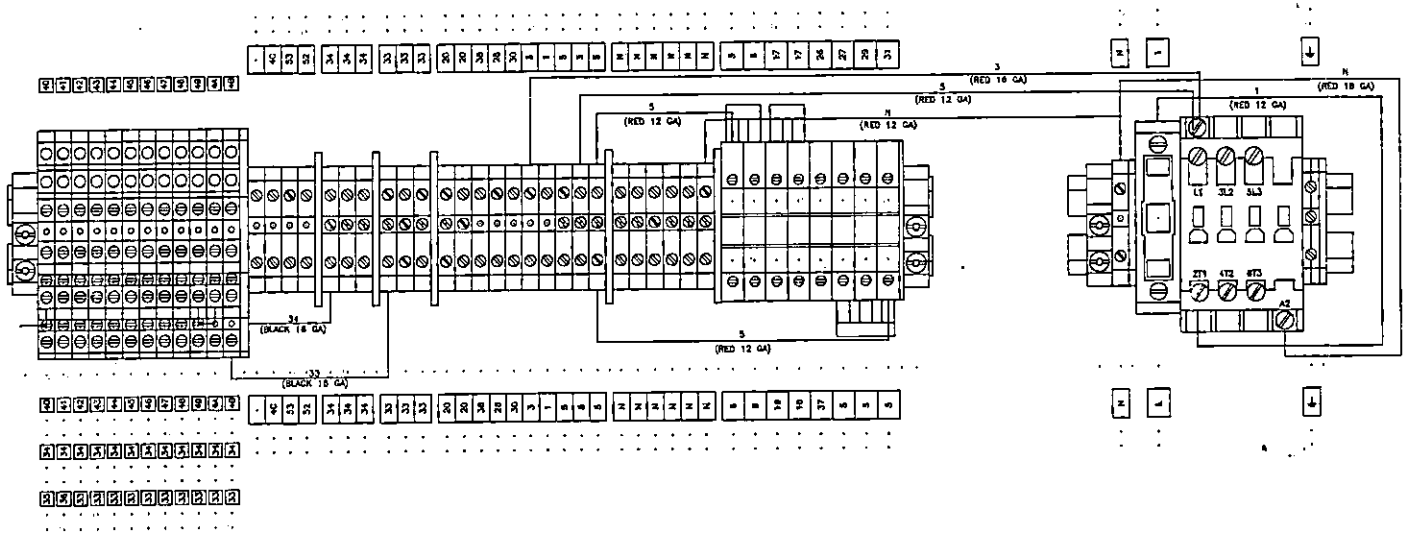
NOTE:
ASSEMBLY TO BE INCORPORATED ON MACHINE S/N 66027 AND ALL SUCCEEDING MACHINES.

MACHINE TOLERANCES:	FABRICATION TOLERANCES:		CLAMCO CORPORATION
.XXX ±.005 .XX ±.015 .X ±.030	.XXX ±.015 .XX ±.030 .X ±.060		

MATERIAL	DR. BY	KJF	ELECTRICAL WIRING DIAGRAM 6600 AUTOMATIC
STOCK SIZE	CK. BY		
PURCHASE PART NO.	APPR.		SIZE B — 79-224 — REV
FINISH	DATE	2/28/95	SHEET 4 OF 6

560346

REVISIONS			
SYM	DESCRIPTION	DATE	BY



NOTE:
ASSEMBLY TO BE INCORPORATED ON MACHINE S/N 66027 AND ALL SUCCEEDING MACHINES.

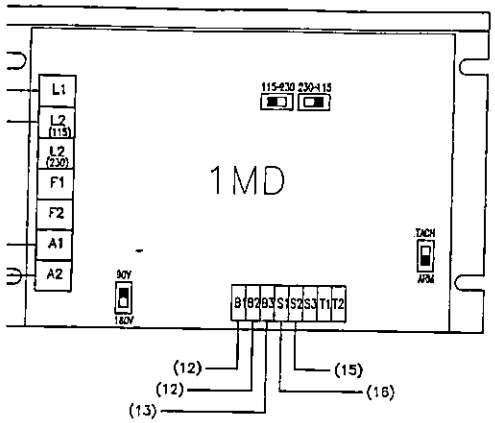
MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

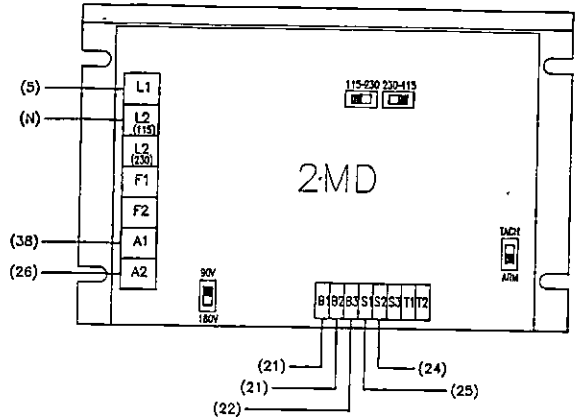
CLAMCO CORPORATION

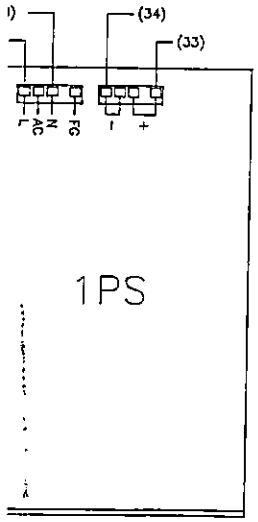
MATERIAL	DR. BY	KJF	ELECTRICAL WIRING DIAGRAM 6600 AUTOMATIC
STOCK SIZE	CK. BY		
PURCHASE PART NO.	APPR.		SIZE B — 79-224 — REV
FINISH	DATE	2/28/95	SHEET 5 OF 6

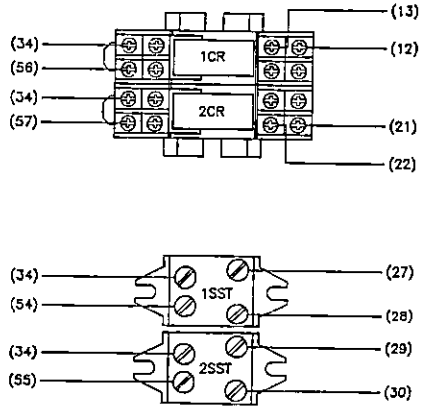
580348

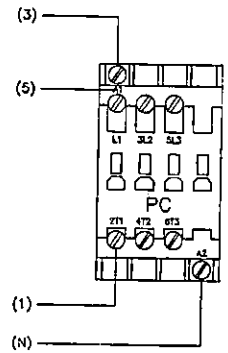
REVISIONS			
SYM	DESCRIPTION	DATE	BY







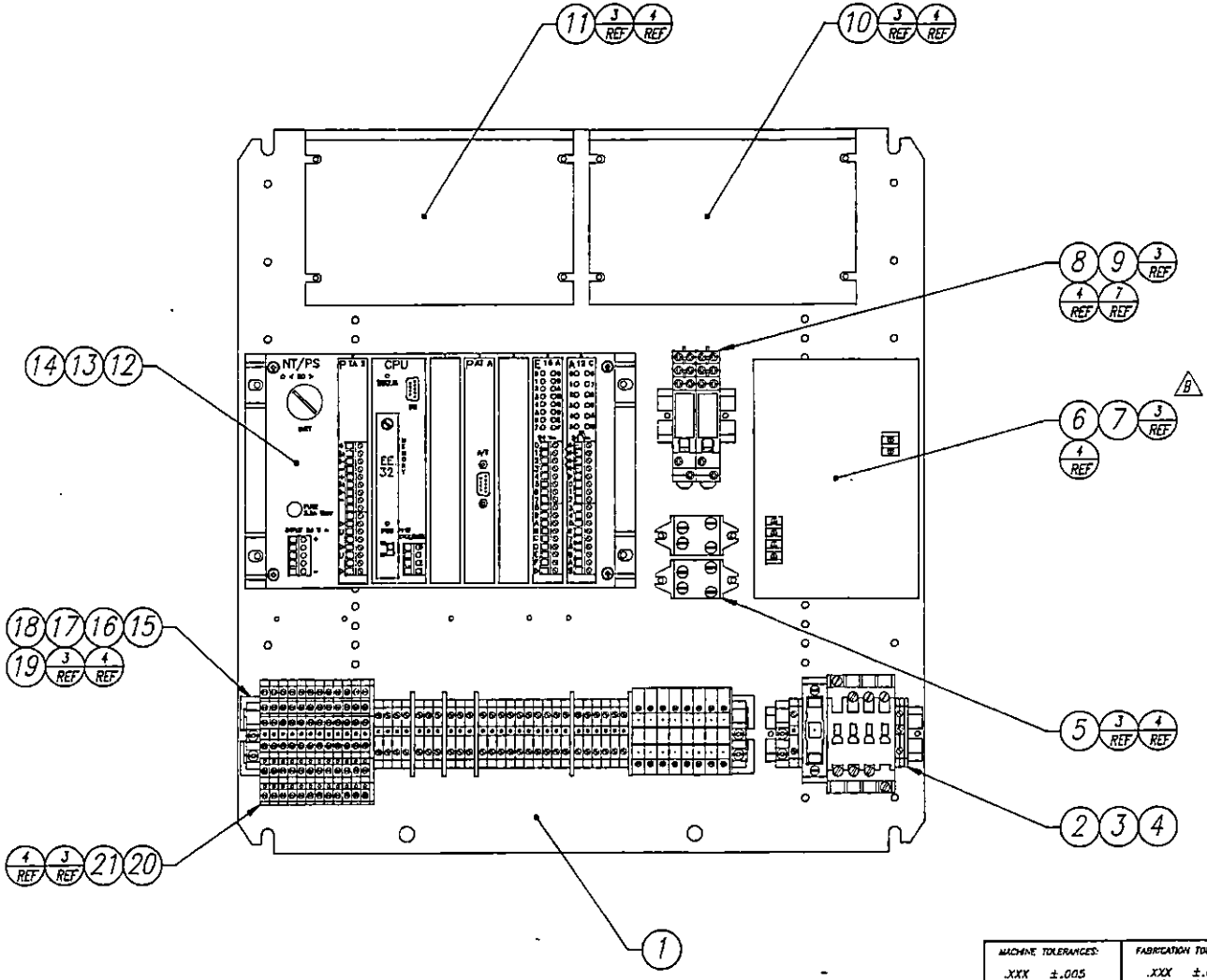




BE INCORPORATED ON
66027 AND ALL
MACHINES

MACHINE TOLERANCES:		FABRICATION TOLERANCES:		THIS DRAWING IS THE PROPERTY OF CLAMCO CORP. IT SHALL NOT BE COPIED OR ITS CONTENTS REVEALED WITHOUT THE WRITTEN CONSENT OF CLAMCO CORP.	CLAMCO CORPORATION
.XXX	±.005	.XXX	±.015		
.XX	±.015	.XX	±.030		
.X	±.030	.X	±.060		
MATERIAL		DR. BY	KJF	ELECTRICAL WIRING DIAGRAM 6600 AUTOMATIC	

REVISIONS		
SYM	DESCRIPTION	DATE
A	LAYOUT REDESIGNED	5/3/94
B	200-46 WAS 200-40 RESTRUCTURED B/M	9/26/94



ITEM	DESCRIPTION	PART NO.	QTY
29	1/4 TURN FASTENER (NOT SHOWN)	816-42	1
28	RETAINING RING (NOT SHOWN)	816-41	1
27	1/4 TURN LATCH (NOT SHOWN)	816-40	1
26	MOUNTING PLATE (NOT SHOWN)	78-1892	1
25	MOUNTING HINGE (NOT SHOWN)	78-1900	2
24	ENCLOSURE (NOT SHOWN)	245-7	1
23	PRINT POCKET (NOT SHOWN)	245-9	1
22	GLAND PANEL (NOT SHOWN)	78-976	1
21	#8-32 NUT		2
20	ASSY., TERMINAL RAIL	78-2062	1
19	THRUST WASHER	793-115	2
18	PLUNGER	796-107	2
17	HAND KNOB	808-19	2
16	RAIL MOUNT	78-1891	2
15	RAIL MOUNT	78-1890	2
14	#10 LOCKWASHER		4
13	#10-32 X .5 THCS		4
12	PLC CONTROLS PACKAGE	78-2057	1
11	MINARICK DRIVER MM301U	203-39	1
10	MINARICK DRIVER MM311U	203-38	1
9	RELAY, DPDT	231-65	2
8	RELAY SOCKET	231-66	2
7	DIN RAIL	231-61	7.5
6	24VDC POWER SUPPLY	200-46	1
5	SOLID STATE RELAY	231-79	2
4	#8 LOCKWASHER		24
3	#8-32 X .25 THCS		24
2	ASSY., TERMINAL RAIL	78-2098	1
1	BACKPANEL	78-977	1

MACHINE TOLERANCES: .XXX ±.005, .XX ±.015, .X ±.030

FABRICATION TOLERANCES: .XXX ±.015, .XX ±.030, .X ±.060

CLAMCO CORPORATION

MATERIAL

STOCK SIZE

PURCHASE PART NO.

FINISH

DR. BY: KJF

CK. BY:

APPR.

DATE: 1/24/94

ASSY., ELEC. ENCLOSURE

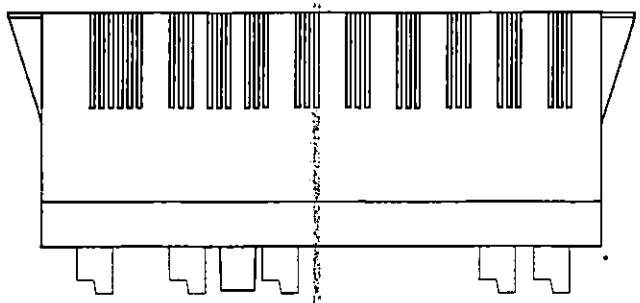
SIZE B | 78-2058 | REV E

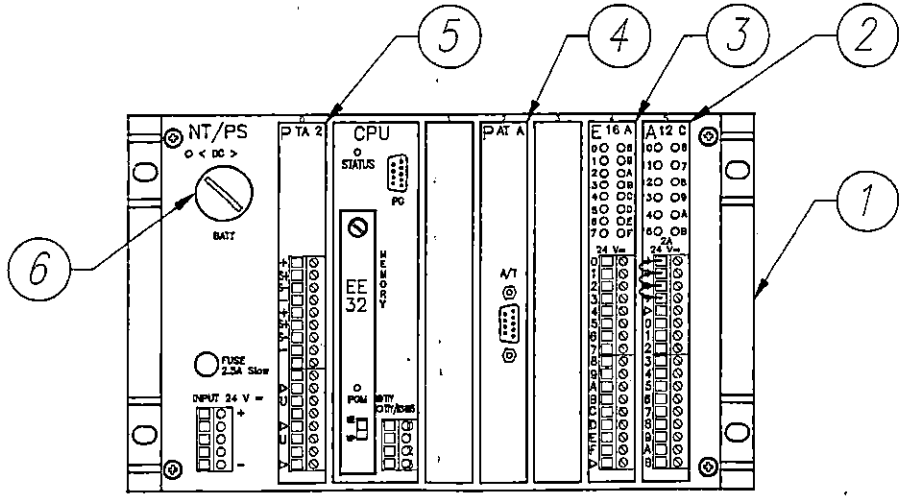
SCALE 1 : 3

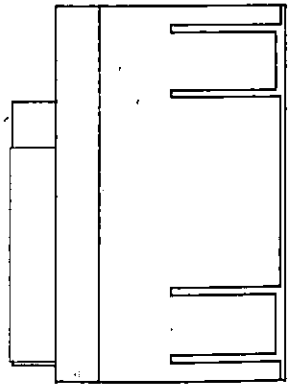
SHEET 1 OF 1

577218

REVISIONS		
SYM	DESCRIPTION	DATE







ITEM	DESCRIPTION	PART NO.	QTY
7	OPER. DISPLAY (NOT SHOWN)	246-12	1
6	LITHIUM BATTERY	246-7	1
5	RTD INPUT MODULE	246-2	1
4	INTERFACE MODULE	246-5	1
3	INPUT MODULE	246-3	1
2	TRANS. OUTPUT MODULE	246-4	1
1	MINICONTROL UNIT	246-1	1

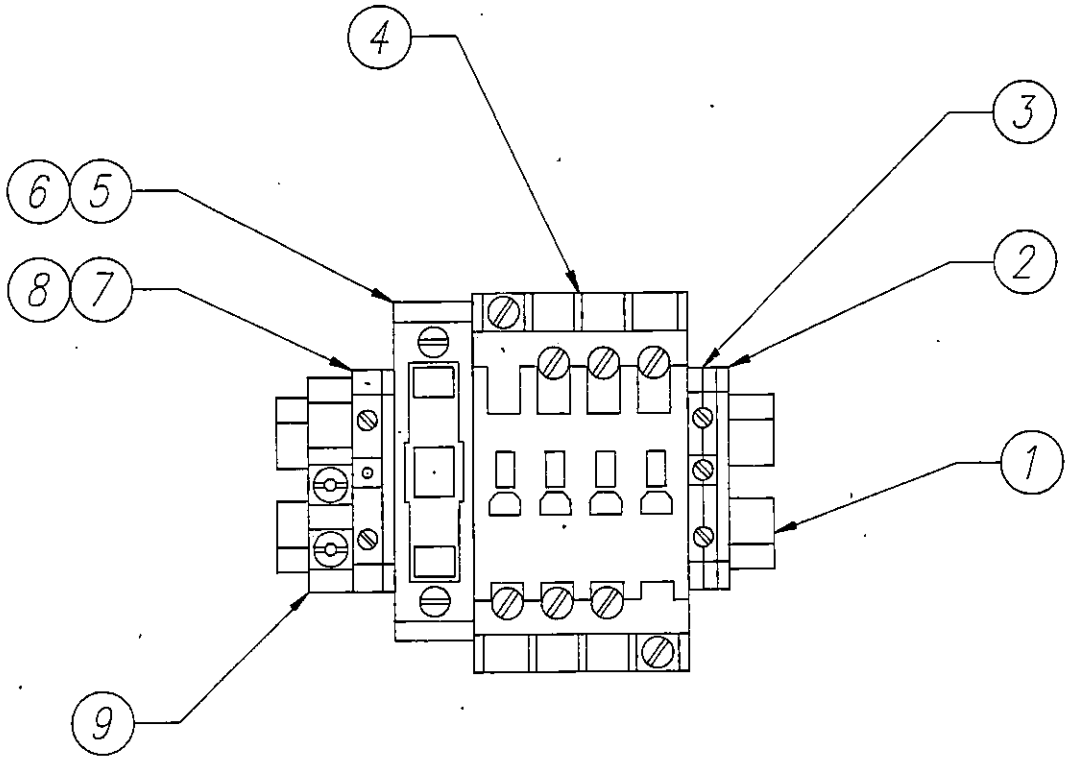
MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

CLAMCO CORPORATION

MATERIAL	DR. BY	KJF	PLC CONTROLS PACKAGE
STOCK SIZE	CK. BY		
PURCHASE PART NO.	APPR.		SIZE B — 78-2057 — REV
FINISH	DATE	1/21/94	SCALE 1 : 2 — SHEET 1 OF 1

515795

REVISIONS			
SYM	DESCRIPTION	DATE	BY
A	ITEM #7 WAS 208-80	5/94	KJF



ITEM	DESCRIPTION	PART NO.	QTY
9	END STOP	208-85	1
8	END PLATE	208-90	1
7	TERMINAL BLOCK	208-84	1
6	FUSE .25 X 1.25 X 20 AMP	216-85	1
5	FUSE BLOCK	208-79	1
4	DISCONNECT	231-74	1
3	GROUND BLOCK	208-83	1
2	END PLATE	208-89	1
1	DIN RAIL	231-61	4.25"

MACHINE TOLERANCES: .XXX ±.005, .XX ±.015, .X ±.030

FABRICATION TOLERANCES: .XXX ±.015, .XX ±.030, .X ±.060

CLAMCO CORPORATION

MATERIAL

STOCK SIZE

PURCHASE PART NO.

FINISH

DR. BY: KJF

CK. BY:

APPR.

DATE: 4/29/94

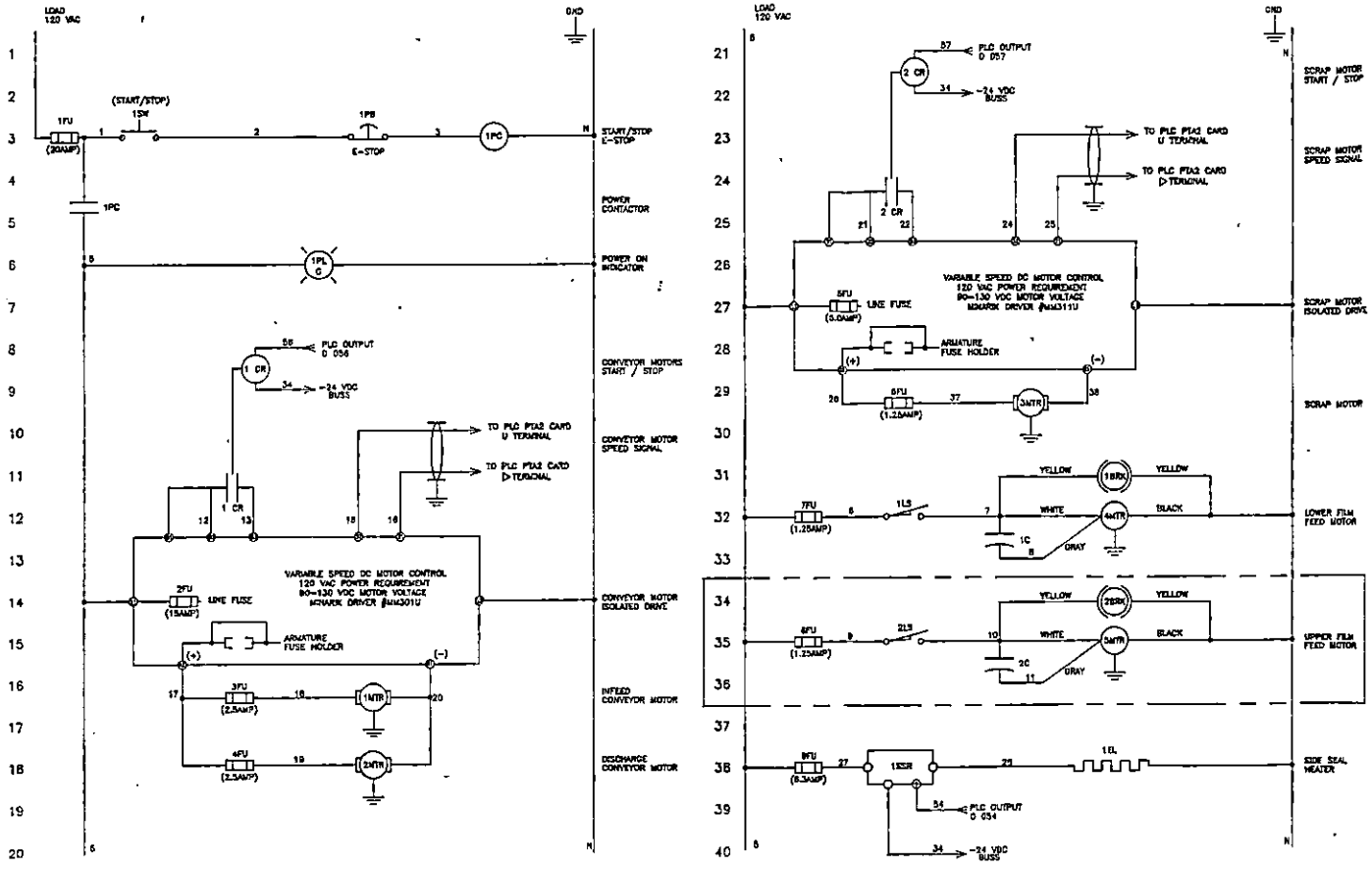
ASSY., TERMINAL RAIL

SIZE B | 78-2098 | REV A

SCALE 1 : 1 | SHEET 1 OF 1

5765785

REVISIONS			
SYM	DESCRIPTION	DATE	BY



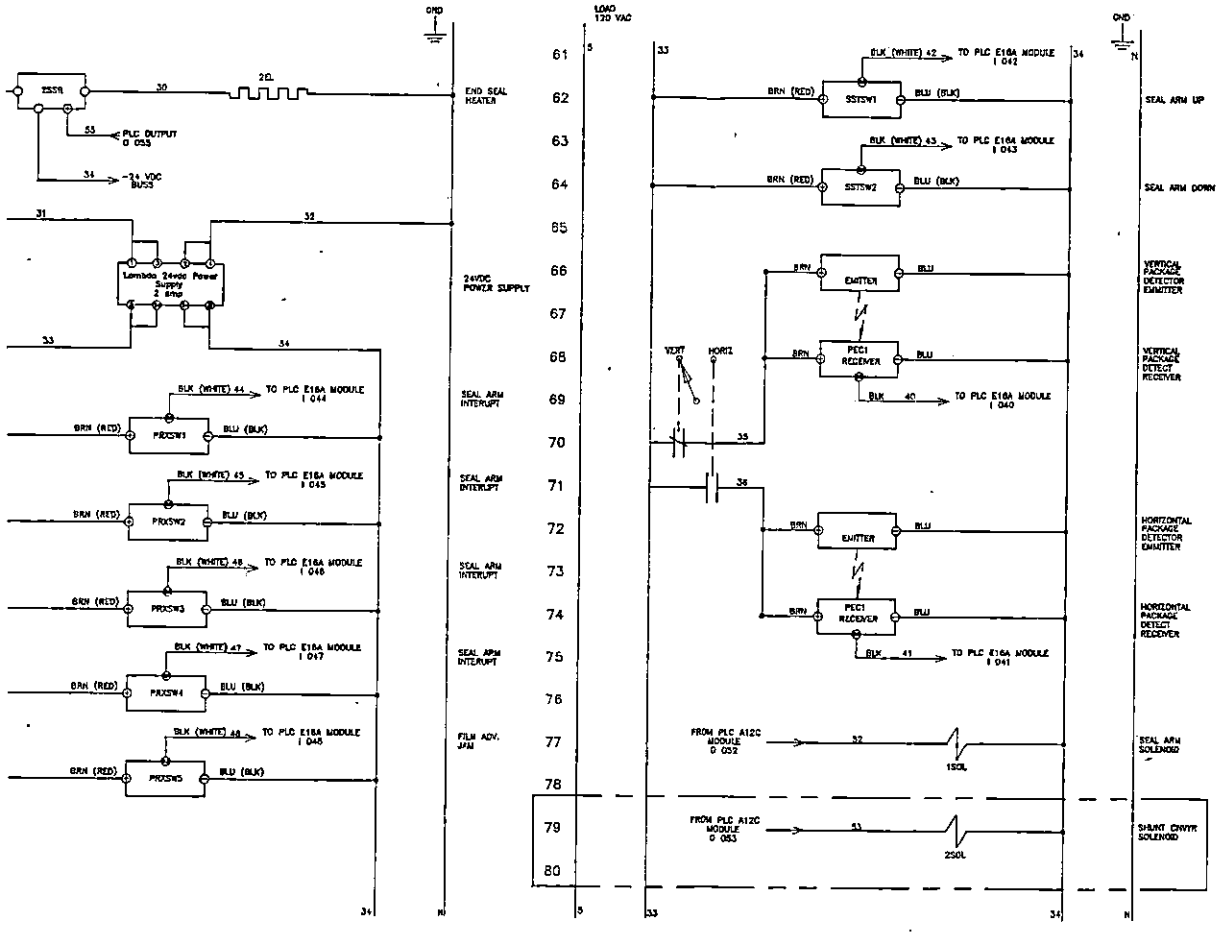
NOTE: PHANTOM OUTLINE DENOTES MACHINE OPTION.

MACHINE TOLERANCES:	FABRICATION TOLERANCES:	THIS DRAWING IS THE PROPERTY OF CLAMCO CORP. IT SHALL NOT BE COPIED OR ITS CONTENTS REVEALED WITHOUT THE WRITTEN CONSENT OF CLAMCO CORP.	CLAMCO CORPORATION
.XXX ±.005 .XX ±.015 .X ±.030	.XXX ±.015 .XX ±.030 .X ±.060		

MATERIAL	DR. BY	KJF	ELECTRICAL WIRING DIAGRAM 6500 AUTOMATIC
STOCK SIZE	CK. BY		SIZE B — 79-215 — REV
PURCHASE PART NO.	APPR.		
FINISH	DATE	01/27/94	SCALE 1 : 2 — SHEET 1 OF 6

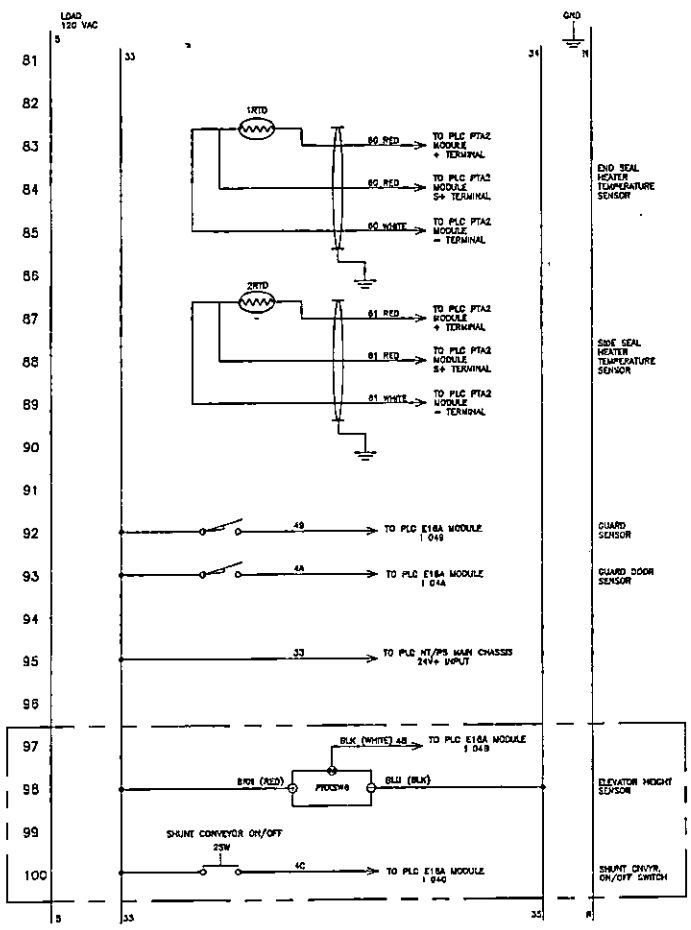
577218

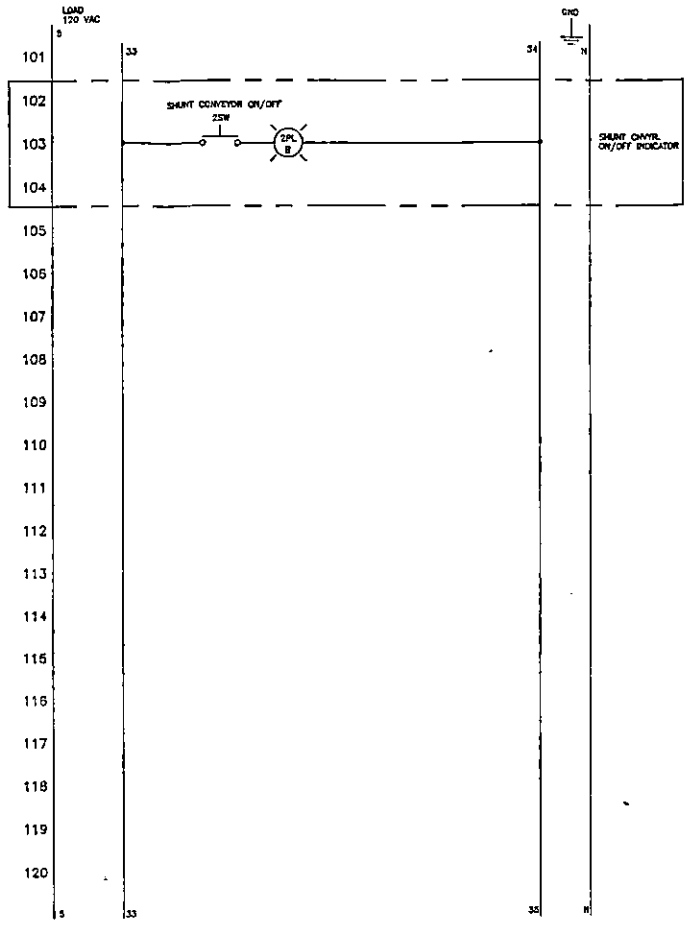
REVISIONS			
SYM	DESCRIPTION	DATE	BY



MACHINE TOLERANCES:		FABRICATION TOLERANCES:		THIS DRAWING IS THE PROPERTY OF CLANCO CORP. IT SHALL NOT BE COPIED OR ITS CONTENTS REVEALED WITHOUT THE WRITTEN CONSENT OF CLANCO CORP.	CLANCO CORPORATION
.XXX	±.005	.XXX	±.015		
.XX	±.015	.XX	±.030		
.X	±.030	.X	±.060		
MATERIAL			DR. BY	KJF	ELECTRICAL WIRING DIAGRAM 6600 AUTOMATIC

REVISIONS			
SYM	DESCRIPTION	DATE	BY





NOTE: PHANTOM OUTLINE DENOTES MACHINE OPTION.

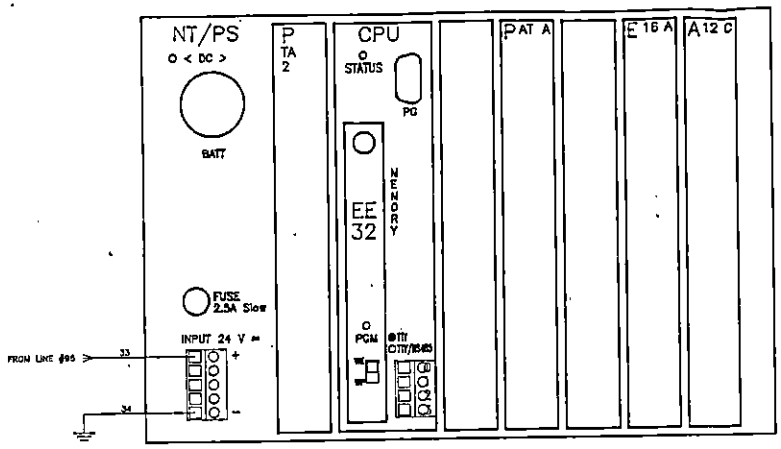
MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

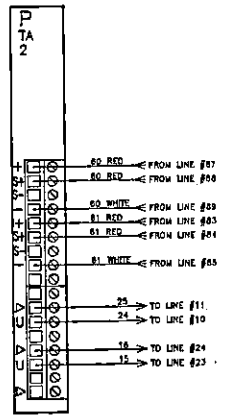
CLAMCO CORPORATION

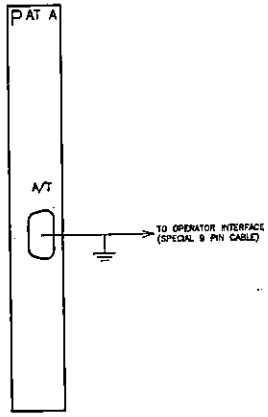
MATERIAL	DR. BY	KJF	ELECTRICAL WIRING DIAGRAM 6600 AUTOMATIC
STOCK SIZE	CK. BY		SIZE B — 79-215 — REV
PURCHASE PART NO.	APPR.		
FINISH	DATE	01/27/94	SCALE 1 : 2 — SHEET 3 OF 6

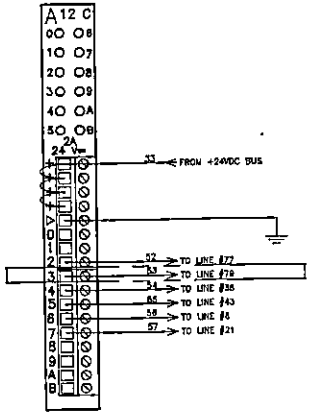
575795

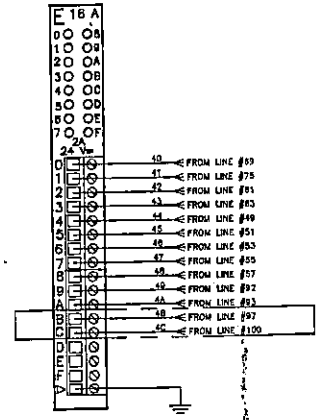
REVISIONS			
SYM	DESCRIPTION	DATE	B











NOTE: PHANTOM OUTLINE DENOTES MACHINE OPTION.

MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

CLAMCO CORPORATION

MATERIAL	
STOCK SIZE	
PURCHASE PART NO.	
FINISH	
DR. BY	KJF
CK. BY	
APPR.	
DATE	01/27/94

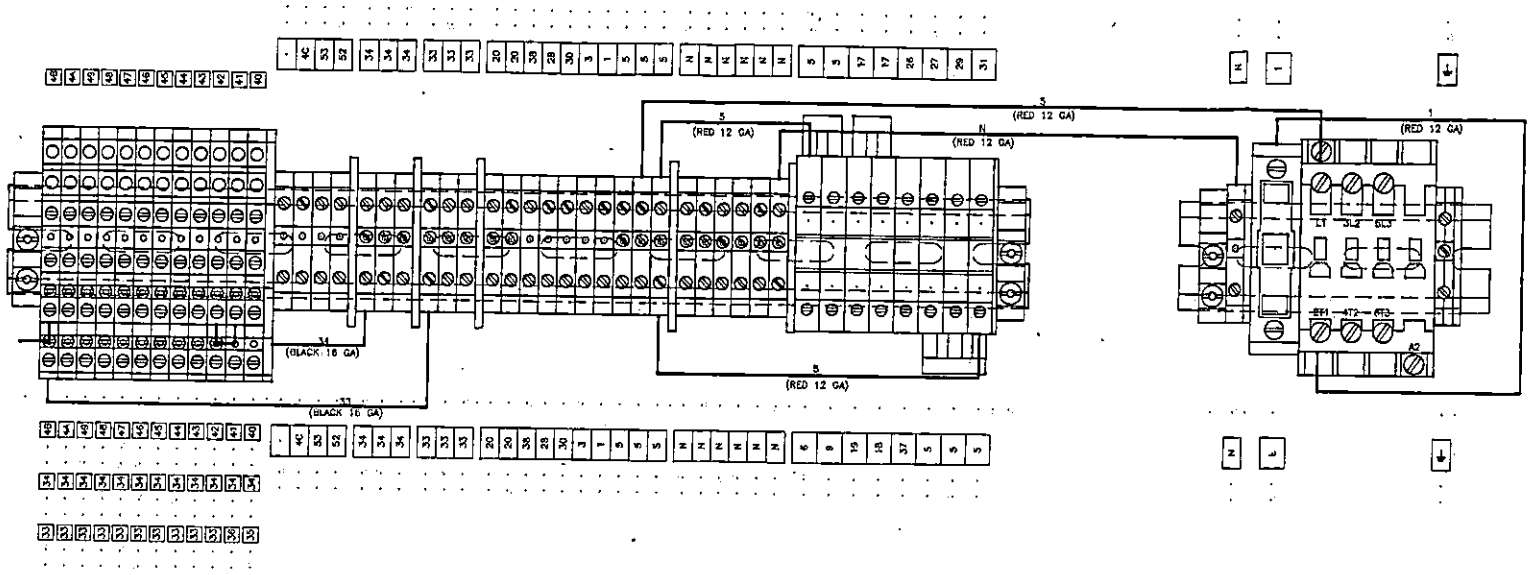
ELECTRICAL WIRING DIAGRAM
6600 AUTOMATIC

SIZE B | 79-215 | REV

SCALE 1 : 2 | SHEET 4 OF 6

515705

REVISIONS			
SYM	DESCRIPTION	DATE	BY



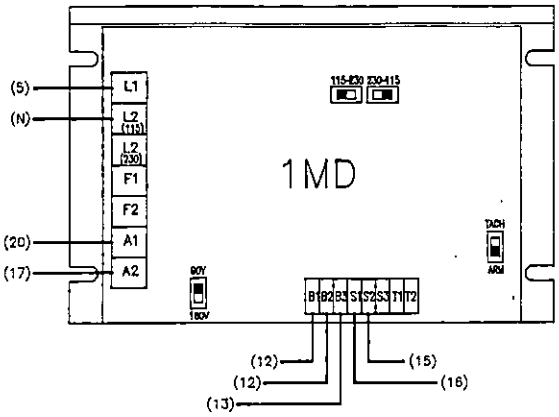
NOTE: PHANTOM OUTLINE DENOTES MACHINE OPTION.

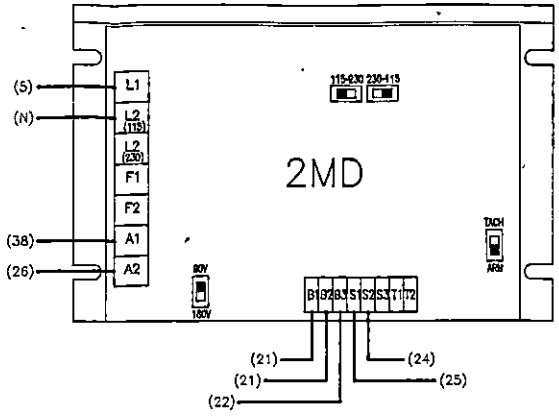
MACHINE TOLERANCES:	FABRICATION TOLERANCES:	THIS DRAWING IS THE PROPERTY OF CLAMCO CORP. IT SHALL NOT BE COPIED OR ITS CONTENTS REVEALED WITHOUT THE WRITTEN CONSENT OF CLAMCO CORP.	CLAMCO CORPORATION
.XXX ±.005 .XX ±.015 .X ±.030	.XXX ±.015 .XX ±.030 .X ±.060		

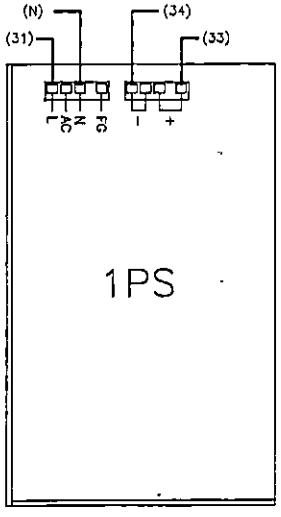
MATERIAL	DR. BY	KJF	ELECTRICAL WIRING DIAGRAM 6600 AUTOMATIC	
STOCK SIZE	CK. BY		SIZE B	79-215 REV
PURCHASE PART NO.	APPR.	1		
FINISH	DATE	01/27/94	SCALE 1 : 2	SHEET 5 OF 6

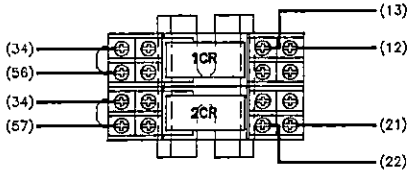
575765

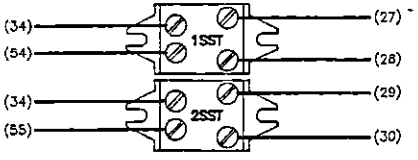
REVISIONS			
SYM	DESCRIPTION	DATE	BY

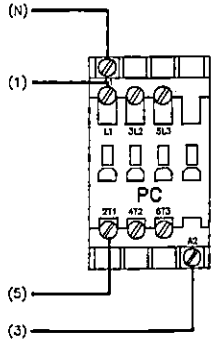












NOTE: PHANTOM OUTLINE DENOTES MACHINE OPTION.

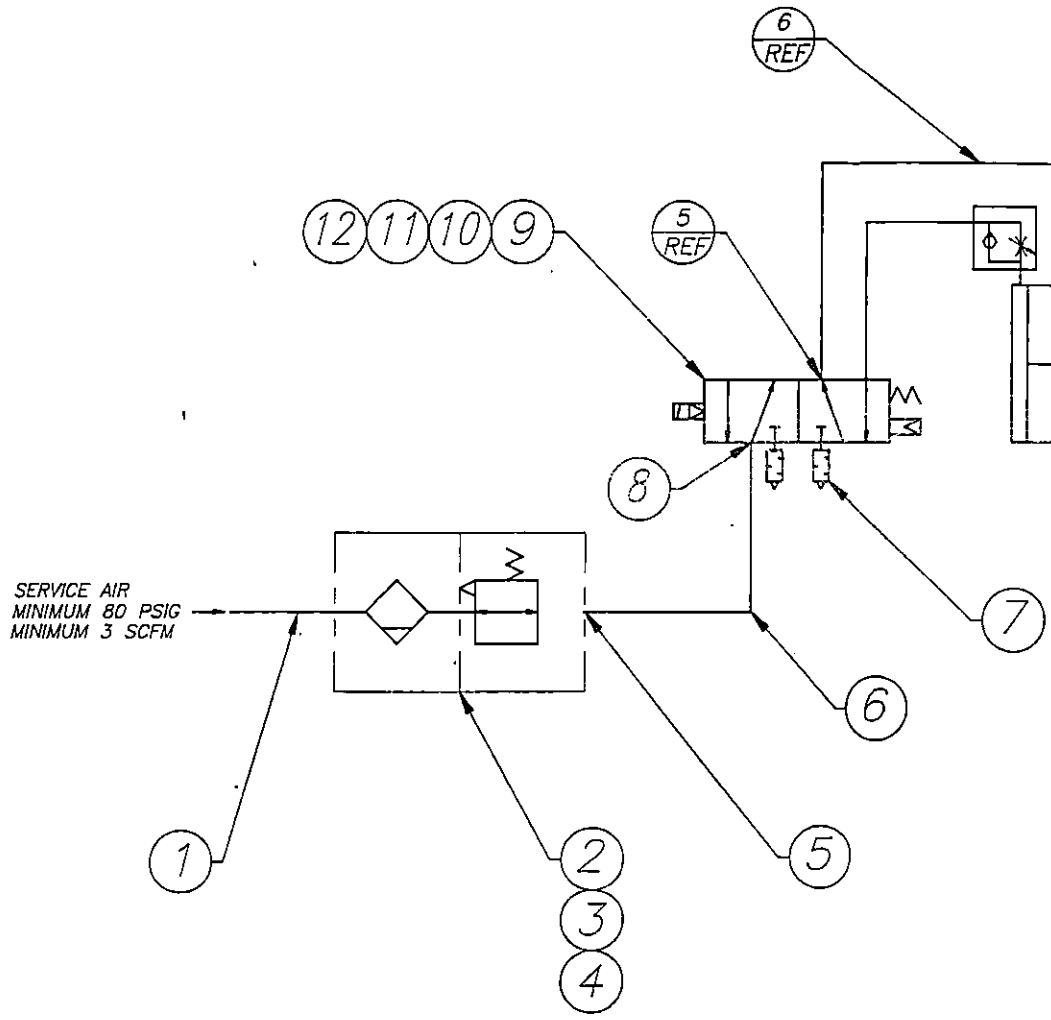
MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

CLAMCO CORPORATION

MATERIAL	DR. BY	KJF	ELECTRICAL WIRING DIAGRAM 6600 AUTOMATIC
STOCK SIZE	CK. BY		SIZE B — 79-215 — REV
PURCHASE PART NO.	APPR.		
FINISH	DATE	01/27/94	SCALE 1 : 2 — SHEET 6 OF 6

575795

REVISIONS			
SYM	DESCRIPTION	DATE	BY
A	SYSTEM REDESIGNED	10/93	KJF



ITEM	DESCRIPTION	PART NO	QTY
15	PISTON ROD CLEVIS	78-983	1
14	AIR CYLINDER	825-102	1
13	FLOW CONTROL	825-107	2
12	PIPE PLUG	785-96	3
11	BLANK STATION KIT	825-105	2
10	SOLENOID VALVE	825-106	1
9	3 BANK MANIFOLD	825-104	1
8	MALE CONNECTOR	785-91	1
7	EXHAUST SILENCER	825-60	2
6	TUBE, POLYURETHANE 3/8"	825-67	14'
5	MALE ELBOW	785-64	3
4	TUBE, POLYURETHANE 1/8"	825-69	3'
3	MALE CONNECTOR	785-73	1
2	FILTER/REGULATOR	825-90	1
1	MALE QUICK DISCONNECT	785-62	1

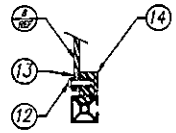
MACHINE TOLERANCES:	FABRICATION TOLERANCES:
.XXX ±.005	.XXX ±.015
.XX ±.015	.XX ±.030
.X ±.030	.X ±.060

CLAMCO CORPORATION

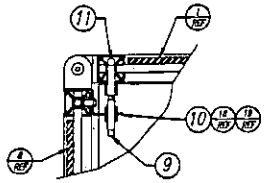
MATERIAL	DR. BY	KJF	PNEUMATIC SCHEMATIC 6500-HP AUTOMATIC L SEALER
STOCK SIZE	CK. BY		
PURCHASE PART NO.	APPR.		SIZE B — 78-2055 — REV A
FINISH	DATE	9/93	NTS — SHEET 1 OF 1

515793

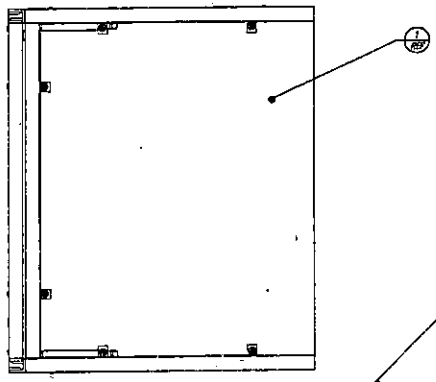
REVISIONS			
SYM	DESCRIPTION	DATE	BY

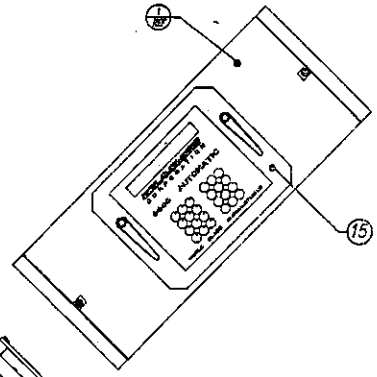


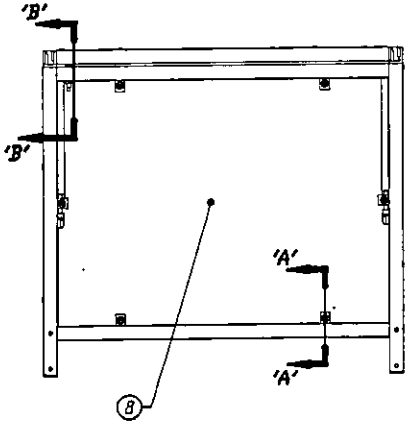
SECTION 'A-A'
2X SCALE

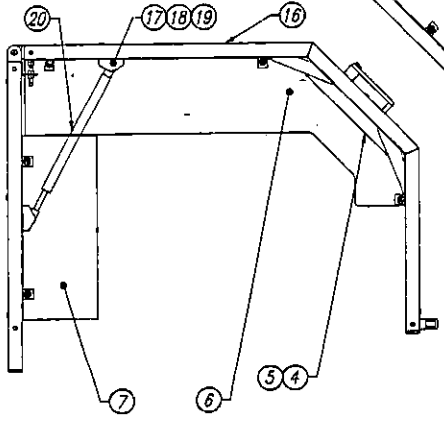


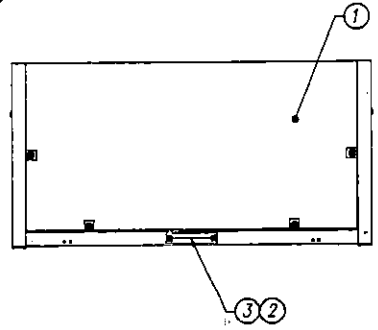
SECTION 'B-B'
2X SCALE











ITEM	DESCRIPTION	PART NO.	QTY
20	SUSPA. GAS STRUT	825-114	2
19	T-SLOT NUT	816-28	9
18	6MM X 10MM BHCS		9
17	STRUT MOUNT	821-10	4
16	EXTRUSION FRAME, ASSY.	78-2082	1
15	OPERATOR DISPLAY, ASSY.	78-2078	1
14	MULTIBLOCK-PA	816-30	26
13	RUBBER BUSHING	805-17	26
12	6MM X 25MM BHCS		26
11	MAGNETIC REED SWITCH MAG	215-131	1
10	SENSOR BRACKET	78-1822	1
9	MAGNETIC REED SWITCH	215-130	1
8	REAR COVER	78-1740	1
7	INFEED PANEL	78-1739	1
6	END PANEL	78-1738	2
5	#6-32 X .375 BHCS		6
4	DISPLAY COVER	78-1747	1
3	1/4-20 X 1.00 SHCS		2
2	HANDLE	78-1821	1
1	TOP COVER	78-2189	1

MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

CLAMCO CORPORATION

MATERIAL

STOCK SIZE

PURCHASE PART NO.

FINISH

DR. BY JS

CK. BY

APPR.

DATE 3/8/95

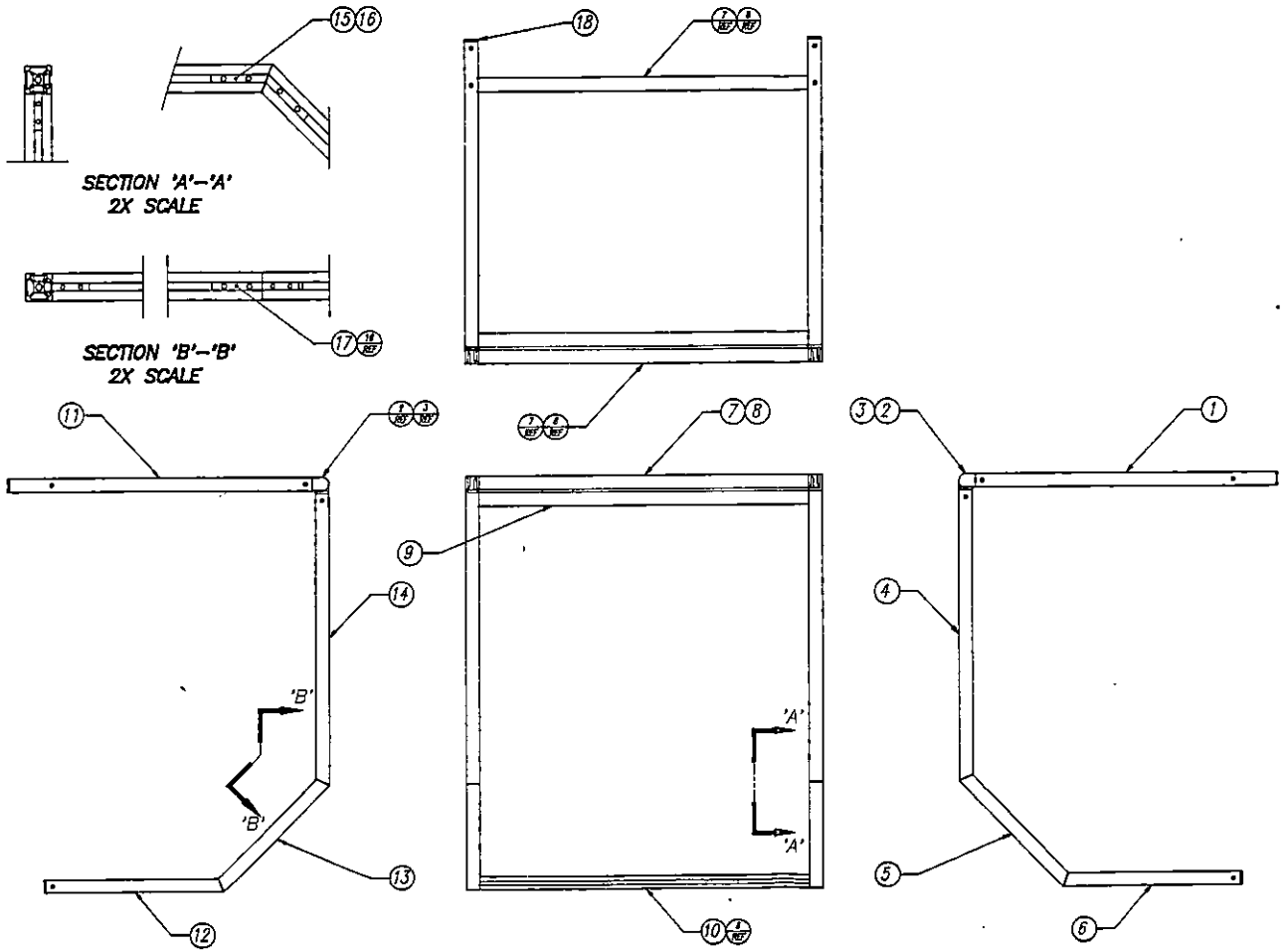
ASSY. MACHINE COVER

SIZE B | 78-2188 | REV

SCALE 1:10 | SHEET 1 OF 1

582633

REVISIONS			
SYM	DESCRIPTION	DATE	BY



ITEM	DESCRIPTION	PART NO.	QTY
18	28MM END CAP	816–26	4
17	EXTRUSION STIFFENER	78–1814	2
16	1/4–20 X 1/2 SET SCREW		16
15	EXTRUSION STIFFENER	78–1813	2
14	COVER SUPPORT EXTRUSION	78–1807	1
13	COVER SUPPORT EXTRUSION	78–1809	1
12	COVER SUPPORT EXTRUSION	78–1811	1
11	COVER SUPPORT EXTRUSION	78–1805	1
10	COVER SUPPORT EXTRUSION	78–1840	1
9	COVER SUPPORT EXTRUSION	78–1841	1
8	STANDARD FASTENER SET	816–25	8
7	COVER SUPPORT EXTRUSION	78–1806	2
6	COVER SUPPORT EXTRUSION	78–1812	1
5	COVER SUPPORT EXTRUSION	78–1810	1
4	COVER SUPPORT EXTRUSION	78–1808	1
3	8MM X 16MM BHCS		4
2	HEAVY HINGE 28MM	816–23	2
1	COVER SUPPORT EXTRUSION	78–1804	1

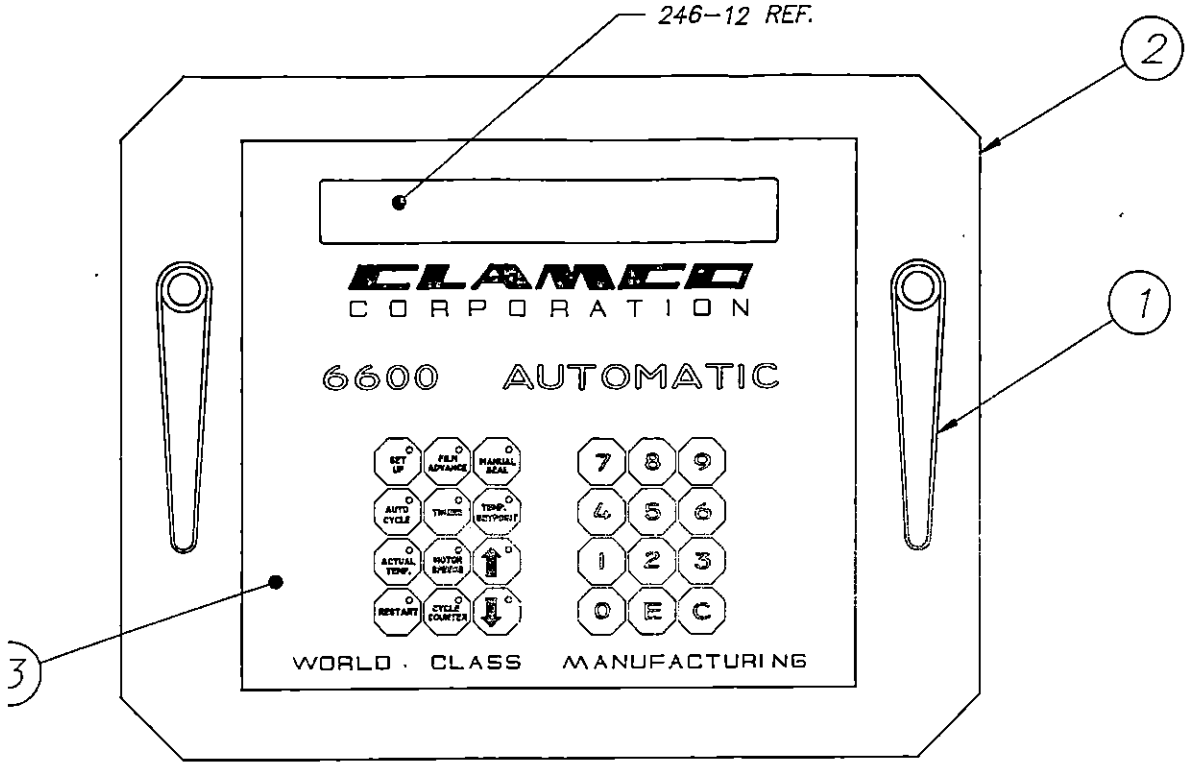
MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

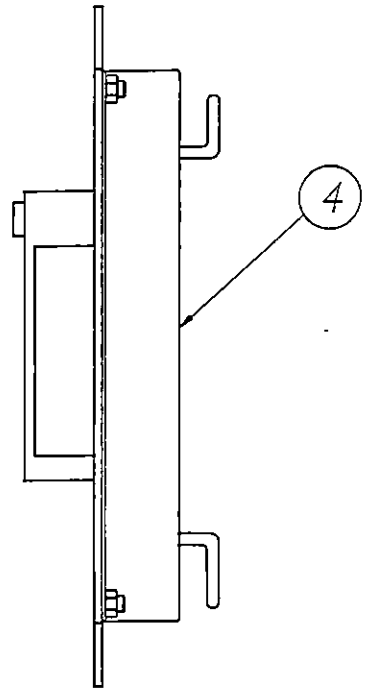
CLAMCO CORPORATION

MATERIAL	DR. BY	KJF	ASSY., COVER FRAME
STOCK SIZE	CK. BY		SIZE B — 78–2082 — REV
PURCHASE PART NO.	APPR.		
FINISH	DATE	11/1/93	SCALE 1 :10 — SHEET 1 OF 1

575195

REVISIONS			
SYM	DESCRIPTION	DATE	BY
A	ADDED ITEM #5 (78-1773) TO B/M	7/94	KJF





ITEM	DESCRIPTION	PART NO.	QTY
5	ASSY., INTERFACE CABLE (NOT SHOWN)	78-1773	1
4	WELDM'T, REAR COVER, DISPLAY	78-1843	1
3	LEXAN OVERLAY	78-2060	1
2	BACK PLATE	78-1748	1
1	HANDLE LATCH	808-39	2

MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

CLAMCO CORPORATION

MATERIAL

STOCK SIZE

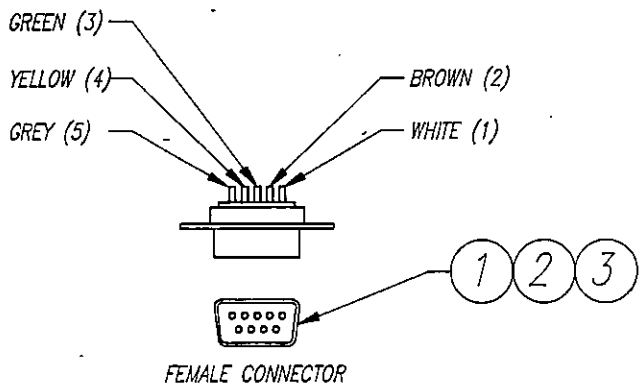
DR. BY GJB

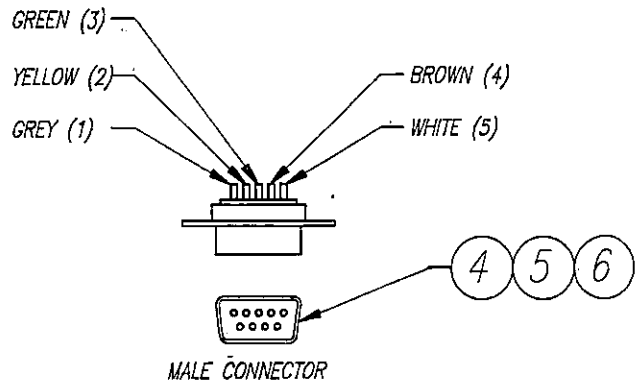
CK. BY

ASS'Y, OPERATOR PANEL

SIZE REV

REVISIONS			
SYM	DESCRIPTION	DATE	BY





ITEM	DESCRIPTION	PART NO.	QTY
6	GROUND WIRE-12GA (NOT SHOWN)		12"
5	INLINE HOOD ASSY. (NOT SHOWN)	207-25	1
4	9-PIN MALE CONNECTOR	207-21	1
3	9 CONNECTOR CABLE (NOT SHOWN)	211-26	15'
2	90 DEG HOOD ASSY. (NOT SHOWN)	207-23	1
1	9-PIN FEMALE CONNECTOR	207-22	1

NOTES:
CABLE LENGTH TO BE 15.0'
MALE CONNECTOR END TO HAVE 12" GROUND WIRE ATTACHED TO CABLE SHIELD
ALL CONNECTIONS TO BE SOLDERED
(COLORS MAY VARY, USE FOR REFERENCE)

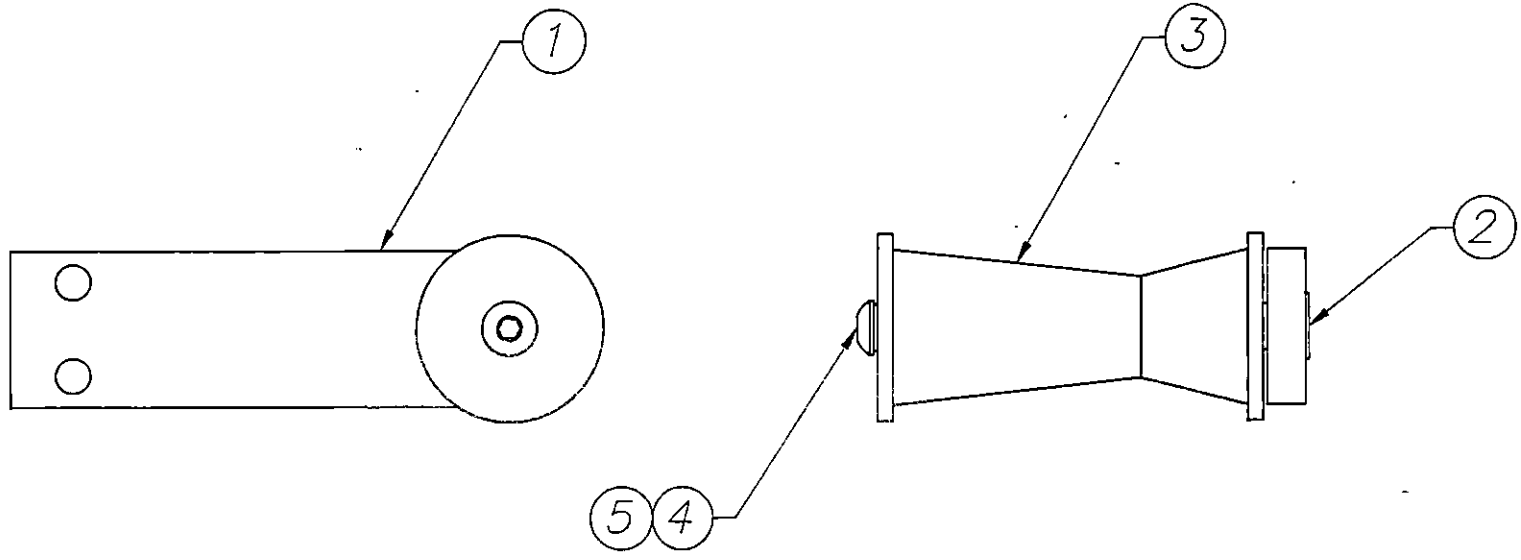
MACHINE TOLERANCES:	FABRICATION TOLERANCES:
.XXX ±.005	.XXX ±.015
.XX ±.015	.XX ±.030
.X ±.030	.X ±.060

CLAMCO CORPORATION

MATERIAL	DR. BY	KJF	ASSY. INTERFACE CABLE
STOCK SIZE	CK. BY		
PURCHASE PART NO.	APPR.		SIZE B — 78-1773 — REV
FINISH	DATE	1/18/94	SCALE 1 : 1 — SHEET 1 OF 1

575795

REVISIONS			
SYM	DESCRIPTION	DATE	BY



ITEM	DESCRIPTION	PART NO.	QTY
5	1/4–20 X 1/2 BHCS		1
4	SCRAP GUIDE SHAFT	78–1210	1
3	SCRAP GUIDE ROLLER	78–1211	1
2	1/4–20 X 1/2 FHCS		1
1	MOUNT, SCRAP GUIDE	78–1212	1

MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

CLAMCO CORPORATION

MATERIAL

STOCK SIZE

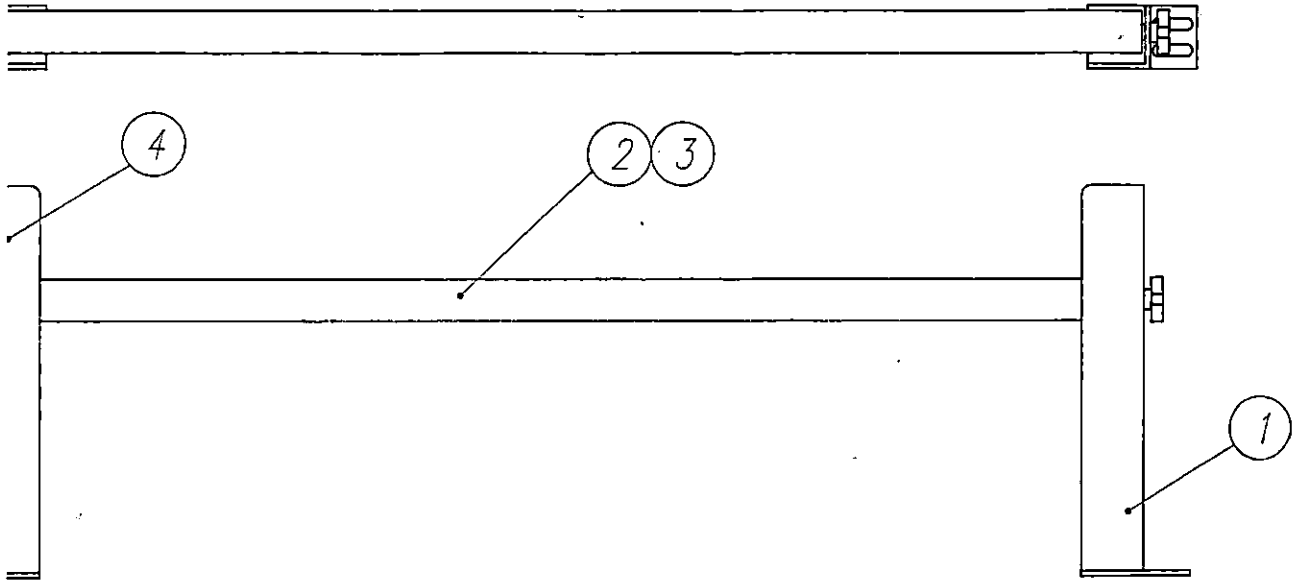
DR. BY KJF

CK. BY

ASSY. SCRAP GUIDE

SIZE REV

REVISIONS			
SYM	DESCRIPTION	DATE	BY



ITEM	DESCRIPTION	PART NO.	QTY
5	KNOB	808-19	2
4	BRACKET	78-867	1
3	SHAFT	78-1348	1
2	ROLLER	78-1349	1
1	BRACKET	78-868	1

MACHINE TOLERANCES:		FABRICATION TOLERANCES:	
.XXX	±.005	.XXX	±.015
.XX	±.015	.XX	±.030
.X	±.030	.X	±.060

CLAMCO CORPORATION

MATERIAL

STOCK SIZE

DR. BY GJB

CK. BY

ASS'Y, ADJUSTMENT ROLLER

SIZE 78-2150 REV

Level	Component MFG	Part Number	Description	Quantity
T	C	78-2037	Conduit Bundle	
1	C	785-56	Conduit - 3/8"	40.00
1	C	785-57	Conduit - 1/2"	20.00
1	C	785-58	Fitting - Elbow 3/8	11.00
1	C	785-59	Fitting - Elbow	4.00
1	C	785-60	Straight Fitting - 3/8"	5.00

- - End of Bill - -

Level	Component MFG	Part Number	Description	Quantity
P NT	C	78-2071	Guard Bundle Group 6500 P.L.C.	
.1	C	78-954	Wldmt, Chain Guard	1.00
..2	C	78-955	Chain Guard, Inside	1.00
..2	C	78-956	Chain Guard, Outside	1.00
..2	C	78-957	Tab	1.00
.1	C	78-1244	Cover, Film Advance Brg. Plate	1.00
.1	C	78-1245	Cover, Film Advance Chain	1.00
.1	C	78-1252	Guard, Front	1.00
.1	C	78-1254	Guard, Disch. End	1.00
.1	C	78-1255	Guard, Infeed End	1.00
.1	C	78-1359	Scrap Guide Pin (Rev.C)	1.00

- - End of Bill - -

Level	Component MFG	Part Number	Description	Quantity
PARENT	C	79-081	6500 Conversion To 220\50hz	
.1	C	200-44	Stepdown Transformer	1.00
.1	C	216-80	FUSE, TYPE FRN-10	2.00
.1	C	216-79	FUSE, TYPE FRN-15	2.00
.1	C	215-108	DISCONNECT SWITCH, ITE TYPE JN321	1.00
.1	C	207-17	Connector 1/2"	4.00
.1	C	210-17	Power Cord 12/3 Type SO	10.00
.1	C	78-1543	Guard Top - 220/50hz	1.00

- - End of Bill - -

7.0

GENERAL INSTRUCTIONS

7.1 GENERAL:

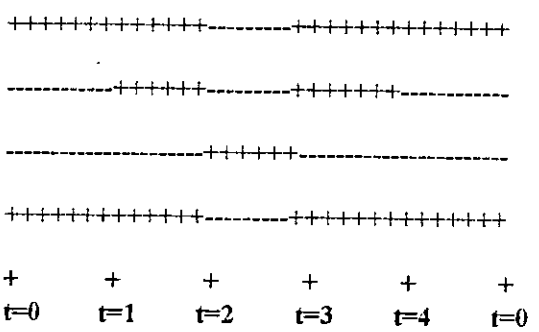
Product is presented to the machine in one of three methods, either manually placed on the infeed conveyor, fed to the machine via a gravity conveyor or a powered conveyor. Once the product is on the infeed conveyor, it advances into the inverting head area where it is enveloped in a plastic sleeve and advanced into the seal head area via the discharge conveyor. The conveyors stop and the seal action takes place. This consists of an upper and a lower jaw closing together pinching the plastic between a heated knife and a teflon coated backup pad. The plastic is sealed and cut. The seal head then retracts, the conveyors start, feeding the now wrapped product out of the machine. This also starts a new package in the cycle.

Centerfold plastic film is held in a cradle either above or below the infeed conveyor. The web of plastic is powered through a film splitter and a perforator pin wheel. The plastic is conveyed over a dancer bar, which activates the unwind motor, across an idler roller, through the upper and lower inverting head into the seal area. The film advance assembly powers the film through this process. Once the seal is made the product is carried off encased in film while the scrap tail is automatically wound onto a scrap reel.

An optional discharge conveyor closes the gap between the infeed and discharge to allow for smoother transfer of product. The gap is re-opened for the sealing cycle. The infeed and discharge conveyors are at the same elevation to allow for smooth product transfer.

A photoelectric eye is used to detect the product and control the cycle of the machine. There are three timers utilized by the machine program. A dwell timer is used to control the seal time of the cycle. A trail timer is used to control the amount of film at the trail end of the product as it enters the seal area. A lead timer is used to advance film in front of the package to allow for a smooth transfer into the seal area, and provide the proper amount of film in front of the package.

7.2 SEQUENCE OF EVENTS: (SIMPLIFIED)



t=0: Cycle starts
t=1 Trail timer starts timing
t=2 Trail timer times out; Dwell timer starts
t=3 Dwell timer times out; Lead timer starts
t=4 Lead timer times out; cycle ends; new cycle begins

7.3 GENERAL MACHINE CHANGEOVER:

Changeover of the machine to incorporate various products is a simple procedure. The machine should be cleaned out of the existing plastic in use. Place the desired roll of plastic in the film cradle. Thread the film through the machine as illustrated in the film threading diagram. Thread the film through the upper and lower inverting plates and into the film advance belts. Perform a few manual seals and manual film advances to advance enough tail through the machine to tie off on the scrap take-up wheel. This completes the loading of the new film.

Place the product on the infeed conveyor and adjust the upper inverting plate 1/2-3/4 in above the product. Adjust the infeed conveyor front-to-back to get the proper width of the product. Adjust the elevator height to allow for the seal to be centered as best as possible on the package. The seam of the plastic should be midway up the height of the product. Ensure the product will fit under the top jaw as it conveys in to the seal area.

Adjust the Dwell timer, Lead timer, and Trail timer to appropriate settings for the film to be used. The proper settings will vary with application and film properties. Adjust the Temperature settings for the end and side seal. Again these values will vary with the application and film properties.

Perform a few manual seals to be sure the temperatures and dwell time are such that the machine will seal and cut the film. Place the machine in Auto Mode and run a few products through. There may require some fine tuning of the mechanical adjustments to create a proper bag size and of the timers to get the optimal seal characteristics.

Note: For more detailed information on changeover procedures see Section 10.0 **"CHANGEOVER FOR VARIOUS PACKAGE SIZES"**

MACHINE COMPONENTS

8.1 MAIN FRAME ASSEMBLY: (Ref. Dwg. 78-2083)

The main frame assembly of this machine consists of the main machine weldment. This weldment is constructed of cold drawn structural tubing. The wall thickness is 1/8" which provides a solid, durable foundation for the machine. The remaining portion of this assembly consists of the discharge conveyor motor, and the elevator bearings, and crank handle.

8.2 INFEED CONVEYOR ASSEMBLY: (Ref. Dwg. 78-2069; 78-2093; 78-2095; 78-2096)

The infeed conveyor assembly is driven by a 1/4hp 90VDC gearmotor. This provides for a variable speed conveyor with a range of 0-100fpm. The infeed and discharge conveyor speeds are electrically coupled and are set using the "MOTOR SPEEDS" button on the operator interface. The conveyor has a rubberized drive roller to ensure positive contact between the belt and the roller. The main power switch, emergency stop button, photoeye selector switch, and optional closing conveyor switch are mounted on the front guard of this assembly. There is an idler roller mounted to the infeed end of this assembly to ensure smooth transfer of product. The assembly also contains the upper and lower inverting plates which invert the film 90 degrees to allow presentation to the package. The upper inverting head utilizes a acme screw thread to manipulate the inverting tray to desired position. The crank handle for this thread is mounted either directly above the thread or brought out to the front of the machine via a 90 degree gearbox. The location depends on whether the upper film cradle option is included with the machine. An optional FDA approved belt is available.

8.3 LOWER CRADLE ASSEMBLY: (Ref. Dwg. 78-1861)

The lower cradle assembly houses the bulk roll of centerfold film. This device is powered by a 120VAC gearmotor that powers the film through the film splitter and through the pin perforator assembly. This diminishes the tension on the web of film in the seal head area. This motor is equipped with an electric brake which ensures positive stopping. The motor is capable of running forward, reverse, or off with the flip of a switch. The motor is triggered by a weighted dancer bar which activates a mechanical limit switch. The cradle assembly rolls out of the machine on a pair of linear bearings to provide easy access for loading the film. There is a pair of rollers in the rear of the assembly which lifts the film to the upper rear of the infeed conveyor. This allows for total front loading of the machine.

8.4 UPPER CRADLE ASSEMBLY: (OPTIONAL) (Ref. Dwg. 78-1733)

The upper cradle is an optional subassembly which can be installed on the machine either at time of original manufacture or as an add on at a later date. The device is powered by the same 120VAC motor utilized on the lower cradle. Again this motor utilizes a brake to ensure positive stops. This device utilizes the same mechanical limit switch utilized on the lower cradle for activation of the motor. This assembly does not incorporate the forward/reverse switch available on the lower cradle.

8.5 ELEVATOR ASSEMBLY: (Ref. Dwg. 78-2086)

The elevator assembly employs four threaded posts coupled together with a chain drive system to adjust the elevation of the seal jaw assembly. There is a mechanical crank handle used to adjust the elevator.

8.6 SCRAP FILM DRIVE ASSEMBLY: (Ref. Dwg. 78-2072)

The scrap film drive assembly powers the film advance assembly, which powers the film through the inverting heads. This drive assembly also powers the scrap take up assembly. This assembly utilizes a 90VDC gearmotor that allows for variable speed. The speed is varied using the "MOTOR SPEEDS" button on the operator interface. The range of speed corresponds to 0-100fpm on the film advance belts.

8.7 FILM ADVANCE ASSEMBLY: (Ref. Dwg. 78-2084)

The film advance assembly utilizes a set of urethane coated timing belts which power the film through the inverting assembly and into the seal area. The belt is driven by the Scrap Film Drive assembly which provides for variable speed. Speed differentials between this assembly and the conveyor assemblies can be set to enhance and control the size of the film envelope on the package. The infeed end of the timing belts houses a proximity switch used to detect an obstruction, and stop the belts.

8.8 DISCHARGE CONVEYOR ASSEMBLY: (Ref. Dwg. 78-2008)

The discharge conveyor assembly is driven by a 1/4hp 90VDC gearmotor. This provides for a variable speed conveyor with a range of 0-100fpm. The infeed and discharge conveyor speeds are electrically coupled and are set using the "MOTOR SPEEDS" button on the operator interface. The conveyor has a rubberized drive roller to ensure positive contact between the belt and the roller. The discharge conveyor is designed to allow for minor height adjustment to ensure an even elevation with the infeed conveyor, thus allowing smooth transfer of product. This elevation is set at the factory and should not require adjustment unless work has been performed to the assembly. The conveyor belt is tensioned using a idler roller mounted on floating threaded studs. This roller is mounted on the underside of the assembly at the infeed end of the belt. There is a nut on each of the studs which pull the roller down, thus tensioning the belt.

8.9 CLOSING DISCHARGE CONVEYOR ASSEMBLY: (OPTIONAL) (Ref. Dwg. 78-1705)

The closing conveyor assembly is an option which replaces the standard discharge conveyor. The assembly utilizes the existing drive train. The advantage of this assembly is its ability to drive the infeed nose upstream to close the gap between the two conveyors. A pair of dual rod cylinders are mounted internal on this assembly. The plumbing for these cylinders is brought to the rear, top of the conveyor. This allows for easy access to the pneumatic lines. A valve is mounted on the standard valve manifold and wire and plumbed in place. The valve is controlled by the PLC program. There is an ON/OFF switch mounted to the infeed conveyor panel in line with the other switches. The cylinders should be retracted when the valve is de-energized and extended when the valve is energized. If the assembly is turned ON the valve will be energized as long as the solid state reed switch on the rear of the seal jaw cylinder is made.

There exists a proximity switch mounted to the main frame of the machine. This switch is activated by the Elevator frame. The closing conveyor will work as long as this prox switch is made. If the prox switch breaks and the closing conveyor is turned on, there will be an error message in the display reading "ELEV. TOO HIGH". This ensures there will not be interference between the lower jaw and the infeed nose of this assembly.

8.10 SCRAP COLLECTOR ASSEMBLY: (Ref. Dwg. 78-2012; 78-1926 on 66039 and succeeding)

This assembly winds the scrap tail generated by the machine. The assembly is driven by the Scrap Film Drive assembly. There is a tensioning device on the take-up wheel which allows for varying degrees of tension to be generated on the scrap tail. This device will produce a coil of plastic which, once a large enough one is generated can be pulled off the front of the assembly and properly discarded.

8.11 LOWER JAW ASSEMBLY: (Ref. Dwg. 78-2087)

The lower jaw assembly contains the backup pads to the seal knives. These pads consist of a 3/8" piece of silicon rubber taped over w/ 5mil teflon tape. There is a piece of 1"x 5mil tape put down first then a piece of 1/2 x 5mil tape over top, straight down the middle of the seal pad. Care should be taken to ensure there are no ripples in the tape. These will cause ripples and/or holes in the seal. The pads float on compression springs which allow for consistent force against the seal knives. It is important to the integrity of the seal that these springs are kept in good working condition.

8.12 UPPER JAW ASSEMBLY: (Ref. Dwg. 78-2068; 78-2186 on S/N66027 and succeeding)

This assembly contains the heated knives which seal and cut the plastic. Each knife is heated using a single cartridge heater. The feedback device for temperature sensing is a washer type thermocouple sensor. The temperature controller is tuned to provide accurate control, in worst case, within +/- 5 deg F. This is sufficient accuracy for this type of system. There are four proximity switches located on the assembly which are used to detect and obstruction in the jaws. These are set to trigger if the film clamps encounter a 1/4" obstruction in the seal area. This will cause the machine to automatically abandon the seal cycle regardless if the machine is in set up or automatic mode. The knives are specially coated to extend the wear properties and provide a frictionless surface. This provides a smooth clean cut off with minimal buildup of residue. The knives should be cleaned periodically with a soft cloth while hot.

WARNING: HEAT SEALING EQUIPMENT ON THE SEAL ARM ASSEMBLIES CAN GET VERY HOT. KEEP HANDS AWAY FROM HEAT SOURCE WHILE MACHINE IS IN OPERATION, AND USE CAUTION IF THE MACHINE HAS BEEN RECENTLY IN USE.

8.13 ELECTRICAL ENCLOSURE: (Ref. Dwg. 78-2058; 79-215: 78-2183,79-224 on S/N66027 and succeeding)

The electrical enclosure is mounted on the rear of the machine and houses all the electrical components required for the machine operation. The PLC is the heart of the system which contains the program to actually run the machine. Communication with the machine is accomplished via the operator interface mounted on the front of the top hood assembly. The program is stored on a EEProm chip with in the PLC. At time of "boot up" the program is read from this chip to the "ram" memory and accessed. This eliminates possibilities of program loss. The PLC is fuse protected and battery backed to allow for safe and continuos operation. The motor speed controls are isolated. dual voltage dc drive units manufactured using solid state, surface mount technologies. They are set to produce a 0-90VDC output to the motors based on a scaled 0-10VDC output from the PLC. These values correspond to 0-100fpm entered as the speed choice from the operator interface. These devices are fuse protected for safe operation. The temperature control is converted using signal conditioners which convert the mV thermocouple signal into a mA signal which becomes an analog input to the PLC. There is a 24VDC, 2.1AMP power supply used to power all 24VDC devices. All devices used on the machine, PLC, sensors, solenoids, etc. are 24VDC power. The only devices which require 120VAC power are the cartridge heaters, and the film cradle motors. This provides a low power level machine for safe operation. The terminal blocks used are "palm safe" modular blocks, used for ease of wiring and safe operation. The electrical enclosure assembly is mounted on hinges and swings open from the top. This allows for access to the machine without dismounting or unwiring any part of the assembly.

WARNING: DO NOT TAMPER WITH ELECTRICAL WIRING UNLESS LICENSED OR TRAINED TO DO SO. DISCONNECT MAIN POWER TO THE MACHINE BEFORE ATTEMPTING ANY ELECTRICAL SERVICE.

8.14 PNEUMATIC PACKAGE: (Ref. Dwg. 78-2055)

This assembly consists of all pneumatic components required for the operation of the machine, filter/regulator, valve(s), cylinder and all necessary tubes and fittings. The cylinder is speed controlled at the cylinder ports with the use of flow controls. This provides for variable seal head speed. The machine should operate at 80psi, which is adjusted at the filter/regulator unit located at the rear, discharge corner of the machine. The filter system has an automatic drain system which will "blow off" the water, and oil which has accumulated. The "blow off" port has been plumbed to the rear discharge leg of the machine. The valve manifold is located on the lower discharge crossmember of the frame accessible when the electrical cabinet is hinged open. There are three available ports used depending on the options associated with the particular machine. All fitting are quick release which provides easy assembly and maintenance.

8.15 HOOD COVER ASSEMBLY: (Ref. Dwg. 78-2081; 78-2088 on S/N 66038 and succeeding)

This assembly is the main cover of the machine and is assembled using an aluminum extruded frame with clear lexan guards attached. This assembly pivots on gas struts located at the rear of the assembly, and latches closed on the lower front member This provides ease of access to the machine. The operator interface is mounted to the front of the cover on a 45 degree angle which allows for ease of access and readability. The interface unit can be removed with quick release handles for maintenance while the hood is opened. The hood assembly contains a safety lockout which will halt machine operation if opened. Nothing will run with the hood assembly raised.

WARNING: DO NOT OPERATE MACHINERY WITHOUT ALL SAFETY GUARDS AND COVERS SECURELY IN PLACE.

8.16 OPERATOR INTERFACE ASSEMBLY: (Ref. Dwg. 78-2078)

This is a subassembly of the hood cover. This assembly contains the operator interface of the PLC controls package. All operator interface to the machine is done through this device. There are three (four) switches mounted on the infeed conveyor guard which are used to: turn the machine on/off, switch between horizontal and vertical photoeyes, stop the machine in an emergency, and if the option is on the machine, turn the closing conveyor on/off. All other machine functions are controlled with the operator interface. The interface consists of a numeric keypad with numbers 0-9, an "E" (enter) button, a "C" (clear) button, and 12 function keys. The function keys have a built-in LED light used to indicate button status. The function keys are defined as follows:

NOTE: Buttons start from upper left corner, reads from left to right, top to bottom

8.16.1 SET UP MODE:

This button will place the machine in SET UP MODE. When the machine is first turned on this LED will blink. If this button is chosen the LED will stay on indicating the machine is in SET UP MODE. When pressed the display will read "SET UP MODE". The machine will stay in this mode until it is switched to AUTO MODE.

8.16.2 FILM ADVANCE:

This button is used to manually advance the film when the machine is in set up mode. The film will advance for as long as this button is held down. While this button is held the display will read "FILM ADVANCING". The film advance will only run while this button is depressed. If the machine is in auto mode and this button is depressed the display will read "N/A IN AUTO MODE", and the film advance motor will not run. The LED will only light when the button is depressed.

8.16.3 **MANUAL SEAL:**

This button is used to manually activate the seal cylinder for one seal cycle when the machine is in set up mode. The LED will be lit only while the button is held down. With the button pressed, and the machine in set up mode, the seal jaws will engage and the display will read "MANUAL SEAL" until the cycle completes. At this time the jaws will disengage and the display will read "SEAL "COMPLETE". The button would have to be pressed again to complete another cycle. If the button is released the seal jaws will return to the up position immediately. . If the machine is in auto mode and this button is depressed, the display will read "N/A IN AUTO MODE", and the seal jaws will not engage.

NOTE: The jaw safeties work the same regardless of the mode the machine is in.

8.16.4 **AUTO MODE:**

This button will place the machine in AUTO MODE. When the machine is first turned on this LED will blink. If this button is chosen the LED will stay on indicating the machine is in AUTO MODE. When pressed the display will read "AUTO MODE". The machine will stay in this mode until it is switched to SET UP MODE.

8.16.5 **TIMERS:**

This button is used to change the settings of the various machine timers. There are four timers which can be adjusted, Dwell Time, Lead Time, Trail Time, and Auto Time. Once the button is depressed the LED will light and stay lit until another user entered button is depressed. When the button is depressed one of the timer values will appear on the display, i.e. "DWELL TIME=....." A value may be entered either by using the numeric key pad, and entering a value then and pressing the "E" (enter) key or by using the up and down arrows and then pressing the "E" (enter) key. Once the "E" (enter)key is depressed, the display will change to another timer, i.e. "TRAIL TIME=....." A value can be entered for this timer the same as the previous. This procedure can be done until all the timers have been set. The "E" (enter) key will toggle the display between all the timers and continue until another function has been done. The timer values allowed are: 0.00-2.00s for TRAIL and LEAD time; 0.00-10.00s for DWELL time; and 0-30min for AUTO time.

8.16.6 **TEMP. SETPOINT:**

This button is used to change the settings for the side and end seal temperatures. Once this button is depressed the LED will remain lighted until another user entered button has been depressed. When the button is depressed one of the heater values will display, i.e. "SSEAL TEMP=.....F". A value may be entered as with the timer values. Once the "E" (enter) button is depressed the display will toggle to the other heater value. The "E" (enter) key will toggle the display between the temperatures and continue until another function has been done. The temperature range allowed is 50-500 degrees F.

8.16.7 **ACTUAL TEMP:**

This button is used to display the actual, real time temperatures of the knife blades. The LED will light and remain lighted until another user entered button is depressed. The display will read "SSEAL TMP=.....F" until hit again then it will toggle to the end seal and read "ESEAL TMP=.....F". The display will remain showing either of these two temperatures until another button has been depressed.

8.16.8 **MOTOR SPEEDS:**
This button is used to change the settings for either the conveyor or film advance motor speeds. Once this button is depressed the LED will remain lighted until another user entered button has been depressed. When the button is depressed one of the motor speeds will display, i.e. "CNVYRS=..... FPM". A value may be entered as with the timer values. Once the "E" (enter) button is depressed the display will toggle to the other motor speed. The "E" (enter) key will toggle the display between the motor speeds and continue until another function has been done. The speed range available for the motors is 0-100fpm.

8.16.9 **(UP ARROW):**
This button is used to change the values of user entered parameters in the positive direction. This button will change the numeral in increments of 1 unit when pressed 1 time. If held down the increment will continue to change. The LED will light and remain lighted as long as the button is held down.

8.16.10 **CYCLE RESTART:**
This button is used to start the machine and to restart the machine after a fault has occurred. When the machine is first turned on, the SET UP MODE and AUTO MODE button LED's will be blinking. If the AUTO MODE button is depressed its LED will remain on and the SET UP MODE LED will go dark. At this time the CYCLE RESTART LED will blink. Once depressed the LED will go dark and the display will read "CYCLE START". This will start the machine running. If there is a fault that occurs the machine will shut off and the appropriate message will appear on the display. The LED on the CYCLE RESTART button will light and blink. The machine can be restarted by depressing this button.

8.16.11 **CYCLE COUNTER:**
This button is used to display the cycle counts of the machine. When depressed the LED will light and remain lighted until another user entered button is depressed. The display will read "CYCLE CNT=.....". The counter can be reset to 0 by pressing the enter key while the display reads "CYCLE CNT=.....". The counter will not reset to 0 if the enter key is depressed while the display is in another mode. The counter is capable of counting values from 0-9999.

8.16.12 **(DOWN ARROW):**
This button is used to change the values of user entered parameters in the negative direction. This button will change the numeral in increments of 1 unit when pressed 1 time. If held down the increment will continue to change. The LED will light and remain lighted as long as the button is held down.

8.17 SCRAP GUIDE ASSEMBLY: (Ref. Dwg. 78-2015)
This assembly is a small roller mounted on the front discharge end of the machine to guide the scrap film to the scrap take up wheel.

8.18 ADJUSTMENT ROLLER ASSEMBLY: (Ref. Dwg. 78-2159)
This assembly is used to guide the web of film into the upper and lower inverting plates located on the infeed conveyor. The roller assembly is located on the rear infeed end of the main frame.

8.19 CONDUIT BUNDLE: (No Dwg.)
This bundle consists of the various lengths of conduit and fittings used to run the machine wiring.

8.20 GUARD BUNDLE: (No Dwg.)

This bundle consist of all guards used on the machine.

WARNING: DO NOT OPERATE MACHINERY WITHOUT ALL SAFETY GUARDS AND COVERS SECURELY IN PLACE.

8.21 220 VAC / 50HZ ASSEMBLY: (OPTIONAL) (No Dwg.)

This assembly consists of a transformer and disconnect switch box used if the machine requirements are 220vac.

9.0

INSTALLATION AND SET-UP

9.1 GENERAL:

IMPORTANT: PRIOR TO MACHINE SET UP AND INSTALLATION THE GENERAL WARNINGS SHOULD BE READ AND FULLY UNDERSTOOD BY ALL PERSONNEL ASSOCIATED WITH THIS MACHINERY.

9.2 SET-UP INSTRUCTIONS:

9.2.1 Lower the feet and level the sealer. If machine is to be used in line with a shrink tunnel, align the discharge conveyor with shrink tunnel and insure both conveyors are at the same elevation.

9.2.2 Open electrical enclosure located on the rear of the machine and visually inspect for loose wires.

9.2.3 Connect a clean air supply to the filter/regulator unit located on the rear discharge frame leg. Adjust the filter/regulator to read 80 psi. (Air supply must be minimum 100PSI and capable of delivering minimum 1CFM)

9.2.4 Connect machine to power source, using the plug provided with the machine. Supply line should be 120 Volt, 20 Amp grounded supply.

CAUTION: MACHINE SHOULD BE GROUNDED IN ACCORDANCE WITH LOCAL ELECTRICAL CODES!

9.2.5 Turn on the power by switching the green power switch located on the infeed conveyor cover to the ON position. The switch should illuminate. If the power does not come on, ensure the Emergency Stop button is in the released position by turning it clockwise a 1/4 turn. This should release the switch.

9.2.6 The operator display should illuminate and display the message "6600 AUTOMATIC". If the green power light is illuminated and the display does not light, check the connections on the display unit.

9.2.7 The upper two left hand LED's on the operator interface will blink. Place the machine in Set Up Mode by depressing the Set Up Mode button. The Display should read "SET UP MODE". Check the operation of the film advance motor by depressing the "FILM ADVANCE" button. Also check the operation of the seal head by depressing the "MANUAL SEAL" button. The seal head will release if the button is disengaged. If the button is continuously depressed the seal head will complete one cycle until it is pressed again.

WARNING: TO AVOID PERSONNEL INJURY KEEP HANDS AWAY FROM MOVING BELTS, AND OUT FROM UNDER THE SEAL JAWS.

9.2.8 Test machine safety sensors:

9.2.8A **Guard:** Release the two cam lock handles at the base of the guard and allow the guard to open.

WARNING: **THE GUARD IS ASSISTED BY TWO GAS STRUTS. THESES STRUTS ARE UNDER PRESSURE WHEN THE GUARD IS CLOSED. WHEN THE HANDLES ARE RELEASED THE GUARD MAY OPEN WITH FORCE. KEEP HOLD OF THE GUARD HANDLE AND GUIDE THE GUARD OPEN TO AVOID A SUDDEN SPRING OPENING OF GUARD.**

Close the guard and lock down the cam lock handles. A message "GUARD OPEN" should appear on the display. Press "CYCLE RESTART" to clear the message. If this does not happen the guard sensor located on the right rear of the aluminum guard frame may need adjusting.

9.2.8B **Seal arm:** Place a 1/4" obstruction (stack of paper or a magazine) between the end seal jaws.

CAUTION: **THE KNIVES ARE MADE OF COATED ALUMINUM. IF THE JAWS ARE CLOSED ON A MATERIAL WHICH IS HARDER THAN THE ALUMINUM, I.E. STEEL, THERE IS A RISK OF DENTING OR KNICKING THE KNIFE BLADE. THIS WILL RENDER THE BLADE INOPERABLE.**

Depress the manual seal button. Upon hitting the obstruction, the jaws should return to the open position without completing the cycle. The digital display should read "SEAL ARM JAM". Remove the obstruction. Depress the "CYCLE RESTART" button to clear the display. If the jaws close on the obstruction without indicating a jam, the safety override switch, or the head safety prox switches may require adjustment. The safety override switch is located on the seal arm cylinder. This switch is the one closest to the front head of the cylinder. The switch can be adjusted by loosening the band screw, and adjusting the sensor towards the front of the cylinder.

NOTE: **This process may be a trial and error process until the operator becomes familiar with the devices and operations.**

9.2.8C **Film Advance:** With the machine in "SET-UP" mode, raise the machine hood and place an obstruction i.e. a pencil in the infeed of the film advance belts. Close the hood, press cycle restart to clear the "GUARD OPEN" message and press the "FILM ADVANCE" button. This will advance the pencil into the film advance belts and should trigger an error message on the display to read "FILM ADVANCE JAM". Remove the pencil and press "CYCLE RESTART" to clear the message. If the pencil does not trip the sensor, adjust the sensor actuator, located on the upper film advance pulley shaft, upward until it activates the sensor with the pencil in place.

9.2.8 Test machine safety sensors:

9.2.8A **Guard Door:** Open the safety door located on the front of the cover assembly by pulling on the handle. A "GUARD DOOR OPEN" message should appear on the display panel. Press "CYCLE RESTART" to clear the message. If this does not happen the sensor located on the door may need adjustment.

9.2.8B **Guard:** Release the two cam lock handles at the base of the guard and allow the guard to open.

WARNING: **THE GUARD IS ASSISTED BY TWO GAS STRUTS. THESES STRUTS ARE UNDER PRESSURE WHEN THE GUARD IS CLOSED. WHEN THE HANDLES ARE RELEASED THE GUARD MAY OPEN WITH FORCE. KEEP HOLD OF THE GUARD HANDLE AND GUIDE THE GUARD OPEN TO AVOID A SUDDEN SPRING OPENING OF GAURD.**

Close the guard and lock down the cam lock handles. A message "GUARD OPEN" should appear on the display. Press "CYCLE RESTART" to clear the message. If this does not happen the guard sensor located on the right rear of the aluminum guard frame may need adjusting.

9.2.8C **Seal arm:** Place a 1/4" obstruction (stack of paper or a magazine) between the end seal jaws.

CAUTION: **THE KNIVES ARE MADE OF COATED ALUMINUM. IF THE JAWS ARE CLOSED ON A MATERIAL WHICH IS HARDER THAN THE ALUMINUM, I.E. STEEL, THERE IS A RISK OF DENTING OR KNICKING THE KNIFE BLADE. THIS WILL RENDER THE BLADE INOPERABLE.**

Depress the manual seal button. Upon hitting the obstruction, the jaws should return to the open position without completing the cycle. The digital display should read "SEAL ARM JAM". Remove the obstruction. Depress the "CYCLE RESTART" button to clear the display. If the jaws close on the obstruction without indicating a jam, the safety override switch may need adjustment. The safety override switch is located on the seal arm cylinder. This switch is the one closest to the front head of the cylinder. The switch can be adjusted by loosening the band screw, and adjusting the sensor towards the front of the cylinder.

NOTE: **This process may be a trial and error process until the operator becomes familiar with the devices and operations.**

9.2.8D **Film Advance:** With the machine in "SET-UP" mode, raise the machine hood and place an obstruction i.e. a pencil in the infeed of the film advance belts. Close the hood, press cycle restart to clear the "GUARD OPEN" message and press the "FILM ADVANCE" button. This will advance the pencil into the film advance belts and should trigger an error message on the display to read "FILM ADVANCE JAM". Remove the pencil and press "CYCLE RESTART" to clear the message. If the pencil does not trip the sensor, adjust the sensor actuator, located on the upper film advance pulley shaft, upward until it activates the sensor with the pencil in place.

9.2.8E **Emergency Stop:** Place the machine in "AUTO MODE". Press the "CYCLE RESTART" button to start the machine. The machine should be running. Press the Emergency stop button located on the infeed conveyor front cover. The machine should stop, and the power light (green) located on the "ON/OFF" switch should go dark. Restart the machine by turning the emergency stop button to the right a 1/4 turn. This action will release the button, and cause the green power light to illuminate. The machine should power on and the operator display should read "6600 AUTOMATIC". The machine can be restarted by placing the machine in "AUTO MODE" and pressing the "CYCLE RESTART" button.

9.2.9 Set the temperatures of the heaters to the appropriate setting for the film being used: **TYPICALLY: 300-320 for PVC films or 350-390 for polyolefin films**. This can be done by depressing the "TEMP. SET POINT" button and entering the value desired. The value can be entered either by using the numerical keypad and punching in the numerical number followed by the enter key, or by using the "up" or "down" arrows followed by the enter key. The display will toggle between "ESEAL =....." and SSEAL =....." with the pressing of the "E" (enter) button on the keypad. The actual temperature of the heaters can be observed by depressing the "ACTUAL TEMP" button. The display will show the actual temperature of the knives. The temperatures of the side seal heater and end seal heater can be observed by toggling the "ACTUAL TEMP." button. The accuracy of the knife temperature controllers is tuned to +/- 5 degrees F with the machine in steady state. This accuracy is sufficient control for this machine.

9.2.10 Set the dwell, trail, and lead timers to accommodate the package to be run. A typical starting point for each may be: Dwell = 1.80s, Trail = 0.08s, Lead = 0.10s. These are general settings, the optimal settings for each package will vary. The timers can be set by depressing the "TIMERS" button. This will cause the display to read "DWELL TIME =.....s". The dwell time can be set at this point by entering a value in from the numerical keypad followed by the "E" (enter) button. This action will cause the display to toggle to the next value, "TRAIL TIME". The enter button can be depressed to toggle through all the machine timers. A timer exists for "AUTO SHUT OFF". This timer can be set between 1 - 30 minutes. This timer turns the conveyor motors off after the set amount of time if the machine has not been cycled. This becomes useful for extending the life of the components (motors, bearings, etc.) should the machine sit idle for lengthy periods of time.

9.2.11 Set the Photo-Eye selector switch to the desired setting for the selected product. This switch is located on the infeed conveyor front cover.

9.2.12 Select the proper film size for the package to be run. A typical size calculation for products less than 3" high is: **HEIGHT(MIN=2") + WIDTH +4" = FILM WIDTH**. This is typical for centerfold film. For products exceeding 2" add approximately 1".

9.2.13 Adjust the infeed conveyor width and the inverting head height to accommodate the package to be wrapped. The infeed conveyor is adjustable front to back using the spring release handle located under the front infeed conveyor deck. The inverting head is adjusted vertically using the turn handle located on the left, front of the infeed conveyor deck.

9.2.14 Place the appropriate width centerfold film on the film cradle and thread according to the threading instructions in Figure 1 (or Figure 2).

NOTE: WHEN THE FILM CRADLE IS RETURNED TO IS HOME POSITION UNDER THE MACHINE A SET OF ROLLERS WILL AUTOMATICALLY ADVANCE OUT AND UPWARD IN THE REAR OF THE MACHINE. THIS IS TO FACILITATE FRONT LOADING CAPABILITIES.

Thread the film through the inverting plates following the instructions below.

1. Pull the film over the infeed conveyor , under the upper inverting plow (triangle) to a point approximately 1 foot past the front of the infeed conveyor.

2. Unfold the film. Grasp the left edge of the lower web of film at the back of the infeed conveyor , and hook it over the right corner of the lower inverting plow (triangle) located at the rear underside of the infeed conveyor approximately 6" from the infeed end of the assy. Move the film toward the seal head along the back edge of the infeed conveyor until the edge reaches the left, rear corner of the infeed conveyor.

3. Open the Hood Cover Assy., grasp the corner of the film just moved in step 2 and move it behind, then under the discharge nose of the infeed conveyor. Once under the infeed conveyor, continue pulling the corner of the film toward the front until it reaches the film advance belts.

4. Lay the top web of film over top the upper inverting plow (triangle), and move the top film web corner to the film advance belts.

5. Straighten the film and remove all folds and wrinkles.

6. Place the two webs of film together at the film advance belts, and with equal tension on each web roll or fold the webs into the infeed end of the film advance belts. Insure that at least 1" of film protrudes out the front edge of the belts (the side closest to yourself).

7. Close the Hood Cover Assy. And, making sure the machine is in SET UP MODE, depress the FILM ADVANCE button sporadically to slowly advance the film into the film advance belts.

8. Open the front access door and grasp the film and guide it to a point just shy of the end of the side seal knife, while pressing the FILM ADVANCE button.

9. Close the access door and complete a manual seal by depressing and holding the MANUAL SEAL button. Reach in from the left end of the machine and remove the scrap bag of film just produced.

10. Repeat this procedure until there exists a long enough scrap tail to feed through the hole in the discharge end cover and tie off to the scrap take-up wheel, located under the front of the machine.

NOTE: THE "FILM ADVANCE" BUTTON WILL STILL FUNCTION WITH THE GUARD DOOR OPEN. THE "MANUAL SEAL" BUTTON WILL NOT FUNCTION.

9.2.15 Ensure all scrap is removed from the seal area of the machine, and that all guard doors are closed.

9.2.16 Place machine in "AUTO MODE" by depressing the "AUTO MODE" button. Start the machine by depressing the "CYCLE RESTART" button.

9.2.17 Cycle the machine by obstructing the beam of the photo eye. Observe the machine to ensure all operations are normal. Observe that the film advance belts should start running when the photoeye beam is blocked with the conveyor belts continuing to run. When the beam is opened the conveyors and the film advance belts should continue running for the duration of the trail timer. When the trail timer times out the conveyors and the film advance belts will stop. The seal jaws should close and remain closed for the duration of the dwell timer. When the dwell timer times out, the jaws will automatically open. The conveyors and the film advance belts should start when the seal arm jaws are fully opened. The film advance belts will run for the duration of the lead timer. When the lead timer times out the film advance belts will stop while the conveyor continues to run.

9.2.18 Test run a few products through the machine to fine tune the dwell, lead, and trail timers in order to achieve as tight a bag around the product as practical. This will aid in the shrink process. The size of the bag is dependent upon the infeed conveyor adjustment, the upper inverting head adjustment, the lead timer and the trail timer.

9.2.19 The Clamco 6600 Automatic L-Sealer is designed to immediately shut down should any faults occur. The operator interface is designed to indicate the reason for the fault and display a message to the operator to aid in the trouble shooting process. The possible faults which can occur are as follows:

"SEAL ARM JAM" - The machine has encountered an obstruction in the seal area.

"FILM ADVANCE JAM" - The machine has encountered an obstruction between the film advance belts.

"GUARD OPEN" - The lexan hood has been opened.

"GUARD DOOR OPEN" - The lexan door on the front of the cover has been opened. (N/A on S/N 66038 and succeeding)

"AUTO SHUT OFF" - The machine has been idling for a duration longer than the preset value entered by the operator.

Should any of these faults occur, locate the problem and correct it. The machine can be restarted by depressing the "CYCLE RESTART" button on the operator panel.

When in production, be sure to keep a minimum spacing of 4" between products. Random spacing is acceptable as long as there are no two products spaced closer than 4". The machine is not capable of separating products.

10.0 CHANGEOVER FOR VARIOUS PACKAGE SIZES

10.1 GENERAL:

Product changeover is a relatively simple process on the Clamco 6600 Automatic L-Sealer. The following procedures define the required steps to change the machine over.

10.2 FILM CHANGE OVER:

Break the existing web of film and run the film out of the machine. Remove the existing film roll off the cradle, either upper or lower. Place the, proper size, new roll of film on the cradle. Typical size calculation for products less than 3" high is: **HEIGHT(MIN=2") + WIDTH +4" = FILM WIDTH**. This is typical for centerfold film. For products exceeding 3" add approximately 1". Thread the film through the film cradle as shown in the film threading diagrams. (FIG 1 and Fig 2.) Feed the film over (under, if feeding from the upper cradle) the Adjusting Roller Assy. and into the inverting plate area. Thread the film through the inverting (Ref Section 9.2.14) plates and into the film advance belts.

10.3 WIDTH CHANGE:

The infeed conveyor can be moved in and out of the machine to accommodate for variable package widths. This is accomplished by reaching under the front edge of the infeed conveyor, near the middle, and pulling up the handle to release the gear rack assembly. The handle is spring loaded. With the handle pulled up the infeed conveyor can be moved in or out on a pair of linear bearings. The width capabilities of the Clamco 6600 Automatic L-Sealer are 2 1/2" - 17".

10.4 HEIGHT CHANGE:

The upper inverting plow (triangle) can be manually adjusted to allow for variable height packages. This is done by turning the upper inverting plow crank handle. This handle is located in either of two locations depending on whether the machine is equipped with an upper film cradle assembly. If the machine **does not have** an upper film cradle assembly, the crank handle is located at the rear left end of the infeed conveyor. It is mounted to the top of the adjusting acme threaded screw. If the handle is located in this position, turning the crank clockwise will raise the inverting plow, consequently, turning the crank counterclockwise will lower the plow. If the machine **does have** an upper film cradle the handle is located in the front, left end of the infeed conveyor assembly, mounted below the front guard. If the handle is located in this position, turning the crank clockwise will lower the inverting plow, consequently, turning the crank counterclockwise will raise the plow. The allowable height range for products is 1/4" - 6".

10.5 LENGTH CHANGE:

There are no adjustments required for length changes in the product. The product detect photoeyes pick up and start the seal cycle of the trailing edge off the product, regardless of the product length. The allowable range of product lengths is 3 1/2" - 21".

10.6 ELEVATOR CHANGES:

Ideally the seal bead should be located at or near the center of the package profile (height). This is accomplished by raising and/or lowering the elevator assembly. This assembly will in turn raise or lower the upper and lower jaw assemblies consequently changing the location of the seal in relationship to the conveyor table. Turning the crank handle **clockwise** will **lower** the assembly, conversely turning the crank handle **counter-clockwise** will **raise** the assembly.

10.7 TIMER CHANGES:

The three timers, Dwell Time, Trail Time, and Lead Time, on the machine may have to be adjusted to create the proper film envelope on the product. The Dwell Timer will be dependent on the type of film which is run. This timer will coincide with the temperature setpoints of the knives. The Trail Timer and Lead Timer are dependent on the package size to be run. Typically a large profile (height) package will require a longer Trail Time than a low profile package. These timers are also dependent on the shape of the package to be run. Trial and error and experience will prove to be most effective when setting these timers.

10.8 TEMPERATURE SETTINGS:

The temperature setpoints of the knives may have to be adjusted to compensate for the chosen film to be run. **Typical settings for film are 300-320 for PVC films and 350-390 for Polyolefin films.** Consult your film distributor and/or manufacture for recommended settings. The required temperature settings will also coincide with the Dwell Timer setting.