INSTRUCTION MANUAL

Model RIMM or TTM-BCCL

ROTARY RECIPROCATING SCREW INJECTION MOLDING PRESS

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INTRODUCTION

The IPC injection mold press is microprocessor controlled using a Barber-Colman MACO4000 controller. The Barber-Colman MACO4000 controller is compatable with the year 2000.

It is recommended that the production engineer read this manual and the two Barber-Colman manuals, and become familiar with the overall machine operation.

Any machine subjected to continuous production work may develop malfunctions. If the Trouble Shooting Section doesn't solve your problems, call our 800 number.

SOFTWARE

The IPC Software is preinstalled in this machine. It is also supplied on floppy disk, if it becomes necessary to reinstall. Note: Not all machines have the necessary serial board need to reinstall software.

MACHINE INSPECTION

After uncrating, visually inspect machine for possible shipping damages. If damage is found, notify your carrier immediately. The machine should be stored in a dry area of the plant until installation. A plastic tarp to cover is recommended.

MACHINE PLACEMENT AND LEVELING

The machine has mounting holes at the bottom of each leg. Anchor bolts or leveling devices may be used through the holes, if needed.

HYDRAULIC FLUID

Each machine has been thoroughly tested at the factory under actual operating conditions. However, prior to shipping, the hydraulic oil was drained.

The OIL FILLER CAP is located at the rear of the machine. Add approximately 30 gallons of MOBIL DTE 25 ANTI-WEAR HYDRAULIC OIL.

The dual function OIL GAUGE measures both oil level and oil temperature. It is located at the front lower left side of the machine. The oil temperature is also monitored by the controller. The pump must be primed before starting the motor.



POWER REQUIREMENTS

This machine can be connected to any of the following:

RIMM model needs 208v or 240v, 40 amp 3 phase service with ground.

TTM-BCCL model needs 208v or 240v, 40 amp 3 phase service with netural and ground.

480v, 20 amp 3 phase service with ground and optional 5 KVA transformer(s) (RIMM nees 2 and TMM-BCCL needs 1).

If optional transformers were not ordered with machine, then refer to diagrams in Section 8, for the proper wiring. Wiring should be performed by a qualified individual who is familiar with all local electrical codes for standard industrial installation.

ELECTRICAL INSTALLATION

Electrical installation should be performed by a qualified individual who is familiar with all local electrical codes for standard industrial installation.

INSTALLATION WITH TRANSFORMERS

If your machine has the optional 5 KVA transformer(s) (TTM-BCCL Model would have one transformer and the RIMM Model would have two.) and your 3 phase service is either 208v, 240v, or 480v:

- 1. Connect the 3 phase to the top of the disconnect.
- 2. For Model TMM-BCCL the primary of the transformers should be wired for 208 volts, 240 volts, or 480 volts, depending on your service. The secondary of the transformers should be wired for 240 volts with center tap connected to machine ground and to netural terminal in controller enclosure.
- 3. For Model RIMM the primary of the transformers should be wired for 208 volts, 240 volts, or 480 volts open delta, depending on your service. The secondary of the transformers should be wired for 240 volts open delta.

4. The motor controller setting should be adjusted to:22 amps for a 208v or 240v connection,11 amps for a 480v connection.

- 5. Connect ground to cabinet.
- 6. Follow the procedures on "Testing Electrical Installation"



ELECTRICAL INSTALLATION (continued)

INSTALLATION WITH 208V

If your machine does not have the 5KVA transformers option and your 3 phase service is 208 volts:



INSTALLATION WITH 240V

If your machine does not have the 5KVA transformers option and your 3 phase service is 240 volts:

- 1. Connect the 3 phase to the top of the disconnect.
- 2. The B Phase (Wild Phase) should be connected to the center terminal.
- 3. The motor controller setting should be adjusted to 22 amps.
- 4. Connect ground to ground terminal strip just left of Main Disconnect.
- 5. If Model TTM-BCCL connect netural to netural (larger) terminal strip just left of Main Disconnect
- 6. Follow the procedures on "Testing Electrical Installation" .

TESTING ELECTRICAL INSTALLATION

Start up:

When starting the machine for the first time, or when moving the machine to a new location, the following procedures should be followed:

- 1. Ensure all the circuit breakers are in the off position.
- Turn the main disconnect switch to the onposition.
- 3. The pump must be primed before the next step.
- Bump the motor around by pressing the _____ white contact pins on the motor starter and then releasing them. Use a flashlight to observe the rotation of the fan on the motor. It must rotate in a clockwise direction.



5. If the motor is rotating backwards, turn off power going to the machine and then reverse the outer two wires of the feed-in at the top of the three 40 amp fuses. And re-prime the pump. Turn on power. Repeat step 3 to observe proper operation of the motor.

Begin circuit breaker start-up:

1. The first breaker to turn on is PLC circuit breaker (secound from right). After turning it on, the neon light on the controller power supply board should be on.



HEAT EXCHANGER FOR OIL COOLING



The heat exchanger should be connected to a water cooling system if the oil temperature exceeds 120 degrees Fahrenheit. Refer to this section - Hydraulic Fluid for temperature gauge.

BARREL CYLINDER INSTALLATION

- 1) Position the BARREL CYLINDER on the TOP PLATE so that the CYLINDER SHAFT lines up with the threaded hole.
- Tighten the CYLINDER SHAFT onto the TOP PLATE with a 13/16 open end wrench. Make sure that the small 5/16" holes in the BARREL CYLINDER PLATE line up with the GUIDE RODS.
- 3) Now install and tighten the two 5/16 screws through the BARREL CYLINDER PLATE and into the end of the GUIDE RODS.



SHOT SIZE SENSOR INSTALLATION - MODEL RIMM LINEAR TRANSDUCER TYPE

1) Carefully unpack the SHOT SIZE SENSOR.



2) Attach the SHOT SIZE SENSOR ASSEMBLY to the BARREL CYLINDER PLATE, with two flathead 1/4-20 screws.



- 3. Attach the cable to the SHOT SIZE SENSOR connector. Make sure the cable is not in the way of the hoses.
- 4. Slide magnet into the bottom of the slot of the sensor. Note: The two round details on magnet need to be on the bottom.
- 5. Attach the rod to the lower bracket with a 10/32 screw.



SHOT SIZE SENSOR INSTALLATION - MODEL TTM-BCCL LINEAR POTENTIOMETER TYPE

1) Carefully unpack the SHOT SIZE SENSOR.

SHOT SIZE SENSOR



- 2) Attach the SHOT SIZE SENSOR to the BARREL CYLINDER PLATE, with two 10/32 screws and two washers.
- Attach the cable to the SHOT SIZE SENSOR connector. Make sure the cable is not in the way of the hoses.
- 4) Refer to Section 5 on how to adjust sensor.



WATER MANIFOLD WITH ROTATING UNION (OPTION)

DO NOT USE SOLID PIPE when installing water lines from molds to water ports. Only use FLEXIBLE HOSE. Do not install hose taut, and do not use any exterior bracing which would prevent the housing from moving.



Connect a water feed to the hose labeled FEED, and a water drain to the hose labeled DRAIN.

WARNING: Do not turn the water on until the water union is connected to the necessary device/s.

When disconnecting device from water union,

- 1) Turn off water.
- 2) Relieve pressure from water lines.
- 3) Blow out water lines. This is necessary to prevent water from leaking down into the table.
- 4) Disconnect water lines from device/s.

INSTALLATION OF POWER FOR MOLD HEATER CAROUSEL (OPTION)

The Mold Heater Carousel Disconnect cabinet is located on the right side of the upper frame.

- 1) Connect a 240 volt 30 amp 3 phase service to the three terminals inside the cabinet.
- 2) Connect ground to cabinet.



Section 2 - SYSTEM COMPONENTS

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MACHINE COMPONENTS



MAIN POWER CONTROL

The machine's power source is controlled by the MAIN POWER ON/OFF LEVER located on the main control box at the rear of machine. Turning off by this level will not allow the current parameter changes to be saved. Refer to section 4, "Shut-Down Procedure".



POWERUP

As delivered, the controller will powerup displaying a screen similar to Figure 1.

ILLINOIS PRECISION CORPORATIO	М
USING	
BARBER-COLMAN A SIEBE COMPANY ROCKFORD, IL. USA MACO4000 MACHINE CONTROL PRODUCT RECIPE SELECTED MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM	
	MA IN MENU

Figure 1.0 Powerup (User Screen Set)

SECURITY

On powerup, security is at the default level (Level 1). Security levels are established when programming screens.

The setpoint entry area for the security code is located on the Powerup screen, the Main Menu screen or the System Control screen. If it is necessary to change the security level, go to one of those screens, use the arrow keys to select the security setpoint entry area, and type in the code for the security level desired. Observe the lower right of the screen. An asterisk will appear for each character entered. Use the plus/minus key for any dashes contained in the security code. Pressing Enter will cause the security to change to the level indicated.

Level 1 is the lowest security level. Operating at Level 1 allows the least access to the controller. Level 5 is the highest user security level. Operating at Level 5 allows the most access to the controller.

Only screens with a security level equal to or less than the operating security level will be accessible.

If operating at Security Level 1, only Security Level 1 screens (or Paths) appear. If operating at Security Level 2, only Security Level 1 & 2 screens (or Paths) appear. If operating at Security Level 3, only Security Level i, 2 & 3 screens (or Paths) appear. If operating at Security Level 4 or 5, Security Level i, 2, 3 & 4 screens (or Paths) appear.

Note that once a screen is displayed, only those setpoints can be changed which have an assigned security level less than or equal to the operating security level.

THE DISPLAY

MOVING THROUGH THE SCREENS

Screens are divided into two major groups - system screens and user screens.

System screens contain information relating to general system operation and troubleshooting. From any system screen, the Screen Up or Screen Down key can be used to step through the continuous loop of all system screens. Keep in mind that security level affects which system screens appear (at Security Level 4 all system screens appear). The Page Sack key can be used to return to the user screen set.

User screens contain information relating to specific functions and applications. From any user screen, the Screen Up or Screen Down key can be used to step through the continuous loop of all user screens. The security level affects which user screens and paths appear (at Security Level 4 all user screens appear). The screen paths are also setup in a menu order. On each user screen there is a path key labeled MAIN MENU. Also one of the Machine Keys is programmed to bring up the Main Menu.

SOFT KEYS

The Soft keys are a group of 6 keys located directly beneath the display. They are the first 6 keys from the right (all of which are the same size) and each may have a video label appearing above.



If a key does have a video label appearing above it, the label could be either a "path" to another screen or a "special function." Pressing a path key will cause the screen identified by that path to appear on the display. Pressing a special function key will cause the action to occur which is described by the label.

There are three different "pages" of video labels for the soft keys. The first two pages are for paths within the user screen set. The third layer is for paths into the system screen set.

A screen will always first appear with Page 1 paths (if there are any) showing. Pressing the "Page" key (the slightly larger key to the left of the soft keys) once will cause the Page 2 soft keys (if there are any) to appear. Pressing the Page key a second time will cause the Page 3 soft keys - which contain the system paths (if there are any) to appear.

Note that Page 3 Soft keys are the only means of accessing the system screen set. Paths from one screen set to the other cannot be programmed.

Note that the security level will affect which soft keys of each page will appear. For instance, if the controller is operating at security level 2, the ONLY soft keys which will appear will be paths to screens with Level 1 or Level 2 security. The security level of a screen (AS WELL AS its path) is determined by the SCREEN.

SCREEN KEYS

Screen keys are a vertical group of four keys located to the left of the arrow keys.

Screen Up; Screen Down

These two keys are used to move through the continuous loop of all system screens or all user screens. Pressing the Screen Up key once will increment (i.e., Screen 1 to Screen 2) the display to the next screen in the loop for which there is adequate security. Pressing the Screen Down key once will decrement (i.e., Screen 9 to Screen 8) the display to the next screen in the loop for which there is adequate security.

Previous Screen

The Previous Screen key is used to toggle to the previous USER SCREEN. This key is especially useful when it is necessary to examine or compare two screens which do not have a path directly to one another. If the Previous Screen key is pressed while a system screen is on the display, the LAST USER SCREEN to have been displayed will appear.

Note that the Previous Screen key or the machine key "MAIN MENU" command are the only means of returning from the system screen set to the user screen set. Paths from one screen set to the other cannot be programmed.

Print Screen

The Print Screen key is meant to be used as a "screen dump" key. If a printer is attached and enabled, pressing the Print Screen key will cause the screen to be printed. Note that the controller must be equipped with the printer option.

CURSOR KEYS

When a screen is first accessed, touching any of the Cursor keys causes the upper most left setpoint or switch area to begin flashing. This flashing reverse video area acts as a cursor. The Cursor keys are used to move the cursor from one reverse video area to another. If the screen is accessed a second time, the cursor will appear in the same area it occupied when the screen was exited.

Pressing the Right Cursor key will cause the cursor to move left to right, top to bottom, across the screen. Once the cursor reaches the bottom most right setpoint or switch area, it will advance to the upper most left setpoint or switch area.

Pressing the Left Cursor key will cause the cursor to move right to left, bottom to top across the screen. Once the cursor reaches the upper most left setpoint or switch area, it will remain at the upper most left setpoint or switch area.

Pressing the Up Cursor key will cause the cursor to move bottom to top and then to the left most setpoint or switch area at the top of the screen. The cursor will then remain at the upper most left setpoint or switch area.

Pressing the Down Cursor key will cause the cursor to move top to bottom and then to the right most setpoint or switch area at the bottom of the screen. Once the cursor reaches the bottom most right setpoint or switch area, it will advance to the upper left most setpoint or switch area and continue.

Line Graph Cursor Select Key

When on a line graph screen, pressing this key will cause a small "key" graphic to appear in the lower left corner of the screen, signifying that the line graph cursor has been selected. With the line graph cursor selected, the cursor keys can be used to move the line graph cursor up and down (or right and left).

THE KEYPAD

The telephone style keypad located on the right side of the flatpanel is used for entering setpoints.

Use the cursor keys to move the cursor to the chosen setpoint area. Then use the keypad to enter the number.

Entering a number is similar to using a calculator. Once any of the number keys is pressed, a reverse video setpoint entry area will appear at the lower right corner of the display. The setpoint entry area will show the proper field size as well as the number of decimal places.

Numbers will enter from the right and advance to the left as other number keys are pressed. Once the field is filled, the numbers will stop advancing. Pressing additional keys will have no effect.

Pressing the backspace key will delete the digits one at a time beginning with the last digit entered.

Pressing the backspace key before any of the number keys causes the numbers displayed in the chosen setpoint to also be displayed in the setpoint entry area. This area acts as a buffer for multiple entry of an identical setpoint.

The plus/minus key is used for bipolar setpoints. Once a significant digit has been pressed, the plus/minus key can be used to toggle the minus sign on or off. Note that a plus sign is implied for positive numbers. If no sign appears next to a number, it is a positive number. If a particular setpoint has been defined as unipolar, the plus/minus key will not function with that setpoint. Once the correct number is on display in the setpoint entry area, press the enter key to move the number to the chosen setpoint area. Once the number is in the setpoint area, it can be used by the system. Remember to Save changes.

MACHINE FUNCTION KEYS

The display is equipped with 24 programmed machine function keys which are defined to act as momentary, on/off, toggle or selector switches.

Each of the 24 switches has an associated LED.



Lite Operator Station Machine Keys

The following is a list of the Machine Keys:

Кеу	Description	Needed Condition
Alarm Reset	Turns off the Alarm Light, for most errors.	
Cont. Cycle	Machine will not stop molding cycle.	
Cycle Start	Activates the molding cycle. When pressed, will start	Run for molding.
	the table to turn to next position. If position enabled to	Standby for table movement.
	mold, will mold.	
Cycle Stop	Deactivates machine cycle.	
Eject Extend	Will cause part the be knocked out of mold.	Manual Mode must be on.
Eject Retract	Will cause the eject to be retracted. Table will not turn	Manual Mode must be on.
	if not fully down.	
Heat	Toggles the barrel heaters on or off. Toggling off will	
	also will reset high temperature alarm.	

Кеу	Description	Needed Condition
Home Table	Will Home the table. Table will turn CW slowly until	Standby must be on.
(RIMM Model)	position one is under the barrel and then will stop.	
Home Table	Will cause 'Home Table' Screen to appear	Standby must be on.
(BCCL Model)		
Jog Forward	With this on, pressing Cycle Start will cause the table	
	to turn CW slowly. When released the table will stop.	
Jog Reverse	With this on, pressing Cycle Start will cause the table	
	to turn CCW slowly. When released the table will	
	stop.	
MAIN MENU	The Main Menu screen will be displayed when	
	pressed.	
Manual Mode	Enables Manual functions (KO, Trim & Screw), Table	
	rotating during Standby and Purging during purging	
Matan Otan	Cycle.	
Motor Stop	VVIII turn off hydraulic motor.	
Offset Table	Pressing will cause the table to turn 45 degrees CW.	Standby Mode must be on.
Purge Mode	When on with Standby on, pressing Cycle Start button	Standby Mode must be on.
	will cause injection to occur. When released, injection	
	will stop and screw cycle will start.	
Run Mode	Switching to Run Mode will allow molding, trimmer, or	Single Cycle or Cont. Cycle
	knockout to take place.	must also be selected.
Single Cycle	Machine will stop after each molding cycle.	
Standby Mode	Switching to Standby will place the molding cycle,	
	trimmer, and knockout feature on temporary hold. The	
	table will rotate normally, but will not allow molding,	
	trimmer, or knockout to take place.	
Table Ready	Indicates that the table drive is ready. Pressing will	Hydraulic motor must be on.
	also reset table drive.	
Safety Ready	Indicates that the safety devices are ready.	Light curtain light green.
		Yellow flag not tripped.
		I able door shut.

INSTA-SET PORT

The Insta-Set port is meant to hold a 32K byte by 8 bit memory cartridge. The cartridge can be used to store logic programming, screens or recipes.

OPERATOR CONTROLS

The operating controls are grouped in a separate cabinet. (See figure below).



HYDRAULIC CONTROLS

The hydraulic valves and gauges are grouped on the right side of the machine. Each machine is shipped with hydraulic settings calibrated for a "typical" operation. Adjustment is normally not necessary. (Figure shows side panel open)



back of each gauge should only be opened when making adjustments or troubleshooting. This will help extend the life of the gauges.

LOCATION OF HEAT EXCHANGER



The Heat exchanger is located at the rear of the hydraulic power unit.

LOCATION OF OIL FILTERS

The spin-off OIL FILTER is located on the left side, as seen from front, of the machine. The pressure filter is in the rear on the left side, as seen from the rear of the machine...



ROTARY MOLD TABLE

The ROTARY MOLD TABLE is divided into four areas or positions, referred to as TABLE POSITIONS, where one or more molds may be mounted. These TABLE POSITIONS are fixed and rotate as the table rotates (normally in a clockwise direction). Each TABLE POSITION has pre drilled holes for mold mounting and mold knockout pins. In addition there are four PURGE BLOCK POSITIONS. Normally only one purge block will be mounted, but more could be used.



MACHINE POSITION vs. TABLE POSITION

An important difference must be made between TABLE POSITION as defined above and MACHINE POSITION, which refers to the *location of equipment on the machine or location of the rotating mold* when the operator is standing directly in front of the machine.



TEMPERATURE CONTROLLERS

The barrel is divided into three zones, top, middle and bottom. The settings and process value can be seen on a screen called Temperature Controllers (Soft key "Temp. Cont.").

MAIN MENU

	MAI	n mei	10		
PRODUCT RE	ECIPE SELECTE	:D Immmmmm m	ммммммммм	MMMMMMMMM	
ENTER SEC	CURITY CODE:	+S SAV	E SETPOINTS	RESTORE	SETPOINTS

Name	Туре	Effect	Refer	Notes
MAIN MENU	Heading	None		
Security Code	Value			Current security level in affect
Save Setpoints	Button	Save setting		Saves Current Setpoints
Restore Setpoints	Button	Restores		Removes all setpoint changes since last save
		settings		setpoint.
Molding Settings	Button	Other Frame		Timers, Pressures, Speed. Shot Size, etc
Molding Positions	Button	Other Screen		1 through 12 table positions of molds
Machine Functions	Button	Other Screen		Setting, Enable & Manual of KO, Trim, etc
Machine Control	Button	Other Screen		Same as 24 buttons below screen
Temperature Monitor	Button	Other Screen		Process, Watchdog, Tuning, Calibration, etc
Line Graphs	Button	Other Screen		

SCREW ENCODER - MODEL RIMM

The Screw Encoder is mounted to the top screw motor plate at the rear of the machine. This encoder is used to control the screw rotational speed.



SHOT SIZE SENSOR

The shot size sensor is mounted to the top of the guide rods on the rear of the machine.

It also is used for close loop control of injection speed.



TTM-BCCL MODEL

PRESSURE TRANSDUCERS

The pressure transducer is mounted on the left side of the machine on the INJECTION CYLINDER.

It is used for close loop control of injection pressure.



SPRUE TRIMMER

The Sprue trimmer uses an air cylinder with a tool steel blade to remove plastic residue left at the top of the mold fill hole.



Actual location of Sprue Trimmer may vary.

WATER MANIFOLD WITH ROTATING UNION (OPTION)

The WATER MANIFOLD located in the center of the table allows for proper mold cooling. Do not use any exterior bracing which would prevent the housing from rotating.



MOLD HEATING CARROUSEL (OPTION)

The Mold Heating Carrousel can independently heat and control up to six molds, depending on the chosen option. Each mold has it's own power ON/OFF control switch. Depending on the chosen option, each mold could have one or two temperature controllers.



Note: The light just below the switch and the output LED on the Temperature Controller should be on together and off together. If they are not, refer to the troubleshooting section.

Section 3 - SET-UP PROCEDURES

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QUICK START

Operation Desired	Need Condition
Operation Desired	
Clear Error	Press Clear Error - Will not clear all errors
Cont. Cycle	Cont. Cycle on and Run Mode on then Cycle Start
Ejector Extend	Manual Mode on then Ejector Extend
Ejector Retract	Manual Mode on then Ejector Retract
Heat	Press Heat - Light on
Home Table -RIMM MODEL	Standby Mode on then Home Table
Home Table -TTM-BCCL MODEL	Standby Mode on position table, Home button then Home
	Table
Jog Forward or Jog Reverse	Standby Mode on then Jog and then Cycle Start
Offset Table	Standby Mode on then Offset Table
Purge	Offset for purge block, Purge Mode on, Cycle Start
Rotate table without molding	Standby Mode then Cycle Start
Run Cycle - Cont.	Cont. Cycle on and Run Mode on then Cycle Start
Run Cycle - Single	Single Cycle on and Run Mode on then Cycle Start
Single Cycle	Single Cycle on and Run Mode on then Cycle Start

HOW TO SET-UP MACHINE WITH A NEW MOLD

It is beyond the scope of this manual to teach process control, but the following steps may help get you started.

- 1. Put machine into standby.
- 2. Choose a table position. Mount mold to table using 10/32 X 7/8" flathead screw (For 3/8 thick table use 10/32 X 5/8").
- 3. Turn on the heat. Allow heat to rise to the proper temperature.
- 4. Set injection speed, all steps to maximum.
- 5. Purge out one shot.
- 6. If injection cylinder rods fail to reach bottom of stroke, increase pressure of all steps
- 7. Compare purge with volume of mold cavity. If cavity looks smaller, set shot size smaller. If cavity looks bigger, set shot size larger. It is better to have a smaller shot size and slowly increase shot size. Then repeat purge.
- 8. Adjust overall timer to 10.0 sec. This setting could be changed later.
- 9. Select the mold position on the "Molding Positions" screen.
- 10. Turn selector switch to Run.
- 11. The following steps depend on whether or not the mold can be injected into without the production part in place. If it can't then proceed to WITH A PART
- 12. With mold empty, start the cycle so the mold will rotate under nozzle. The machine should go through a molding cycle.
- 13. Notice the movement of the injection cylinder rods, they should come to a full stop before the screw starts to turn. If this doesn't happen, increase the pack or hold timers
- 14. When the mold comes out in front of machine, stop cycle.
- 15. Open mold and determine how well the cavity filled. Bear in mind that if the mold takes an insert, this part will reduce the amount of material needed to fill the cavity.
- 16. If injection cylinder rods fail to reach within 1/4 inch of bottom increase pressure.
- 17. If short shot, increase shot size and try again. It is best to maintain some cushion.
- 18. If too much flash, decrease shot size and try again.
 - The whole purpose is to fill the cavity well enough but not completely, but to leave room for the production insert. Once this is done the production insert can be used. Now you can fine tune the settings to fill out the cavity.

WITH A PART

- 1. Insert a part into the mold.
- 2. Start the cycle so the mold will rotate under nozzle. The machine should go through a molding cycle.
- 3. Notice the movement of the injection cylinder rods, they should come to a full stop before the screw starts to turn. If this doesn't happen, increase the pack or hold timers
- 4. When the mold comes out in front of machine, stop cycle.
- 5. Open mold and determine how well the part filled.
- 6. If injection cylinder rods fail to reach within 1/4 inch of bottom increase pressure.
- 7. If short shot, increase shot size and try again. It is best to maintain some shot size cushion.
- 8. If too much flash, decrease shot size and return to step 1.

HOW TO SET CLOCK

1.	From Main Menu press Pag	ge Key until the these soft key labels appear.
	51	INTERN SYSTEM SYSTEM PRODUCT EDIT CLOCK
	<u> U</u>	NTROL HUNITOR HESSHGES RECIPE IIILE
2.	Press the Soft Key below the	ne label "Clock".
3.	This will bring up another screen with the caption of "REAL TIME CLOCK".	REAL-TIME CLOCK HOURS 16 MINUTES 40 DAY: 500 SECONDS 00 1 = Sunday DATE 4 3 = Tuesday MONTH 2 FEBRUARY 4 Wednesday YEAR 1998 5 = Thursday
4.	Using the Cursor Keys, select RUN/SET. (Selection will blink)	WEEKDAY 5 WEDNESDAY 6 = Friday 7 = Saturday RUN/SET 0 (RUN=0, SET=1)
5.	Press 1 (SET) and then press the Enter Key.	SYSTEM SYSTEM SYSTEM PRODUCT EDIT CLOCK Control Monitor Messages Recipe Title

- 6. Using the Cursor Keys select the date or time setting you wish to change.
- 7. Press the desired Numeric Keys.
- 8. Then press the Enter Key.
- 9. Then reset RUN/SET to 0 (RUN).

The Barber-Colman MACO4000 controller is compatible with the year 2000.

HOW TO SET CONTINUOUS CYCLE



Press the machine control button labeled "CONT. CYCLE". The light should stay on.

RIMM I & II Machine Keys

HOW TO CLEAR COUNTER



OR

1. From Main Menu press Page Key until the these soft key labels appear.

MOLDING	MOLDING	MACHINE	MACHINE	TEMP	LINE
nouring	nouvina		Internet	12111	
SETTINGS	POSITIONS	I FUNCTIONS	L CONTROL	II MONITOR I	i Graphs i
- Odi i i i i i i i i i i i i i i i i i i	1001110110	renerrene	eenned	nonrion	

L

2. From the Main Menu press the Soft Key below label "MOLDING POSITIONS"

3.	This will bring up another screen with the caption of	MOLDING POSITIONS
4.	Using the Cursor Keys, select CLEAR COUNTER.	1 2 3 4 ENABLED DISABLED ENABLED DISABLED
5.	Then press the Enter Key.	
	(K-)	CYCLE COUNTER 803 PRODUCTION COUNTER 0 CLEAR COUNTER
		SPC POSITIONS MAIN MENU

HOW TO ADJUST CYCLE TIMERS



1. From Main Menu press Page Key until the these soft key labels appear.

MOLDING

MOLDING

- 2. Press the Soft Key below the label "MOLE SETTINGS".
- 3. This will bring up another screen with the caption of "MOLDING SETTINGS".

SETTI	NGS	POS	ITIONS	FUNCTI	ons	CONTI	ROL	Mon	ITOR	GI GI	RAPHS
<u>م</u>											
				MOLD	ING	SET	TING	S			SC3
o vith	MODE TIME POSI	ANSFER (3) TION(2)	CONTROL		UN, RE:	CYCLE TIN ERALL /LOAD START	MERS +SSS . +SSS . +S .	SS SS SS	SHOT CONT SHOTSIZE CUSHION CORRECTION	ROL +SS. +SS. +VV.	SSS SSS VVV
	HYDR	(0)	±SSSS						RECOVERY R		200
	1 SEG 1 2 3 4 5 6 7 8 9 9 10	JECT ION POSITI +SS .SS +SS .SS +SS .SS +SS .SS +SS .SS +SS .SS +SS .SS +SS .SS +SS .SS	I PRUPILLE ON PRESSUI S S S S S S S S S S S S	RE SPEED *55.555 +55.555 +55.555 +55.555 +55.555 +55.555 +55.555 +55.555 +55.555 +55.555 +55.555	PR SO PAC PAC PI EI SI HI	PACK CON ESSURE AK TIME CK TIME HOLD CON RESSURE ND PRESS DAK TIME DLD TIME	TROL	<u> </u>	- RECOUCERY SEG POSIT 1 +5S.S 2 +SS.S 3 +SS.S 4 +SS.S 5 +SS.S 6 +SS.S 6 +SS.S 6 +SS.S 8 +SS.S 9 +SS.S 10	PROFI ION PR SS +S SS +S	E 255 255 255 255 255 255 255 255 255 255
			SELECT 4 POSITIO	MOLDING N POSITION	1 POS	DING	MOLDING	MO 3 POS	LDING ITION 4	Ma in Menu	

MACHINE || MACHINE || TEMP

LINE

4. Using the Cursor Keys select the timer to be adjusted.



- 5. Press the desired Numeric Keys.
- 6. Then press the Enter Key. \square

HOW TO ADJUST EJECTOR STROKE ADJUSTMENT

Two adjacent Ejector Pins automatically or manually eject molded parts. The two Ejector pins are located beneath the table at front of the machine. They should be adjusted to move upward to a correct height through two Ejector Holes at each position around the periphery of the table. This motion will push the mold Ejector Plate upward, thus ejecting the part.

UPPER

LOWER

FRONT OF MACHINE UNDER TABLE 1X III

- KNOCKOUT PINS

WRONG

TOP CROSS-SECTIONAL VIEW FOR PROPER SENSOR POSITION

The procedure to adjust the Ejector follows:

Early Design

- 1. Start with upper sensor in a lower position.
- 2. Manually extend the ejector.
- 3. Notice the height the ejector travels
- 4. If not high enough move sensor higher on tie rod.
- 5. Repeat steps 2 through 4 until the ejector stops where you need it to. Note: The maximum stroke of ejector on a 5/8 inch thick table is 3/4 inches.

Current Design





- 1. Start with sensor ring approximately 1/2 inch lower than the sensor.
- 2. Manually extend the ejector.
- 3. Notice the height the ejector travels
- 4. If not high enough move sensor ring lower on rod.
- **5.** Repeat steps 2 through 4 until the ejector stops where you need it to. Note: The maximum stroke of ejector is approximately 1.25 inches above table.

HOW TO ADJUST EJECTOR TIMERS



1. From Main Menu press Page Key until the these soft key labels appear.

MOLDING	MOLDING	MACHINE	MACHINE	TEMP	LINE
SETTINGS	POSITIONS	FUNCTIONS	CONTROL	MONITOR	GRAPHS

2. Press the Soft Key below the label "MACHINE FUNCTIONS".

3.	This will bring up another screen with the caption of "MACHINE	MACHINE FUNCTIONS TABLE TABLE LIFT ENABLED TABLE LIFT ENABLED YES CONTROL YES OFF UP DOWN YES
	FUNCTIONS".	CLAMP CLAMP ENABLED YES MANUAL OFF ENGAGE DISENGAGE YES CLAMP ENABLED YES MANUAL OFF HIGH LOW INJECTION ENABLED YES MANUAL OFF ENABLED OFF ENABLED INJECTION ENABLED YES MANUAL OFF ENABLED INJECTION ENABLED YES MANUAL OFF ENABLED INJECTION
		RECOVERY TRIMMER EMABLED YES MANUAL ENABLED OFF ENABLED OFF OFF OFF OFF
		MACHINE OVERRIDE/ SYSTEM TESTING MAIN SETTINGS ERROR TIMERS
4.	Key below the label "MACHINE SETTINGS"	

5. This will bring up another screen with the caption of "MACHINE SETTINGS".

~		
6.	Using the Cursor Keys, select the ejector timer you wish to change.	MACHINE SETTINGS TABLE SPEED TABLE LIFT TIMERS HIGH UP BACKUP 1.00 1.00 DOWN BACKUP 1.00 1.00 1.00 LOW ENABLED START 0.10 0.10
		CLAMP TIMERS — PUMP TIMER — INJECTION TIMER —
7.	Press the desired numbers and then press the Enter Key.	ENGAGE BACKUP 1.00 1.00 I.00 I.00
		MACHINE OVERRIDE/ SYSTEM TESTING MAIN

HOW TO ENABLE MACHINE FUNCTIONS



1. From Main Menu press Page Key until the these soft key labels appear.

MOLDING MOLDING MACHINE MACHINE TEMP LIME SETTINGS POSITIONS FUNCTIONS CONTROL MONITOR GRAPHS

2. Press the Soft Key below the label "MACHINE FUNCTIONS".



4. Using the Cursor Keys select the functions that needs to be enabled.



6. Repeat step 3 and 4 until all functions that are needed are enabled.



HOW TO ADJUST HOLD CONTROL



1. From Main Menu press Page Key until the these soft key labels appear.

MOLDING	MOLDING	MACHINE	MACHINE	TEMP	LINE
SETTINGS	POSITIONS	FUNCTIONS	CONTROL	MONITOR	GRAPHS

2. Press the Soft Key below the label "MACHINE SETTINGS".

3	This will bring up	MOLDING SETTINGS SC3
0.	another screen with the caption of "MOLDING SETTINGS".	TRANSFER CONTROL CYCLE TIMERS SHOT CONTROL MODE ±S OUERALL *SSS.SS TIME(3) *SSS.SS UN/LOAD *SSS.SS POSITION(2) ±SSS ESS CORECTION HYDR(0) ±SSSS ESS RESTART ±S.SS RECOVERY RPM 200
		Injection Profile Recovery Profile SEG POSITION PRESSURE SPEED +SS.SSS +SS.SSS 1 +SS.SSS +SS.SSS +SS.SSS 2 +SS.SSS +SS.SSS +SS.SSS 3 +SS.SSS +SS.SSS +SS.SSS 4 +SS.SSS +SS.SSS PRESSURE +SSSS 5 +SS.SSS +SS.SSS PACK TIME +SSS.SS 6 +SS.SSS +SS.SSS +SS.SSS +SS.SSS 7 +SS.SSS +SS.SSS +SS.SSS +SS.SSS 8 +SS.SSS +SS.SSS +SS.SSS +SS.SSS 9 +SS.SSS +SS.SSS SOAK TIME +SSSSS 9 +SS.SSS +SS.SSS SOAK TIME +SSSS 9 +SS.SSS +SS.SSS HOLD CONTROL 6 +SS.SSS 9 +SS.SSS +SS.SSS SOAK TIME +SSSSS 9 +SS.SSS +SS.SSS SOAK TIME +SSSS 10 +SS.SSS 10 +SSS
		SELECT MOLDING MOLDING MOLDING MOLDING MOLDING MAIN 4 POSITION POSITION 1 POSITION 2 POSITION 3 POSITION 4 MENU

4. Using the Cursor Keys select the Hold Control setting you wish to change.



5. Press the desired numbers and then press the Enter Key.

HOW TO HOME TABLE - RIMM MODEL

Note: The motor must be on. Make sure the molds are closed.



Note: If light curtain or flag is tripped it will cause the table to stop. Once the light curtain or flag is cleared you only have to press the "Home Table" button to continue the homing of the table.

As the table turns you may have to reach in and close the molds as they go pass. Then repress "Home Table".

HOW TO HOME TABLE - TTM-BCCL MODEL

Note: The motor must be on. Make sure the molds are closed.





HOW TO ADJUST HYDRAULIC VALVES

All valves have been readjusted at the factory and should not need to be adjusted. If they do, because of replacement, refer to the Maintenance Section for the appropriate valve you need to adjust.

HOW TO ADJUST INJECTION PROFILE



1. From Main Menu press Page Key until the these soft key labels appear.

			· · ·		
MOLDING	MOLDING	MACHINE	MACHINE	TEMP	LINE
11000011100	HOLD HIG				1 21112
SETTINGS	POSITIONS	FUNCTIONS	CONTROL	II MONITOR	GRAPHS
JOLITINGO	100111010	TONOTIONO	Common		dimino



HOW TO INSTALL MOLDS

Note: Table should already homed.

- 1. The figure on the right shows the Rotary Table layout clearance for mounting molds. Note the smaller mold mounting hole located between the two KNOCKOUT HOLES.
- 2. Motor on.
- 3. Press the 'Standby' key.
- 4. Press the Offset Mode key. The table will offset 45 degrees.
- 5. Open the door on the front of the table guard.
- Position the mold on the table with the hinge toward the center of the table. Fasten molds securely to the table with a 10/32 flathead screw going through the bottom of the table and into the mold.



TABLE DIMENSIONS AND CLEARANCE

- 7. Close door. The table will not turn when the door is open.
- 8. To install another mold rotate table using Cycle Start button (Should still be in Standby Mode) until next position is in front.
- 9. Repeat steps 4 through 7 until all need molds are intalled.
- **NOTE:** The total maximum weight on table is 600 pounds. The molds should also be spaced evenly on table. Depending on total weight it may be necessary to readjust the table tilt pressure.

HOW TO JOG TABLE



- 2. Then press and hold the Cycle Start Button.
- 3. If the table is move more than 90 degrees it is necessary to home.

WARNING: After using Jog and not homing could cause the table to make a move greater then 180 degrees.

HOW TO USE MANUAL MODE - EJECTOR

The Manual Mode key is used to enable the manually control the Ejector



HOW TO USE MANUAL MODE



1. From Main Menu press Page Key until the these soft key labels appear.

MOLDING	MOLDING	MACHINE	MACHINE	TEMP	LINE
1.0000 1.000	1.0000 1.000			1	
SETTINGS	POSITIONS	FUNCTIONS	CONTROL	MONITOR	GRAPHS
Jorringo	100111010	TONCTIONS	CONTROL		Gintino

2. Press the Soft Key below the label "MACHINE FUNCTIONS".

3. This will bring up another screen with the caption of "MACHINE FUNCTIONS".	MACHINE FUNCTIONS TABLE TABLE TABLE LIFT ENABLED YES MANUAL YES CONTROL YES MANUAL YES OFF UP DOWN YES MANUAL YES CLAMP PUMP ENABLED YES MANUAL PUMP OFF ENABLED MANUAL OFF OFF MANUAL OFF HIGH LOW OFF ENABLED YES MANUAL OFF MANUAL OFF MANUAL OFF MANUAL OFF ENABLED YES MANUAL OFF MANUAL OFF </th
4. Press the Manual Mode machine key. Light must be on.	MACHINE SETTING OVERRIDE/ ERROR SYSTEM TIMERS TESTING MAIN MENU Manual Eject Cycle Standby Run Purge
5. Using the Cursor Keys select the function (below the label	Mode Extend Start Mode Mode Mode Heat Single Eject Cycle Home Offset Jog Purge MAIN Cycle Retract Stop Table Offset Jog Purge MAIN Cont. Motor Safety Ready Ready Reverse Alarm Optima Operator Station Machine Keys Optima Cont Nachine Keys Nachine Keys
MANUAL) you wish to manually operate.	Manual Cycle Run Offset Safety Mode Start Mode Table Ready
 Press the Enter Key to turn on the function. 	Single Cycle Heat Cycle Stop Standby Mode Home Table Table Table Cont. Cycle Eject Extend Motor Stop Purge Mode Jog Forward MAIN MENU
NOTE: The manual function Injection and Recovery only enable power to the hydraulic valves. They don't supply an	Eject Retract Jog Reverse Alarm Reset Lite Operator Station Machine Keys

analog signal.

HOW TO ADJUST MOLDING CALIBRATION

Refer to Section 5 for information on how to adjust Molding Calibration.

HOW TO ENABLE MOLDING



1. From Main Menu press Page Key until the these soft key labels appear.

SETTINGS PUSITIONS FUNCTIONS CUNTRUL MUNITUR GRAPHS	MOLDING MOLDING MACHINE MACHINE TEMP	L INE OR GRAPHS
--	--------------------------------------	--------------------

2. Press the Soft Key below the label "MACHINE FUNCTIONS".



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- 4. Using the Cursor Keys select the functions that needs to be enabled.

- 5. Press the Enter Key to enable the function.
- 6. Repeat step 3 and 4 until all functions that are needed are enabled.

The following is a list of functions that need to be enabled to allow molding:

BARREL CLAMP PUMP INJECTION RECOVERY

HOW TO SET MOLDING POSITIONS



1. From Main Menu press Page Key until the these soft key labels appear.

MOLDING MOLDING MACH	INE MACHINE TEMP	L INE
SETTINGS POSITIONS FUNC	TIONS CONTROL MONITOR	GRAPHS

2. Press the Soft Key below the label "MOLDING POSITIONS".

 This will bring up another screen with the caption of "MOLDING— POSITIONS". 	- 1 ENABLED	MOLDING P 2 DISABLED	POSITION 3 Enabled	IS DISABLED
	ACTIVE			
		CYCLE COUNTER PRODUCTION COUNTER CLEAR COUNTER	803 0	
	SPC POSITION	s		MA IN Menu

4. Using the Cursor Keys to select the molding position.



5. Press the Enter Key to toggle the position to enable or disable.



HOW TO ADJUST MOLDING TIMERS (MISC.)

There are few molding timers, other than Overall, Pack and Hold, that can be adjusted. They are: Clamp Engage Backup, Inject On, Pressure, Recovery Rotate, Recovery Backup, Clamp Disengage Backup and Restart.



correctly. If backup timers are set to low this could cause unnecessary errors.

HOW TO OFFSET TABLE



HOW TO SET OVERRIDE SETTINGS

Refer to Section 9 for information on how to use Override Settings.

HOW TO ADJUST PACK CONTROL



1. From Main Menu press Page Key until the these soft key labels appear.

MOIDING	MOIDING	MACHINE	MACHINE	TEMP	TINE
HOLDING	norprug		Inciting		LINE
OFTTINCO		FUNCTIONS	CONTROL		CDADUS
	_ ruarruna	runciiuna	COULVOF	UOUITION	алнгнэ
		· · · · · ·	· · · · · · · · · · · · · · · · · · ·		

2. Press the Soft Key below the label "MOLDING SETTINGS".

		MOLDING SETTINGS	SC3
3.	This will bring up another screen with the caption of "MOLDING	TRANSFER CONTROL CYCLE TIMERS SHOT MODE 0 0 SHOTS SHOTS TIME (3) 1.00 10.00 SHOTS CUSERALL 10.00 POSITION(2) .500 SHOTS CUSERALL 10.00 CUSERAL HYDR (0) .500 SHOTS CUSERAL 1.00 SHOTS	CONTROL IZE .850 DN .200 CTION .000 ERY RPM 200
	SETTINGS".	SEG POSITION PRESSURE SPEED 1 .0000 1450 3.000 PACK CONTROL 1 1	OSITION PRESS
4.	Using the Cursor Keys select the PACK CONTROL setpoint to be	2 .000 2.000 PRESSURE 800 2 3 .000 2.000 SOAK TIME .50 3 4 .000 2.500 PACK TIME .50 3 5 .000 2.500 PACK TIME .50 5 6 .000 2.500 PACK TIME .50 7 7 .850 2.000 PRESSURE 500 7 8 .750 2.000 END PRESS 500 8 7 .500 .500 NOAK TIME 1.00 9 10 .500 10 10 10	1.150 50 2.500 50 2.000 50 1.500 50 1.250 50 1.000 50 .750 50 .500 50 .500 50
	aujusteu.	SELECT MOLDING MOLDING MOLDING MOLDING MOLDING 4 POSITION POSITION 1 POSITION 2 POSITION 3 POSITION	4 MAIN 4 MENU
5.	Press the desired Numeric Keys.		

6. Then press the Enter Key.

HOW TO POWER DOWN

- 1. Heat should be off.
- 2. Motor should be off
- 3. If any settings has been changed you should save setpoints (Main Menu).
- 4. Turn off Main Disconnect.

HOW TO USE PRODUCT RECIPES



1. From Main Menu press Page Key until the these soft key labels appear.

SYSTEM	SYSTEM	SYSTEM	PRODUCT	EDIT	CLOCK
Control	Mon I Tor	Messages	RECIPE	TITLE	

0 ACTIVE recipe:

з

4

)4

)5

INTERNAL recipes:

Amount remaining: +VVV

CARTRIDGE recipes: +VV

Amount remaining: +VVV

NEXT

INTERNAL

ммммммммммммммммммммммммммм

1 MMMMMMMMMMMMMMMMMMMMMMMMMMMMMM 12

+000

PRODUCT RECIPE TRANSFER

NEXT

INTERNAL CARTRIDGE CARTRIDGE

PREVIOUS

Size

Date

- 2. Press the Soft Key below the label "PRODUCT RECIPE".
- Once the "PRODUCT RECIPE" Screen is up, you can do any of the following:

Delete Recipe

To delete a recipe do the following:

- Using the cursor keys, move down to the number just below the label "Delete Recipe".
- 2. Enter the number of the recipe to delete.
- 3. Move up to the label "Delete Recipe".
- 4. Press Enter key.

Save MOLD SP's

To save molding setpoints do the following:

- 1. Using the cursor keys, move down to the number just below the label "Save MOLD SP's". and to the right of the label "from:".
- 2. Enter the number 0 (zero).
- 3. Move down to the label "to:"
- 4. Enter the number you want to give to the mold setpoints.
- 5. Move up to the label "Save MOLD SP's".
- 6. Press Enter key.

Save all SP's

To save all setpoints do the following:

- 1. Using the cursor keys, move down to the number just below the label "Save all SP's". and to the right of the label "from:".
- 2. Enter the number 0 (zero).
- 3. Move down to the label "to:"
- 4. Enter the number you want to give to the mold setpoints.
- 5. Move up to the label "Save all SP's".
- 6. Press Enter key.

POWERUP SP's

Save all SP's Copy INSTA-SET

From: +SSS To: +SSS

Save MOLD SP's Copy RECIPE

From: +SSS To: +SSS Size = MMM

Delete Recipe

B1k+VV Sb+VV

COPY

RECIPE

+SSS

Size =+VV

Time

PREVIOUS

Save SP's Restore SP's

Load Recipe MOLD SP's

To make a recipe active:

- 1. Using the cursor keys, move down to the number just below the label "Save MOLD SP's". and to the right of the label "from:".
- 2. Enter the number of the recipe you want to load.
- 3. Move down to the label "to:"
- 4. Enter the number 0 (zero).
- 5. Move up to the label "Save MOLD SP's".
- 6. Press Enter key.
- 7. Then move up to "Save SP's.
- 8. Press Enter key.

Load Recipe all SP's To make a recipe active:

- 1. Using the cursor keys, move down to the number just below the label "Save all SP's". and to the right of the label "from:".
- 2. Enter the number of the recipe you want to load.
- 3. Move down to the label "to:"
- 4. Enter the number 0 (zero).
- 5. Move up to the label "Save all SP's".
- 6. Press Enter key.
- 7. Then move up to "Save SP's.
- 8. Press Enter key.

HOW TO EDIT PRODUCT RECIPE TITLES

- 1. From the Main Menu press the Page Key until a button labeled '**Edit Titles**' appears on the bottom of the screen.
- 2. When the Edit Recipe Title screen is up, the Active Recipe displayed on the top left of the screen is the recipe that is currently in use by the controller. (If the recipe displayed is not the one in which you desire to make a change in the title, you will need to return to the screen labeled 'Product Recipe Transfer' and use the method listed under 'Load Recipe Mold Setpoints' as described on page 3-29 of the manual to select the recipe to change.)
- 3. When the recipe displayed in the '0 Active Recipe ' space is the desired one, return to the 'Edit Recipe Title ' screen.
- 4. To edit a recipe name, use the 'Left ' or 'Right ' key to locate the arrow under the first letter to be changed.
- 5. On the top right of the screen are four selections labeled, 'Scroll Up ', 'Up ', 'Scroll Down ', 'Down '; both of the 'Scroll' selections will cause the letter that has the arrow under it to automatically scroll through the alpha-numeric selections at a fast pace when the enter key is pressed; pressing the enter key a second time will stop the scroll. The Up, Down selections move through the alpha-numerics one character for each press of the enter key. (Up starts at the top left, or A and moves to the right; Down starts at the bottom right and moves left)
- 6. Select either Up or Down and press enter until the selected letter of the title changes to the desired character.
- 7. Repeat steps 4 and 6 until the title has been set to the desired name.
- 8. When all changes have been made correctly, scroll to the selection labled ' **Accept Changes** ' and, when it is flashing, press the enter key.
- 9. Return to the 'Product Recipe Transfer 'screen and verify that the recipe now has the new name.

HOW TO PURGE MATERIAL

Note: The machine should be purged several shots upon every start up to minimize the possibility of degraded material getting into the parts.



- 4. Repeat step 3 if necessary.
- 5. When done purging, press Standby Mode then Cycle Start to reset table.

HOW TO ADJUST RECOVERY PROFILE



1. From Main Menu press Page Key until the these soft key labels appear.

MOIDING	MOIDING	MACHINE	MACHINE	TEMP	TINE
HOLDING	norprug		Inciting		LINE
OFTTINCO		FUNCTIONS	CONTROL		CDADUS
	_ ruarruna	runciiuna	COULVOF	UOUITION	алнгнэ
		· · · · · ·	· · · · · · · · · · · · · · · · · · ·		

		MOLDING SETTINGS SC3
3.	This will bring up another screen with the caption of "MOLDING SETTINGS".	TRANSFER CONTROL CYCLE TIMERS SHOT CONTROL MODE 0
4.	Using the Cursor Keys select the Recovery Profile setpoint to be adjusted.	2 .000 2.000 PRESSURE 800 2 1.150 50 3 .000 2.000 SOAK TIME .50 3 2.500 50 4 .000 2.500 PACK TIME .50 3 2.500 50 5 .000 2.500 PACK TIME 2.50 4 2.000 50 6 .000 2.500 HOLD CONTROL 6 1.250 50 7 .850 2.000 PRESSURE 500 7 1.000 50 8 .750 2.000 PRESSURE 500 8 .750 50 9 .500 .500 B .750 50 50 10 .500 HOLD TIME 1.00 9 .500 50
		SELECT MOLDING MOLDING MOLDING MOLDING MAIN 4 POSITION POSITION 1 POSITION 2 POSITION 3 POSITION 4 MENU
5.	Press the desired Numeric Keys.	
6.	Then press the Enter Key.	

HOW TO ADJUST RECOVERY RPM SETTING - RIMM MODEL



1. From Main Menu press Page Key until the these soft key labels appear.

MOLDING MOLDING MACHINE MACHI	INE TEMP LINE
SETTINGS POSITIONS FUNCTIONS CONTR	ROL MONITOR GRAPHS

		MOLDING SETTINGS SC3
3.	This will bring up another screen with the caption of "MOLDING	TRANSFER CONTROL CYCLE TIMERS SHOT CONTROL MODE 0
	SETTINGS".	INJECTION PROFILE RECOVERY RPM 200 SEG POSITION PRESSURE SPEED RECOVERY PROFILE SEG POSITION PRESSURE SPEED 1 .000 1450 3.000 2 .000 1450 3.000 2 .000 150 .50
4.	Using the Cursor Keys select "RECOVERY RPM".	2 .000 2.000 2.000 2.130 30 3 .000 2.000 SDAK TIME .050 3 2.130 50 4 .000 2.500 PACK TIME 2.50 3 2.500 50 5 .000 2.500 PACK TIME 2.50 4 2.000 50 7 .850 2.000 PRESSURE 500 7 1.000 50 8 .750 2.000 END PRESS 500 8 .750 50 9 .500 .500 SDAK TIME 1.00 9 .500 50 10 .500 MOLD NUC MOLD NUC MOLD NUC MOLD NUC MOLD NUC MOLD NUC
		4 POSITION POSITION 1 POSITION 2 POSITION 3 POSITION 4 MENU
5.	Press the desired numbers and then press the Enter Key.	
	ĸ	

HOW TO ADJUST SHOT CONTROL



1. From Main Menu press Page Key until the these soft key labels appear.

MOIDING	MOIDING	MACHINE	MACHINE	TEMP	TINE
HOLDING	norprug		Inciting		LINE
OFTTINCO		FUNCTIONS	CONTROL		CDADUS
	_ ruarruna	runciiuna	COULVOF	UOUITION	алнгна
		· · · · · ·	· · · · · · · · · · · · · · · · · · ·		

		MOLDING SETTINGS SC3
3.	This will bring up another screen with the caption of "MOLDING	TRANSFER CONTROL CYCLE TIMERS SHOT CONTROL MODE 0 0UERALL 10.00 TIME(3) 1.00 10.00 SHOTS IZE .850 POSITION(2) .500 1.00 CUERAIL 0.000 HYDR(0) 500 1.00 RESTART 1.00 IN NECTION PROFILE DUERALL DUERALL DUERALL 0.000
	SETTINGS".	INJECTION PROFILE RECUVERY PROFILE SEG POSITION PRESSURE SPEED SEG POSITION PRESS 1 .0000 1450 3 .0000 1 .625 50 .2000
4.	Using the Cursor Keys select the Shot Control setpoint to be adjusted.	2 .000 2.000 PRESSURE 800 2 1.150 50 3 .000 2.000 SDAR TIME .50 3 2.500 50 4 .000 2.500 PACK TIME 2.50 3 2.500 50 5 .000 2.500 PACK TIME 2.50 5 1.500 50 6 .000 2.500 PACK TIME 500 5 1.500 50 7 850 2.000 PRESSURE 500 6 1.250 50 9 .500 2.000 END PRESS 500 8 .750 50 9 .500 .500 SOAK TIME 1.00 9 .500 50 10 .500 .500 HOLD TIME 1.00 10 50
		SELECT MOLDING MOLDING MOLDING MOLDING MOLDING MAIN 4 POSITION POSITION 1 POSITION 2 POSITION 3 POSITION 4 MENU
5.	Press the desired Numeric Keys.	
6.	Then press the Enter Key.	

HOW TO SET SINGLE CYCLE

Press the machine control button labeled "SINGLE CYCLE". The light should stay on.



Lite Operator Station Machine Keys

HOW TO ADJUST TABLE SPEED - RIMM MODEL NOTE: Changing the table speed will require the readjustment of the trimmer.



HOW TO ADJUST TABLE SPEED - TTM-BCCL ONLY

On the left side, from the front on machine, rear there is the table drive cabinet. On the front panel of this cabinet there is a speed control. Turning CCW will slow down the normal table speed (not jog) and turning CW will speed up the normal table speed. The table jog speed and table recovery speed are not adjustable. Note: The table recovery speed is the same as the jog speed.



HOW TO ADJUST TEMPERATURE SETTINGS - THERMO PLASTICS



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Note: The DEV- settings are used to release the heater interlock. When all process temperature are within the DEV- setting the machine will be able to mold.
HOW TO ADJUST TRANSFER CONTROL



1. From Main Menu press Page Key until the these soft key labels appear.

MOLDING	MOIDING	MACHINE	MACHINE	TEMP	LINE
Inorpuna	nornug	Inclume	Innonthe	112111	LINE
- OFTTINCO		FUNCTIONS	CONTROL		CDADUS
	Trostitions	runciiuna	CONTROL	UOUITON	GNHEHS

2. Press the Soft Key below the label "MOLDING SETTINGS".

		MOLDING SETTINGS SC3
3.	This will bring up another screen with the caption of "MOLDING SETTINGS".	TRANSFER CONTROL CYCLE TIMERS SHOT CONTROL MODE 0 UVERALL 10.00 TIME(3) 1.00 UVERALL 10.00 POSITION(2) .500 Invection .600 HYDR(0) 500 RESTART 1.00 INJECTION PROFILE RECOVERY RPM 200 SEG POSITION PRESSURE SPEED PACK CONTROL RECOVERY PROFILE 1 .000 14500 3.000 PACK CONTROL
4.	Using the Cursor Keys select the Recovery Profile setpoint to be adjusted.	2 .000 2.000 PRESSURE 800 2 1.150 50 3 .000 2.000 SDAK TIME .50 3 2.500 50 4 .000 2.500 PACK TIME 2.50 4 2.000 50 5 .000 2.500 FACK TIME 50 50 50 6 .000 2.500 FACK TIME 500 50 50 7 .850 2.000 PRESSURE 500 7 1.000 50 8 .750 2.000 END PRESS 500 8 .750 50 9 .500 .500 SOAK TIME 1.00 9 .500 50 10 .500 .500 SOAK TIME 1.00 10 50
		SELECT MOLDING MOLDING MOLDING MOLDING MAIN 4 POSITION POSITION 1 POSITION 2 POSITION 3 POSITION 4 MENU
5.	Press the desired Numeric Keys.	
6.	Then press the Enter Key.	

HOW TO ADJUST TRIMMER - RIMM ONLY

If the table speed is changed it is necessary to readjust the trimmer.

If increasing table speed you will have to move the trimmer out from frame.

If decreasing table speed you will have to move the trimmer all the way in before allowing the table to index. Then in small adjustments move the trimmer out until it starts to trimmer properly.

The angle of the trimmer is adjusted by:

- 1. Motor on.
- 2. Manual Mode on.
- 3. Manual Table Tilt on.
- 4. Table should turn by hand. Locate a mold under trimmer.
- 5. Loosen lower screws (2) in adjustment block.
- 6. Rotate trimmer so the bottom edge of trimmer guide is close to parallel to the top of the mold.

The height of the trimmer is adjusted by:

- 1. Motor on.
- 2. Manual Mode on.
- 3. Manual Table Tilt on.
- 4. Table should turn by hand. Locate a mold under trimmer.
- 5. Air off.
- 6. Loosen screws (3) in adjustment plate which is bolted to the frame.
- 7. Pull blade out fully but don't rotate.
- 8. Slide whole assembly up or down so blade doesn't touch top of mold and is lower than top of sprue bushing.

HOW TO ADJUST TRIMMER - TTM-BCCL ONLY

The angle of the trimmer is adjusted by:

- 1. Position a mold under the trimmer location.
- 2. Loosen lower screws (2) in adjustment block.
- 3. Adjust the angle of the trimmer to about 35 degrees in reference to the table.
- 4. Line up the center of the trimmer blade with the hole in the center of the sprue.

The height of the trimmer is adjusted by:

- 1. Air off.
- 2. Loosen screws (2) in adjustment block which vertical to each other.
- 3. Pull blade out to where it touches the sprue busing about 3/8 before the hole.
- 4. Tighten screws.
- 5. Pull blade further out. It should slide on the hole with tension against the spring.

HOW TO SET SPC POSITIONS (OPTION)



Section 4 - OPERATING PROCEDURES

Start-up Procedure	4-2
Material Purging	4-3
Running Procedure	4-3
Shut-Down Procedure	4-3

QUICK START

Need Operation	Need Condition
Clear Error	Press Clear Error - Will not clear all errors
Cont. Cycle	Cont. Cycle on and Run Mode on then Cycle Start
Ejector Extend	Manual Mode on then Ejector Extend
Ejector Retract	Manual Mode on then Ejector Retract
Heat	Press Heat - Light on
Home Table -RIMM MODEL	Standby Mode on then Home Table
Home Table -TTM-BCCL MODEL	Standby Mode on position table, Home button then Home
	Table
Jog Forward or Jog Reverse	Standby Mode on then Jog and then Cycle Start
Offset Table	Standby Mode on then Offset Table
Rotate table without molding	Standby Mode then Cycle Start
Run Cycle - Cont	Cont. Cycle on and Run Mode on then Cycle Start
Run Cycle - Single	Single Cycle on and Run Mode on then Cycle Start
Single Cycle	Single Cycle on and Run Mode on then Cycle Start

START-UP PROCEDURE

Assuming that all necessary settings have been made (Section 3), follow these steps to put the machine into an automatic production cycle:

Turn the main disconnect on.

At this point you are ready to begin operational start up.

Heat

- 1. Press the 'Heat' button.
- 2. Verify the light illuminates in the Heat button. Note: All zones must be within interlock settings (-DEV) to enable molding or purging.
- 3. When the temperatures are up within interlock settings, the Purge Mode Key light or Run Mode key light will stop blinking

Home Table - RIMM

- 1. Turn on Motor. (Hold for about 1 sec.)
- 2. Press Standby Mode key. Light should stay on.
- 3. Press Home Mode key.
- 4. The table will turn slowly clockwise until it finds position #1.

Home Table - TTM-BCCL

- 1. Turn on Motor.
- 2. Press Standby Mode key. Light should stay on.
- 3. Locate the position you want to be Home (Position 1) by pressing the Cycle Start Button.
- 4. Press Home Mode key for about 1 sec.
- 5. A HOME TABLE screen will be displayed.
- 6. Select and operate the HOME TABLE control button.
- 7. This will assign position number one to this table location.

MATERIAL PURGE

- Note: The machine should be purged several shots upon every start up to minimize the possibility of degraded material getting into the parts.
- 1. Position purge block under barrel (Standby moves and Offset Table).
- 2. Press Purge Mode key. When the heats are ready the purge light will stop blinking..
- 3. Press 'Cycle Start" button until the injection cylinders have bottomed out, then release.

RUNNING PROCEDURE

- 1. Once the machine has been purged, press the Run Mode key. Light on.
- 2. Select Cont. Cycle or Single Cycle. Light on.
- 3. Insert part properly into mold.
- 4. To begin cycling the table , press 'Cycle Start'.
- Note: If the machine is not up to heat or the table not homed, the table will not turn.
- 5. To stop cycle anytime press 'Cycle Stop'.

SHUT-DOWN PROCEDURE

To stop production do the following steps:

- 1. Turn off the heat. Refer to Section 2 OPERATING CONTROLS.
- 2. If material is of the type that could burn, it is best to purge out a quantity of material, in order to lower the material temperature. It could be necessary to use a purging compound.
- 3. Stop the pump by pressing the Motor Stop button. Refer to Section 2 OPERATING CONTROLS.
- 4. If any setting has been changed you should save setpoints (Main Menu).
- 5. Turn off the main disconnect . Refer to Section 2 OPERATING CONTROLS.

Section 5- MAINTENANCE PROCEDURES

Barrel

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BARREL

HOW TO ADJUST BARREL CYLINDER PRESSURE

Open the right side panel on the base of the machine to gain access to the necessary Hydraulic Controls. (Refer to the figure below.)

To adjust Barrel Pressure:



The valve on the back of each gauge should only be opened when making adjustments or troubleshooting. This will help extend the life of the gauges.

STUD

HOW TO ADJUST BARREL MICRO SWITCH

- 1. Verify that the barrel assembly is in the proper upper position and purge block is under barrel.
- 2. Turn off motor.
- Loosen the two screws of barrel down micro switch bracket.
- Position bracket so the micro switch is engaged by upper edge of chamber return housing
- 5. Heat On. Wait for heat stabilize.
- 6. Pump On.
- Manual Mode on. Refer to Section 3-18 (HOW TO USE MANUAL MODE).
- On Machine Functions screen, BARREL -MANUAL - RETRACT should be YES.
- Select BARREL -MANUAL -EXTEND. Refer to Section 3-18
 The YES should change from RETRACT to EXTEND.
- If you don't get these results, you'll have to readjust the barrel down micro switch until you do.





NOTE: Don't adjust barrel down micro switch to where it is "on the ragged edge" of tripping, as this could cause problems when the screw is recovering.

RIMM/TTM-BCCL

HOW TO INSTALL BARREL CYLINDER

Refer to Section 1, BARREL CYLINDER INSTALLATION.

HOW TO REMOVE BARREL CYLINDER

- 1. Remove the two 5/16 screws that attach the BARREL CYLINDER PLATE to the end of the GUIDE RODS.
- 2. Loosen completely the CYLINDER SHAFT from the TOP PLATE with a 13/16 open end wrench.
- 3. Remove the BARREL CYLINDER from the TOP PLATE.



HOW TO OPEN CONTROL CABINET DOOR WITHOUT TURNING OFF POWER

WARNING: HIGH VOLTAGE PRESENT. DO NOT TOUCH ANY BARE ELECTRICAL CONNECTION.

If you need to open the control cabinet door without turning off power, do the following:

- 1. You need to brake out the thin plastic in the mouse hole shape hole, if it, is not already done. Unlatch the cabinet door. (2 latches)
- 2. Insert small screwdriver into hole at an inward angle.
- 3. Press back on handle of screwdriver.
- 4. Open door.
- WARNING: HIGH VOLTAGE PRESENT. DO NOT TOUCH ANY BARE ELECTRICAL CONNECTION.



CLAMP

HOW TO ADJUST CLAMP PRESSURE

Open the right side panel on the base of the machine to gain access to the necessary Hydraulic Controls.

To Adjust Clamp Pressure:

On the clamp reducing valve, loosen the JAM NUT and adjust the STUD to the desired pressure.





2. Tighten the JAM NUT.

The valve on the back of each gauge should only be opened when making adjustments or troubleshooting. This will help extend the life of the gauges.

RIMM/TTM-BCCL

Maintenance Procedures 5-6

HOW TO ADJUST THE CLAMP MICRO SWITCHES

CLAMP ENGAGED MICRO SWITCH



CLAMP OVER-TRAVEL MICRO SWITCH (RIMM MODEL ONLY)

- 1. Position table so there isn't a mold under the barrel.
- 2. Turn off Motor.
- 3. Remove clamp guard.
- 4. Push the clamp bar to the left. (Looking at rear of machine).
- 5. Loosen the two screws of right micro switch bracket.
- 6. Adjust bracket/switch so the switch is tripped by the clamp bar when the clamp bar is almost fully raise by hand.
- Note: This switch will not be engaged under normal operating conditions. The times it could be engaged is if the position is set to mold and there is no mold or the strike plate on top of mold is missing.

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Maintenance Procedures 5-7

CLEANING THE NOZZLE - THERMOPLASTICS ONLY

After prolonged use, the NOZZLE may develop a leak of drool, indication that cleaning is necessary.

CAUTION: All necessary safety precautions should be in effect before proceeding, e.g. gloves and safety glasses. During the following procedure it is possible for hot material to spray out.

- 1. It is first necessary to bring system heat almost up to molding temperature.
- 2. Unscrew the nozzle assembly (body and plunger) from the end cap.
- 3. If spring type, remove the nozzle die spring from up inside the end cap.
- 4. Clean all material from nozzle, separating the nozzle plunger and nozzle body. Clean parts thoroughly with wire brush or emery cloth. Be sure the nozzle plunger will slide freely up and down in the nozzle body.
- 5. If spring type clean nozzle die spring. Or replace spring, if weak.
- 6. Apply anti-seize to thread of nozzle body.
- 7. If spring type, place spring on nozzle assembly and then replace in end cap.



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Maintenance Procedures 5-8

CONTROL PANEL

Periodic cleaning using a soft water-dampened cloth is recommended. Do NOT spray liquid cleaning agents directly onto the operator station (doing so could damage electrical components).

HOW TO ADJUST TRIMMER SENSOR - RIMM MODEL

If Machine has a photoelectric sensor:

The sensor should be adjusted so it can sense the strike block on top of each mold. The strike block should also be shiny on the side facing the sensor.

If Machine has proximity sensor:

Adjust height of sensor toward bottom table so the light on the sensor is out. Then jog table so the location sensor hole on the bottom side of the table is over the sensor. The light on the sensor should come on.

CALIBRATION

HOW TO CALIBRATE MOLD HEATER CAROUSEL TEMPERATURE CONTROLLER (OPTION)

Refer to the Temperature Controller manual.

HOW TO CALIBRATE INJECTION SPEED

There is no calibration of injection speed.

HOW TO CALIBRATE INJECTION PRESSURE

1.	From Main Menu press P	age Key until the these	e soft key la	abels appea	ar.	
	MAN MOLD SETTINGS	SPC CALIE	;RATE MA MO	CHINE (INITOR	DVERRIDE∕ CRROR	IMPACT MONITOR
2.	Press the Soft Key below	the label "CALIBRATE	<u>=</u> ". /			
3.	This will bring up another screen with the caption of "CALIBRATE".		CALIB	RATE		
4.	Press the soft key below label "Analog 1 Calibrate".	ANALOG 1 AN SETUP CAL	ALOG 1 IBRATE			1a in 1enu
5.	This will bring up another screen with the caption of "ANALOG 1 SENSOR CALIBRATE".	ANALOG	1 SENS ZERO 070 002	OR CAL	BRATION ERROR ARGET STATUS 4.000 1600 (Z=ZERO) (S=SPAN)	SC4 ACTUAL UALUE .885 1
6.	Using the Cursor Keys, select target setpoint for Ram Pressure. (Selection will blink)	CALIB	ration status:	CALIBRATION	ко 1	
7.	Enter 80 percent of maximum pressure of pre	sprc setup essure transducer (160	ACHINE Kinac ONTROL ONTROL	tive> TESTIN	G TEMP Monitor	L INE GRAPHS
8.	Select sensor and then p	press the Enter Key.	K			
9.	Using the Cursor Keys se	elect ZERO. Wait.				
10.	Select SPAN and the pre	ess the Enter Key. Wai	t.			
2		RIMM/TTM-BCCL		Mainten	ance Proced	ures 5-12

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11. You should save new calibration to a product recipe (INSTA-SET) unless you are going to calibrate Ram Positions (Shot Size)..

HOW TO CALIBRATE PRESSURE TRANSDUCER

For best accuracy it would be necessary to send transducer to the original manufacture or to a authorized service facility.

HOW TO CALIBRATE RAM POSITION (SHOT SIZE)

1. Purge machine. Leave screw in full down position by turn off pump.



11. Move sensor shaft up 4 inches.

12. Select SPAN and then press the Enter Key. Wait.

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13. You should save new calibration to a product recipe (INSTA-SET).

EJECTOR

HOW TO ADJUST EJECTOR PRESSURE

Open the right side panel on the base of the machine to gain access to the necessary Hydraulic Controls. (Refer to the figure below.)

To adjust Ejector Pressure:



Note: If the ejector is tested where there is no mold, the ejector might over travel when is reaches the sensor because there is no load to slow it down.

> The valve on the back of each gauge should only be opened when making adjustments or troubleshooting. This will help extend the life of the gauges.

HOW TO ADJUST THE EJECTOR CYLINDER SENSORS

LOWER SENSOR

Early Design

- 1. With ejector pins fully retracted move the lower sensor to the lowest position on tie rod.
- Move the sensor up until the "LED" on sensor lights up, then add approximately 1/16 inch more movement upward.



Current Design

- 1. With ejector pins fully retracted adjust the right retraction sensor so there is a .005 gap between the sensor and the plate.
- 2. With ejector pins fully retracted adjust the left retraction sensor with the greatest gap possible, between the sensor and plate, and the led turns on.
- WARNING: Neither sensor should touch the ejector plate.
- Ν
 - •

0

TE: The left sensor is normally open and the right sensor is normally closed.

Left retraction

sensor



sensor

UPPER SENSOR

Refer to Section 3 HOW TO ADJUST EJECTOR STOKE ADJUSTMENT

LIGHT CURTAIN

WARNING: BECAUSE THE LIGHT CURTAIN IS A SAFETY DEVICE IT MUST BE WORKING CORRECTLY IN ORDER FOR THE MACHINE TO RUN. THE LIGHT CURTAIN SHOULD NEVER BE DISABLED, BECAUSE IT COULD CAUSE BODILY INJURY. REFER TO THE LIGHT CURTAIN MANUAL FOR MORE INFORMATION.

HOW TO LINE UP LIGHT CURTAIN

Note: The transmitter has three lights, the receiver doesn't have any.

- 1. From the rear of machine ,with one eye, look over the top or the receiver at the mirror on that side.
- 2. You should see the reflection of the other mirror. If not turn mirror until you do.
- 3. Then look again,. Now you should see the reflection of the transmitter in the second mirror. If not adjust this mirror until you do.
- 4. Verify alignment by look over the transmitter. You should see the reflection of the receiver. If not try again.
- 5. The transmitter and the receiver should be point straight forward toward the mirrors.



HOW TO ADJUST LIGHT CURTAIN GAIN

1. Open the door, the lower right of machine.

- 2. Open the door of the light curtain controller.
- 3. Refer to the instructions of the back of the controller door on how to adjust gain.

DOOR

000

GREASING THE UPPER FRAME

There are 11 grease fittings on the upper frame. Ten (10) are found from the back of machine and one (1) from the front.



Styles of frame may vary.

TABLE DRIVE

RIMM MODEL

The NSK Servo Motor doesn't require any lubrication.

TTM-BCCL

The Camco Drive requires Mobil Modilgear 630 Industrial gearoil (ISO VG 220). The oil should be changed every 5,000 hours.

HYDRAULIC OIL

The hydraulic oil should be tested every year for one shift operations. Based on the results of testing the oil should be changed.

OIL FILTER

The spin-off OIL FILTER is located on the left side, as seen from front of the hydraulic power unit. Replace it every 640 hours. To remove, with pump off, just turn counter-clockwise as viewed from bottom of filter. The PRESSURE OIL FILTER located at the rear of machine should be changed every 640 hours.



OVERRIDE SETTINGS



1. From Main Menu press Page Key until the these soft key labels appear.



К

2. Press the soft key below label "OVERRIDE/ERRORS". -

3 Th	ais will bring up			OVERR I DE/ERROR			SC3
3. In an the "O FRRO	nother screen with e caption of VERRIDE/ DRS"	FAILED TO BARRELEXTEND BARRELRETRACT CLAMPENGAGE CLAMPDISENGAGE EJECTOREXTEND	OR - - - -	OVERTIDE INTERLOCK HEATER INTERLOCK HEATER WATCHDOG HEATER OVER TEMP TABLE EMG STOP	OR - - -	ALARM TC OPEN OVER TEMP UNDER TEMP OIL TEMP CABNET TEMP	
4. Us Ke	sing the Cursor eys, select the	EJECTOR. RETRACT SCREW. RECOVER TABLE. DROP DOWN TABLE. LIFT UP		ERROR MESSAGE Alarm	-		
col wis ove (Se wil	ontrol you sh to verride. velection Il blink)	ERROR 1ST HOME OK CONTROL POWER OK TABLE LOCATION OK TABLE READY CHANGE OIL PRESS. FLTR					
		MACHINE M SETTINGS F	ach i Unc t	NE SYSTEM <ina IONS TIMERS</ina 	active	> TEMP 1 Monitor 1	1a in 1enu

- 5. Select sensor and then press the Enter Key.
- 6. The word YES will appear next to the control.

HOW TO ADJUST RELIEF VALVES

There are two relief valves on this machine. Both are for directing pressure spikes to the tank. If these valves are adjusted wrong or are not working right they will cause a loss of pump pressure and elevated oil temperature.

Open the right side panel on the base of the machine to gain access to the necessary Hydraulic Controls. (Refer to the figure below.) The MAIN PRESSURE RELIEF VALVE is located on the left end of the manifold closest to the manifold. The CLAMP RELIEF VALVE (not on all machines) is located 4th from the right end 2nd valve out from the manifold. The following explains how to adjust these valves.

For MAIN PRESSURE RELIEF VALVE:

1. Loosen the JAM NUT and turn STUD all the way clockwise (highest pressure).



- 2. Place pump in high pressure.
- 3. Check pump pressure.
- 4. Adjust STUD counter-clockwise until the pump gauge starts to drop.
- 5. Turn STUD one turn clockwise and tighten JAM NUT.

The valve on the back of each gauge should only be opened when making adjustments or troubleshooting. This will help extend the life of the gauges. For CLAMP RELIEF VALVE (If Installed):

- 1. If clamp pressure higher than the pump low pressure setting it will be necessary to have the pump in high pressure.
- 2. Loosen the JAM NUT and turn STUD all the way clockwise (highest pressure).



- 4. Adjust STUD counter-clockwise until the clamp gauge starts to drop.
- 5. Turn STUD one turn clockwise and tighten JAM NUT.
 - NOTE: If the CLAMP RELIEF VALVE is adjusted wrong or is not working properly, a loss of pump pressure will occur. This will result in the pump being unable to maintain the normal high pressure setting (typically 1800 lbs) and a rapid increase in oil temperature.

The valve on the back of each gauge should only be opened when making adjustments or troubleshooting. This will help extend the life of the gauges.

SCREW/BARREL REMOVAL (TILT FRAME)

The following shows the components that must be disassembled in order to remove the screw/barrel. If possible purge through a purging compound or polypropylene material.

- 1. Power off.
- 2. Remove material and hopper.
- 3. Remove barrel guard.
- 4. Remove two half inch screws from each side frame. (4 total) Fig. 1
- 5. Remove lower one inch rod. Fig. 1
- 6. Unplug thermocouples and heater bands.(Note Locations)
- 7. If machine has a water manifold or a heater carrousel remove it.
- 8. Slowly crank the jack in back clockwise, checking for wires and hoses from being pinched or stretched.
- 9. Stop when upper frame reaches stop. If a different barrel/screw are to be reinstalled, this would be a good time to remove the thermocouples and heater bands.



Styles of frame may vary.

10. Loosen set screw in collar. Fig. 2
11. Slide collar down and remove pin from under former collar position. Fig. 2

RIMM/TTM-BCCL

12. Replace collar.
CAUTION: During the next steps the barrel/screw may try to slide out of position. You should hold on to it.

- 13. Remove barrel lock nut on top of barrel. Fig 3
- 14. Remove Feed Tube assembly. Fig. 3
- 15. Make sure the Spacer Collar is free to move. Fig. 3
- 16. During the next steps the Collar and Spacer Collar will fall off the barrel/screw if you don't catch them.
- 17. Slide the barrel/screw out of the Barrel Bushing and Barrel Return Housing.



SCREW OR BARREL REMOVAL (NON TILT FRAME)

The following shows the components that must be disassembled in order to remove the screw. If possible purge through a purging compound or polypropylene material.

Preliminary Procedure

Remove shot size sensor. Refer to HOW TO REMOVE SHOT SIZE SENSOR (Page 5-33).

Remove barrel cylinder. Refer to HOW TO REMOVE BARREL CYLINDER (Page 5-4).

1. Remove INJECTION CYLINDER. Fig. 1

2. Remove the TOP PLATE by removing the 4 SCREWS holding the TOP PLATE to UPPER FRAME. Fig. 2 & 3



- 3. Holding SCREW MOTOR, remove the 2 SCREWS holding the motor to the motor plate. Fig. 4
- 4. Slip off DRIVE BELT and place motor on floor or on a table.
- 5. Remove 2 STRIPPER BOLTS AND SPRINGS. Fig. 5



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- 6. Remove 2 CLIPS from rear of clevis pins. Fig. 6
- 7. Remove 2 CLEVIS PINS. Fig. 6
- 8. Remove BAR. Fig 6.



NOTE: The barrel must be hot enough to melt the molding material.

CAUTION: All necessary safety precautions should be in effect before proceeding, e.g. gloves and safety glasses. During the next steps it is possible for hot material to spray out.

If the molding material was successfully purged, continue with SCREW REMOVAL PROCEDURE. If molding material is burnt follow BARREL AND SCREW REMOVAL PROCEDURE (Page 5-31).

For removing barrel continue with BARREL AND SCREW REMOVAL PROCEDURE.

SCREW REMOVAL PROCEDURE

- 1. Remove NOZZLE ASSEMBLY and spring. Fig. 1 Refer to CLEANING THE NOZZLE for more details.
- 2. Unplug bottom Heater band and remove bottom THERMOCOUPLE. Fig. 1
- 3. Remove END CAP (held by 6 Screws). Fig. 1
- 4. Pull the MOTOR PLATE and Screw up and out together. If the Screw hangs up, you should push the assembly back down and allow it to heat up more. Fig. 8 If this doesn't work you may have to continue with BARREL AND SCREW REMOVAL PROCEDURE.
- 5. When you are ready to reassemble you need to apply antiseize compound on the material check valve ring retainer, the six screws that hold the end cap on and the thermocouples. (Any thread component that will be heated up.)
- 6. To reassemble just reverse the order.





BARREL AND SCREW REMOVAL PROCEDURE

- 1. Turn off heat.
- 2. Remove NOZZLE ASSEMBLY and spring. Fig. 1 Refer to CLEANING THE NOZZLE for more details.

SPACER

COLLAR

- 3. Unplug bottom Heater band and remove bottom THERMOCOUPLE. Fig. 1
- 4. Remove end cap (held by 6 Screws). Fig. 1
- 5. Loosen set screw on COLLAR. Fig. 2
- Slide COLLAR down and remove PIN from under former collar position. Fig. 2
- Lift off the MOTOR PLATE assembly. Fig. 2
- 8. Allow barrel to cool down.
- 9. Remove THERMOCOUPLES and heater bands.
- 10. Clean off surface of barrel.
- Remove barrel by pulling up on UPPER PLATE with barrel still attached. Fig. 5
- 12. Secure in vise.
- 13. Apply heat.
- 14. Push out screw from lower end of barrel. It may be necessary to fasten a special tool to the bottom of the barrel in order to remove the screw.
- 15. When you are ready to reassemble you need to apply anti-seize compound on the material check valve ring retainer, the six screws that hold the end cap on and the thermocouples. (Any threaded component that will be heated up.)
- 16. To reassemble just reverse the order.





FIG. 2

COLLAR

THERMOCOUPLE NOZZLE ASSEMBLY FIG. 1

SET

PIN

CLEANING OF SCREW AND BARREL

1. Clean all parts with copper gauze, silicon jell and brass putty knife. Propane heat can also be used as long as care is used not to overheat screw; as this could warp it.

HOW TO ADJUST SCREW OVER-TRAVEL MICRO SWITCHES

- 1. Heat on
- 2. Set shot size to 5.00.
- 3. Adjust both switches high. Fig. 1
- 4. Wait for temperature to come up.
- 5. Purge on purge block. Let screw retract until it reaches the limit of its travel: screw motor could bog down. Turn off motor.
- 6. Turn on motor.
- 7. Adjust right micro lower until it turns off motor. Fig. 1
- Turn on motor and purge. Check to see if right switch is hit and turns off motor; if not readjust micro switch until it does.



- 9. With screw up to where it is tripping right micro switch, adjust left micro switch to where it clicks. Fig. 1
- 10. Purge on purge block. Now check to see if left switch is hit and turns off screw motor. If not readjust micro switch until it does.
- 11. Reset Shot Size to previous setting.
- 12. The left micro switch will only turn off the screw while it is pushed in and the Screw Off timer is running. If released, the screw motor will turn.

HOW TO INSTALL SHOT SIZE SENSOR

Refer to Section 1, SHOT SIZE SENSOR INSTALLATION.

HOW TO REMOVE SHOT SIZE SENSOR (LINEAR TYPE)

- 1. Remove the cable from the SHOT SIZE SENSOR connector.
- 2. Remove the SHOT SIZE SENSOR ASSEMBLY from the BARREL CYLINDER PLATE, by removing the screws. Refer to Section 1, **SHOT SIZE SENSOR INSTALLATION**.

HOW TO INSTALL TABLE - RIMM MODEL

- 1. Select Manual Mode.
- 2. Using Machine Functions screen select TABLE LIFT UP.
- 3. The table should lift off the anvil.
- 4. Place table plate on drive.
- 5. Rotate table plate until the two dowel pins are in alignment.
- 6. Start the six screws.
- 7. Install the two dowel pins.
- 8. Tighten the six screws.
- 9. Until table.

HOW TO INSTALL TABLE - TMM-BCCL MODEL

- 1. Table drive should be in a cam position and two of the six mounting tapped holes are lined up with the front to back center line of the machine.
- 2. Select Manual Mode.
- 3. Using Machine Functions screen select TABLE LIFT UP.
- 4. The table should lift off the anvil.
- 5. Tilt table drive up.
- 6. Place table plate on drive.
- 7. Rotate table plate until mold mounting hole is under the barrel and the six clearance holes are in alignment with the six tapped holes in the top of the drive.
- 8. Start the six screws with harden washers.
- 9. Line up the mold mounting hole with the center of the nozzle.
- 10. Tighten the six screws.
- 11. Until table.

HOW TO REMOVE TABLE - RIMM MODEL

- 1. Select Manual Mode.
- 2. Using Machine Functions screen select TABLE LIFT UP.
- 3. The table should lift off the anvil.
- 4. Remove the two dowel pins.
- 5. Remove the six screws.
- 6. Remove table plate.

HOW TO REMOVE TABLE - TTM-BCCL MODEL

- 1. Select Manual Mode.
- 2. Using Machine Functions screen select TABLE LIFT UP.
- 3. The table should lift off the anvil.
- 4. Remove the six screws and washers.
- 5. Remove table plate.

HOW TO ADJUST THE TABLE LIFT SENSOR

- 1. Select Manual Mode.
- 2. Using Machine Functions screen select TABLE LIFT UP.
- 3. The table should lift off the anvil.
- 4. Adjust the sensor so the sensor light just comes on.
- 5. Select TABLE LIFT DOWN. The light should go out. If it doesn't return to step 2 and try again.
- 6. Index table 180 degrees and repeat steps 2 through 5 until both positions are correct.



-MAIN PLATE

HOW TO ADJUST THE DWELL TABLE SWITCH CAM - TTM-BCCL MODEL

TOP SWITCH/INSIDE CAM:

- **1.** Use Jog to position the table so that it is in the dwell position.
- 2. The inside cam should be adjust with the lobe offset clockwise from being centered on the roller of the top switch



HOW TO ADJUST THE OFFSET TABLE SWITCH CAM - TTM-BCCL MODEL

BOTTOM SWITCH/OUTSIDE CAM:

This switch and cam is used with the Offset Mode. For proper purging, it is important for this to be done correctly.

- 1. Use Jog to position the purge block (mounted 45 degrees from a mold location) under the nozzle.
- 2. Adjust cam from the CCW direction to where is just clicks the switch.
- 3. Test how the offset mode works for the alignment of the purge block. If it doesn't line up repeat steps 1 2.



HOW TO ADJUST TILT CYLINDER PRESSURE

Open the right side panel on the base of the machine to gain access to the necessary Hydraulic Controls. (Refer to the figure below.) ,STUD

To adjust Tilt Pressure:

- On the TILT REDUCING VALVE loosen the JAM NUT and adjust the STUD to the desired pressure (minimum pressure of 200 and maximum pressure of lbs). If is found that the pressure must be greater than , then there could be to much weight or the weight is out of balance on the table
- 2. Tighten JAM NUT.



NOTE: If the TILT REDUCING VALVE is adjusted too high, it could cause damage to the machine. If a higher than normal pressure is required, it could indicate that there is to much weight on the table.

The valve on the back of each gauge should only be opened when making adjustments or troubleshooting. This will help extend the life of the gauges.

HOW TO ADJUST YELLOW FLAG ARM

The angle of the yellow flag arm can be adjust by loosen the two screw of lower block rotating the whole assembly and retighten. The arm should be pointing toward the center of the table.



RIMM/TTM-BCCL

1. Loosen the two flag screws. Relocate arm up or down. Retighten screw.

HOW TO ADJUST YELLOW FLAG MICRO SWITCH

- 1. Insure that the flag is in the normal forward position.
- 2. Loosen screw and position switch so the switch just clicks.
- 3. Retighten screw.



HOW TO ADJUST RAM DOWN LIMIT (RDL)

With barrel in the up position adjust the RDL so there is about 1/2 inch between the roller and the Barrel Return Housing (3).





Section 6-TROUBLE SHOOTING

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	Воо
	kma
	rk
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Failed To Lift Up	6- Erro r! Boo kma rk not defi ped
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BARREL FAILED TO EXTEND

Flow chart starts next page





BARREL FAILED TO EXTEND



BARREL FAILED TO RETRACT





CIRCUIT BREAKERS

The circuit breakers can be found in the Control Cabinet, at rear of machine, They are near the top right of the cabinet.





CLAMP FAILED TO DISENGAGE









CLAMP FAILED TO ENGAGE



CYCLE STOP

Cycle Stop turns off even when in "Cont Cycle".

The most likely cause is that the total time of the Ejector Extend, Ejector Retract timers and the time it takes the ejector to retract is greater than the Overall or Un/load timers.

EJECTOR FAILED TO EXTEND

Flow chart starts next page









RIMM/TTM-BCCL

EJECTOR FAILED TO EXTEND - RIMM MODEL





EJECTOR FAILED TO EXTEND - RIMM MODEL



RIMM/TTM-BCCL


EJECTOR FAILED TO EXTEND - BCCL MODEL





EJECTOR FAILED TO EXTEND - BCCL MODEL





EJECTOR FAILED TO EXTEND - BCCL MODEL

EJECTOR FAILED TO RETRACT

Flow chart starts next page.





EJECTOR FAILED TO RETRACT - RIMM MODEL





Rev 1.2







EJECTOR FAILED TO RETRACT - BCCL MODEL

FUSE REPLACEMENT

Refer to Section 11 for fuse information.

GENERAL INFORMATION

When working on the hydraulics of this machine, you must relieve the pressure in the system. This can be accomplished by manually operating a direction valve a few times.

Water or coolant must be kept out of the table drive.

HEAT NOT READY

This message informs you that the heat is not ready to release the heater interlock. Heat has to be on and up to temperature before purge or molding will work. If heat is on you will have to wait for heat to come up.

HEAT OFF

This message informs you that the Heat is off. No action is necessary.

HEAT ON

This message informs you heat is on. No action is necessary.

HEAT LIGHT BLINKS

The machine was left idle for too long and the heater watchdog timer turned off the heat. If this occurs too often you could increase the setting of the heater watchdog timer. Of course, if the setting is too long it could allow the material to degrade or burn.

INJECTION - IMPROPER OPERATION

The following conditions could cause the injection cycle not to work properly.

Note: Flowchart follows on next page.

- 1. The heat not ready.
- 2. The molding position not set (Molding Positions screen).
- 3. The "Enable Injection" not on (Machine Functions screen).
- 4. The "Enable Screw" not on (Machine Functions screen).
- 5. The "Enable Clamp" not on (Machine Functions screen).
- 6. The "Enable Barrel" not on (Machine Functions screen).
- 7. The injection pressure and/or speed not high enough to push out material.
- 8. The shot size setting not high enough to feed more material forward. (Maintain cushion.)
- 9. The material temperature setting not properly set.
- 10. The sprue bushing not aligning up properly with nozzle

IMPROPER INJECTION OPERATION

injoper1.vsd



IMPROPER INJECTION OPERATION



MATERIAL CHECK VALVE

If erratic shots are encountered, they could be caused by a broken or stuck open material check valve (refer to as three piece)

The following will help determine if this is the case:

- 1). The heat should be at proper operating temperature.
- 2). Using the JOG function, position the table so a bare area of the top of one mold is lined up with the nozzle.
- 3). Turn on PURGE.
- 4). Press the Manual button. The barrel should move down on top of mold, but the screw should not move downward. If the screw drops down or turns more than 1/2 turn, then the material check valve could be broken or stuck open.

Refer to section 5 - Screw Removal and Cleaning

MOLDING

The following conditions are need before a molding cycle will occur:

- 1. The heat must be ready.
- 2. The molding position must be set (Molding Positions screen).
- 3. The "Enable Molding" must be on (Machine Functions screen).
- 4. The "Enable Screw" must be on (Machine Functions screen).
- 5. The "Enable Clamp" must be on (Machine Functions screen).
- 6. The "Enable Barrel" must be on (Machine Functions screen).

In addition it is necessary for the following conditions:

- 1. The injection pressure and/or speed high enough to push out material.
- 2. The shot size set high enough to feed more material forward. (Maintain cushion.)
- 3. The material temperature set properly.
- 4. Sprue bushing aligning up properly with nozzle.

The previous conditions assume that there is nothing wrong with machine.

MOTOR TURNS OFF

Them motor turns off with out any apparent reason. The cause could be on of the following:

OIL TEMPERATURE IS TOO HOT

The temperature of the oil has exceeded the safe operating temperature. You will not be able to turn the motor back on until the oil temperature drop down to a safe level. It may be necessary to connect cooling water to the oil heat exchanger. This error can be overridden but is not recommended.

OIL FILTER IS DIRTY

The rear inline pressure filter is dirty and needs to be changed.

OVERLOAD

The motor could have been overloaded. Check the reset on the overload relay. This could also be caused if the machine is purged for a long period of time.

CLAMP BAR OVERTRAVEL - RIMM MODEL ONLY

If the mold position is set and there is not a mold under barrel this will allow the clamp bar to overtravel.

If the strike plate on the top of mold is missing it could allow the clamp bar to overtravel.

BARREL OVERTRAVEL

If the mold position is set and there is not a mold under barrel and the clamp micro switch is overridden this will allow the barrel to overtravel.

MOTOR WILL NOT START

When the Motor Start is pressed and the motor doesn't start then following could be the cause:

- 1. Main power is not on.
- 2. Key switch is not on.
- 3. The temperature inside the rear control box could be exceeding the safe operating temperature.
- 4. Oil temperature thermocouple circuit open
- The Master control power is not on.
 Controller TIME SLOT NOT RUNNING.
- 7. Motor over-load relay is tripped.
- 8. The Motor Stop button could be bad.
- 9. The Motor Start button could be bad.
- 10. Open in wiring.

MOTOR WILL RUN ONLY WHILE MOTOR START PRESSED

The screw has over-traveled and is tripping the screw over-travel micro switch.

You can verify this by checking to see if the motor plate is engaging the micro switch. If this is true then to correct you need to do the following:

- 1. Hold the Motor Start.
- 2. Standby Mode.
- 3. Using Offset Mode position a purge block under barrel.
- 4. Purge on block.
- **5.** Check the shot size setting.



OIL TEMPERATURE OVER

This message informs you the oil temperature is getting to hot. You shouldn't continue to run machine as this could cause damage to the hydraulics of the machine.

PURGE - IMPROPER OPERATION

The following conditions could cause the purge function not to work correctly:

Note: Flowchart follows on next page.

- 1. Heat not ready.
- 2. Position not set to purge..
- 3. The pressure/flow (PF) setting could be set too low.
- 4. The shot size could be set too low.
- 5. There could be degraded or burnt material in the bottom end of the barrel/screw.
- 6. There could be an open or short in the wiring.
- 7. There could be a blown fuse on the output board that controls the relay that controls the injection valve. RIMM machines only.
- 8. The relay that controls the injection valve could be bad. RIMM machines only.
- 9. There could be an open or short in the cable going to the coil of the injection valve.
- 10. The injection valve could be bad.
- 11. The barrel doesn't extend down.
- 12. Table out of alignment.



PURGE - IMPROPER OPERATION



PURGE - IMPROPER OPERATION



SCREW FAILED TO RECOVER

This could be caused by the following conditions:

- 1. Material in hopper too low for proper feed.
- 2. Material bridging in feed throat.
- 3. Shot Size setting to high and Screw Over-Travel Micro Switch incorrectly adjusted.
- 4. Screw bogging down from:
 - A. Material too cold.
 - B. Foreign matter in barrel.
 - C. Barrel worn.

SCREW PASSED SHOT SIZE

This could be caused by the following conditions:

- 1. The Screw direction valve could be stuck.
- 2. The output 16 (BCCL Model output 11) from the output board could be shorted.
- 3. There could be a short from wire number 1580 or 2100 to 2390.

TABLE FAILED TO DROP DOWN

Flow chart starts next page.





TABLE FAILED TO DROP DOWN


TABLE FAILED TO LIFT UP





TABLE FAILED TO LIFT UP



TABLE LOCATION OK NO

This message informs you that the table stopped and is not in the proper location to allow molding.

- 1. Light curtain tripped.
- 2. Yellow safety flag is tripped.
- 3. Something is preventing the table from turning.
- 4. Table drive over heating.

TEMPERATURE (TOP, MIDDLE OR BOTTOM)

TEMPERATURE THERMOCOUPLE CIRCUIT OPEN

This could indicate one of the following:

- 1. Thermocouple unplugged from socket on upright.
- 2. Thermocouple bad.
- 3. There could be an open between the socket and the temperature controller.
- 4. The temperature controller board may not be making a good connection in the rack.

Note: Action should only be taking if the condition repeats or is constant.

TEMPERATURE OVER LIMIT

This could indicate one of the following:

- 1. Change from one file with higher temperature settings to another file with lower temperature settings.
- 2. If the "Upper Limit" setting is set to low this could cause this condition on first time heat is brought up to temperature.
- 3. Temperature controller could need to be autotuned.
- 4. The heater relay could be stuck on.

Note: Action should only be taken if the condition repeats.

TEMPERATURE UNDER LIMIT

This could indicate one of the following:

- 1. Change from one file with lower temperature settings to another file with higher temperature settings.
- 2. The temperature controller could be in standby mode.
- 3. The "Lower Limit" setting could be set to low.
- 4. The process could be too fast for proper heat recovery.
- 5. The heater band could be unplugged.
- 6. The heater band could be open.
- 7. The heater relay could be bad.
- 8. The temperature controller board could be bad.

Note: Action should only be taken if the condition repeats.

YELLOW FLAG

This is caused by something hitting the yellow flag. It could be the mold not completely closed.



Section 7 - SETTINGS CROSS REFRENCE

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Temp Timers	7-2
System Timers	7-3
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Screen Paths - System	7-7
Screen Paths - User and System	7-8

TIMERS

MOLDING CYCLE TIMERS

Name	Found On Screen	Range	Factory Setting
Hold Control Hold	Molding Settings	0-650	
Hold Control Soak	Molding Settings	0-650	
Overall	Molding Settings	0-655.35	
Pack Control Pack	Molding Settings	0-650	
Pack Control Soak	Molding Settings	0-650	
Transfer Control (3)	Molding Settings	0-650	
Un/load	Molding Settings	0-655.35	

Name	Found On Screen	Range	Factory Setting
Barrel Extend Backup	Machine Settings	0-2.55	1.00
Barrel Retract Backup	Machine Settings	0-2.55	1.00
Clamp Disengage Backup	Machine Settings	0-2.55	1.00
Clamp Engage Backup	Machine Settings	0-2.55	1.00
Ejector Extend	Machine Settings	0-6.55	1.00
Ejector Retract	Machine Settings	0-6.55	1.00
Injection On Delay	Machine Settings	0-60	.50
Pump High Pressure On Pulse	Machine Settings	0-255	.10
Recovery Backup	Machine Settings	0-655.35	20.00
Recovery Off Pulse	Machine Settings	0-2.55	.10
Recovery Rotate	Machine Settings	0-655.35	2.00
Table Lift Down Backup	Machine Settings	0-2.55	1.00
Table Lift Up Backup	Machine Settings	0-2.55	.50
Trimmer Off Delay (RIMM)	Machine Settings	0-1	.10
Table Lift Start	Machine Settings	0-60	.20

MACHINE SETTINGS

TEMP TIMERS

Name	Found On Screen	Range	Factory Setting
Dev Alarm Reset	Temp Monitor	1-654	60.00
Heater Watchdog (Thermoplastics)	Temp Monitor	0-65535	240

SYSTEM TIMERS

Name	Found On Screen	Range	Factory Setting
Blink Off	System Timers	0-2.55	1.00
Blink On	System Timers	0-2.55	1.00
Emg Stop	System Timers	0-2.55	.10
Error Delay	System Timers	0-60	.50
Error Pulse/Heat	System Timers	0-60	1.00
Error Pulse/Screen	System Timers	0-1	1.00
Event Timer 1 Reset Pulse	System Timers	0-60	.10
Inc Position Count	System Timers	.01	.01
Motor Off	System Timers	0-2.55	.10
Restart Delay	System Timers	.01-2.54	.10
Restart Pulse	System Timers	0-2.55	1.00
Safety Enable	System Timers	0-60	.50
Safety LC	System Timers	0-2.55	.05
Table Control (RIMM)	System Timers	0-2.55	1.00
Table Jog Back (RIMM)	System Timers	0-1	.10
Table Rec Pulse	System Timers	0-1	.10
Table Run Pulse	System Timers	0-2.55	.05
Temp. Heater Watchdog Time Base	System Timers	0-2.55	1.00

TIMERS BY NAME

Name	Found On Screen	Range	Factory Setting
Barrel Extend Backup	Machine Settings	0-2.55	1.00
Barrel Retract Backup	Machine Settings	0-2.55	1.00
Blink Off	System Timers	0-2.55	1.00
Blink On	System Timers	0-2.55	1.00
Clamp Disengage Backup	Machine Settings	0-2.55	1.00
Clamp Engage Backup	Machine Settings	0-2.55	1.00
Dev Alarm Reset	Temp Monitor	1-654	60.00
Ejector Extend	Machine Settings	0-6.55	1.00
Ejector Retract	Machine Settings	0-6.55	1.00
Emg Stop	System Timers	0-2.55	.10
Error Delay	System Timers	0-60	.50
Error Pulse/Heat	System Timers	0-60	1.00
Error Pulse/Screen	System Timers	0-1	1.00
Event Timer 1 Reset Pulse	System Timers	0-60	.10
Heater Watchdog (Thermoplastics)	Temp Monitor	0-65535	240
Hold Control Hold	Molding Settings	0-650	
Hold Control Soak	Molding Settings	0-650	
Inc Position Count	System Timers	.01	.01
Injection On Delay	Machine Settings	0-60	.50
Motor Off	System Timers	0-2.55	.10
Overall	Molding Settings	0-655.35	
Pack Control Pack	Molding Settings	0-650	
Pack Control Soak	Molding Settings	0-650	
Pump High Pressure On Pulse	Machine Settings	0-255	.10
Recovery Backup	Machine Settings	0-655.35	20.00
Recovery Off Pulse	Machine Settings	0-2.55	.10
Recovery Rotate	Machine Settings	0-655.35	2.00
Restart Delay	System Timers	.01-2.54	.10
Restart Pulse	System Timers	0-2.55	1.00
Safety Enable	System Timers	0-60	.50
Safety LC	System Timers	0-2.55	.05
Table Control (RIMM)	System Timers	0-2.55	1.00
Table Jog Back (RIMM)	System Timers	0-1	.10
Table Lift Down Backup	Machine Settings	0-2.55	1.00
Table Lift Up Backup	Machine Settings	0-2.55	.50
Table Rec Pulse	System Timers	0-1	.10
Table Run Pulse	System Timers	0-2.55	.05
Temp. Heater Watchdog Time Base	System Timers	0-2.55	1.00
Transfer Control (3)	Molding Settings	0-650	
Trimmer Off Delay (RIMM)	Machine Settings	0-1	.10
Table Lift Start	Machine Settings	0-60	.20
Un/load	Molding Settings	0-655.35	

SCREENS PATHS - USER									
Desired Screen			PATH			Note	Screen Number		
Analog 1 Calibrate	Main Menu	Page 2	Calibrate	Analog 1 Calibrate			16		
Analog 1 Setup	Main Menu	Page 2	Calibrate	Analog 1 Setup			15		
Calibrate	Main Menu	Page 2	Calibrate				56		
Cushion	Main Menu	Molding Settings	Page 2	Cushion			70		
Dist Curve	Main Menu	Page 2	SPC	Dist Curve			31		
Graph Setup	Main Menu	Page 1	Line Graphs	Graph Setup			22		
Hourmeter	Main Menu	Machine Functions	Page 1	Hourmeter			24		
Idle	Main Menu	Page 2	Man Mold Settings	Idle			10		
Impact Help	Main Menu	Page 2	Impact Monitor	Impact Setup	Impact Help		37		
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Impact Setup	Main Menu	Page 2	Impact Monitor	Impact Setup			36		
Impact Setup	Main Menu	Page 2	Impact Monitor	Impact Setup			37		
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Machine Control	Main Menu	Page 2	Machine Control				8		
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Mode	Main Menu	Page 2	Testing	Mode			59		
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Molding Position	Main Menu	Page 1	Molding Settings	Molding Position 1		Option	60		

Desired Screen			PATH			Note	Screen Number
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Molding Position	Main Menu	Page 1	Molding Settings	Molding Position 3		Option	62
Molding Position	Main Menu	Page 1	Molding Settings	Molding Position 4		Option	63
Molding Settings	Main Menu	Page 1	Molding Settings				49
Override/ Error	Main Menu	Page 2	Override/ Error				41
PC Timeout/ Overrides	Main Menu	Page 2	Man Mold Settings	Page 2	PC Timeout/ Overrides		20
PC Tuning	Main Menu	Page 2	Man Mold Settings	PC Tuning			19
PF1	Main Menu	Page 2	Man Mold Settings	PF1			11
R Chart	Main Menu	Page 2	SPC	R Chart		Option	34
Range Values	Main Menu	Page 2	SPC	Page 2	Range Values	Option	29
Security Change	Main Menu	Machine Monitor	Security Change				67
Select 4 Positions	Main Menu	Page 1	Molding Settings	Select 4 Positions		Option	64
SPC	Main Menu	Page 2	SPC			Option	57
SPC Data	Main Menu	Page 2	SPC	Page 2	SPC Data	Option	30
SPC Graphs	Main Menu	Page 2	SPC	SPC Graphs		Option	32
SPC Positions	Main Menu	Molding Postions	SPC Positions			Option	65
SPC Print	Main Menu	Page 2	SPC	Page 2	SPC Print	Option	27
SPC Selection	Main Menu	Page 2	SPC	Page 2	SPC Selection	Option	25
SPC Setup	Main Menu	Page 2	SPC	SPC Setup		Option	26
System Timers	Main Menu	Page 1	Machine Functions	System Timers			42
Temp Monitor	Main Menu	Page 1	Temp Monitor				6
Temp Tuning	Main Menu	Page 1	Temp Monitor	Temp Tuning			55
Testing	Main Menu	Machine Functions	Testing				2
X-Bar Chart	Main Menu	Page 2	SPC	X-Bar Chart		Option	33
X-Bar Values	Main Menu	Page 2	SPC	Page 2	X-Bar Values	Option	28

SCREEN PATI	HS - SYSTE	EM					
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			-		•		Number
Cartridge	Main Menu	Page 3	System	Screen Up	Screen Up		270
Transfer		_	Control				
Clock	Main Menu	Page 3	Clock				273
Display Configuration	Main Menu	Page 3	System Messages	Screen Down			258
Edit Title	Main Menu	Page 3	Edit Title				272
Module Search	Main Menu	Page 3	System Control	Screen Down			267
Module Versions	Main Menu	Page 3	Clock	Screen Up			274
Power Up	NO PATH AVAILABLE						1
Powerup Transfer Setpoint Limits	Main Menu	Page 3	System Control	Screen Down 3 times			265
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Recipe Transfer Setpoint Limits	Main Menu	Page 3	System Control	Screen Down	Screen Down	Option	266
Serial Communications Stup	Main Menu	Page 3	System Control	Screen Up		Option	269
System Messages	Main Menu	Page 3	System Messages				259
System Control	Main Menu	Page 3	System Control				268
System File Headers	Main Menu	Page 3	System Monitor	Screen Up 3 times			263
System File Sizes	Main Menu	Page 3	System Control	Screen Down 4 times			264
System Monitor	Main Menu	Page 3	System Monitor				260
Timeslot Configuration	Main Menu	Page 3	System Monitor	Screen Up	Screen Up		262
Timeslot Error Monitor	Main Menu	Page 3	System Monitor	Screen Up			261

SCREEN PATHS - USER AND SYSTEM									
Desired Screen			PATH			Note	Screen Number		
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SOFT KEY PAGE 1



OPTIONAL









Graph Setup	CRADU SETUR
	LINE GRAPH CHANNEL LINE GRAPH PHASE 0 = DISABLED 0 = POSITION BASED, INJECTION 1 = VELOCITY SETPOINTS 1 = TIME BASED 2 = PRESSURE SETPOINTS 2 = POSITION BASED, RECOVERY 3 = RAM PRESSURE VALUE 2 = POSITION BASED, RECOVERY 4 = CLAMP PRESSURE VALUE 2 = POSITION BASED, RECOVERY 5 = RAM VELOCITY VALUE 2 = POSITION BASED, RECOVERY 6 = RAM POSITION VALUE 2 = POSITION BASED, RECOVERY 7 = CLAMP PRESSURE VALUE 2 = POSITION BASED, RECOVERY 9 = TACH POSITION VALUE 2 = POSITION BASED, RECOVERY 10 = PID OUTPUT 1 11 = ANALOG OUTPUT 1 1 12 = ANALOG OUTPUT 3 14 = ANALOG OUTPUT 4 15 = SCREW SPEED PID OUTPUT 14 = PID OUTPUT
Home Table (TTM- BCCL Model)	HOME TABLE
	WHEN THIS BUTTON IS OPERATED IT WILL CAUSE THE POSITION UNDER THE BARREL TO BE ASSIGNED POSITION NUMBER ONE. IF THE POSITION CURRENTLY UNDER THE BARREL IS NOT THE DESIRED LOCATION OF POSITION ONE, THEN YOU MUST PLACE MACHINE INTO STANDBY AND THEN INDEX THE TABLE TO THE DESIRED LOCATION OF POSITION ONE. THEN OPERATE THE HOME TABLE BUTTON. MAIN MENU
Hour meter	HOURMETER SP HOURS #1 MMMMMMMM HOURMETER #1 POWER ON #2 #3 640.0 MMMMMMMM HOURMETER #2 PUMP ON #3 640.0 MMMMMMMM HOURMETER #3 OIL FILTER #4 MMMMMMMMM HOURMETER #5 CYCLE ON #5 MMMMMMMMM HOURMETER #5 CYCLE ON M CHANGE SPIN ON OIL FILTER
	MACHINE MAIN FUNCTIONS MENU

Idle	PRESSURE/FLOW OVERRIDE AND IDLE SETPOINTS SP3
	OUTPUTRAMP INGOVERRIDESETPOINTZONE1+SSSSSLP41+SS.SSSOVERRIDESETPOINTZONE2+SSSSSLP42+SS.SSSOVERRIDESETPOINTZONE3+SSSSSLP43+SS.SSSOVERRIDESETPOINTZONE4+SSSSSSSSSLP44+SSOVERRIDESETPOINTZONE4+SSSSSSSSSLP44+SSSSSIDLESETPOINTZONE1+SSSSS+SSSSSLP46+SSSSSIDLESETPOINTZONE2+SSSSS+SSSSSLP46+SSSSSIDLESETPOINTZONE4+SSSSS+SSSSSLP47+SSSSSIDLESETPOINTZONE1+SSSSS+SSSSSLP48+SSSSSIDLESETPOINTZONE1+SSSSS+SSSSLP48+SSSSSIDLESETPOINTZONE1+SSSSS+SSSSLP48+SSSSSDEFAULTRAMPINGSETPOINTZONE2+SSSSSLP48+SSSSSDEFAULTRAMPINGSETPOINTZONE2+SSSSSLP48+SSSSSDEFAULTRAMPINGSETPOINTZONE4+SSSSSLP48+SSSSSDEFAULTRAMPINGSETPOINTZONE4+SSSSSLP48+SS
	Linear MAN MOLD PF1 Injection PC MAIN SETTINGS TUNING MENU
Impact Help (Option)	IMPACT HELP UELOCITY RANGE: set to the maximum injection speed obtainable in velocity. RECOVERY RANGE: set to the maximum pressure obtainable in recovery. PACK OPEN LOOP GAIN CORRECTION: set to about 1/10 of PACK OPEN LOOP GAIN. The default powerup value is 0.100. PACK OPEN LOOP GAIN: an IMPACT modified setpoint that aids in determining the output just after transfer. The default powerup value is 1.000 - NO user changes are required. TRANSFER STATE ALLOCATION: set to the allocation state used for pack. TRANSFER OPEN LOOP TIME: if set to 0.01, it allows IMPACT to determine the open loop time at transition. If set to a value other than 0.01, it sets the maximum open loop time at transition. CONTROL MODE: determine for each of the phases if the control is to be 0) Manually tuned, 1) Adaptive and Manually tuned (using existing PID tuning setpoints) or 2) Adaptive and Autotuned. The bargraphs indicate the open loop gains, lag, and step times which the control has determined for the process and on which Adaptive control and autotuning are based. These are for diagnostic purposes.
	IMPACT MAIN SETUP MENU
Impact Monitor (Option)r	IMPACT PERFORMANCE MONITOR PROCESS BAR GRAPHS IMPACT IS: MHMMMMM 5 10 9 8 7 6 5 4 3 2 1 5 4 1 1 1 1 1 1 1 4 3 2 1 5 4 3 2 1 5 4 3 2 1 4 3 2 1 4 3 2 1 4 3 2 1 4 3 2 1 4 3 2 1 1 4 3 2 1 1 4 3 2 1 1 3 2 1 1 3 2 1 </td
	GRAPHS SETUP HELP MENU







Mode	Mode Selection
Should only be changed when instructed to do so by IPC personnel.	LC ScreenMCam TableMHyd TableMHyd TableMNo Screw RPMMOption 4MOption 5MOption 6MOption 7MOption 8MOption 10MOption 11MOption 12MOption 13MOption 15MOption 17M
Module Search	MODULE INFORMATION MODULE SAVE HARDWARE SETUP SLT SLC FT FM VER REU SPL FLD ERROR FUNCTION TYPE CLEAR ERRORS MINIMAMINIANIMANIANIANIANIANIANIANIANIANIANIANIANIANIA
Module Versions	CONTROL MONITOR MESSAGES RECIPE TITLE USER SCREEN MODFILES EDITOR EDITOR FT FM UER REU SPL UER FT FM UER REU SPL UER FT FM UER REU SPL UER MINIMUMMININNUMMININNUM MINIMUMMININNUMMININNUM MINIMUMMININUM MINIMUMMININUM MINIMUMMININUM MINIMUMMININUM MINIMUMMININUM MINIMUMMININUM MINIMUMMINIUM MINIMUMMINIUM MINIMUMMINIUM MINIMUMMINIUM MINIMUMMINIUM MINIMUMMINIUM MINIMUMMINIUM MINIMUMMINIUM MINIMUMMINIUM MINIMUMMINIUM MINIMUMMINIUM MINIMUMMINIUM MINIMUMMINIUM MINIMUMINIUM MINIMUMINIUM MINIMUMINIUM MINIMUMINIUM MINIMUM MINIMUM MINIMUMINIUM MINIMUM MINIMUMINIUM MINIMUM MINIMUM MINIMUM MINIMUM SYSTEM SYSTEM SYSTEM

Molding Position 1	MOLDING SET	TINGS - POSITION 1 SC2
(Option)	TRANSFER CONTROL	CYCLE TIMERS SHOT CONTROL
	TIME(3) +SSS.SS	UN/LOAD +SSS.SS CUSHION +SS.SSS
	POSITION(2) ±SS.SSS HYDR(0) ±SSSS	RESTART +S.SS CORRECTION ±00.000
	INJECTION PROFILE SEG POSITION PRESSURE SPEED 1 *SS.SSS 2 *SS.SSS 3 *SS.SSS 4 *SS.SSS 5 *SS.SSS 5 *SS.SSS 6 *SS.SSS 7 *SS.SSS 8 *SS.SSS 9 *SS.SSS 9 *SS.SSS 10	PACK CONTROLRECOVERY PROFILEPRESSURE+SSSSSOAK TIME+SSS.SSPACK TIME+SSS.SSPACK TIME+SSS.SSHOLD CONTROL6PRESSURE+SSSSPRESSURE+SSSSBEND PRESS+SSSSSOAK TIME+SSS.SSPRESSURE+SSSS9+SS.SSS9+SS.SSS10+SSS
Malifica Destition O		
(Option)	MOLDING SET	TINGS - POSITION 2 SC2
	TRANSFER CONTROL	CYCLE TIMERS SHOT CONTROL
	TIME(3) +SSS.SS	UN/LOAD +SSS.SS CUSHION +SS.SSS BESTART +S SS CORPECTION +UUUUU
	HYDR(0) ±SSSS	
	INJECTION PROFILE	RECOVERY PROFILE
	1 SEG POSITION PRESSURE SPEED	PACK CONTROL 1 +SS.SSS +SSS
	2 +SS.SSS +SS.SSS 3 +SS.SSS +SS.SSS	PRESSURE +SSSS 2 +SSS +SSS SOAK TIME +SSS.SS 3 +SSS +SSS
	4 +SS.SSS +SS.SSS 5 +SS.SSS +SS.SSS	PACK TIME +SSS.SS 4 +SSS +SSS 5 +SS SSS +SSS
	6 +SS.SSS +SS.SSS	HOLD CONTROL 6 +SS.SSS +SSS
	2 +53.555 +55.555 2 +55.555 +55.555	END PRESS +SSS 8 +SSS +SSS
	9 <u>+SS.SSS</u> +SS.SSS 10 +SS.SSS	SOAK TIME +SSS.SS 9 +SSS +SSS HOLD TIME +SSS.SS 10 +SSS
Molding Position 3		
(Option)	MULDING SET	TINGS - PUSITIUN 3 302
		OVERALL +SSS.SS SHOTSIZE +SS.SSS
	POSITION(2) ±SS.SS	RESTART +S.SS CORRECTION +SS.SSS
	HYDR(0) ±SSSS	
	INJECTION PROFILE	RECOVERY PROFILE SEG POSITION PRESS
	1 +SS.SSS +SS.SSS 2 +SS SSS +SS SSS	PRESSURE +SSSS +SSS +SSS
	3 +SS.SSS +SS.SSS 4 -SS - SSS	SOAK TIME +SSS.SS 3 +SS.SSS +SSS BOCK TIME +SSS.SS 4 +SSS +SSS
	4 +55.355 +55.355 5 +SS.SSS +SS.SSS	FHCK TIME +355.35 4 +35.355 +355 5 +SS +SSS +SSS
	6 +SS.SSS +SS.SSS 7 +SS.SSS +SS.SSS	PRESSURE +SSS +SSS +SSS +SSS +SSS +SSS +SSS +S
	E +SS.SSS +SS.SSS 9 +SS.SSS +SS.SSS	END PRESS +SSSS 8 +SSS +SSS SOAK TIME +SSS.SS 9 +SSS +SSS
	10 +SS.SSS	HOLD TIME +SSS.SS 10 +SSS
	L	



Monitor Help	IMPACT MONITOR HELP	
(Option)	This screen consists of two rows of bar graphs that help determine how well th machine is actually meeting the desired velocity setpoints. (If less than 10 segments are used, unused segments will be ignored.)	
	 The top row provides information for each of the 10 velocity fill segments. S = the value of the velocity setpoint of each of the velocity fill segments. V = the value of injection velocity as sampled at the end of each segment. E = the standard error, a calculated value indicating an average difference between the desired setpoint and actual value for each segment. Ideal response would be to have the S and V bar graphs be equal for each segment while the E bar graphs have a value of 0 for all segments. 	
	The bottom row provides the same information in a deviation bar graph format. The SV bar graph represents the difference between the S and the V values and the E bar graph represents the E value. Ideal response would have all bar graphs for all segments be at 0.	
	Less than ideal response with IMPACT in operation may indicate the limitation of machine capability or that setup modifications may be desired.	
	MON I TOR MENU	
Override/Error		
Overnue/Entor	FALLED TO OP OUFUELDE OP ALADM	
Caution should be used when overriding any function. Override functions should only be temporary until the cause for the error can be found and corrected. When a machine is configured to run thermoset, it is necessary to set and leave the Heater Interlock overridden. The overriding of some functions will cause the machine cycle to increase.	FAILED TO OR OUERRIDE OR ALARM BARRELEXTEND - - - TC OPEN BARRELBETRACT - - HEATER INTERLOCK - - CLAMPENGAGE - - HEATER WATCHDOG - - OVER TEMP CLAMPDISENGAGE - - TABLE EMG STOP - OIL TEMP EJECTOR.RETRACT - - TABLE EMG STOP - CABNET TEMP EJECTOR.RETRACT - - ERROR MESSAGE - - SCREW.RECOVER - - ALARM - CABNET TEMP TABLE.DOP DOWN - - ALARM - - ERROR OR - - - - - ERROR OR - - - - - - TABLE .DOATION OK - - - - - - - TABLE READY - - - - - - - - CHANGE OIL PRESS.FLTN -	
PC Timeouts	PC TIMEOUTS / OVERRIDES AND RAMPS SC4 TIMEOUTS / OVERRIDES RAMPS PREPULLBACK *SSS.SS INJECTION *SSS.SS SCREWBACK *SSS.SS FILL TIME HIGH *SSS.SS FILL TIME LOW *SSS.SS VELOCITY PACK TO HOLD VELOCITY *SSSSS VELOCITY *SSSSS SSS *SSSSS	

Powerup (system)	
Fowerup (system)	DADDED_COLMAN
	DHADEA-CULTIHII
	ROCKFORD, IL. USA
	MACO MACHINE CONTROL
	COPYRIGHT 1994, 1995, 1996
	SYSTEM SYSTEM SYSTEM PRODUCT EDIT CLOCK
	CONTROL MONITOR MESSAGES RECIPE TITLE
Powerup (user)	ILLINGIS PRECISION CORPORATION
	WHEATON, IL. USA
	USING
	BARBER-COLMAN
	A SIEBE COMPANY
	ROCKFORD, IL. USA MACA4000 MACHINE CONTROL
	PRODUCT RECIPE SELECTED МММИМММММММММММММММММММММММММММММММММ
	ENTER SECURITY CODE: 1
	MAIN Menu
Powerup Transfer	POWERUP TRANSFER SETPOINT LIMITS
Setpoint Limits	FT FM ID LOW ACTUAL HIGH MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM 1) Correct setpoints, MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	SYSTEM SYSTEM SYSTEM PRODUCT EDÍT CLOCK
	CUMIRUL HUMITUR HESSHGES RECIPE TITLE

Pressure/Flow	PRESSURE/FLOW SP'S OUTPUT RAMPING OUTPUT RAMPING
Setpoints	PF 1 +SSSSSM +SSSSS PF 21 +SSSSSM +SSSSS
	PF 2 +SSSSSM +SSSSS PF 22 +SSSSSM +SSSSS
Lise with purge	PF 3 +SSSSSM +SSSSS PF 23 +SSSSSM +SSSSS
	PF 4 +SSSSS PF 24 +SSSSS
mode.	PF 5 + \$\$\$\$\$\$ PF 25 + \$\$\$\$\$
	PF 7 459591 +33333 F1 20 +33333 F1 20 +333331 +33333
0 to 100%	PF 8 +SSSSSM +SSSSS PF 28 +SSSSSM +SSSSS
	PF 9 +SSSSSM +SSSSS PF 29 +SSSSSM +SSSSS
	PF 10 +SSSSM +SSSSS PF 30 +SSSSS
	PF 11 +SSSSS PF 31 +SSSSS PF 31 +SSSSS + SSSSS + SSSS + SSSS + SSSSS + SSSS + SSS + SSSS + SSS + SSSS + SSS + SSSS + SSS
	PF 13 +SSSSM +SSSS PF 33 +SSSSM +SSSS
	PF 14 +SSSSS +SSSS PF 34 +SSSSS +SSSSS +SSSSS +SSSSS +SSSSS
	PF 15 +SSSSSM +SSSSS PF 35 +SSSSSM +SSSSSM +SSSSSM
	PF 16 +SSSSS PF 36 +SSSSS
	PF 12 +252530 +25553 Ff 37 +25553 Ff 36 +255530 +25553
	PF 19 +SSSSSM +SSSSS PF 39 +SSSSSM +SSSSS
	SPZ PF 20 +SSSSSM +SSSSS PF 40 +SSSSSM +SSSSS
	PC TIMEOUT Idle MAN MOLD Injection PC MAIN
	VUERRIDES SETTINGS TUNING MENU
Process Control	
Tuning	LEACTON CONTROL TOWING
	INJECTION PACK HOLD RECOVERY RPM
	PRESSURE > SPEED HIGH VOL LOW VOL PRESSURE
	GHIM +55.55 +55.55 +55.55 +55.55 +55.55 +55.55 +55.55
	RATE +SSS +SSS +SSS +SSS +SSS +SSS +SSS
	CUSHION CONTROL MONITOR
	CUSHION SETPOINT +SS.SSS RAM POSITION = +VV.VVV
	CURRECTION LIMIT TOW AS SS RECOUNTED A THIN PRESSURE = +0000
	CORRECTION LIMIT HIGH +S.SSS RPM OUTPUT = +UUU.UU
	FILL TIME = +VVV.VV
	OVERRIDES PF1 INJECTION MAM MULD MAIN
Draduat Baainaa	
Product Recipes	POWERUP recipe: PRODUCT RECIPE TRANSFER
	Save SP's
	0_ACTIVE recipe: Restore SP's
	Save all SP's
	<u>INTERNAL recipes:</u> +VVV Size Date Time Copy INSTA-SET
	1 MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	2 กกกกกกกกกกกกกกกกกกกกกกกกกก กกกกกกกกกก
	4 MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	5 MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	Amount remaining: +VVV
	CABTRIDGE recines: +UU To: +SSS
	101 MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	Amount remaining: +VVV Blk+VV Sb+VV
	INTERNAL PREVIOUS NEXT PREVIOUS COPY

R Chart (Option)	SPC GRAPH D. OLIADE
	+000.00 - X-bar +000.00
	+000.00 - X-barbar+000.00 B +1001.00
	+000.00 - R-bar +000.00
	+000.00 -
	+000.00 - Std dev +000.00
	+000.00-
	+000.00 -
	1 10 20 30 40 50 60 70 80 90 100 UCLR +VVV.VV
	SPC X-BAR CHART SPC DIST SPC MAIN
Range Values	
(Option)	SPC OFILIDES RANGE VALUES
	VARIABLE R R LCLR UCLR Cp Cpk
	#1 MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	#2 MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	#4 MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	#5 MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	#6 MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	#9 MMMMMMMMMMMMMMMMMMM MMM +VVV.VV +VVV.VV +VVV.VV +VVV.VV +VVV.VVV +VV.VVV
	#10 MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	DISPLAYED VARIABLE STATUS MSG'S:
	+SS MMMMMMMMMMMMMMMMM S = Spec alarm
	$\mathbf{F} = \mathbf{Limits frozen}$
	X = X - BHK trend alarm B = BANGE trend alarm
	SPC X-BAR R MAIN
Decine Trenefer	
Recipe Transfer	RECIPE TRANSFER SETPOINT LIMITS
Setpoint Limits	FT FM ID LOW SP HIGH
	ммммммммммммммммммммммммммммммммм
	ММММММММММММММММММММММММММММММММ
	MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
	мимимимимимимимимимимимимимимимими
	ппппппппппппппппппппппппппппппппппппппп
	ммимимимимимимимимимимимимимимими
	ммимимимимимимимимимимимимимимими
	ммммммммммммммммммммммммммммммммм
	SYSTEM SYSTEM SYSTEM PRODUCT EDIT CLOCK

Security Change	
Security Change	SECURITY CHANGE
	Password Pointer 1-40 Level 1 41-80 Level 2 81-120 Level 3 121-160 Level 4 161-200 Level 5
	Password Pointer Existing Password
	Accent the Pronosed change of Passiond
	necept the Hoposed change of Password
	MACH INE MON I TOR MAIN MENU
Select 4 Position	SELECT 4 POSITION
	4 PUSITIUN MINIM
	 WHEN USING INDIVIDUAL MOLDING POSITON SETTINGS (4 POSITION) YOU CAN NOT USE IMPACT. WHEN USING "4 POSITION" AND HOME TABLE OR OFFSET TABLE/PURGE THE RECOVERY PROFILE AND SHOT SIZE COULD BE INCORRECT.
	STORAGE FOR SETPOINTS USED WITH 4 POSITION AND PURGE. D0 NOT CHANGE +SS.SSS
Serial Communications Setup (Option)	SERIAL COMMUNICATIONS SETUP
	COMM 3 +SS SCREENS/PAGE +S COMM 2 +SS COMM 2 BAUD +S PRINTER TYPE +S COMM 1 +SS COMM 1 = 24 PIN
	PORT: 0 = RS-232 DISABLED BAUD: 0 = 9600 1 = " PC HOST 1 = 4800 2 = " PRINTER 2 = 2400
	$\begin{array}{cccc} 0 \times 8 &= & \text{RS}-485 & \text{DISABLED} \\ 9 &= & & & \text{PC} & \text{HOST} \end{array} \qquad \begin{array}{cccc} 3 &= & 1200 \\ 4 &= & 19200 \end{array} \qquad \begin{array}{ccccc} \text{RESET} & \text{RS}232 \end{array}$
	FORM FEED CLEAR PRNT
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	- = Limits not frozen F = Limits frozen		
	SPC X-BAR R DIST CDC MAIN		
	GRAPHS CHART CHART CURVE JIC MENU		
System Control	SYSTEM FUNCTIONS		
	SAVE SETPOINTS		
	RESTORE SETPOINTS		
	DISABLE OUTPUTS		
	ENABLE OUTPUTS		
	RESET SYSTEM		
	STOP TIME-SLOT MMM		
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	+SSS +SSSS M	M 5 M 13	M 21 M 29
	+SSS +SSSS M	M 6 M 14 M 7 M 15	M 23 M 31
	+SSS +SSSS M	M 8 M 16	M 24 M 32
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	+SSS +SSSS M		M 13 M 19
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	+SSS +SSSS M	M 4 M 10	M 16 M 22
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Section 9 - Errors and Overrides

Errors	9-2
Overrides	9-3

ERRORS

ERROR	INDICATION
BARREL FAILED TO EXTEND	YES
BARREL FAILED TO RETRACT	YES
CLAMP FAILED TO EXTEND	YES
CLAMP FAILED TO RETRACT	YES
EJECTOR FAILED TO EXTEND	YES
EJECTOR FAILED TO RETRACT	YES
SCREW FAILED TO RECOVER	YES
TABLE FAILED TO DROP DOWN	YES
TABLE FAILED TO LIFT UP	YES
1ST HOME OK	NO
CONTROL POWER OK	NO
TABLE LOCATION OK	NO
TABLE READY OK	NO
CHANGE OIL PRESS. FILTER	YES
TC OPEN	YES
OVER TEMP	YES
UNDER TEMP	YES
OIL TEMP	YES
CABINET TEMP	YES

OVERRIDE

Caution should be used when overriding any function. Override functions should only be temporary until the cause for the error can be found and corrected. When a machine is configured to run thermoset, it is necessary to set and leave the Heater Interlock overridden. The overriding of some functions will cause the machine cycle to increase.



OVERRIDE LIST

OVERRIDE	NOTES
BARREL FAILED TO EXTEND	
BARREL FAILED TO RETRACT	
CLAMP FAILED TO EXTEND	
CLAMP FAILED TO RETRACT	
EJECTOR FAILED TO EXTEND	
EJECTOR FAILED TO RETRACT	
SCREW FAILED TO RECOVER	POSSIBLE NO MATERIAL
TABLE FAILED TO DROP DOWN	
TABLE FAILED TO LIFT UP	
1ST HOME OK	
CONTROL POWER OK	
TABLE LOCATION OK	
TABLE READY OK	
CHANGE OIL PRESS. FILTER	WILL CLEAR ON MOTOR OFF
HEATER INTERLOCK	
HEATER WATCHDOG	
HEATER OVER TEMP	
TABLE EMG STOP	
ERROR MESSAGE	WILL PREVENT "OVERRIDE/ERROR"
	SCREEN FROM COMING UP.
ALARM LITE	WILL BLOCK EXTERNAL LIGHT
	FROM TURNING ON.
TC OPEN	
OVER TEMP	
UNDER TEMP	
OIL TEMP	
CABINET TEMP	

Section 10 - PARTS LIST

Barrel And Motor Assembly	10-2
Clamp Components	10-16
Controller Boards	10-37
Filters, Oil	10-29
Frame - Front	10-6
Frame - Left	10-12
Frame - Right	10-14
Frame -Rear	10-10
Heater Bands	10-7
Hydraulic Gauges	10-24
Hydraulic Valves - RIMM Model	10-26
Hydraulic Valves - TTM-BCCL Model	10-28
Injection Cylinders	10-7
LPM Molding Components	10-8
Main Controller Panel - TTM-BCCL Model	10-36
Mold Heating Carrousel (Option)	10-43
Pump, Hydraulic	10-30
Ramp (Option)	10-41
Screw	10-3
Seal Kits, Injection	10-7
Sprue Trimmer (Option)	10-40
Table Drive RIMM Model	10-20
Table Drive TTM-BCCL Model	10-22
Tank - Front	10-29
Thermoset Liquid Silicone Barrel And Screw	10-4
Water Manifold (Option)	10-42
Yellow Flag	10-23



ITEM NO	DESCRIPTION	PART NO	QUANTITY
1	Retainer, Bearing	M260.2	1
2	Housing, Bearing	M260.3	1
3	Coupler, Screw	M260.1	1
4	Bearing, Roller	M260.16	2
5	Cap, Bearing Housing	M263.0	1
6	Key, Drive	M260.7	1
7	Collar, Drive Pin	M260.8	1
8	Tube, Feed (Std)	M204.0	1
8	Tube, Feed (Wide)	M204.1	1
9	Barrel (30 mm) (not Liquid Silicone)	l101.0	1
9	Barrel (22 mm) (not Liquid Silicone)	1100.0	1
10	Screw, Injection REFER TO PAGE		1
11	Assy, Material Check Valve (for 30mm)(3 parts)	l120.0	1
11	Assy, Material Check Valve (for 22mm)(3 parts)	l120.1	1
12	Cap, End (30 mm)	1104.0	1
13	Screw, 3/8 - 16 X 1 1/4 SHCS	B140.0	6
18	Collar, Spacer	M204.2	1
19	Nut, Barrel	M204.3	1
20	Pin, Drive	M260.9	1
21	Screw, 10-32 X 3/16 Set	B176.2	1
22	Hub, Screw Pulley	M260.17	1
	Hub, Motor Pulley	M260.18	1
23	Pulley, Screw	M260.14	1
24	Bearing, Thrust	M260.15	1
25	Screw, 1/2-13 X 1 1/2 SHCS	B126.0	2
26	Washer, 1/2 Split Lock	B158.0	2
27	Washer, 1/2	B157.0	2
28	Housing, Screw Drive	M260.4	1
29	Pulley, Motor	M260.13	1
30	Adapter, Mounting	M260.5	2
31	Screw, Modified 5/8-11 X 1.0 SHCS	M260.6	2
32	Motor, Hydraulic Screw	l115.0	1
33	Nut, Nozzle (for 22 mm springless)	l113.0	1
34	Cap, End (for springless nozzle)	l105.0	1
	Cap, Thermoset Liquid SiliconeEnd (22 mm)(not Shown)	1105.2	1
35	Plunger, Nozzle (for springless)	1119.0	1
36	Nut, Nozzle (for 30 mm springless)	l114.0	1

BARREL, SCREW AND MOTOR ASSEMBLY



ITEM NO	DESCRIPTION	NEW PART NO	LENGTH	QUANTITY
1	Screw, 30 mm (For spring type nozzle)	l122.0	21.65	1
2	Screw, 22 mm (For spring type nozzle)	l122.1	21.65	1
3	Screw, 22 mm (For PVC)	l122.5	23.50	1
4	Screw, 30 mm (For springless nozzle)	l122.2	23.17	1
5	Screw, 22 mm (For springless nozzle)	l122.3	23.20	1



For Water Jackets Refer to next page.

ITEM NO	DESCRIPTION	PART NO	OUANTITY
	Cap, Thermoset Liquid SiliconeEnd (22 mm)(not Shown)	1105.2	1
	Ring, Teflon Coated Silicone"O" (for 22mm)(Not Shown)	H185.0	1
1	Barrel, 22 mm Liquid Silicone)	1100.1	1
	Barrel, 30 mm Liquid Silicone) (not Shown)	1101.1	1
2	O-Ring 1/16"W X 1/2"ID X 5/8"OD Viton	H186.0	1
3	Adapter, Barrel Port	M260.5	1
4	Fitting, Straight & Flair	H169.29	1
5	Screw, 22 mm (Thermoset Liquid Silicone) (22.33" Long)	1121.3	1
6	Assy, Stainless Steel Tube	H306.0	1



FRAME			
ITEM NO	DESCRIPTION	PART NO	QUANTITY
1	Rod, Guide Return (With welded ring)	M306.2	2
2	Screw, 5/16 -18 X 1 1/2 SHCS	B143.1	2
3	Fitting, Grease	M145.0	1
4	Plate, Heavy Duty Frame Top (R)	M147.2	1
5	Bar, Ram	M102.0	1
6	Ring, Spiral Lock (for I180.0)	M187.0	4
7	Clip, 3/4 inch Spring (for I108.1)	M104.5	2
8	Pin, Clevis (Groove width of .050)	l118.0	2
8	Pin, Clevis(Groove width of .070)	l108.1	2
9	Housing, Screw Drive	M260.4	1
10	Ring, Guide Rod	M306.1	2
11	Pin, 1/4 x 2" Dowel	B110.4	2
12	Cylinder, Injection REFER TO NEXT PAGE		
	Seal Kits REFER TO NEXT PAGE		
13	Housing, Barrel Return	M262.0	1
14	Housing, Barrel	M260.3	1
15	Jacket, Large OD Water 5"D x 2.625"	W101.0	1
16	Ring, Large "O" Ring 3-3/4" Silicone	W107.0	1
17	Screw, 5/16 - 18 X 1" SHCS	M260.19	2
18	Cup, Spring	M260.19	2
19	Thermocouple	E389.1	2
20	Ring, Small "O" Ring 3" Silcone	W106.0	4
21	Jacket, Small OD Short Water 4"D x 2.75"	W100.0	1
22	Jacket, Small OD Tall Water 4"D 4.875"	W100.1	1
23	Screw, 1/2-13 X 2.0 SHCS	B128.0	4
24	Frame Assy	M200.0	1
30	Bands, Heater REFER TO NEXT PAGE		
31	Bushing, Barrel (Requires machining)	M261.1	1
32	Spring, Return	M305.0	2
33	Screw, 1/2-13 X 1 3/4 SHCS	B127.0	2
34	Retainer, Spring	M260.20	2
35	Bushing, 1.5 inch Bronze (Requires machining)	M129.0	4
36	Pin, .25 Dia. X 4 Retaining	M260.21	2
37	Belt, Drive	I102.0	1
38	Spring, 3/4 OD X 3/8 ID X 2.5 L	M197.2	2
39	Bushing, 2 inch Bronze (Requires machining)	M130.0	2
40	Screw, 5/16 X 4 Socket Head Shoulder	M113.0	2
41	Nut, 5/16-18 X 1 1/2 Coupling	M103.1	2
42	Bushing, 3/4 inch Bronze (Requires machining)	M131.1	2

INJECTION CYLINDERS

ITEM NO	DESCRIPTION	PART NO	QUANTITY
12	Cylinder, Hanna Injection	H104.0	2
12	Cylinder, Ortman Injection (Discontinued)	Use H104.0	2

SEAL KITS

ITEM NO	DESCRIPTION	PART NO	QUANTITY
	Kit, Ortman Injection Cylinder Rod Seal	HK122.0	2
	Kit, Ortman Injection Cylinder Tube Seal	HK124.0	2
	Kit, Hanna Injection Cylinder Rod Seal		2
	Kit, Hanna Injection Cylinder Piston Seal		2

HEATER BANDS - TYPICAL

ITEM NO	DESCRIPTION		PART NO	QUANTITY
30	Bands, Top Zone Heater	600 Watt	E102.0	2
30	Bands, Middle Zone Heater	600 Watt	E102.0	2
30	Bands, Botton Zone Heater	400 Watt	E101.0	1



LPM			
ITEM NO	DESCRIPTION	PART NO	QTY
1	Plate, LPM Cylinder Mounting	M177.0	1
2	Screw, 5/16-18 X 1 1/4 SHCS	B143.0	2
3	Screw, 1/2-13 X 1 1/4 SHCS	B125.0	4
4	Cvlinder, LPM	H103.0	1
	Kit. Ortman Rod & Gland Seal (LPM)	HK122.0	1
	Kit. Ortman Tube & Piston Seal (LPM)	HK123.0	1
	Kit, Hanna Rod & Gland Seal (LPM)		1
	Kit, Hanna Tube & Piston Seal (LPM)		1
5	Fitting. 90 Deg Elbow SAE to Flair	H169.36	1
6	Fitting, Straight Thread Connector	H169.29	1
7	Fitting, Swivel Nut Elbow	H169.32	1
8	Assy. Long LPM Hose	Refer to page 59	1
9	Assy Short I PM Hose	Refer to page 59	1

REAR OF FRAME





ITEM NO	DESCRIPTION	PART NO	QUANTITY
1	Guard, Right Injection Cylinder	M154.0	1
2	Guard, Screw Motor	M155.0	1
3	Fittina. Grease (2 not showina)	M145.0	10
4	Screw, 10/32 X 3/8 Button Head	B116.0	2
5	Guard, Clamp	M152.0	1
6	Screw, 10/32 X 1 SHCS	B136.0	1
7	Switch, Micro	E377.0	1
8	Screw, 10/32 X 1/2 SHCS	B135.0	2
9	Washer, #10	B161.0	2
10	Boot, Micro Switch	E130.0	1
11	Washer, #6	B155.0	2
12	Screw, 6/32 X 1 SHCS	B148.0	2
13	Guard, Left Injection Cylinder	M153.0	1



Left Side of Frame

ITEM NO	DESCRIPTION	PART NO	QUANTITY	
9	Assy, Short Injection Hose	Refer to page 59	1	
10	Guard, Barrel	M151.0	1	
11	Screw, 10/32 X 1/2 Button Head	B115.0	4 / guard	
12	Cylinder, Injection (refer to page 7)			
13	Screw, 1/2-13 X 1 1/2 SHCS	B126.0	2	
14	Screw, 1/2-13 X 1 1/2 SHCS	B126.0	2	
15	Connector, Injection Pressure Transducer	E630.1	1	
16	Transducer, Injection Pressure	E630.0	1	
17	Screw, 3/8-16 X 1 1/2 SHCS	B143.1	2	
21	Screw, 1/2-13 X 1 1/2 low head	B166.1	4	
22	Fitting, 1/2 flair	H169.29	2	
23	Fitting, 3/8 to 1/8 Adapter	H169.40	1	
24	Fitting, 1/2 swivel adapter	H169.39	1	



Right	Side	of	Frame	

ITEM NO	DESCRIPTION	PART NO	QUANTITY	
1	Cylinder, Injection (Refer to page 7)			
2	Screw, 1/2-13 X 1 1/2 SHCS	B126.0	2	
3	Screw, 1/2-13 X 1 1/2 SHCS	B126.0	4	
4	Tube, Feed	M204.0	1	
4	Tube, Wide Feed (not shown)	M204.1	1	
5	Nut, 5/16-18 X 1 Steel Hopper	M159.0	2	
6	Plate, Hopper Support	M124.0	1	
7	Screw, 5/16-18 X 1 SHCS	B147.0	2	
8	Hopper, Stainless Steel	M411.0	1	
9	Lid, Hopper	M411.2	1	
10	Screw, 3/8-16 X 1 1/2 SHCS	B143.1	2	
11	Fitting, Hollow Hex Plug	H169.41	1	
12	Screw, 1/2-13 X 1 1/2 low head	B166.1	2	
13	Fitting, 1/2 flair	H169.29	1	
16	Fitting, 1/2 45 Deg	H142.0	3	
17	Control, Flow	H202.0	1	
18	Assy, Screw Hose	Refer to page 59	1	
19	Fitting, 1/2" Tee	H118.0	1	
23	Assy, Long Injection Hose	Refer to page 59	1	



CLAMP COMPONENTS

ITFM NO	DESCRIPTION	PART NO	ΩΤΥ
1	Clevis, Clamp Bar	M104.1	1
2	Screw, 1/2-13 X 1 1/2 SHCS	B126.0	4
3	Cylinder, Clamp	H103.0	1
	Kit. Ortman Rod & Gland Seal		1
	Kit. Ortman Tube & Piston Seal		1
	Kit. Hanna Rod & Gland Seal		1
	Kit, Hanna Tube & Piston Seal		1
	Assy. Short Clamp Hose (Rod End)(not shown)	Refer to page 59	1
	Assy, Long Clamp Hose (Cap End)(not shown)	Refer to page 59	1
4	Fitting, SAE # 8 90 deg (For Ortman Cvl)	H169.36	2
4	Fitting, 1/2 in 90 deg (For Vickers or Ortman Cvl)	H150.0	2
5	Pin, Clamp Bar	M104.2	1
6	Clip, Hairpin (For Clamp Bar Pin)	M104.3	2
12	Bar, HP Clamp	M104.7	1
14	Bar, HP Clamp (For Thermo Set)	M104.8	1
15	Bar, Forked Clamp (Option)	M394.0	1





RIMM/TTM-BCCL

ITFM NO	DESCRIPTION	PART NO	NTΩ
1	Sensor, Hall Effect	E374.0	2
2	Cylinder, Manifold Mounted Ejector	H105.3	2
	Assy, Manifold Ejector	H105.1	1
3	Sensor, 1.5 MM N.O. Balluff	E555.0	1
4	Sensor, 1.5 MM N.C. Balluff	E555.2	1
5	Cylinder, Ejector	H307.5	1
6	Rod, Ejector Ext Sensor	M425.3	1
7	Collar, Shaft	M285.2	1
8	Sensor, 1.5 MM N.C. Balluff (not shown)	E555.2	1
9	Pin, Guide	M425.2	2
10	Pin, Ejector	M425.4	2



TABLE DRIVE - RIMM MODEL

ITFM NO	DESCRIPTION	PART NO	ΩΤΥ
1	Motor, NSK Servo (motor is mactched to controller)	E428.1	
2	Cylinder, Table Tilt	H103.3	1
3	Sensor, 1.5 MM NC Balluff	E555.2	1
	Controller, NSK Servo Motor ((controller is mactched to motor) (not shown)		

TABLE DRIVE - TTM-BCCL MODEL



TABLE DRIVE - TTM-BCCL MODEL

ITFM NO	DESCRIPTION	PART NO	ΩΤΥ
1	Motor, DC		1
2	Cylinder, Table Tilt	H103.3	1
3	Sensor, 1.5 MM NC Balluff	E555.2	2
4	Box, Reduction Gear		1
5	Drive. Camco Table		1
7	Lobe, Cam		1
8	Switch, Micro	E377.0	2
9	Controller, Table Drive		1



YELLOW FLAG



ITEM NO	DESCRIPTION	PART NO	QTY
1	Bar, Yellow Flag	M421.1	1
2	Ring, 3/4" ID	M285.0	2
3	Switch, Micro	E377.0	1
4	Block, Flag Pivot	M421.2	1
5	Stop, Switch Plunger	M421.3	1
6	Plate, Switch Adjustment	M421.4	1
7	Block, Flag Lower	M421.5	1
8	Mount, Ext. Short Extrusion	M190.1	1
	Plunger, Ball (not shown)	M162.0	2



ITEM NO	DESCRIPTION	PART NO	QUANTITY
1	Gauge, 0-3000 PSI (2"Dia)	H171.1	4
2	Gauge, 0-1000 PSI (2"Dia)	H170.1	1
3	Gauge, 0-600 PSI (2"Dia)	H173.1	2

HYDRAULIC VALVES - RIMM MODEL


HYDRAULIC VALVES -RIMM MODEL

ITEM NO	DESCRIPTION	PART NO	QUANTITY
01	Valve, Main Relief (725 - 4500)	H218.0	1
02	Valve, Reducing Valve (43.5 - 435)	H217.1	2
03	Valve, Reducing (145-2000)	H218.1	1
04	Valve, Clamp Relief (43.5 - 1450)	H216.0	1
05	Valve, Clamp Reducing (51 - 1000)	H217.0	1
06	Valve, Reducing (145-2000)	H218.2	1
07	Valve, Proportional	H300.0	1
08	Valve, Throttle	H301.0	1
09	Valve, Single Directional	H197.0	4
10	Valve, Dual Directional	H316.0	1
11	Valve, Single Directional (w/sw)	H210.6	1
12	Сар		1
Not	Manifold, Main		1
Not	Ring, "O"	H186.0	4 per valve
Not	Screw, 10-24 X 4 1/2 SHCS (for three valves)		4 per stack
Not	Screw, 10-24 X 1 1/4 SHCS (for one valve)	B133.0	4 per stack
Not	Screw, 10-24 X 2 3/4 SHCS (for two valves)	B134.0	4 per stack



HYDRAULIC VALVES -TTM-BCCL MODEL

ITEM NO	DESCRIPTION	PART NO	QUANTITY
01	Valve, Main Relief (725 - 4500)	H218.0	1
02	Valve, Reducing Valve (43.5 - 435)	H217.1	2
03	Valve, Reducing (145-2000)	H218.1	1
04	Valve, Clamp Relief (43.5 - 1450)	H216.0	1
05	Valve, Clamp Reducing (51 - 1000)	H217.0	1
06	Valve, Reducing (145-2000)	H218.2	1
07	Valve, Proportional	H300.0	1
09	Valve, Single Directional	H197.0	5
10	Valve, Dual Directional	H316.0	1
12	Сар		2
Not Shown	Manifold, Main		1
Not Shown	Ring, "O"	H186.0	4 per valve
Not Shown	Screw, 10-24 X 4 1/2 SHCS (for three		4 per stack
Not Shown	Screw, 10-24 X 1 1/4 SHCS (for one valve)	B133.0	4 per stack
Not Shown	Screw, 10-24 X 2 3/4 SHCS (for two valves)	B134.0	4 per stack



ITEM NO	DESCRIPTION	PART NO	QUANTITY
1	Gauge, Oil Level & Temperature	H174.0	1
2	Gasket, Oil Tank Cover (not shown)(Both ends)	M349.0	2
3	Cover, Oil Tank (Both Ends)	M349.1	2
4	Gasket, 5/8" Sealing (Both Ends)	M148.0	2
5	Fitting, 3/4 NPT	H224.0	2
6	Screw, 5/8-11 X 1.75 Hex Head	B194.0	2

OIL FILTERS







1	Filter, Spin on Oil	H110.0	1
2	Filter, Pressure Oil	H110.3	1

RIMM/TTM-BCCL



ITEM NO	DESCRIPTION	PART NO	QUANTITY
3	Motor, 7 1/2 HP 3 Phase	E445.0	1
4	Spider (not shown)	M139.1	1
5	Pump, Vickers Piston (Including 6 & 7)	H193.0	1
	Kit, Seal (Pump)	H193.1	1
6	Valve, Single Directional	H210.0	4
	Screw, 10-24 X 1 1/4 SHCS (not shown)	B133.0	4
7	Compensator, Pump	H193.2	1



Parts List 10-35

MAIN CONTROLLER PANEL -	TTM-BCCL MODEL
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ITEM NO	DESCRIPTION	PART NO	QTY
01	Circuit Breaker, 16 AMP	E130.10	1
02	Circuit Breaker, 16 AMP (Z Curve)	E130.11	2
03	Circuit Breaker, 10 AMP (Z Curve)	E130.12	1
04	Circuit Breaker, 3 AMP	E130.13	1
05	Circuit Breaker, 3 AMP 2 Pole	E130.14	
06	Supply, 24 VDC Power	E437.5	1
07	Relay, 240 VAC Overload	E459.1	1
07	Relay, 480 VAC Overload	E438.0	1
08	Starter, Motor	E459.0	1
09	Relay, Positive guided (20 Amps)	E570.3	2
10	Relay, Positive guided (16 Amps)	E570.1	1
11	Modules, Optocoupler	E108.15	4
12	Relay, DPDT Silver Contact	E325.9	3
13	Relay, Heater (240 VAC 25 AMP)	E324.1	3
14	Relay, Solid State (5A 24VDC)	E324.2	2
15	Filter, Line	E230.0	4
16	Board, Temperature	E551.5	1
17	Motherboard, Communications	E551.9	1
17	Board, RS-232 Daughter	E551.10	1
18	Motherboard, Analog I/O	E551.4	1
19	Board, Data Handler with Math/Impact (Need	E551.2	1
19	Board, Data Handler with Math/SPC/Impact	E551.11	1
20	Board, Seq/Hydraulics (Need number on	E551.3	1
21	Board, Power Supply	E551.6	1
22	Board, DC Input	E551.8	1
23	Board, DC Output - TTM-BCCL - RIGHT	E551.7	1
24	Rack, Card (BC)		1
25	Disconnect, Main	E554.0	1
26	Fuse, 40 Amp	E236.2	3



CONTROLLER BOARDS



ITEM NC	DESCRIPTION	PART NO	QTY
1	Board, DC Output	E551.7	2 (1 TTM-BCCL)
2	Board, DC Input	E551.8	1
3	Board, Power Supply	E551.6	1
4	Board, Seq/Hydraulics (Need number on board)	E551.3	1

3 5	
6 6 8 8 8 8 8 8 8 8 8 8 8 8 8	

ITEM NO	DESCRIPTION	PART NO	QUANTITY
1	Board, Data Handler (Need number on board)	E551.2	1
2	Board, Temperature	E551.5	1
3	Motherboard, Communications	E551.9	1
4	Board, RS-232 Daughter	E551.10	1
5	Motherboard, Analog I/O	E551.4	1
6	Board, Analog Daughter	E551.1	1

Rev 1.3

RIMM/TTM-BCCL

Parts List 10-38

TRIMMER OPTION





ITEM NO	DESCRIPTION	PART NO	QTY
01	Fitting, Male Swivel Elbow 1/4 x 1/4 NPT	H154.0	4
02	Cvlinder. Trimmer	A102.0	1
02	Spring, Trimmer	M197.0	1
03	Bushina, Trunion	A102.1	2
04	Tubing, 1/4 Paraflex	A120.0	
05	Mount. Ext Short Extrusion	M189.1	1
06	Block. Adiustable Clamping	M112.0	1
07	Blade, Trimmer (TTM-BCCL)	M110.0	1
07	Nut. 7/16 - 18 Trimmer Jam (not shown)	M179.1	1
08	Clevis, Trimmer	M163.1	1
09	Valve, Directional Air (with 24 VDC coil)	A125.1	1
10	Muffler, Air	A115.0	2
11	Cable with Hirsman Connector and LED	E139.3	1
12	Blade, Trimmer (with Pin) (RIMM)	M110.1	1
13	Fittina. 1/4 Tubina (RIMM)	H151.0	1
14	Mount, Trimmer Base (square rod)	M413.0	1
15	Clamp.Sprue Trimmer Square Bar (RIMM)	M413.3	1
16	Cap. Sprue Trimmer Square Bar Clamp	M413.4	1

Ramp Option



ITEM NO	DESCRIPTION	PART NO	QTY
	Ramp, 33 in. Radius Full (not shown)	M195.6	1
	Ramp, 33 in. Radius Half (not shown)	M195.7	1
1	Clamp, Ramp	M132.0	1 per
2	Gimbal, Ramp Clamp	M132.1	2 per
4	Rod, Ramp Rod (end flat)	M193.0	2 or 3
5	Mount, Ext. Long Extrusion	M189.1	2
5	Mount, Ext. Short Extrusion	M190.1	2
6	Block, Adjustable Clamping (Full)	M112.0	4
6	Block, Adjustable Clamping (Halt)	M112.0	5
7	Rod, Half Ramp Horizontal	M195.8	1



ITEM NO	DESCRIPTION	PART NO	QTY
1	Fitting, 1/2 Flair 90 Deg Brass (Included		1
	with W109 0)		
	Pipe, 1/4 X 7 Stainless Steel (Not Shown)	W108.0	1
2	Union, Water	W109.0	1
3	Screw. 10-32 X 1/2 Flat Head	B152.0	7
4	Leg. Water Manifold Long	W103.0	2
5	Leg. Water Manifold Short	W102.0	1
6	Bar, Water Manifold Upper Mounting	NOT	1
7	Bar, Water Manifold Lower Mounting	NOT	1
8	Manifold, Water	W111.0	1



ITEM NO	DESCRIPTION	NEW PART NO	QTY
1	Fuse, 1 Amp ABC	E231.0	2
2	Fuse, 6 Amp ABC	E237.0	1 per zone
3	Fuse, 12 Amp ABC	E233.1	1 per 2 zone
4	Controller, XT16-JS000 Temperature	E215.0	1 per zone
5	Controller, Barber Coleman Temperature	E215.01	1 per zone
	Ring, Slip (not shown)	E205.0	1
	Relay, 12 Amp Heater (not shown)	E325.1	1 per zone

Sorted by description		1
DESCRIPTION	NEW PART NO	PAGE
Adapter, Barrel Port	M260.5	10-4
Adapter, Mounting	M260.5	10-2
Assy, Long Clamp Hose (Cap End)(not shown)	Refer to page 59	10-16
Assy, Long Injection Hose	Refer to page 59	10-14
Assy, Long LPM Hose	Refer to page 59	10-8
Assy, Material Check Valve (for 22mm)(3 parts)	l120.1	10-2
Assy, Material Check Valve (for 30mm)(3 parts)	l120.0	10-2
Assy, Screw Hose	Refer to page 59	10-14
Assy, Short Clamp Hose (Rod End)(not shown)	Refer to page 59	10-16
Assy, Short Injection Hose	Refer to page 59	10-12
Assy, Short LPM Hose	Refer to page 59	10-8
Assy, Stainless Steel Tube	H306.0	10-4
Bands, Botton Zone Heater 400 Watt	E101.0	10-7
Bands, Middle Zone Heater 600 Watt	E102.0	10-7
Bands, Heater REFER TO NEXT PAGE		10-6
Bands, Top Zone Heater 600 Watt	E102.0	10-7
Bar, Forked Clamp (Option)	M394.0	10-16
Bar, HP Clamp	M104.7	10-16
Bar, HP Clamp (For Thermo Set)	M104.8	10-16
Bar, Ram	M102.0	10-6
Bar, Water Manifold Lower Mounting	NOT	10-42
Bar, Water Manifold Upper Mounting	NOT	10-42
Bar, Yellow Flag	M421.1	10-23
Barrel (22 mm)	I100.0	10-2
Barrel (30 mm)	I101.0	10-2
Barrel, (Thermoset 22 mm)	l100.1	10-4
Bearing, Roller	M260.16	10-2
Bearing, Thrust	M260.15	10-2
Belt, Drive	I102.0	10-6
Blade, Trimmer (TTM-BCCL)	M110.0	10-40
Blade, Trimmer (with Pin) (RIMM)		10-40
Block, Adjustable Clamping	M112.0	10-40
Block, Adjustable Clamping (Full)	M112.0	10-41
Block, Adjustable Clamping (Halt)	M112.0	10-41
Block, Adjustable Clamping (square) (RIMM)		10-40
Block, Flag Lower	M421.5	10-23
Block, Flag Pivot	M421.2	10-23
Board, Analog Daughter		10-38
Board, Data Handler (Need number on board)		10-38
Board, Data Handler (Need number on board)		10-32
Board, DC Input		10-37
Board, DC Input		10-32

DESCRIPTION	NEW PART NO	PAGE
Board, DC Output		10-37
Board, DC Output - RIMM		10-32
Board, DC Output - TTM-BCCL - RIGHT		10-32
Board, Power Supply		10-37
Board, Power Supply		10-32
Board, RS-232 Daughter		10-38
Board, RS-232 Daughter		10-32
Board, Seq/Hydraulics (Need number on board)		10-37
Board, Seq/Hydraulics (Need number on board)		10-32
Board, Temperature		10-38
Board, Temperature		10-32
Boot, Micro Switch	E130.0	10-10
Box, Reduction Gear		10-22
Bushing, 1.5 inch Bronze (Requires machining)	M129.0	10-6
Bushing, 2 inch Bronze (Requires machining)	M130.0	10-6
Bushing, 3/4 inch Bronze (Requires machining)	M131.1	10-6
Bushing, Barrel (Requires machining)	M261.1	10-6
Bushing, Trunion		10-40
Cable with Hirsman Connector and LED	E139.3	10-40
Сар		10-26
Сар		10-28
Cap, Bearing Housing	M263.0	10-2
Cap, End (30 mm)	I104.0	10-2
Cap, End (for springless nozzle)	I105.0	10-2
Cap, Thermoset Liquid SiliconeEnd (22 mm)(not Shown)	1105.2	10-2
Cap, Thermoset Liquid SiliconeEnd (22	l105.2	10-4
Circuit Breaker, 8 AMP (Z Curve)	E130.2	10- Error!
Circuit Breaker, 10 AMP (Z Curve)	E130.12	10-36
Circuit Breaker, 16 AMP	E130.10	10-36
Circuit Breaker, 16 AMP (Z Curve)	E130.11	10-36
Circuit Breaker, 3 AMP	E130.13	10-36
Circuit Breaker, 3 AMP 2 Pole	E130.14	10- Error!
Circuit Breaker, 3 AMP 2 Pole	E130.14	10-36
Circuit Breaker, 32 AMP	E130.8	10- Error!
Clamp, Ramp	M132.0	10-41
Clevis, Clamp Bar	M104.1	10-16
Clevis, Trimmer	M163.1	10-40
Clip, 3/4 inch Spring (for I108.1)	M104.5	10-6
Clip, Hairpin (For Clamp Bar Pin)	M104.3	10-16
Collar, Drive Pin	M260.8	10-2
Collar, Spacer	M204.2	10-2

DESCRIPTION	NEW PART NO	PAGE
Compensator, Pump	H193.2	10-30
Connector, Injection Pressure Transducer	E630.1	10-12
Contact, Aux	E210.1	10-Error!
Control, Flow	H202.0	10-14
Controller, Barber Coleman Temperature	E215.01	10-43
Controller, Table Drive		10-22
Controller, XT16-JS000 Temperature	E215.0	10-43
Coupler, Screw	M260.1	10-2
Cover, Oil Tank (Both Ends)		10-29
Cup, Spring	M260.19	10-6
Cyclinder, Ejector		10-22
Cylinder, Clamp	H103.0	10-16
Cylinder, Hanna Injection	H104.0	10-7
Cylinder, LPM	H103.0	10-8
Cylinder, Ortman Injection (Discontinued)	Use H104.0	10-7
Cylinder, Table Tilt		10-22
Cylinder, Trimmer	A102.0	10-40
Disconnect, Main	E554.0	10-32
Drive, Camco Table		10-22
Filter, Line	E230.0	10-Error!
Filter, Line	E230.0	10-36
Filter, Pressure Oil	H110.3	10-29
Filter, Spin on Oil	H110.0	10-29
Fitting, 1/2" Tee	H118.0	10-14
Fitting, 1/2 45 Deg	H142.0	10-14
Fitting, 1/2 flair	H169.29	10-12
Fitting, 1/2 flair	H169.29	10-14
Fitting, 1/2 Flair 90 Deg Brass (Special)		10-42
Fitting, 1/2 in 90 deg (For Vickers or Ortman	H150.0	10-16
Fitting, 1/2 swivel adapter	H169.39	10-12
Fitting, 1/4 Tubing, 90 Deg	H154.0	10-40
Fitting, 3/4 NPT	H224.0	10-29
Fitting, 3/8 to 1/8 Adapter	H169.40	10-12
Fitting, 90 Deg Elbow SAE to Flair	H169.36	10-8
Fitting, Grease	M145.0	10-6
Fitting, Grease (2 not showing)	M145.0	10-10
Fitting, Hollow Hex Plug	H169.41	10-14
Fitting, SAE # 12 Plug	H138.1	10-29
Fitting, SAE # 8 90 deg (For Ortman Cyl)	H169.36	10-16
Fitting, Straight & Flair	H169.29	10-4
Fitting, Straight Thread Connector	H169.29	10-8
Fitting, Swivel Nut Elbow	H169.32	10-8
Fitting. 1/4 Tubing (RIMM)		10-40

DESCRIPTION	NEW PART NO	PAGE
Frame	M200.0	10-6
Fuse, 1 Amp ABC	E231.0	10-43
Fuse, 12 Amp ABC	E233.1	10-43
Fuse, 40 Amp	E236.2	10-32
Fuse, 6 Amp ABC	E237.0	10-43
Gasket, 1/2" Sealing (Both Ends)		10-29
Gasket, 12" Oil Tank Cover (not shown)(Both	M149.0	10-29
Gauge, 0-1000 PSI (2"Dia)	H170.1	10-24
Gauge, 0-3000 PSI (2"Dia)	H171.1	10-24
Gauge, 0-600 PSI (2"Dia)	H173.1	10-24
Gauge, Oil Level & Temperature	H174.0	10-29
Gimbal, Ramp Clamp	M132.1	10-41
Guard, Barrel	M151.0	10-12
Guard, Clamp	M152.0	10-10
Guard, Left Injection Cylinder	M153.0	10-10
Guard, Right Injection Cylinder	M154.0	10-10
Guard, Screw Motor	M155.0	10-10
Hopper, Stainless Steel	M411.0	10-14
Housing, Barrel	M260.3	10-6
Housing, Barrel Return	M262.0	10-6
Housing, Bearing	M260.3	10-2
Housing, Screw Drive	M260.4	10-2
Housing, Screw Drive	M260.4	10-6
Hub, Motor Pulley	M260.18	10-2
Hub, Screw Pulley	M260.17	10-2
Jacket, Large OD Water	W101.0	10-6
Jacket, Small OD Short Water	W100.0	10-6
Jacket, Small OD Tall Water	W100.1	10-6
Key, Drive	M260.7	10-2
Kit, Hanna Injection Cylinder Piston Seal		10-7
Kit, Hanna Injection Cylinder Rod Seal		10-7
Kit, Hanna Rod & Gland Seal		10-16
Kit, Hanna Rod & Gland Seal (LPM)		10-8
Kit, Hanna Tube & Piston Seal		10-16
Kit, Hanna Tube & Piston Seal (LPM)		10-8
Kit, Ortman Injection Cylinder Rod Seal	HK122.0	10-7
Kit, Ortman Injection Cylinder Tube Seal	HK124.0	10-7
Kit, Ortman Rod & Gland Seal		10-16
Kit, Ortman Rod & Gland Seal (LPM)	HK122.0	10-8
Kit, Ortman Tube & Piston Seal		10-16
Kit, Ortman Tube & Piston Seal (LPM)	HK123.0	10-8
Kit, Seal (Pump)	H193.1	10-30
Leg, Water Manifold Long	W103.0	10-42

DESCRIPTION	NEW PART NO	PAGE
Leg, Water Manifold Short	W102.0	10-42
Lid, Hopper	M411.2	10-14
Lobe, Cam		10-22
Manifold, Main		10-26
Manifold, Main		10-28
Manifold, Water	W111.0	10-42
Modules, Optocoupler	E108.15	10-Error!
Modules, Optocoupler	E108.15	10-36
Motherboard, Analog I/O		10-38
Motherboard, Analog I/O		10-32
Motherboard, Communications		10-38
Motherboard, Communications		10-32
Motor, 7 1/2 HP 3 Phase	E445.0	10-30
Motor, DC		10-22
Motor, Hydraulic Screw	l115.0	10-2
Mount, Ext Short Extrusion	M189.1	10-40
Mount, Ext. Long Extrusion	M189.1	10-41
Mount, Ext. Short Extrusion	M190.1	10-41
Mount, Ext. Short Extrusion	M190.1	10-23
Mount, Trimmer Base (square rod)		10-40
Muffler, Air	A115.0	10-40
Nut, 5/16-18 X 1 1/2 Coupling	M103.1	10-6
Nut, 5/16-18 X 1 Steel Hopper	M159.0	10-14
Nut, 7/16 - 18 Trimmer Jam (not shown)	M179.1	10-40
Nut, Barrel	M204.3	10-2
Nut, Nozzle (for 22 mm springless)	l113.0	10-2
Nut, Nozzle (for 30 mm springless)	l114.0	10-2
O-Ring 1/16"W X 1/2"ID X 5/8"OD Viton	H186.0	10-4
Pin, .25 Dia. X 4 Retaining	M260.21	10-6
Pin, 1/4 x 2" Dowel	B110.4	10-6
Pin, Clamp Bar	M104.2	10-16
Pin, Clevis (Groove width of .050)	l118.0	10-6
Pin, Clevis(Groove width of .070)	I108.1	10-6
Pin, Drive	M260.9	10-2
Pipe, 1/4 X 7 Stainless Steel	W108.0	10-42
Plate, Heavy Duty Frame Top (R)	M147.2	10-6
Plate, Hopper Support	M124.0	10-14
Plate, LPM Cylinder Mounting	M177.0	10-8
Plate, Switch Adjustment	M421.4	10-23
Plunger, Ball (not shown)	M162.0	10-23
Plunger, Nozzle (for springless)	l119.0	10-2
Pulley, Motor	M260.13	10-2
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Company Name			_ Fax:			
QTY	L linches)	F1 * (inches)	F2 * (inches)	D (inches)	Style (1-4)	Pushlock (yes)

*Distance between flats or wrench size

Section 11 - Schematics

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FUSE LOCATIONS

WARNING: THE POWER MUST BE OFF BEFORE FUSE REPLACEMENT.

CAUTION: Any fuse replacements must be of the same type and amperage as those removed. Otherwise, permanent damage to circuitry may result.

The following figures should help in the replacement of fuses:

The MAIN disconnect has 3 40 amp fuses. Type used: Littelfuse JTD40 for 240 volt or JTD20 for 480 volt.


OUTPUT BOARD FUSES



POWER SUPPLY BOARD



TABLE DRIVE CONTROLLER - RIMM



F1 & F2 - Fuse MDA 20 A

TABLE DRIVE CONTROLLER - TTM-BCCL



No./	Function	
Out		
1	Enable Hydraulic Motor	
2		
3		
4	Table LVG	
5	Top Zone Heat	
6	Middle Zone Heat	
7	Bottom Zone Heat	
8	Enable Heat	
9	Injection Sol	
10		
11	Screw Sol	
12		
13	Table Tilt Sol	
14	Barrel Sol	
15	Clamp Sol	
10		

001	BOAR	DARD(3) LED S DESIGN	
No.	Out	Function	1
			П
1	17	Ejector Retract Sol	
2	18	Ejector Extend Sol	
3	19	Enable Trimmer	1
4	20	Enable Table Drive	
5	21	Clear Table Drive	
6	22	Table Jog	
7	23	Table Direction	
8	24	Run Table Program	
9	25	Table Bit 0	
10	26	Table Bit 1	
11	27	Table Bit 2	
12	28	Table Bit 3	
13	29	Table Bit 4	
14	30	Tower Light Yellow	
15	31	Table Stop Move	
16	32		
<u> </u>			

OUTDUT BOADD(S) I ED'S DESIGNATION - DIMM

••••	BOARD 1 - TTM-BCCL (Only 1)		
No./	Function	7	
Out		П	
1	Table Stop/Jog Fwd		\Box
2	Table Start/Jog Rev		2
3	Table Speed		\supset
4	Trimmer Sol		Jeee
5	Top Zone Heat		
6	Middle Zone Heat		Jeeee
7	Bottom Zone Heat		
8	Enable Hydraulic Motor		
9	Tower Light Red		Jenner
10	Pressure Sol		
11	Table Mode Selection		2 0
12	Ejector On		<u>Jeses</u>
13	Table Tilt Sol		
14	Barrel Sol		
15	Clamp Sol		
16	Screw Sol		
			L O

OUTDUT BOADD(S) I ED'S DESIGNATION

INPUT BOARD LED'S DESIGNATION -RIMM MODE BOARD 1

No./	Function		п
1			
2	Motor Start		
3	24 VDC Power		
4	Cycle Start		
5	Cycle Stop		
6	Ejector Extend		
7	Ejector Retracted		
8	Table Tilt Up		
9	Table In Location		
10	Clamp Engaged		Fo
11	Dirty Oil Filter		
12	Barrel Down		FO
13	Injection Valve Enabled		
14	Screw Valve Enabled		
15	Safety Ready		
16	Table Door		
17	Table Drive Ready		
18	Home Return Completed		
19	Table Position Completed		
20	Table Warning		
21	Table Brake		
22	Yellow Flag		
23			
24			

INPUT BOARD LED'S DESIGNATION -TTM-BCCL MODEL BOARD 1

No./	Function		
1			0
2	Motor Start		0
3	24 VDC Power	— [0
4	Cycle Start		
5	Cycle Stop		-0
6	Ejector Extend Not		-0
7	Ejector Retracted Not		-0
8	Table Tilt Up		
9	Table Dwell		
10	Clamp Engaged		
11	Dirty Oil Filter		
12	Barrel Down		
13	Table Door Closed		
14	Yellow Flag OK		- D
15	LC OK		-d
16	Table 45 Deg		ਹ
17	Table Door Closed		-0
18			- -
19			Π
20			ਜ
21			$\overline{\Box}$
22			
23	Ejector Retracted		<u> </u>
24			ਹੱ
		⊫	<u> </u>

OUTPUT BOARD CONNECTOR DESIGNATION -RIMM MODEL BOARD 1 - RIGHT

Conn No	Function	
1	-24 VDC	
2	1-4 Common	
3	5-8 Common	
4	9-12 Common	
5	13-16 Common	

Conn No.	Out No.	Function		
1	1	Enable Hydraulic Motor	[
2	2			
3	3			
4	4	Table LVG		
5	5	Top Zone Heat		
6	6	Middle Zone Heat		
7	7	Bottom Zone Heat		
8	8	Enable Heat		
9	9	Injection Sol		
10	10			
11	11	Screw Sol		
12	12			
13	13	Table Tilt Sol		
14	14	Barrel Sol		
15	15	Clamp Sol		
16	16	Ejector Extend Sol		

OUTPUT BOARD CONNECTOR DESIGNATION - RIMM MODEL BOARD 2 - LEFT

Conn No.	Function	
1	-24 VDC	
2	1-4 Common	
3	5-8 Common	
4	9-12 Common	
5	13-16 Common	

Conn No.	Out No.	Function	
1	17	Ejector Retract Sol	
2	18	Pressure Sol	
3	19	Enable Trimmer	
4	20	Enable Table Drive	
5	21	Clear Table Drive	
6	22	Table Jog	
7	23	Table Direction	
8	24	Run Table Program	
9	25	Table Bit 0	
10	26	Table Bit 1	
11	27	Table Bit 2	
12	28	Table Bit 3	
13	29	Table Bit 4	
14	30	Tower Light Yellow	
15	31	Table Stop Move	
16	32		

OUTPUT BOARD CONNECTOR DESIGNATION - TTM-BCCL MODEL BOARD 1

Conn No.	Function	
1	-24 VDC	
2	1-4 Common	
3	5-8 Common	
4	9-12 Common	
5	13-16 Common	

Conn No.	Out No.	Function	
1	1	Table Stop/Jog Fwd	
2	2	Table Start/Jog Rev	
3	3	Table Speed	
4	4	Trimmer Sol	
5	5	Top Zone Heat	
6	6	Middle Zone Heat	
7	7	Bottom Zone Heat	
8	8	Enable Hydraulic Motor	
9	9	Tower Light Red	
10	10	Pressure Sol	
11	11	Table Mode Selection	
12	12	Ejector On	
13	13	Table Tilt Sol	
14	14	Barrel Sol	
15	15	Clamp Sol	
16	16	Screw Sol	

INPUT BOARD CONNECTOR DESIGNATION -RIMM MODEL BOARD 1

Conn	In No	Function	
1	INO.	-24 VDC	-1-
2	1		
3	2	Motor Start	$\left \right $
4	3	24 VDC Power	
5	4	Cycle Start	$\left \right $
6	5	Cycle Stop	$\left\{ \right\}$
7	6	Ejector Extend	\exists
8	7	Ejector Retracted	$\left\{ \right\}$
9	8	Table Tilt Up	1
1	9	Table In Location	
2	10	Clamp Engaged	\exists
3	11	Dirty Oil Filter	\exists
4	12	Barrel Down	-
5	13	Inject Valve Enabled	i
6	14	Screw Valve Enabled	il –
7	15	Safety Ready	il –
8	16	Table Door	il –
9	17	Table Drive Ready	il –
10	18	Home Return Comp	il –
11	19	Table Position Comp	īl
12	20	Table Warning	īl
13	21	Table Brake	Ī
14	22	Yellow Flag	Ī
15	23		Ī
16	24		ון

INPUT BOARD CONNECTOR DESIGNATION -TTM-BCCL MODEL BOARD 1

Conn	In	Function	
No.	No.		
1		-24 VDC	
2	1	-	
3	2	Motor Start	
4	3	24 VDC Power	
5	4	Cycle Start	
6	5	Cycle Stop	
7	6	Ejector Extend Not	
8	7	Ejector Retracted Not	
9	8	Table Tilt Up	
1	9	Table Dwell	
2	10	Clamp Engaged	
3	11	Dirty Oil Filter	
4	12	Barrel Down	
5	13	Table Door Closed	
6	14	Yellow Flag OK	
7	15	LC OK	
8	16	Table 45 Deg	
9	17	Table Drive Enabled	
10	18		
11	19		
12	20		
13	21		
14	22		
15	23	Ejectot Retracted	
16	24		

MOTOR CONECTIONS 240/480 VOLT



















